September 1, 2022

SECOND ADDENDUM TO THE FORMER VALLEJO MANUFACTURED GAS PLANT SITE FINAL INITIAL STUDY/NEGATIVE DECLARATION

INTRODUCTION

This environmental document is the Second Addendum to the Final Initial Study/Negative Declaration[1] (IS/ND) (dated September 13, 2019) prepared for the Former Vallejo Manufactured Gas Plant (MGP) Site (Site) by the Department of Toxic Substances Control (DTSC). The Final IS/ND[2] for the Site was approved in September 2019 based on the Remedial Action Plans (RAPs)[3] for Operable Unit (OU)-1 and OU-2 (the Project) prepared by Pacific Gas and Electric (PG&E) to clean up contamination at the Site. The First Addendum[4] to the Final IS/ND for the Site was adopted in May 2020 to address changes to the OU-2 RAP. The Final IS/ND and the First Addendum were produced in compliance with the California Environmental Quality Act (CEQA).

This Second Addendum to the Final IS/ND for the Site is necessary to address a modification to the Project that includes the replacement of an existing storm drain that runs through OU-1. As demonstrated in this Second Addendum, the IS/ND continues to serve as the appropriate document addressing the environmental impacts of these improvements pursuant to CEQA as no new significant impacts are expected related to the replacement of the storm drain, as designed.

BACKGROUND OF APPROVED PROJECT

On September 12, 2019, the DTSC adopted an ND under CEQA in connection with the approval of the RAPs. The RAPs addressed the remediation of contamination associated with the Site, located in the City of Vallejo. The Site has two Operable Units, OU-1 (26 acres) and OU-2 (0.67 acre), on the south and north sides of Curtola Parkway, respectively.

The First Addendum in 2020 addressed Project changes related to the approved OU-2 RAP, which called for the removal and stabilization of MGP-affected soil everywhere except for the area underneath an existing warehouse. Following the completion of the Final IS/ND and prior

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[1] State Clearinghouse No. 2018102054

[2] DTSC. 2019. Initial Study Negative Declaration, Former Vallejo Manufactured Gas Plant Site Remedial Action Plans. Department of Toxic Substances Control.

[3] DTSC. 2019. Human Health Risk Assessment/Feasibility Study/Remedial Action Plan for Operable Unit 1 and Operational Unit 2, Former Vallejo Manufactured Gas Plant. Department of Toxic Substances Control.

[4] DTSC. 2020. Addendum to Previously Adopted Negative Declaration, Former Vallejo Manufactured Gas Plant Site. Department of Toxic Substances Control.

to the First Addendum, the property owner agreed to allow PG&E to demolish the warehouse located on the OU-2 property. Thus, the OU-2 RAP was updated to include: 1) removing the warehouse onsite, and 2) removing and stabilizing MGP-affected soil underneath the warehouse. No other Project changes were made to the OU-2 RAP, and no Project changes were made to the OU-1 RAP.

OU-1 is owned by the City of Vallejo, and the OU-2 properties are privately owned. The owners have entered into access agreements with PG&E. The IS/ND evaluated potential environmental effects on aesthetics, agriculture and forestry, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, tribal cultural resources, and utilities and service systems. All potential impacts evaluated and identified in the IS/ND were considered to be less than significant.

Since the publication of the IS/ND, the RAP was revised for the OU-2 area, and the First Addendum was prepared to address revisions to the RAP and recent revisions to the CEQA Guidelines calling for analysis of impacts related to energy and wildfires. All potential impacts evaluated and identified OU-2 area in the First Addendum were considered to be less than significant. No Project changes were made to the OU-1 RAP; thus, the Second Addendum only addresses changes to the OU-1 RAP.

PURPOSE OF ADDENDUM TO THE IS/ND

When project changes are proposed, the lead agency must determine what, if any, additional CEQA document is needed.

Where, as here, the lead agency adopted an ND for a project, the agency may not require the preparation of a subsequent environmental impact report (EIR) in connection with proposed project changes unless the changes are substantial and require major revisions of the ND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. CEQA Guidelines Section 15162(a)(1).

Here, as more fully explained below, DTSC finds the proposed project changes do not involve either new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Under these circumstances, a lead agency may —but is not required to— prepare an addendum to the ND explaining the basis for its conclusion that none of the 15162 conditions is present and making any minor technical changes or additions to the ND that are necessary. CEQA

Guidelines Section 15164(b). DTSC has chosen to exercise its authority under this Section to prepare this Second Addendum.

PROPOSED CHANGES TO THE PROJECT DESCRIPTION OF THE APPROVED PROJECT

To facilitate soil remediation at OU-1 (Figure 1), PG&E proposes to replace and realign an existing storm drain pipe within the upland area of OU-1 and install a new storm drain outfall along the shoreline of the Mare Island Strait (Strait) (referred to as the Work) (Figure 2). The Work design document is included as Attachment A.

Though the soil remediation area is composed entirely of uplands and the new storm drain outfall would be installed in uplands, the eastern bank of the Strait would need to be excavated to connect the new outfall to the waterway. The existing outfall, located along the Strait to the northeast, would be retained for future use, and a new 60-inch stormwater outfall, headwall, and riprap would be installed approximately 20 ft inland of the Strait, at the southwest corner of the site. An approximately 3,000-ft² temporary cofferdam would be installed around the new outfall location at low tide and would be left in place for at least 10 days after the concrete headwall is poured.

The Work would include the following tasks to occur below the top of bank at the eastern edge of the Strait:

- Installation of a cofferdam (approximately 3,000 ft² in size) around the outfall location at low tide
- Installation of dewatering pumps
- Excavation of the shoreline to the new outfall location
- Installation of the storm drain outfall, headwall, and associated riprap
- Removal of the cofferdam and pumps.

A sheet pile or sandbag cofferdam would be used to isolate the Work area during outfall installation. The cofferdam would consist of walls embedded in shoreline substrate immediately surrounding the outfall location. The cofferdam would be at least 3 ft higher than the highest forecast tide for the entire in-water work period. Installation of the cofferdam would take several days, but sheet piles would only be installed using methods that generate minimal noise, such as vibratory or push methods, during low tide (when the Strait bottom is visible and water is no more than a few inches deep). The cofferdam would be sealed/closed during low tide when it can be confirmed fish are clear of the area.

A temporary clear water diversion system may be necessary to dewater the cofferdam and excavated area if groundwater is encountered. Design and management of this system would be in accordance with the California Department of Transportation (Caltrans) Storm Water Quality Handbooks, March 1, 2003, Construction Site Best Management Practices Manual – Clear Water Diversion NS-5 (Enclosure C. Clear Water Dewatering Typical). Water would be pumped from the cofferdam and through a sediment settling device, such as a portable tank or settling basin, before being returned to the Strait beyond the cofferdam. The pump intake would be fitted with a mesh screen.

The Work window for in-water work, per the anticipated permit conditions and Work authorizations, as described below, is from August 1 to November 15. Construction would be conducted during the work window in 2022 or 2023 and would last 6 to 8 weeks.

Permits and authorizations that will likely be required include, without limitation, the following:

- U.S. Army Corps of Engineers—Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act - Nationwide Permit
- U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS)—Federal Endangered Species Act, Section 7 of the Endangered Species Act
  - USFWS December 1, 2004—Formal Programmatic Consultation on the Issuance of Section 10 and 404 Permits for Projects with Relatively Small Effects on the Delta Smelt (*Hypomesus transpacificus*) and its Critical Habitat within the Jurisdiction of the Sacramento Fish and Wildlife Office of the USFWS, California
  - NMFS—Informal Section 7—Letter of concurrence that the Work may affect, but is not likely to adversely affect, listed fish species.
- Regional Water Board—Section 401, Water Quality Certification
- California Department of Fish and Wildlife—Lake and Streambed Alteration Agreement
- San Francisco Bay Conservation and Development Commission—Non-Material Amendment to Existing Permit (pending BCDC concurrence).

ENVIRONMENTAL ANALYSIS

The removal, replacement, and construction of storm drains to facilitate remediation at the Site does not significantly alter the findings of the IS/ND or require major revisions to the IS/ND. Therefore, the findings of the impact analysis of construction-related impacts have not changed from the information adopted in the IS/ND.

There are no changes to the impact analysis or findings in the IS/ND for any of the following, based on the proposed changes to the Project described above:

- Aesthetics; agriculture and forestry resources; air quality; energy; geology and soils; greenhouse gas emissions; hazards and hazardous materials; land use and planning; mineral resources; noise; population and housing; public services; recreation; transportation; and wildfires.

Minor technical changes and revisions to the impact analyses in the IS/ND are necessary for biological resources, cultural resources and tribal cultural resources, hydrology and water quality, and utilities and service systems. These changes and revisions are provided below.

Biological Resources

Analysis of biological resources impacts of the approved Project are located in Section 4 of the IS/ND. All impacts to biological resources were less than significant and no mitigation measures were required.

A Biological Resources Technical Report (BRTR) was prepared by Dokken Engineering (dated January 2022) to address the proposed changes in the remediation Project, which includes a detailed discussion of the Work, setting, and impact analysis. The BRTR is included as Attachment B.

Implementation of the Work would result in minimal temporary and permanent impacts (Table 1). Temporary impacts to sensitive habitats would occur from construction equipment access and operations (i.e., placement of riprap via an onshore excavator, which may result in temporarily increased turbidity within the water column in the vicinity of the Work area), cofferdam installation, and for constructing the outfall, totaling approximately 0.01 acre/456 ft^2. Permanent impacts to sensitive habitats would occur due to the permanent installation of the proposed storm drain, headwall, and riprap, totaling approximately 0.01 acre/459 ft^2. Work impacts are shown on Figure 5 of the BRTR.

Table 1. Impacts to Sensitive Natural Habitats

Impact Type (acres)	Sensitive Natural Habitat Mare Island Strait (Jurisdictional Water of the U.S./State, Southern Distinct Population Segment Green Sturgeon Critical Habitat, and Essential Fish Habitat)
Temporary	0.01 acre/456 ft^2
Permanent	0.01 acre/459 ft^2
Total	0.02 acre/915 ft^2

As noted in the BRTR Cover Letter (submitted to Integral Consulting Inc. from Johnson Marigot Consulting, LLC on February 8, 2022; Attachment C), slight changes to the engineering design have been made since preparation of the document. However, all of the Work will still occur within the cofferdam as described in the BRTR, though the Work window will be narrowed from June 1 to November 30 (as stated in the BRTR) to August 1 to November 15, as stated in the BRTR Cover Letter and Project Description (detailed above). Due to the change in engineering design, the biological impacts discussed in the BRTR would be lessened. All in-water work will now occur above the current mean high water (MHW) level to ensure that there is no loss of shallow water habitat associated with the Work. The following section details potential impacts that would occur. These impacts are less than significant with the implementation of relevant control measures (CMs), which incorporate best management practices (BMPs) and avoidance and minimization measures (AMMs) that would be implemented as well as the required permits and authorizations listed in the Project Description (see Attachment D).

Habitats of Natural Communities of Special Concern

Mare Island Strait: Mare Island Strait is an estuarine channel that runs between Mare Island and the mainland and links the Napa River to the Carquinez Strait and subsequently San Pablo Bay. The biological study area (BSA) contains approximately 0.86 acre of Mare Island Strait. CM-1 through CM-3 would be incorporated into the Work design and Work management to minimize potential impacts to Mare Island Strait within the BSA.

Critical Habitat: It is anticipated that the Work would result in changes to critical habitat that are expected to be discountable (extremely unlikely to occur) and insignificant (too small to detect or measure) for the southern distinct population segment (sDPS) green sturgeon. With the implementation of measures CM-1 through CM-3 as part of the Work design and Work management, potential impacts of erosion and the introduction of pollutants into the sDPS green sturgeon critical habitat within the BSA would be less than significant.

Essential Fish Habitat (EFH): It is anticipated that the Work would result in changes to EFH that are expected to be discountable (extremely unlikely to occur) and insignificant (too small to detect or measure). With the implementation of control measures CM-1 through CM-3 into the Work design and Work management, potential impacts of erosion and the introduction of pollutants into the EFH within the BSA would be less than significant.

Special-Status Wildlife Species

Delta smelt, long fin smelt, and Steelhead and Chinook salmon evolutionary significant units (ESUs) were determined to have a potential to occur within the Work area. Although these species have a potential to occur within the Work area due to the presence of suitable aquatic habitat, the Work has no potential to directly impact these species with the implementation of appropriate CMs.

Potential impacts would include placement of riprap via an onshore excavator, which may result in temporarily increased turbidity within the water column in the vicinity of the Work area. In addition, the construction of a headwall and riprap would result in a permanent 0.01-acre reduction of potential habitat for these species. Permanent Work-related impacts are limited to a tidal region just offshore and are not likely to adversely impact these species. Delta smelt, long fin smelt, and Steelhead and Chinook salmon ESUs may temporarily avoid the Work area vicinity due to in-water work; however, ample habitat within the Strait adjacent to the BSA is available for refuge. The permanent modification to aquatic habitat would be minor and are not likely to adversely affect the habitat of these species. The Work would have no potential for take as in-water work can be isolated from the BSA, preventing potential take of the species. Effects to delta smelt, long fin smelt, and Steelhead and Chinook salmon ESUs habitat would be minimal loss of waters at MHW. The Work would not have a substantial adverse effect, either directly or through habitat modifications, on delta smelt, long fin smelt, or Steelhead and Chinook salmon ESUs. In addition, CM-1 through CM-4 would be incorporated to avoid the potential impacts of erosion, the introduction of pollutants, and turbidity on these species.

With the implementation of the CMs, and obtaining the necessary permits and authorizations (described in the Project Description), temporary impacts from construction activities and permanent impacts from the installation and placement of the proposed storm drain would be less than significant.

Cultural Resources and Tribal Cultural Resources

Analysis of cultural resources and tribal cultural resources impacts of the approved Project are located in Section 5 and Section 17 of the IS/ND, respectively. All impacts to cultural resources

and tribal cultural resources were less than significant and no mitigation measures were required.

A Cultural Resources Inventory Report was prepared for the Work by Dokken Engineering. Because the report contains confidential information about the locations and characteristics of archaeological sites, the technical report is not included in this Second Addendum for review, but can be made available to agencies and other professionals for review as necessary.

Implementation of the Work would result in minimal temporary impacts. The area of potential effect (APE) was defined to incorporate all ground-disturbing activities required to construct the Work, which will take place within the proposed temporary construction areas.

In an effort to identify tribal cultural resources, historic properties, and historical resources that might be affected by the Work, a review of records on file at the Northwest Information Center, archival research, Native American Heritage Commission coordination, and an archaeological ground surface survey were conducted. In addition to inspecting the ground surface, the survey also included visual inspection of all drainage cut banks and any other exposed vertical ground cuts for the presence of artifacts and other indications of past human activity. As a result of these efforts, two newly recorded historic-era cultural resources and three previously documented built environment resources were identified and recorded within the APE.

The buried archaeological site potential was addressed through assessment of the geological environment, overall archaeological site sensitivity, and visible ground disturbances. The entire APE has experienced extensive ground disturbance from the development of the Vallejo area and continued use of the area, and the potential for *in situ* buried resources is low. With the implementation of the CMs/AMMs in Attachment D, the impacts of the Work on cultural resources and tribal cultural resources would be less than significant.

Hydrology and Water Quality

Analysis of utilities and service system impacts of the approved Project are located in Section 9 of the IS/ND. All impacts to hydrology and water quality were less than significant and no mitigation measures were required.

Implementation of the Work would result in minimal temporary and permanent impacts. Temporary impacts would occur to allow construction equipment access (i.e., placement of riprap via an onshore excavator, which may result in temporarily increased turbidity within the water column in the vicinity of the Work area), cofferdam installation, and for constructing the outfall, totaling approximately 0.01 acre/456 ft^2. Permanent impacts would occur due to the permanent installation of the proposed storm drain, headwall, and riprap, totaling approximately 0.01 acre/459 ft^2 (see Table 1).

Installation of the new outfall would require the following tasks to occur below the top of bank at the eastern edge of the Strait:

- Installation of a cofferdam (approximately 3,000 ft^2 in size) around the outfall location at low tide
- Installation of dewatering pumps
- Excavation of the shoreline to the new outfall location
- Installation of the storm drain outfall, headwall, and associated riprap
- Removal of the cofferdam and pumps.

A sheet pile or sandbag cofferdam would be used to isolate the Work area during outfall installation. The cofferdam would consist of walls embedded in shoreline substrate immediately surrounding the outfall location. The cofferdam would be at least 3 ft higher than the highest forecast tide for the entire in-water work period (August 1 to November 15). Installation of the cofferdam would take several days, but sheet piles would only be installed using methods that generate minimal noise, such as vibratory or push methods, during low tide (when the Strait bottom is visible and water is no more than a few inches deep). The cofferdam would be sealed/closed during low tide when it can be confirmed fish are clear of the area.

A temporary clear water diversion system may be necessary to dewater the cofferdam and excavated area if groundwater is encountered. Design and management of this system would be in accordance with the Caltrans Storm Water Quality Handbooks, March 1, 2003, Construction Site Best Management Practices Manual – Clear Water Diversion NS-5 (Enclosure C. Clear Water Dewatering Typical). Water would be pumped from the cofferdam and through a sediment settling device, such as a portable tank or settling basin, before being returned to the Strait beyond the cofferdam. The pump intake would be fitted with a mesh screen.

In addition, the Work involves the removal and replacement of an existing storm drain that runs through the center of the Site and construction of a new storm drain at the perimeter of the Site to replace the existing storm drain. The existing 54-inch storm drain will be replaced with a 60-inch storm drain. As shown in Figure 3 of the BRTR, a portion of the storm drain that requires removal and replacement will occur within the existing alignment. A portion of the proposed storm drain will be also relocated and constructed at the perimeter of the Site to replace the existing storm drain. The new storm drain would connect to an existing storm drain system that transects the site; thus, the capacity of the existing and proposed storm drain would not be changed.

During excavation and soil remediation activities relating to the removal and replacement of the storm drain, soil would be exposed and disturbed, and drainage patterns would be temporarily

altered, resulting in an increased potential for soil erosion and siltation compared to existing conditions. The Project would be subject to the requirements of the Construction General Permit. Under the requirements of the Construction General Permit, a Stormwater Pollution Prevention Plan would be prepared and Construction BMPs, including erosion and sediment control BMPs, would be implemented to minimize impacts associated with soil erosion and siltation. See Attachment D for the types of stormwater erosion and sediment control BMPs that are expected to be used.

A stable channel evaluation was prepared to determine the scour protection needed for the proposed replacement of the 54-inch storm drain to the 60-inch storm drain. This evaluation is included in the Technical Memo produced for the pre-engineering design by West Yost on January 26, 2022 (Attachment E).

The proposed storm drain is designed to minimize the potential for sediment to accumulate inside the pipe. The invert of the proposed storm drain at the outfall to the Mare Island Strait is 1.52 ft North American Vertical Datum of 1988 (NAVD88), which is nearly above the sediment elevation in the existing storm drain. Thus, there should be no more than 0.18 ft of sediment accumulation in the proposed pipe (versus about 3 ft of sediment accumulation in the existing pipe). The proposed storm drain is designed with a slope of 0.007 ft/ft, which complies with the Vallejo Flood and Wastewater District's required minimum pipe slope.

Following completion of the remediation activities, the Project site would be restored to conditions similar to existing and in accordance with City of Vallejo requirements. Therefore, the Project would not substantially alter the existing drainage pattern of the Project site or area in a manner that would result in substantial erosion or siltation.

Control Measures CM-2, CM-3 and CM-4 (see Attachment D) would be incorporated into the Work design and Work management to minimize potential temporary impacts to hydrology and water quality within the biological study area (BSA). In addition, permits and BMPs included in Section 9 of the IS/ND (and detailed above) would continue to be implemented. Following completion of activities, the Work site would be restored to conditions similar to existing and in accordance with City of Vallejo requirements. Therefore, the Project would not substantially alter the existing drainage pattern of the Project site or area in a manner that would result in substantial erosion or siltation.

With the implementation of CMs/BMPs and permits described under the Project Description and in Attachment D, temporary impacts from construction activities and permanent impacts from the installation and placement of the proposed storm drain would be less than significant.

Utilities and Service Systems

Analysis of utilities and service system impacts of the approved Project are located in Section 18 of the IS/ND. All impacts to utilities and service system were less than significant and no mitigation measures were required.

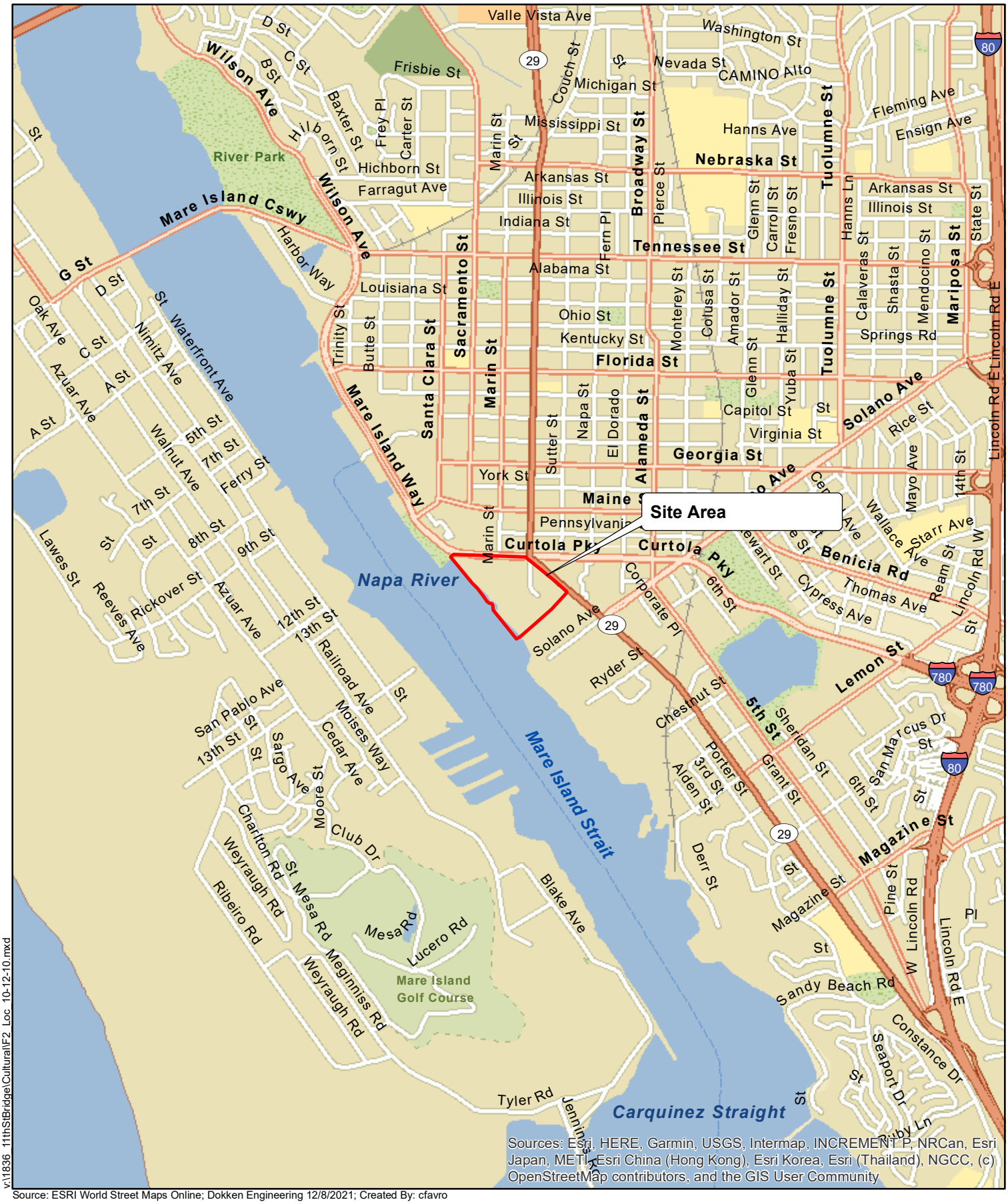
The Work involves the removal and replacement an existing storm drain that runs through the center of the Site and construction of a new storm drain at the perimeter of the Site to replace the existing storm drain. The existing 54-inch storm drain will be replaced with a 60-inch storm drain. As shown in Figure 3 of the BRTR, a portion of the storm drain that requires removal and replacement will occur within the existing alignment. A portion of the proposed storm drain will be also relocated and constructed at the perimeter of the Site to replace the existing storm drain. The new storm drain would connect to an existing storm drain system that transects the site; thus, the capacity of the existing and proposed storm drain would not be changed.

Permanent impacts from the installation and placement of the proposed storm drain would be less than significant.

CONCLUSION

The minor technical changes and additions to the Project based on the planned Work described above do not affect the mandatory findings of significance presented in the IS/ND and the First Addendum. The contractor, under the oversight of PG&E, will implement the CMs, BMPs, and AMMs and obtain relevant permits for biological resources, cultural and tribal cultural resources, and hydrology and water quality presented in this Second Addendum and the BRTR to ensure that the Project's impacts remain below levels considered significant. The impact determinations would remain consistent with those presented in the IS/ND and First Addendum. None of the factors listed in CEQA Guidelines Section 15162(a) are present; therefore, this Second Addendum to the IS/ND is an appropriate level of environmental review for the proposed Project changes, as identified in CEQA Guidelines Section 15164.

Figures



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

v:\1836_11thStBridge\Cultural\F2_Loc_10-12-10.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 12/8/2021; Created By: cfavro

Source: Biological Resources Technical Report (BRTR) prepared by Dokken Engineering (dated January 2022)

0 0.25 0.5 0.75 1 Miles

FIGURE 1
Work Location

Vallejo Storm Drain Replacement Work
Solano County, California



V:\2265_McCune Weir\Vallejo Storm Drain\F3_Project Features.mxd

Source: ESRI Maps Online; Dokken Engineering 12/8/2021; Created By: cfavro

1 in = 150 ft

0 150 300 450 600 750 Feet

Source: Biological Resources Technical Report (BRTR) prepared by Dokken Engineering (dated January 2022)

Figure 2 Work Features

Vallejo Storm Drain Replacement Work
Solano County, California

Attachment A

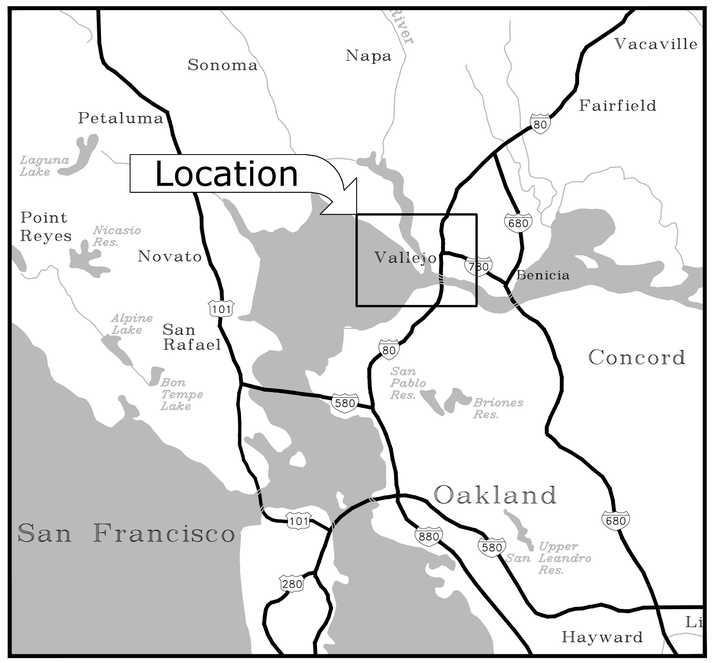
Design Drawings

VALLEJO MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY

STORM DRAIN REALIGNMENT PROJECT

65% DESIGN SUBMITTAL

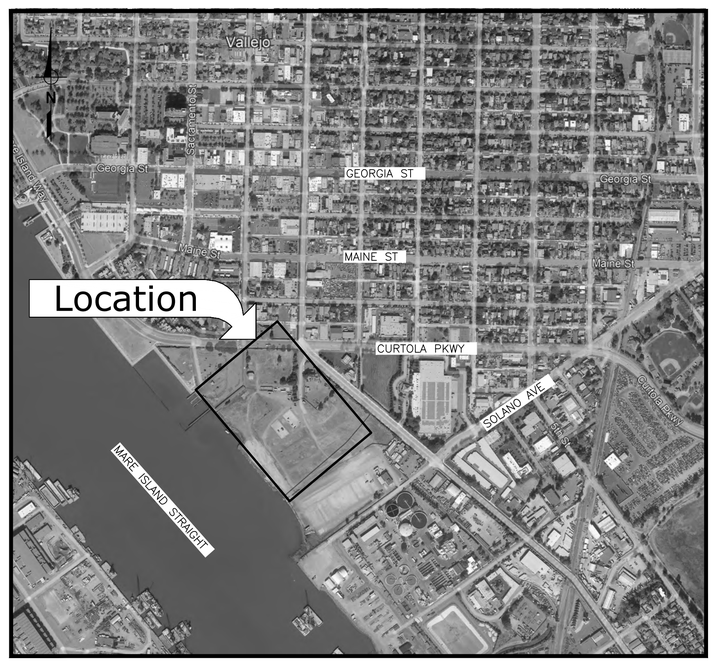
JANUARY 2022



VICINITY MAP

DRAWING INDEX

DRAWING NUMBER	TITLE	SHEET NUMBER
G01	TITLE SHEET, LOCATION MAPS, AND INDEX OF DRAWINGS	1
G02	GENERAL NOTES, ABBREVIATIONS, AND LEGEND	2
C01	PLAN AND PROFILE NEWSTORM DRAIN STA 0+00 TO STA 12+00	3
C02	PLAN AND PROFILE NEW STORM DRAIN STA 12+00 TO STA 21+50	4
C03	PLAN AND PROFILE EXISTING STORM DRAIN REMOVE AND DISPOSE	5
C04	CIVIL DETAILS	6
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S1	STRUCTURAL GENERAL NOTES	8
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LOCATION MAP

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DOUGLAS J. MOORE
No. 58122
Exp. 6-30-22
CIVIL
STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

QC REVIEW: JDG
DATE:

THIS LINE IS 1 INCH
AT FULL SCALE IF NOT SCALE ACCORDINGLY

SCALE : AS SHOWN
DRAWN BY : JHP
DESIGNED BY : DTM
PROJ. MGR. : DTM

No.	ZONE	REVISIONS	BY	DATE

WEST YOST
Water. Engineered.

TERRA PACIFIC GROUP
Environmental Engineering, Consulting, and Construction

VALLEJO, MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY
TITLE SHEET, LOCATION MAPS, AND INDEX OF DRAWINGS

JOB NUMBER 913-60-20-02
DRAWING NUMBER **G01**
SHEET NUMBER 1 OF 9
REVISION

N:\Clients\913 Terra Pacific Group, Incorporated\60-20-02 Vallejo SD Design\CAD\Production\913-60-20-02-G01-C02.dwg 1/13/2022 8:37 AM jpavicic

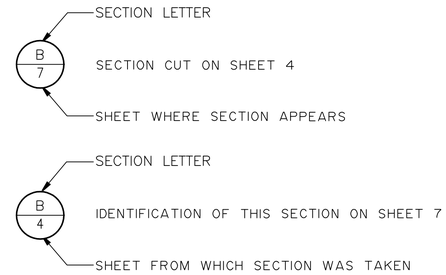
LEGEND

- 10" SS — EXISTING SANITARY SEWER, PIPE SIZE & DIRECTION
- 24" SD — EXISTING STORM DRAIN, PIPE SIZE & DIRECTION
- 10" W — EXISTING WATER MAIN, PIPE SIZE
- 12" GAS — EXISTING GAS MAIN, PIPE SIZE
- 10 — EXISTING CONTOUR
- EXISTING MANHOLE
- EXISTING SD CATCH BASIN OR DRAIN INLET
- EXISTING FIRE HYDRANT
- REMOVE EXISTING SD

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AGG	AGGREGATE BASE
APPROX	APPROXIMATE
AVE	AVENUE
CO	CLEAN OUT
CONC	CONCRETE
DI	DRAIN INLET
DIA	DIAMETER
EL	ELEVATION
EQ	EQUAL
(EX)/(E)	EXISTING
FL	FLOW LINE
FH	FIRE HYDRANT
GS	GROUND SURFACE
INV	INVERT
LF	LINEAR FOOT (FEET)
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
(N)	NEW
NAVD	NORTH AMERICAN VERTICAL DATUM
PG&E	PACIFIC GAS AND ELECTRIC COMPANY
RCP	REINFORCED CONCRETE PIPE
SCH	SCHEDULE
SD	STORM DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDMH	STORM DRAIN MANHOLE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
USA	UNDERGROUND SERVICE ALERT
VFWD/VSFCD	VALLEJO FLOOD & WASTEWATER DISTRICT OR VALLEJO SANITATION AND FLOOD CONTROL DISTRICT
W	WATER

SECTION & DETAIL DESIGNATIONS



DETAILS ARE CROSS REFERENCED IN A SIMILAR MANNER, EXCEPT THAT DETAILS ARE IDENTIFIED BY NUMBER RATHER THAN LETTER

GENERAL NOTES

STORM DRAIN NOTES

1. NEW STORMDRAIN SHALL BE ASTM C76 CLASS 5 RCP

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER — JAMES T. GLAS — No. C 91122 — Exp. 6-30-22 — CIVIL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

QC REVIEW: JDG

DATE:

THIS LINE IS 1 INCH
AT FULL SCALE IF NOT SCALE ACCORDINGLY

SCALE : AS SHOWN
DRAWN BY : JHP
DESIGNED BY : DTM
PROJ. MGR. : DTM

No.	ZONE	REVISIONS	BY	DATE

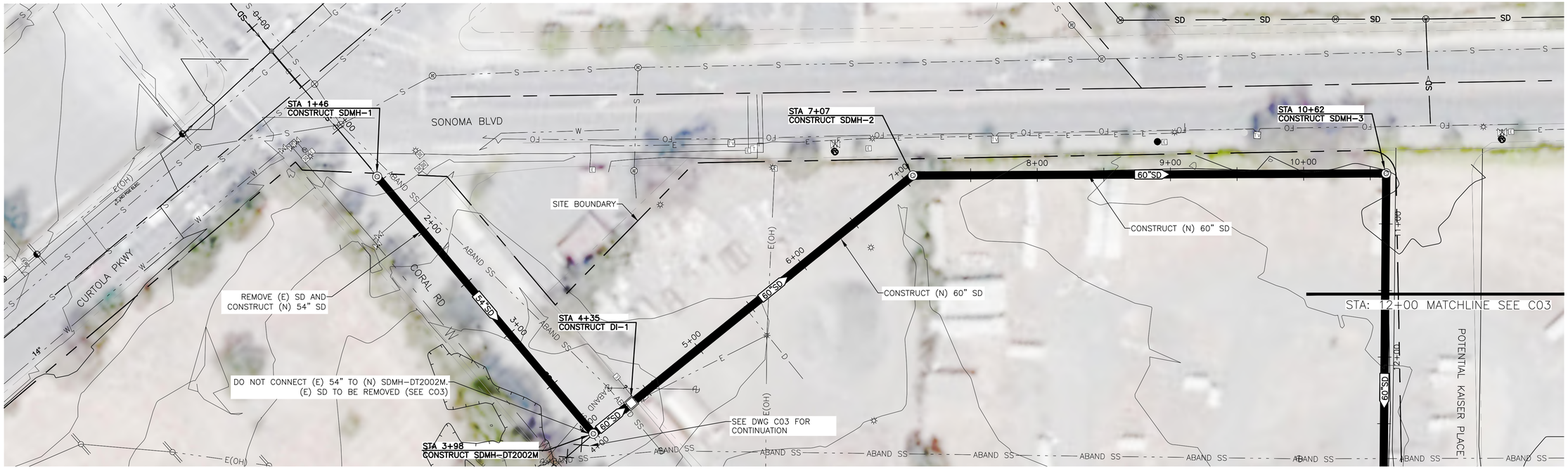
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VALLEJO, MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY
GENERAL NOTES, ABBREVIATIONS, AND LEGEND

JOB NUMBER 913-60-20-02
DRAWING NUMBER **G02**
SHEET NUMBER 2 OF 9
REVISION

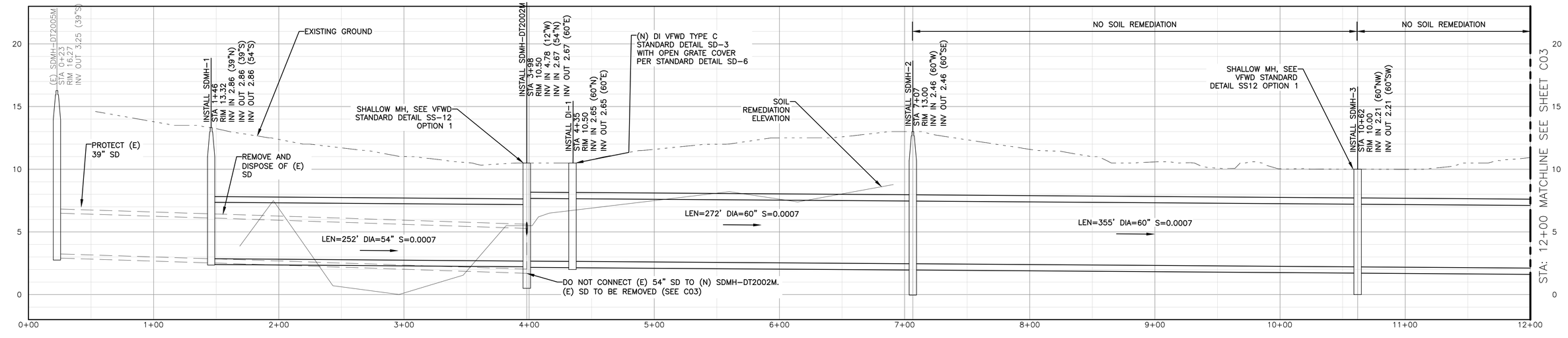
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PLAN

0 40 80

SCALE: 1"= 40'



PROFILE

SCALE: HOR:1"=40', VER:1"=4'

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER — DOUGLAS T. MOORE — No. 58122 Exp. 6-30-22 — CIVIL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

QC REVIEW: JDG

DATE:

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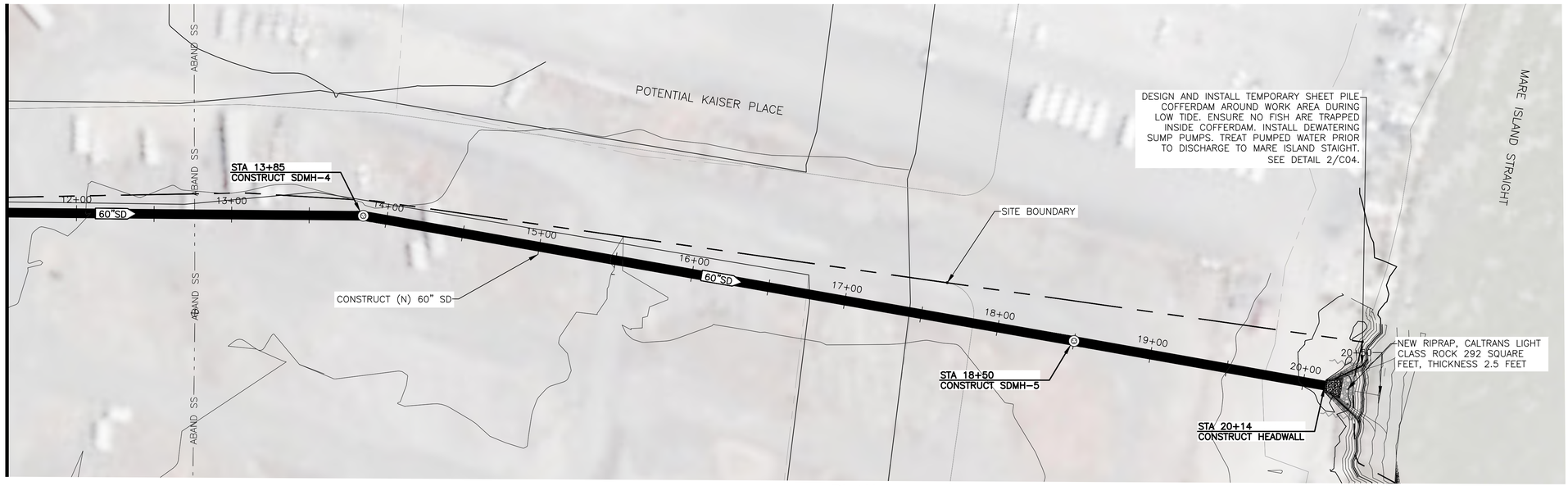
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PLAN AND PROFILE
NEWSTORM DRAIN STA 0+00 TO STA 12+00

JOB NUMBER 913-60-20-02
DRAWING NUMBER **C01**
SHEET NUMBER 3 OF 9
REVISION

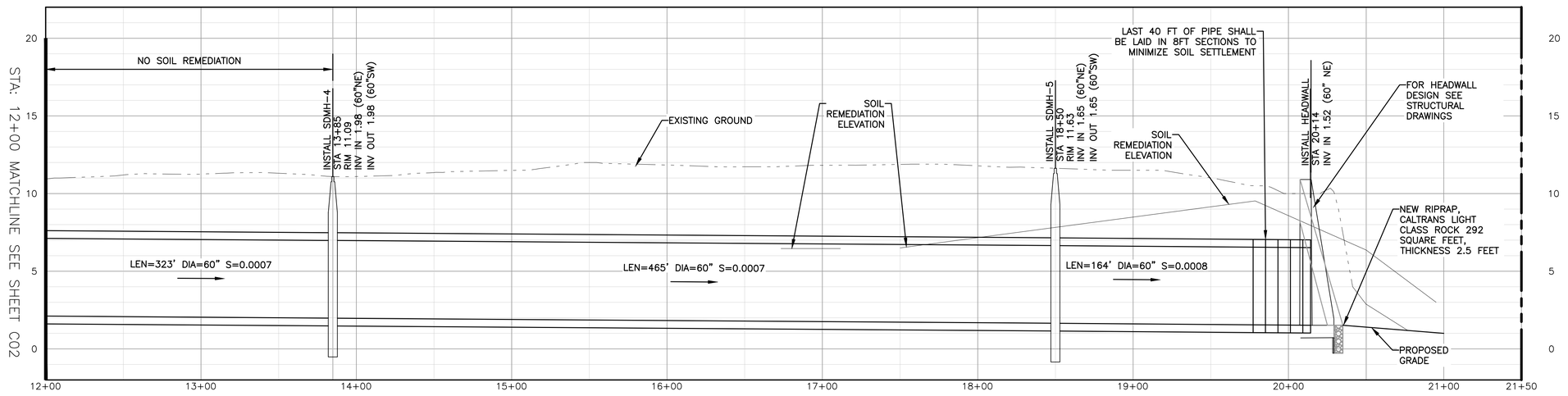
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PLAN

0 40 80

SCALE: 1" = 40'



PROFILE

SCALE: HOR:1"=40', VER:1"=4'

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DOUGLAS T. MORE No. 58122 Exp. 6-30-22 CIVIL STATE OF CALIFORNIA

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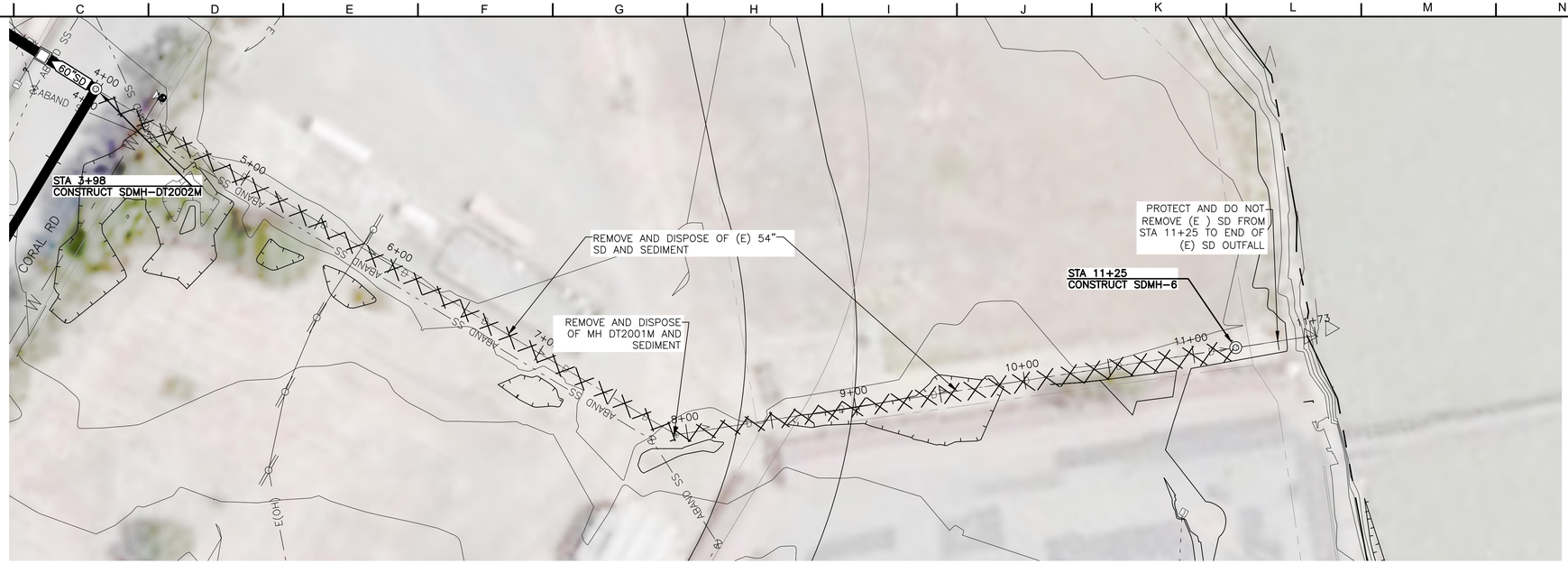
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PLAN AND PROFILE
NEW STORM DRAIN STA 12+00 TO STA 21+50

JOB NUMBER 913-60-20-02
DRAWING NUMBER **C02**
SHEET NUMBER 4 OF 9
REVISION

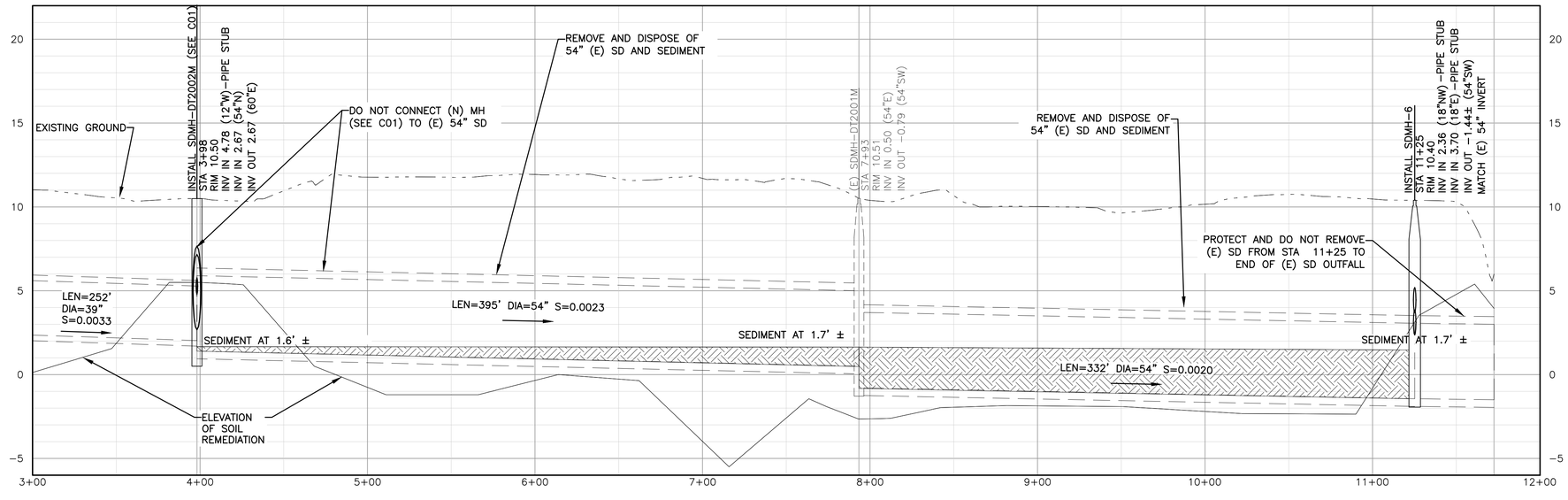
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PLAN

0 40 80

SCALE: 1" = 40'



PROFILE

SCALE: HOR:1"=40', VER:1"=4'

PRELIMINARY 65% SUBMITTAL

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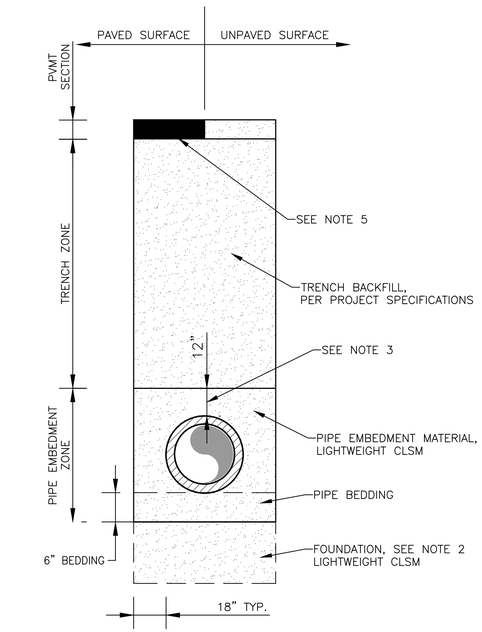
PLAN AND PROFILE EXISTING STORM DRAIN REMOVE AND DISPOSE

JOB NUMBER 913-60-20-02
DRAWING NUMBER **C03**
SHEET NUMBER 5 OF 9
REVISION

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PIPE TRENCH NOTES:

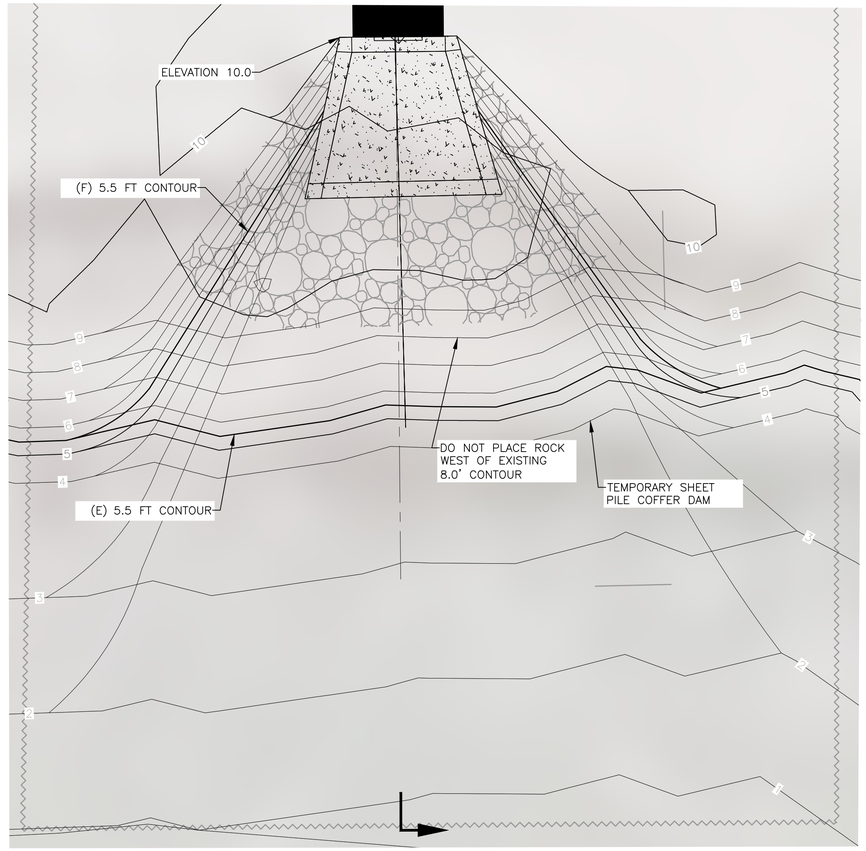
1. FOUNDATION MATERIAL AND PIPE EMBEDMENT MATERIAL SHALL BE LIGHTWEIGHT CLSM.
2. OVEREXCAVATION SHOULD BE REQUIRED UNTIL A FIRM UNYIELDING STABLE BASE MATERIAL IS REACHED OR A FIRM UNYIELDING STABLE BASE CAN BE CREATED BY THE PLACEMENT OF A LAYER OF FOUNDATION MATERIAL.
3. PIPELINE EMBEDMENT ZONE SHALL EXTEND FROM THE EXCAVATION SUBGRADE OR PIPELINE FOUNDATION MATERIAL TO A MINIMUM OF 12" OVER THE TOP OF THE PIPE.
4. PAVEMENT REPLACEMENT PER PROJECT SPECIFICATIONS.



TYPICAL TRENCH SECTION

DETAIL 1/—

NOT TO SCALE

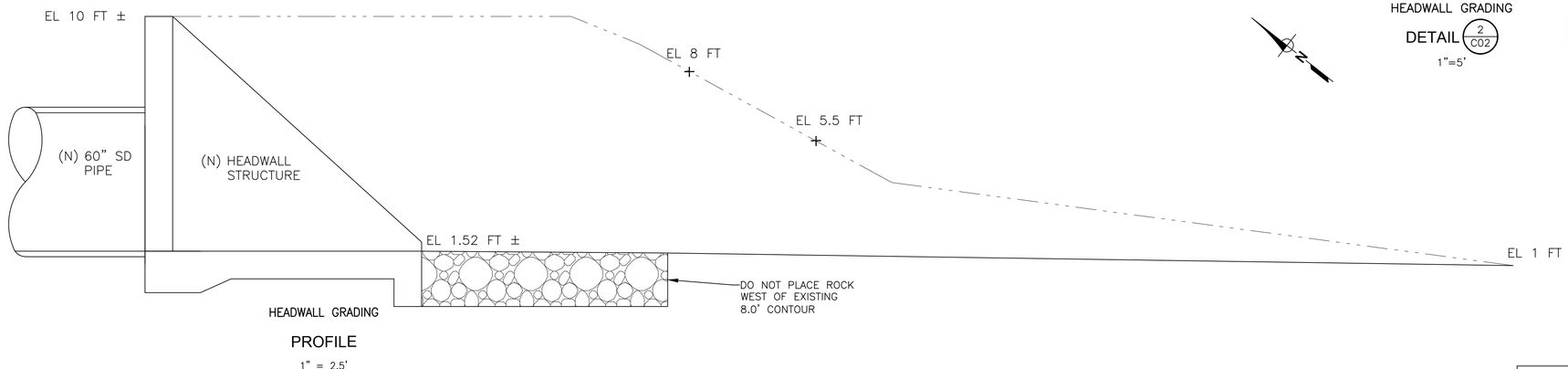


HEADWALL GRADING

DETAIL 2/C02

1"=5'

NOTE:
EXISTING CONTOURS BELOW 8 FT ARE APPROXIMATE.



HEADWALL GRADING

PROFILE

1" = 2.5'

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REGISTERED PROFESSIONAL ENGINEER — DOUGLAS T. GORE — No. C58122 — Exp. 6-30-22 — CIVIL — STATE OF CALIFORNIA

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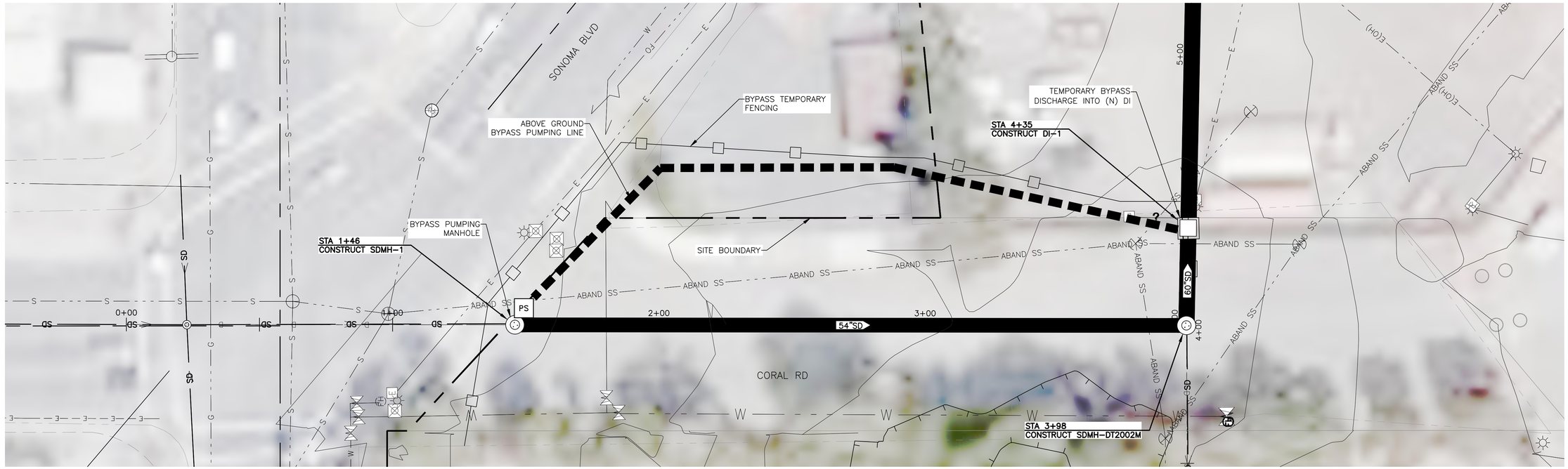
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CIVIL DETAILS

JOB NUMBER 913-60-20-02
DRAWING NUMBER **C04**
SHEET NUMBER 6 OF 9
REVISION

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PLAN

0 20 40

SCALE: 1" = 20'

LEGEND

- TEMPORARY FENCING
- D — EXISTING STORM DRAIN
- PROPOSED BYPASS PIPELINE
- PS — PROPOSED BYPASS PUMPS

BYPASS PUMPING AND PIPING

1) PROVIDE ONE 100 GPM BYPASS PUMP AND PIPING.
2) PROVIDE TWO OR MORE STORM EVENT PUMPS AND PIPING WITH TOTAL CAPACITY OF 40 CFS.
3) ALL PUMPS SHOULD HAVE SOUND ATTENUATION
4) BYPASS PUMPING AND PIPING SYSTEM SHALL INCLUDE WATER LEVEL MONITORING AND ALARMS.
5) CONTRACTOR SHALL SUBMIT A BYPASS PUMPING AND PIPING PLAN FOR REVIEW AND APPROVAL BY THE ENGINEER.

CONSTRUCTION SEQUENCING

1) COMPLETE SOIL REMEDIATION ALONG 60" STORM DRAIN ALIGNMENT (SEE C01 AND C02, STA 3+98 TO STA 20+40).
2) CONSTRUCT 60" STORM DRAIN, MAINTENANCE HOLES, DI, AND HEADWALL (SEE C01 AND C02, FROM DI STA 4+35 TO HEADWALL STA 20+40).
3) CONSTRUCT SDMH-1 (SEE C01).
4) SET UP BYPASS PUMPING AND PIPING (SEE C05).
5) REMOVE AND DISPOSE OF EXISTING 54" STORM DRAIN OUTFALL (SEE C03).
6) REMOVE AND DISPOSE OF EXISTING 54" STORM DRAIN FROM OUTFALL TO CORAL RD (SEE C03).
7) REMOVE THE EXISTING 39" STORM DRAIN IN CORAL RD (SEE C01).
8) COMPLETE SOIL REMEDIATION ALONG CORAL RD.
9) CONSTRUCT NEW 54" STORM DRAIN AND SDMH-DT2002M IN CORAL RD AND 60" SD (FROM SDMH-DT2002M STA 3+98 TO DI STA 4+35) AND CONNECT TO THE PROPOSED 60" STORM DRAIN.
10) REMOVE THE BYPASS PUMPING AND PIPING.

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER — DOUGLAS T. MOORE — No. 58122 — Exp. 6-30-22 — CIVIL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

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BYPASS PUMPING AND CONSTRUCTION SEQUENCE

JOB NUMBER 913-60-20-02
DRAWING NUMBER **C05**
SHEET NUMBER 7 OF 9
REVISION

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GENERAL:

1. INTERPRETATION OF DRAWINGS & SPECIFICATIONS
   - 1.1 WHERE APPLICABLE, SPECIFICATIONS HAVE BEEN PREPARED FOR THIS PROJECT AND ARE ARRANGED IN SEVERAL SECTIONS, BUT SUCH SEPARATION SHALL NOT BE CONSIDERED AS THE LIMITS OF THE WORK REQUIRED BY ANY SEPARATE TRADE. THE TERMS AND CONDITIONS OF SUCH LIMITATIONS ARE WHOLLY BETWEEN THE CONTRACTOR AND SUBCONTRACTORS.
   - 1.2 IN GENERAL, THE WORKING DETAILS WILL INDICATE DIMENSIONS, POSITIONS AND KIND OF CONSTRUCTION, AND THE SPECIFICATIONS WILL INDICATE QUALITIES AND METHODS. ANY WORK INDICATED ON THE WORKING DETAILS MENTIONED BUT NOT IN THE SPECIFICATIONS, OR VICE VERSA, SHALL BE FURNISHED AS THOUGH FULLY SET FORTH IN BOTH. WORK NOT PARTICULARLY DETAILED, MARKED OR SPECIFIED, SHALL BE THE SAME AS SIMILAR PARTS THAT ARE DETAILED, MARKED OR SPECIFIED. IF CONFLICTS OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS, THE MOST EXPENSIVE MATERIALS OR METHODS WILL PREVAIL.
   - 1.3 SHOULD AN ERROR APPEAR IN THE WORKING DETAILS OR SPECIFICATIONS OR IN WORK DONE BY OTHERS AFFECTING THIS WORK, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT ONCE AND IN WRITING. IF THE CONTRACTOR PROCEEDS WITH THE WORK SO AFFECTED WITHOUT HAVING GIVEN SUCH WRITTEN NOTICE AND WITHOUT RECEIVING THE NECESSARY APPROVAL, DECISION OR INSTRUCTION IN WRITING FROM THE OWNER, THEN THEY SHALL HAVE NO VALID CLAIM AGAINST THE OWNER, FOR THE COST OF SO PROCEEDING AND SHALL MAKE GOOD ANY RESULTING DAMAGE OR DEFECT. NO VERBAL APPROVAL, DECISION, OR INSTRUCTION SHALL BE VALID OR BE THE BASIS FOR ANY CLAIM AGAINST THE OWNER, ITS OFFICERS, EMPLOYEES, OR AGENTS. THE FOREGOING INCLUDES TYPICAL ERRORS IN THE SPECIFICATIONS OR NOTATIONAL ERRORS IN THE WORKING DETAILS WHERE THE INTERPRETATION IS DOUBTFUL OR WHERE THE ERROR IS SUFFICIENTLY APPARENT AS TO PLACE A REASONABLY PRUDENT CONTRACTOR ON NOTICE THAT, SHOULD THEY ELECT TO PROCEED, THEY ARE DOING SO AT THEIR OWN RISK.
2. CONSTRUCTION SHALL CONFORM TO THE 2019 CBC AND ALL APPLICABLE CODES AND REGULATIONS.
3. SHOP DRAWING NOTE:
   - 3.1 SHOP DRAWINGS SHALL BE SUBMITTED IN THE FORM OF ONE REPRODUCIBLE AND TWO COPIES OF EACH SHEET.
   - 3.2 THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE STRUCTURAL ENGINEER THAT THEY UNDERSTAND THE DESIGN CONCEPT BY INDICATING WHICH MATERIALS THEY INTEND TO FURNISH AND INSTALL, AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS THEY INTEND TO USE.
   - 3.3 PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW TO THE STRUCTURAL ENGINEER. SHOP DRAWING SUBMITTALS SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO CONCRETE MIX DESIGNS, STRUCTURAL STEEL, REINFORCING STEEL, MASONRY UNITS, GROUT MIX DESIGNS, GLUED LAMINATED BEAMS, AND PRE-FABRICATED WOOD ROOF FRAMING ITEMS SUCH AS I-JOISTS AND TRUSSES WHERE THESE ELEMENTS ARE INDICATED ON THE DRAWINGS.
   - 3.4 PRIOR TO SUBMISSION THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SHALL STAMP SUBMITTALS AS BEING "REVIEWED FOR CONFORMANCE"
   - 3.5 SHOP DRAWING SUBMITTALS PROCESSED BY THE STRUCTURAL ENGINEER ARE NOT CHANGE ORDERS.
   - 3.6 ANY DETAIL ON THE SHOP DRAWING THAT DEVIATES FROM THE CONTRACT DOCUMENTS SHALL CLEARLY BE MARKED WITH THE NOTE "THIS IS A CHANGE".
   - 3.7 SHOP DRAWINGS OR CALCULATIONS SUBMITTED FOR REVIEW THAT REQUIRE RESUBMITTAL FOR RE-REVIEW SHALL BE BILLED HOURLY FOR SUCH TIME TO THE GENERAL CONTRACTOR. RE-REVIEW WILL NOT PROCEED WITHOUT WRITTEN APPROVAL FROM THE GENERAL CONTRACTOR FOR ADDITIONAL ENGINEERING REVIEW SERVICES.
4. SAFETY NOTE:
   - 4.1 IT IS THE CONTRACTORS RESPONSIBILITY TO COMPLY WITH THE PERTINENT SECTIONS, AS THEY APPLY TO THIS PROJECT, OF THE "CONSTRUCTION SAFETY ORDERS" ISSUED BY THE STATE OF CALIFORNIA LATEST EDITION, AND ALL OSHA REQUIREMENTS.
   - 4.2 THE OWNER AND THE STRUCTURAL ENGINEER DO NOT ACCEPT ANY RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO COMPLY WITH THESE REQUIREMENTS.
   - 4.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE DESIGN AND CONSTRUCTION OF ALL FORMS AND SHORING REQUIRED.
5. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER WHERE A CONFLICT OR A DISCREPANCY OCCURS BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER PORTION OF THE CONTRACT DOCUMENTS OR EXISTING FIELD CONDITIONS. SUCH NOTIFICATION SHALL BE GIVEN IN DUE TIME SO AS NOT TO AFFECT THE CONSTRUCTION SCHEDULE. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH STRUCTURAL DRAWINGS PRIOR TO COMMENCING ANY WORK.
6. WHERE NO SPECIFIC DETAIL IS SHOWN, THE CONSTRUCTION SHALL BE IDENTICAL OR SIMILAR TO THAT INDICATED FOR LIKE CASES OF CONSTRUCTION ON THIS PROJECT. SHOULD THERE BE ANY QUESTION, CONTACT THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING.
7. WHEN CONSTRUCTION ATTACHES TO AN EXISTING BUILDING, A COMPLETE SET OF DRAWINGS OF THE EXISTING BUILDING SHALL BE KEPT ON THE JOB SITE. CONTRACTOR TO OBTAIN THESE DRAWINGS FROM THE OWNER.
8. ANY SUBSTITUTIONS FOR STRUCTURAL MEMBERS, HARDWARE, OR DETAILS SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER. SUCH REVIEW WILL BE BILLED ON A TIME AND MATERIALS BASIS TO THE GENERAL CONTRACTOR WITH NO GUARANTEE THAT THE SUBSTITUTION WILL BE ALLOWED.
9. DO NOT SCALE DRAWINGS. CONTACT THE STRUCTURAL ENGINEER FOR ANY DIMENSIONS NOT SHOWN.
10. THESE DRAWINGS ARE NOT COMPLETE UNTIL REVIEWED AND ACCEPTED BY THE LOCAL BUILDING OFFICIAL AND SIGNED BY THE OWNER AND THE STRUCTURAL ENGINEER.
11. ALL DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTES THE ORIGINAL AND UNPUBLISHED WORK OF THE STRUCTURAL ENGINEER AND THE SAME MAY NOT BE DUPLICATED, USED OR DISCLOSED WITHOUT WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
12. THE STRUCTURE SHOWN ON THESE DRAWINGS IS STRUCTURALLY SOUND ONLY IN ITS COMPLETED FORM. THE STABILITY OF THIS STRUCTURE DEPENDS ON THE DIAPHRAGMS AND THE BRACING MEMBERS SHOWN. THE CONTRACTOR IS TO PROVIDE FOR THE DESIGN AND CONSTRUCTION OF SHORING FOR ALL EARTH, FORMS, CONCRETE, STEEL, WOOD, AND MASONRY TO RESIST GRAVITY, EARTH, WIND, SEISMIC, AND CONSTRUCTION LOADS. SHORING SHALL REMAIN IN PLACE UNTIL ALL DIAPHRAGMS AND LATERAL RESISTING ELEMENTS ARE IN PLACE IN THEIR ENTIRETY.

DESIGN CRITERIA:

1. CODE: 2019 CALIFORNIA BUILDING CODE (CBC)

CONCRETE AND REINFORCING STEEL:

1. CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318-14 & ACI 350.
2. THE MINIMUM 28 DAY STRENGTH AND TYPE OF CONCRETE SHALL BE AS FOLLOWS:
   LIGHTWEIGHT AGGREGATE 70 PCF (SEE GEOTECH REPORT SECTION 3.4.5)
   F'c= 3,000 PSI (MINIMUM 5 SACKS CEMENT PER CU. YD.).
3. ALL CONCRETE SHALL BE READY-MIX IN ACCORDANCE WITH ASTM-C94.
4. CONCRETE MIX DESIGN SHALL BE REVIEWED BY THE OWNER'S TESTING LABORATORY AND SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL. SELECTION OF CONCRETE MIX PROPORTIONS SHALL BE PER 2019 CBC SECTION 1903.
5. CEMENT SHALL CONFORM TO ASTM C-150 TYPE V.
6. CONCRETE AGGREGATES: LIGHTWEIGHT AGGREGATE SHALL CONSIST OF NATURAL VOLCANIC CINDER MEETING THE REQUIREMENTS OF ASTM C-330. SEE THE GEOTECHNICAL REPORT FOR ADDITIONAL REQUIREMENTS
7. REINFORCING SHALL CONFORM TO ASTM A706 GRADE 60.
8. WELDING OF REINFORCING STEEL SHALL CONFORM TO AWS D1.4 USING PROPER LOW HYDROGEN ELECTRODES. TACK WELDING TO REBAR IS STRICTLY PROHIBITED. SEE "REBAR WELDING".
9. REINFORCING STEEL SHALL BE DETAILED, FABRICATED, AND INSTALLED ACCORDING TO "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION" BY CRSI.
10. WIRE FABRIC SHALL CONFORM TO ASTM A-1064.
11. DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO THE FACE OF MAIN BARS AND DENOTE CLEAR COVERAGE. UNLESS OTHERWISE NOTED, CONCRETE COVERAGE SHALL BE AS FOLLOWS:

CONCRETE DEPOSITED DIRECTLY AGAINST GROUND (EXCEPT SLABS)	3"
FORMED CONCRETE EXPOSED TO WEATHER OR GROUND OR LIQUID	
#6 AND LARGER	2"
#5 AND SMALLER	2"
BEAMS (TOP BARS)	1½"
BEAMS (ALL OTHER MAIN REINFORCING)	2"
COLUMN MAIN REINFORCING	2"
WALLS AND SLABS (INTERIOR DRY FACES)	¾"
SLABS ON GROUND WITH ONE LAYER OF REINFORCEMENT	POSITION IN CENTER OF SLAB

12. REINFORCING STEEL PLACEMENT:
    - 12.1 ALL BARS SHOWN WITH LAPS OR SPLICES SHALL HAVE MIN LAP LENGTH UNLESS OTHERWISE NOTED.
    - 12.2 DOWEL ALL VERTICAL REBAR IN WALLS AND COLUMNS FROM FOUNDATION WITH SAME SIZE AND SPACING AS VERTICAL BARS.
    - 12.3 SPLICES IN ADJACENT BARS SHALL BE NOT LESS THAN 5'-0" APART.
    - 12.4 SPLICE CONTINUOUS BARS IN SOIL-BEARING GRADE BEAMS AS FOLLOWS: BOTTOM BARS AT MID-SPAN, TOP BARS AT CENTERLINE OF SUPPORT, UNLESS NOTED OTHERWISE.
    - 12.5 SPLICE CONTINUOUS BARS IN BEAMS, SPANDRELS, WALL BEAMS ETC. AS FOLLOWS: BOTTOM BARS AT CENTERLINE OF SUPPORT, TOP BARS AT MIDSPAN, UNLESS NOTED OTHERWISE.
    - 12.6 REINFORCING BARS SHALL BE RUN IN A MANNER THAT FORMS A CONTINUOUS SYSTEM OF BARS TYING ALL PARTS OF THE STRUCTURE TOGETHER. EXTEND ALL REINFORCING BARS AS FAR AS POSSIBLE IN EACH CONCRETE MEMBER AND TERMINATE BAR TO PROVIDE 2" OF CONCRETE COVER END OF BAR OR FACE OR BEND.
    - 12.7 BEAM STIRRUPS AND COLUMN TIES SHALL HOOK 135 DEGREES AROUND A CORNER BAR UNLESS NOTED OTHERWISE.
13. GENERAL:
    - 13.1 NO PIPES OR DUCTS SHALL BE PLACED IN CONCRETE SLABS, BEAMS, WALLS OR GRADE BEAMS UNLESS SPECIFICALLY DETAILED.
    - 13.2 REFER TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR ALL OPENINGS, FLANGES, MOULDS, GROOVES, CLIPS AND GROUNDS TO BE CAST IN CONCRETE.
14. CONSTRUCTION JOINTS SHALL BE MADE ROUGH AND ALL LAITANCE REMOVED FROM THE SURFACE. CONCRETE MAY BE ROUGHENED BY CHIPPING THE ENTIRE SURFACE, SANDBLASTING, OR HOSING THE SURFACE 4 TO 6 HOURS AFTER THE POUR WITH A FINE SPRAY.
15. REMOVE ALL DEBRIS FROM THE FORMS BEFORE PLACING ANY CONCRETE.
16. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED IN CONCRETE SHALL BE SECURELY POSITIONED BEFORE PLACING CONCRETE. OBTAIN APPROVAL OF ALL AFFECTED TRADES PRIOR TO PLACING CONCRETE.
17. MAXIMUM FREE FALL OF CONCRETE SHALL BE 3'-0".
18. WALLS SHALL BE PLACED IN HORIZONTAL LAYERS OF 2'-0" MAX DEPTH.
19. CONCRETE IN WALLS, PIERS, OR COLUMNS SHALL SET AT LEAST 2 HOURS BEFORE PLACING CONCRETE IF IT SUPPORTS BEAMS, SPANDRELS, OR SLABS.
20. REINFORCE ALL SLABS ON GRADE AS SHOWN ON DRAWINGS.
21. HORIZONTAL WALL BARS IN DOUBLE LAYER WALLS SHALL BE STAGGERED. USE #2 SPREADERS APPROXIMATELY EVERY THIRD INTERSECTION EACH DIRECTION FOR ALL DOUBLE LAYER WALLS. PLACE SPREADERS IN VERTICAL LINES WITH FORM TIES.
22. NO WOOD SPREADERS ARE ALLOWED. NO WOOD STAKES ARE ALLOWED IN AREAS TO BE CONCRETED.
23. MINIMUM WALL REINFORCING FOR TEMPERATURE AND SHRINKAGE CONTROL ARE:

WALL THICKNESS	SINGLE LAYER	DOUBLE LAYER
7" OR LESS	#4 @ 12" CC EW	
8"	#4 @ 10" CC EW	
9" AND 10"		#4 @ 16" CC EW
11" AND 12"		#4 @ 12" CC EW

24. NOTIFY THE ENGINEER 48 HOURS PRIOR TO PLACING CONCRETE.
25. REINFORCEMENT LAP SPLICE LENGTHS ARE:

	3,000 PSI	3,500 PSI	4,000 PSI
#6 AND SMALLER	$44d_b$	$41d_b$	$38d_b$
#7 AND LARGER	$55d_b$	$51d_b$	$48d_b$

    - 25.1 SPLICE LENGTHS SHOWN APPLY TO LAP CLASS B NORMAL WEIGHT CONCRETE FOR THE STRENGTHS SHOWN. THE REINFORCING IS UNCOATED GRADE 60 REINFORCING.
    - 25.2 INCREASE LAP SPLICE LENGTHS BY 30% FOR TOP REINFORCING. TOP REINFORCING IS HORIZONTAL REINFORCING WITH MORE THAN 12" OF CONCRETE BELOW THE SPLICE.
    - 25.3 INCREASE LAP LENGTHS BY 30% IF LIGHTWEIGHT CONCRETE IS USED.
    - 25.4 WHERE CLEAR SPACING OF BARS IS LESS THAN 2 db OR WHERE CLEAR COVER IS LESS THAN 1 db INCREASE LAP LENGTHS BY 50%, UNO.
26. MAXIMUM SPACING OF WALL CONST. JOINTS IS 30ft.

GEOTECHNICAL:

1. FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT BY McMILLEN JACOBS ASSOCIATES, DATED DECEMBER 2020.
2. ALL BUILDING PAD PREPARATION AND FOUNDATION WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GEOTECHNICAL REPORT. COPIES OF THE REPORT MAY BE OBTAINED FROM THE ENGINEER UPON REQUEST.
3. THE GEOTECHNICAL ENGINEER SHALL OBSERVE ALL FOOTING EXCAVATIONS PRIOR TO PLACEMENT OF REINFORCING STEEL AND CONCRETE.
4. FOUNDATION DEPTHS INDICATED ON PLANS ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL DEPTHS ARE TO BE DETERMINED BY THE GEOTECHNICAL ENGINEER ON THE JOBSITE.
5. WHEN STRUCTURAL OBSERVATION IS REQUIRED, STRUCTURAL ENGINEER SHALL OBSERVE FOOTING REINFORCING STEEL PRIOR TO CONCRETE PLACEMENT. PROVIDE 48 HOURS NOTICE TO STRUCTURAL ENGINEER PRIOR TO CONCRETE PLACEMENT.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING, BUT NOT LIMITED TO, LAGGING, SHORING, AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS, AND UTILITIES IN ACCORDANCE WITH THE LOCAL BUILDING DEPARTMENT.
7. FOUNDATION TYPE:

SPREAD FOOTING ALLOWABLE PRESSURES:	
D+L	1,000 PSF (⅓ INCREASE FOR WIND/SEISMIC)
RETAINING WALLS:	
AT-REST SOIL PRESSURE	80 PSF/FT

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Project

TERRA PACIFIC
HEADWALL

VALLEJO, CA

Sheet Title

GENERAL NOTES

The undersigned Engineer does not represent that these plans or the specifications in connection therewith are suitable, whether or not modified for any other site than the one for which they were specifically prepared. The Engineer disclaims responsibility for these plans and specifications if they are used in whole or in part at any other site.

The contractor shall verify and be responsible for all dimensions and conditions on the job and this office must be notified in writing of any variation from the dimensions and conditions shown by these drawings.

This drawing is not final or to be used for construction until signed by the Engineer and owner.

All drawings and written material appearing herein constitute the original and unpublished work of the Engineer and the same may not be duplicated, used or disclosed without written consent of the Engineer.

Engineer	BAF
Drawn By	DGG

Revisions

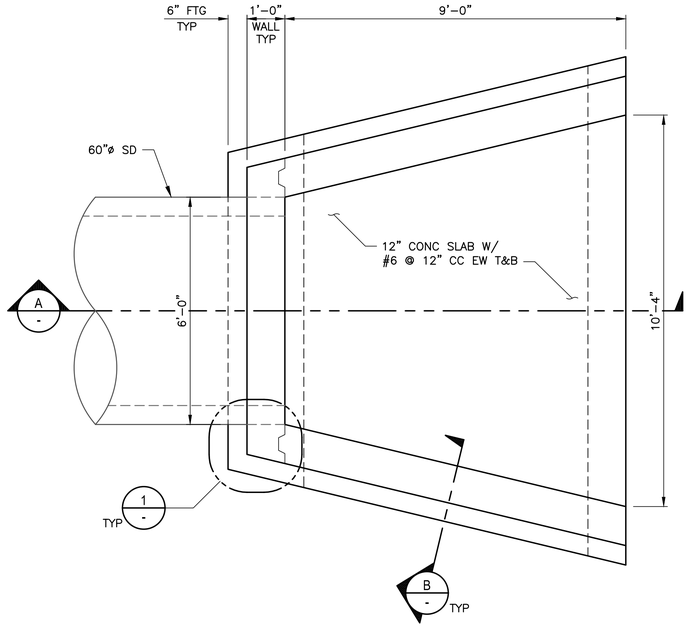
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Date	5/5/2021

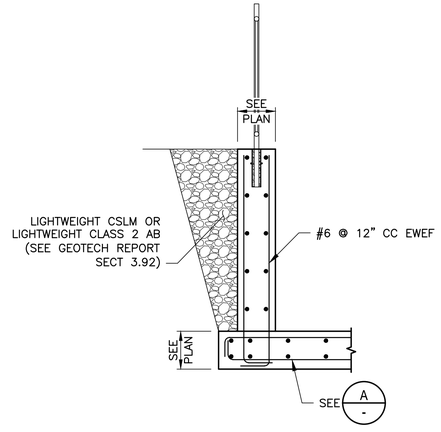
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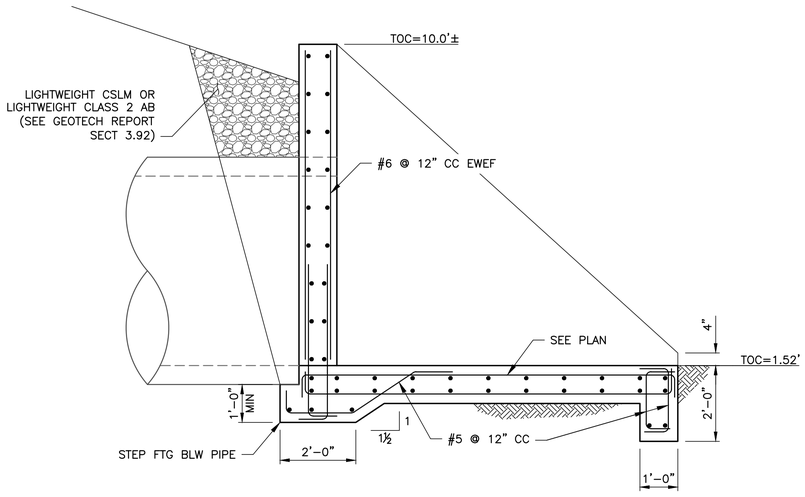
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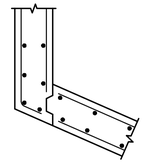
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B
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SECTION
SCALE: ½"=1'-0"
A
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OUTLET HEADWALL CONST JT
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1
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FILE SPEC: Z:\21000 Jobs\21000\21006 Terra Pacific Headwall\CAD\21006 02 Plan & Sections.dwg
PLOT DATE: May 05, 2021 - 2:01pm

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TERRA PACIFIC
HEADWALL

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Sheet Title

PLAN & SECTIONS

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Engineer	BAF
Drawn By	DGG
Revisions	

NO.	*DATE*	*DESCRIPTION*

Job No.	21006
Date	5/5/2021

Drawing No.

S2.0

Attachment B

Biological Resources Technical Report

Biological Resources Technical Report

Vallejo Storm Drain Replacement Work

Solano County, California



Prepared for:

Pacific Gas & Electric Company
3401 Crow Canyon Road
San Ramon, CA 94583

Prepared by:

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Folsom, California 95630

January 2022

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List of Abbreviations

°F	Fahrenheit
AMMs	Avoidance and minimization measures
BCDC	Bay Conservation and Development Commission
BMPs	Best management practices
BRTR	Biological Resources Technical Report
BSA	Biological Study Area
CCC	Central California Coast
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFG	California Fish and Game
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CV	Central Valley
CWA	Clean Water Act
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control
EFH	Essential Fish Habitat
EO	Executive Order
ESU	Evolutionary Significant Unit
FESA	Federal Endangered Species Act
IPaC	Information for Planning and Consultation
IS/ND	Initial Study/Negative Declaration
LSA	Lake and Streambed
MBTA	Migratory Bird Treaty Act
MGP	Manufactured Gas Plant
MHW	Mean high water
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
PBFs	Physical and Biological Features
PG&E	Pacific Gas and Electric
Project	Remediation project and outfall work
RAP	Remedial Action Plan
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
RHA	Rivers and Harbors Act
ROW	Right-of-way
RSP	Rock slope protection
sDPS	Southern Distinct Population Segment
Site	PG&E Vallejo Remediation Site
TCEs	Temporary construction easements

U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
Work	Vallejo Storm Drain Replacement Work
WQC	Water Quality Certification

Summary

Pacific Gas and Electric (PG&E) is preparing to clean up contamination at the former Vallejo Manufactured Gas Plant (MGP) Site (Site), located south of the intersection of Curtola Parkway and Sonoma Boulevard in the City of Vallejo, Solano County, California, pursuant to a Remedial Action Plan (RAP) approved in 2019 by the California Environmental Protection Agency's Department of Toxic Substances Control (DTSC), herein referred to as the Project. To facilitate that cleanup, PG&E proposes to replace an existing storm drain that runs through the Site, herein referred to as the Vallejo Storm Drain Replacement Work (Work).

This Biological Resources Technical Report (BRTR) is a review and evaluation of the potential impacts to threatened, endangered, proposed listed, or sensitive species and protected habitat resources as a result of implementing the proposed Work. General biological surveys were conducted within the Project's Biological Study Area (BSA), which is approximately 28.58 acres and encompasses the complete Project and Work area with no additional buffer necessary.

Literature research, habitat assessments, and field surveys were conducted to determine which activities could have a substantial adverse effect on special status species with the potential to occur within the BSA. Special status species include any plant or animal species listed by a State or Federal agency or by one or more special interest groups, such as the California Native Plant Society (CNPS). Based on literature review, biological surveys, and habitat assessments, seven special status species have the potential to occur within the BSA including: delta smelt (*Hypomesus transpacificus*), longfin smelt (*Spirinchus thaleichthys*), Central California Coast (CCC) and Central Valley (CV) steelhead Distinct Population Segments (DPSs) (*Oncorhynchus mykiss irideus*), Chinook salmon (*Oncorhynhus tshawytscha)* CV spring run and Sacramento River winter run Evolutionary Significant Units (ESUs), and green sturgeon (*Acipenser medirostris*). Additionally, the BSA contains critical habitat for the green sturgeon Southern DPS (sDPS) and Essential Fish Habitat (EFH) for salmon, groundfish, and coastal pelagic species.

In 2019, the DTSC prepared an Initial Study/Negative Declaration (IS/ND) under the California Environmental Quality Act (CEQA). The IS/ND addressed the possibility of replacing the storm drain, but it neither included nor specifically addressed the aspects or potential impacts on in-water work. As noted above, the impacts of that minor addition to the Project would be less than significant by construction controls, best management practices (BMPs), and avoidance and minimization measures (AMMs) that would either be part of Project implementation or imposed during permitting. Therefore, CEQA compliance for the Work may appropriately be achieved via a CEQA Addendum pursuant to 14 CCR §15162 and 15164. This BRTR outlines the required permits necessary for construction. PG&E would obtain appropriate authorizations for the proposed Work prior to construction, likely to include the following:

Federal:

- United States (U.S.) Army Corps of Engineers (USACE) – Federal Section 10 of the Rivers and Harbors Act (RHA) for work in or over navigable waters of the U.S., and Clean Water Act (CWA) placement of fill in waters of the U.S.

- National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) – Compliance with the Federal Endangered Species Act (FESA) through Section 7

consultation to ensure that any action approved by a federal agency (Work) does not jeopardize the existence of a federally listed species.

- NMFS – Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires consultation with NMFS for any action approved by a federal agency that has the potential of affecting EFH and related federal fisheries.

State:

- Regional Water Board – Federal Section 401 of the CWA, Water Quality Certification (WQC) would be required from Regional Water Board when applying for a federal permit for work that may result in discharges of a pollutant to waters of the U.S.

- Bay Conservation and Development Commission (BCDC) – Federal Section 307 of the Coastal Zone Management Act (CZMA) requires federal consistency determination with the Coastal Zone Management (CZM) Program.

- McAteer-Petris Act – Requires permits for the placement of fill in, or extraction of materials from, or any substantial change in use of any land, water, or structure within the area of their jurisdiction.

All authorizations would be obtained prior to the commencement of construction and would establish all control measures, BMPs, and AMMs to be followed before, during, and after construction.

1. Introduction

As a component of the upland remediation Project, PG&E proposes to replace an existing storm drain that runs through the Former Vallejo MGP Site in Solano County, California. The Project is located on the eastern bank of Mare Island Strait (Strait) and just south of Curtola Parkway within the City of Vallejo in Solano County, California, with the outfall replacement located in the Strait (**Figure 1. Work Vicinity**; **Figure 2. Work Location**). The Project is located in Township 3 North, Range 4 West of the Mount Diablo Base Meridian in the U.S. Geological Survey (USGS) 7.5-minute topographic maps.

1.1 Document Purpose

This BRTR is a review and evaluation of the potential impacts to threatened, endangered, proposed listed, or sensitive species and protected habitat resources as a result of implementing the proposed Project. General biological surveys were conducted within the proposed Project's BSA, which is approximately 28.58 acres and encompasses the complete Project area with no additional buffer necessary.

CEQA has been completed via issuance of a negative declaration, with DTSC acting as the lead agency, for the Project. CEQA compliance for the proposed storm drain replacement and outlet installation may appropriately be achieved via a CEQA Addendum (pursuant to 14 CCR §§15162 and 15164) to the previous analysis. This document is provided in supplement to previous analysis, provided as **Appendix A**, to ensure proposed in-water work associated with outfall installation is considered.

1.2 Work Description

PG&E proposes to conduct work to replace an existing storm drain (referred to as the Work) that runs through the former Vallejo MGP Site to facilitate site remediation (referred to as the Project) in the City of Vallejo, Solano County, California.

An MGP which previously occupied approximately 3 acres of the approximately 26-acre Site was in operation from 1872 to 1930. The Site first used coal and later oil to provide energy in the area. This operation created substances such as tar and lampblack that contaminated the soil, soil gas, and groundwater. PG&E would be conducting remediation of the Site. The existing storm drain runs through the center of the Site and would be removed to facilitate the soil remediation process. The proposed storm drain runs around the perimeter of the Site and mostly avoids the area of the remediation Project. The purpose of the Work is to remove the existing storm drain to facilitate remediation of the Site and construct a new storm drain at the perimeter of the Site to replace the existing storm drain.

The proposed remediation Project would include remediating along the proposed storm drain alignment, excluding the segment on Coral Road. To facilitate the remediation Project, the proposed Work would include installing a 54-inch diameter storm drain along with maintenance holes, drain inlet and a headwall. The existing storm drain would be removed with soil remediation occurring afterwards. Once soil is remediated where the existing storm drain was located, the final segment of the proposed 54-inch storm drain would be constructed along Coral Road (**Figure 3. Work Features**).

All ground disturbing activities would take place within the proposed temporary construction areas. No extended time road closures are anticipated to occur, and access to nearby residences and businesses would be maintained. There would be no right-of-way (ROW) impacts, utility easements, temporary construction easements (TCEs), encroachment permits or temporary road closures due to the construction of the proposed storm drain. Construction would start in the spring/summer of 2022 and would last approximately 2 to 4 months.

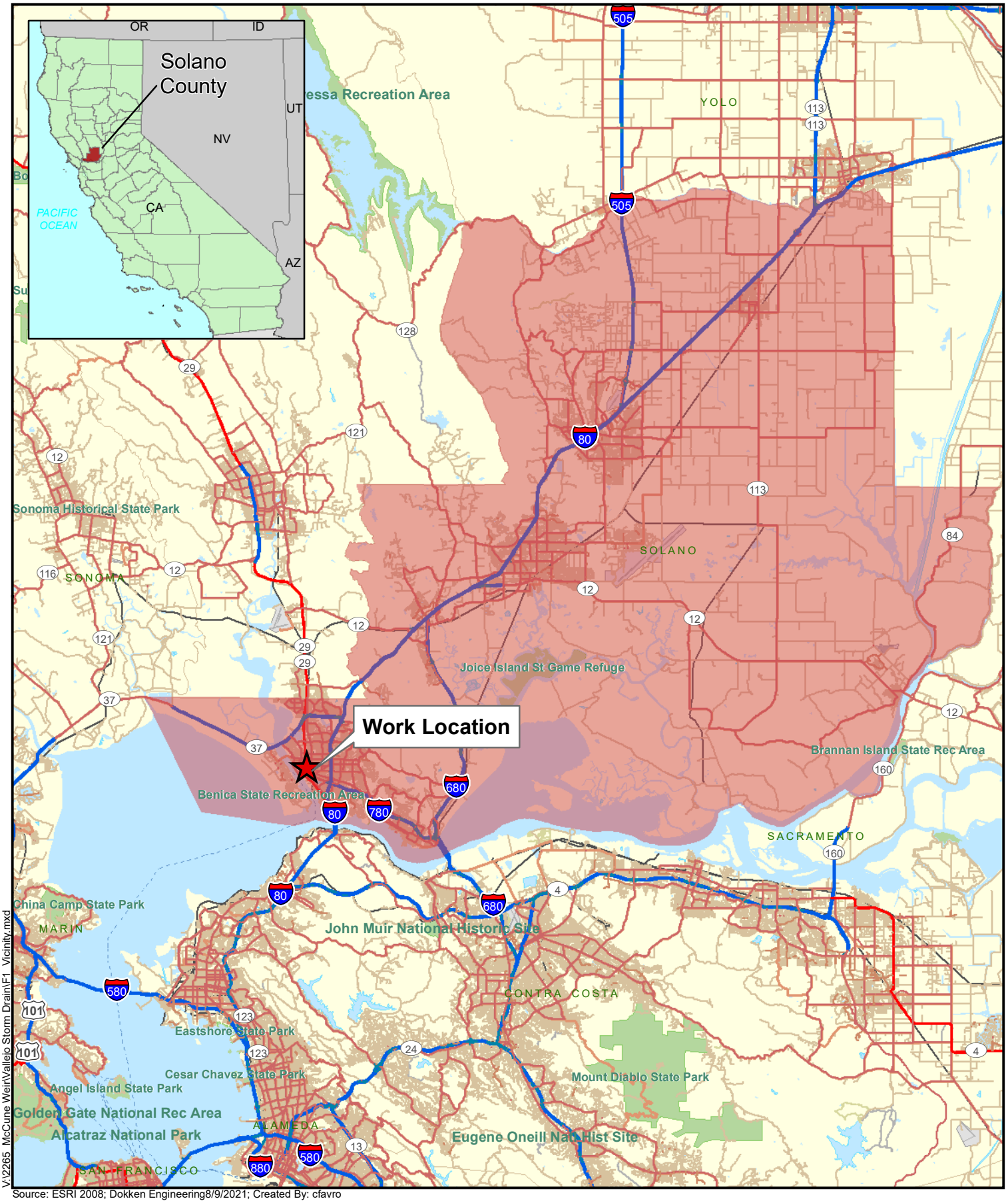
Installation of a 60-inch" outfall would require in-water work including installation of a stormwater outfall structure. The outfall would be installed with a pipe invert at an elevation of 1.52 feet NAVD88. The headwall and riprap will require excavation down to elevation -2.0 feet NAVD88.

Installation the outfall would consist of the following tasks in and adjacent to the Strait:

- Installation of a cofferdam (approximately 300 square feet in size) around the proposed outfall location at low tide when it can be confirmed no fish occur within the Work area.
- Removal of any necessary soil and existing shoreline revetment to accommodate outfall installation.
- Installation of dewatering pumps.
- Installation of the outfall, headwall, and associated rip rap.
- Removal of the cofferdam and pumps.

A sheet pile or sandbag cofferdam would be utilized to isolate work areas during outfall installation. The cofferdams would likely be sheet pile walls embedded in shoreline substrate immediately surrounding the outfall location. The coffer dam will be at least 3 feet higher than the highest forecast tide for the entire in-water work period. Installation of the cofferdam would take several days, but the sheet piles would only be installed using methods that generate minimal noise, such as vibratory or push methods, during low tide (when there is no more than a few inches of water in the Work area). The cofferdam would be sealed/closed during low tide when it can be confirmed fish are clear of the area.

A temporary clear water diversion system may be necessary to dewater the cofferdam and excavated area if groundwater is encountered. Design and management of this system would be in accordance with "Caltrans Storm Water Quality Handbooks, March 1, 2003" Construction Site Best Management Practices Manual – Clear Water Diversion NS-5 (Enclosure C. Clear Water Dewatering Typical). Water would be pumped from the cofferdam, and pumped through a sediment settling device, such as a portable tank or settling basin, before returning water to the water body beyond the cofferdam. The pump intake would be fitted with a mesh screen.



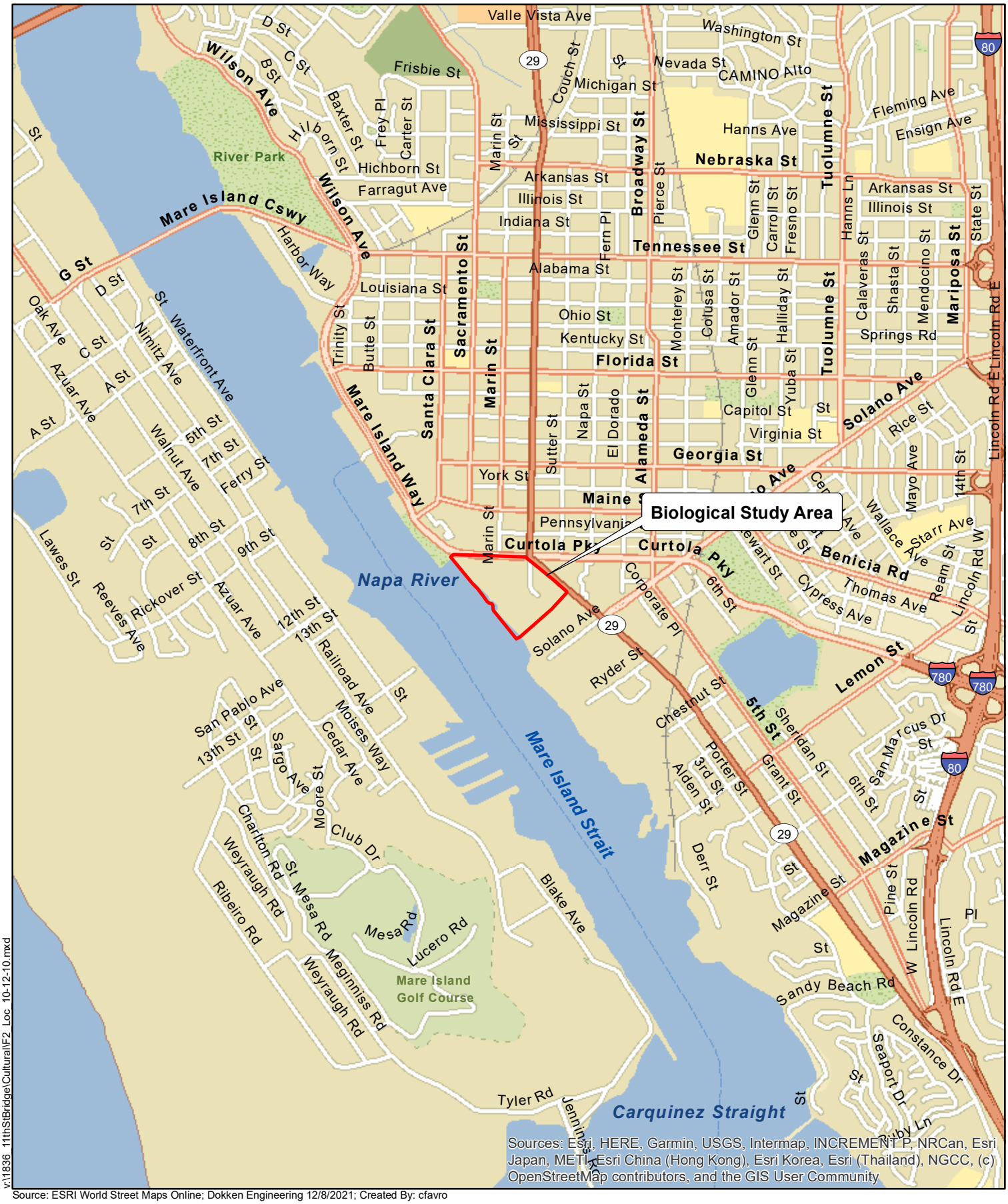
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Source: ESRI 2008; Dokken Engineering8/9/2021; Created By: cfavro

0 5 10 15 Miles

FIGURE 1
Work Vicinity

Vallejo Storm Drain Replacement Work
Solano County, California



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Source: ESRI World Street Maps Online; Dokken Engineering 12/8/2021; Created By: cfavro

v:\1836_11thStBridge\Cultural\F2_Loc_10-12-10.mxd

0 0.25 0.5 0.75 1 Miles

FIGURE 2
Work Location

Vallejo Storm Drain Replacement Work
Solano County, California



V:\2265_McCune Weir\Vallejo Storm Drain\F3_Project Features.mxd

Source: ESRI Maps Online; Dokken Engineering 12/8/2021; Created By: cfavro

1 in = 150 ft

0 150 300 450 600 750 Feet

Figure 3
Work Features

Vallejo Storm Drain Replacement Work
Solano County, California

2. Study Methods

2.1 Regulatory Requirements

This section describes the general Federal, State, and local plans, policies, and laws that are relevant to biological resources within the BSA. Applicable approvals that could be required before construction of the Work are provided in Chapter 5.

2.1.1 Federal Regulations

Federal Endangered Species Act (FESA)

The FESA protects listed wildlife species from harm or "take," which is broadly defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. "Take" can also include habitat modification or degradation that directly results in death or injury of a listed animal species. An activity can be defined as "take" even if it is unintentional or accidental.

Section 7 of the FESA is the mechanism by which federal agencies ensure their actions, including those they fund or authorize (such as through a permit), do not jeopardize the existence of any listed species. Under section 7 of the FESA, federal agencies must consult with the Resource Agencies when any action the agency carries out, funds, or authorizes may affect a listed species. The USFWS has primary responsibility for terrestrial and freshwater organisms (including delta smelt), while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish such as salmon.

Critical habitat is designated by the Resource Agencies to protect areas that are essential to the survival of federally listed wildlife species. When designating critical habitat, Resource Agencies focus on the principal biological or physical features in the defined area that are essential to the conservation of the listed species (81 FR 7214, Feb. 11, 2016, codified at 50 Code of Federal Regulations (CFR) 402.02).

Clean Water Act (CWA) and Rivers and Harbors Act (RHA)

The USACE regulates placement of fill within jurisdictional waters under provisions of Section 404 of the 1972 CWA (33 U.S. Code (USC) §1251 et seq. (1972)) and work within Section 10 of the 1899 RHA (33 USC 403; Chapter 425, March 3, 1899; 30 Stat. 1151). Under Section 404 of the CWA, dredged and fill material may not be discharged into jurisdictional waters without a permit.

Section 10 of the RHA regulates the construction of structures, placement of fill, and introduction of other potential obstructions to navigation in navigable waters. Navigable waters are defined as waters that are "subject to the ebb and flow of the tide and/or presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce" (33 CFR 325.5(c)(2)). A Section 10 permit is required for building of wharves, piers, jetties, and other structures, and excavation or fill within navigable or tidal waters.

The Regional Water Board has jurisdiction under Section 401 of the CWA and regulates any activity which may result in a discharge to surface waters of the State. The Regional Water Board also asserts authority over "waters of the State" under waste discharge requirements pursuant to the Porter-Cologne Water Quality Control Act.

Essential Fish Habitat (EFH)

The MSA of 1976 was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the U.S., by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

Executive Order 13112: Prevention and Control of Invasive Species

Executive Order (EO) 13112 (signed February 3, 1999) directs all Federal agencies to prevent and control introductions of invasive species in a cost-effective and environmentally sound manner. The EO requires consideration of invasive species in the National Environmental Policy Act (NEPA) analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them.

Executive Order 13186: Migratory Bird Treaty Act

EO 13186 (signed January 10, 2001) directs each Federal agency taking actions that could adversely affect migratory bird populations, to work with USFWS to develop a Memorandum of Understanding that will promote the conservation of migratory bird populations. Protocols developed under the Memorandum of Understanding will include the following agency responsibilities:

- Avoid and minimize, to the maximum extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- Restore and enhance habitat of migratory birds, as practicable; and
- Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The EO is designed to assist Federal agencies in their efforts to comply with the Migratory Bird Treaty Act (MBTA) (50 CFR 10 and 21) and does not constitute any legal authorization to take migratory birds. Take is defined under the MBTA as “the action of or attempt to pursue, hunt, shoot, capture, collect, or kill” (50 CFR 10.12) and includes intentional take (i.e., take that is the purpose of the activity in question) and unintentional take (i.e., take that results from, but is not the purpose of, the activity in question).

2.1.2 State Regulations

California Environmental Quality Act (CEQA)

The CEQA is a state law created to inform state and local governmental decision-makers and the public about the potential environmental impacts of proposed activities and to reduce those environmental impacts to the extent feasible.

Lake and Streambed Alteration (LSA) Agreement

The California Department of Fish and Wildlife (CDFW) requires an Lake and Streambed Alteration (LSA) Agreement, pursuant to Fish and Game Code §§ 1600 et. seq. for project-related activities within any 1600 jurisdictional waters (which may include the Strait). Notification is required for any activity that would substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake, or stream.

Coastal Zone Management Act (CZMA), Section 307

Under the CZMA, Section 307, federal agencies undertaking any activities affecting coastal use or resources are required to do so in a manner that is consistent to the maximum extent practicable with the state's CZM Program. These activities include requiring a federal permit or license, and activities conducted with federal financial assistance that affect coastal uses and resources. This federal consistency provision ensures that federal agencies cannot act without regard for, or in conflict with, state policies that have been officially incorporated into a state's CZM Program. In the San Francisco Bay Area, federal actions affecting coastal use or resources are reviewed by the BCDC to ensure that the proposed activities are consistent with California enforceable policies. The remediation activities at the Project area have the potential to affect coastal resources because of the proximity of the Project area to the Pacific Ocean. Given the Project activities may be authorized under a Department of the Army permit (federal nexus), the remediation activities would require approval under Section 307 of the CZMA to ensure that proposed activities are consistent with BCDC policies established in the San Francisco Bay Plan (BCDC 2020) and state enforceable policies. The Department of the Army permit cannot be issued until the CZMA compliance has been met.

McAteer-Petris Act

The BCDC requires a permit for work in open water, marshes, and mudflats of greater San Francisco Bay and within the first 100 feet inland from the shoreline around San Francisco Bay.

Section 3503 and 3503.5: Bird and Raptors

California Fish and Game (CFG) Code Section 3503 prohibits the destruction of bird nests and Section 3503.5 prohibits the killing of raptor species and destruction of raptor nests.

Section 3513: Migratory Birds

CFG Code Section 3513 prohibits the take or possession of any migratory non-game bird as designated in the MBTA or any part of such migratory non-game bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

2.2 Studies Required

2.2.1 Literature Search

Prior to field work, literature research was conducted through the USFWS Information for Planning and Consultation (IPaC) official species list generator (**Appendix B. USFWS Species List**), the

CDFW California Natural Diversity Database (CNDDB) (**Appendix C. CNDDB Species List**), the CNPS Electronic Inventory of Rare and Endangered Plants (**Appendix D. CNPS Species List**), and the NMFS West Coast Region Species List (**Appendix E. NMFS Species List**) to identify habitats and special-status species having the potential to occur within the BSA. Section 3.2 of this report provides a comprehensive list of the species generated from the online database searches and presents specific characteristics, habitat requirements, and potential for occurrence for each species. The CDFW's Bay Study Midwater Trawl Survey data was accessed from 1980 to 2020 at Station 340 to determine if special status fish species had been observed. Station 340 occurs within close proximity to the BSA.

2.2.2 Survey Methods

Prior to field surveys, the BSA was defined as the Project area, as it includes all areas impacted by both outfall construction and the remediation Project, and provides ample construction access and room for equipment staging (**Figure 3**). Habitat assessment and analysis of historic occurrences were conducted to determine the potential for each of these species to occur within the BSA.

Biological surveys and habitat assessment methods included walking meandering transects through the entire BSA, observing vegetation communities, compiling notes on observed flora and fauna, and assessing the potential for existing habitat to support sensitive plants and wildlife. All plant and wildlife observations were recorded and are discussed in Chapter 3.

2.2.3 Personnel and Survey Dates

A biological field survey was conducted on April 14, 2021 just after low tide by Dokken Engineering biologists Clare Favro and Vincent Chevreuil at (11:00am, 0.15 feet) (Tides.net 2021). Habitat assessments were conducted within the BSA to assess the vegetative communities present, identify biological resources which may be impacted by the Work, and evaluate the potential for special status species to occur on-site.

An additional field survey was completed by Johnson Marigot Consulting, LLC biologist Paula Gill on September 6, 2021 at low tide (7:55am, -0.17 feet) to access the extent of the exposed mudflat.

2.3 Agency Coordination and Professional Contacts

2.3.1 United States Fish and Wildlife Service

On April 13, 2021, an official species list was obtained from USFWS of federally listed species that could occur in the vicinity of the Work (**Appendix B**).

2.3.2 California Department of Fish and Wildlife

On April 13, 2021, a four-quadrangle list of species with potential to occur in the Work vicinity was obtained from CDFW's CNDDB (**Appendix C**).

2.3.3 California Native Plant Society

On April 13, 2021, a four-quadrangle list of plant species with potential to occur in the Work vicinity was obtained from the CNPS Inventory of Rare and Endangered Plants of California (**Appendix D**).

2.3.4 National Marine Fisheries Service

On April 13, 2021, a four-quadrangle list of Federally listed fish species with the potential to occur in the Work vicinity was obtained from the NMFS West Coast Region Species List (**Appendix E**).

2.4 Limitations That May Influence Results

Sensitive wildlife species with the potential to occur in the BSA may be cryptic (difficult to detect) or transient, migratory species. The population size and locations of sensitive species may fluctuate through time. Because of this, the data collected for this biological resource technical report represents a "snapshot" in time and may not reflect actual future conditions.

The collection of biological field data is normally subject to environmental factors that cannot be controlled or reliably predicted. Consequently, the interpretation of field data must be conservative and consider the uncertainties and limitations imposed by the environment. However, due to the experience and qualifications of the consulting biologists involved in the surveys, this limitation is not expected to severely influence the results or substantially alter the findings.

Biological surveys were conducted in April, which is within both the typical blooming season for most local plant species as well as the usual nesting bird season.

No limitations were present that could influence the results of this document. All surveys were conducted during appropriate weather and temperature conditions.

3. Results: Environmental Setting

3.1 Description of the Existing Biological and Physical Conditions Study Area

3.1.1 Study Area

Prior to field surveys, the BSA was defined as the area outlined for all Project activities as it provides ample construction access and room for equipment staging and encompasses the remedial area, outfall work area, and both the existing and proposed pipeline work areas. From north to south, the BSA measures approximately 1,250 feet and from east to west measures approximately 1,285 feet at its widest point. The total area of the BSA is approximately 28.58 acres (**Figure 3**).

3.1.2 Physical Conditions

The BSA is located in Solano County within the Central Coast Floristic Province (Jepson 2021). Regionally, the BSA is located on the upland east of Mare Island Strait and south of Curtola Parkway in the city of Vallejo, California, with a small area of the BSA located within the Strait. Solano County experiences Mediterranean conditions including warm, dry summers and cool, wet winters. The average annual high temperature is approximately 69 degrees Fahrenheit (°F) and the average annual lows reach approximately 44°F. The average yearly precipitation for this area is 20.4 inches (U.S. Climate Data 2021). The elevation of the BSA is approximately 8 feet above mean sea level. According to the Natural Resource Conservation Service (NRCS), 95% of the BSA is made land and 0.2% is water. Soils present throughout the rest (4.8%) of the BSA are classified as Dibble-Los Osos clay loams with 2 to 9 percent slopes (NRCS 2021; **Appendix F. NRCS Soil Report**). Clay loams are isolated to the northern border of the BSA and the majority of the pipeline work would take place within made land.

3.1.3 Biological Conditions in the Study Area

Land cover types within the BSA include barren, ruderal, shoreline, and Mare Island Strait (**Figure 4. Land Cover within the Biological Study Area**; **Appendix G. Representative Photographs**). There are no undisturbed plant communities within the BSA. Mare Island Strait is the only natural land cover type within the BSA. Plant and wildlife species observed within the BSA during the April 2021 biological survey efforts were used to define land cover types based on composition, abundance, and cover (**Table 1. Species Observed**).

<u>Barren</u>

A majority of the BSA is made up of barren land, including large sections of gravel, paved road, and bare ground. The BSA encompasses several lots historically used for parking or storage, with the northwestern portion of the BSA still functioning as a dedicated lot that allows access and parking for the Vallejo Launch Ramp. The rest of the BSA has been cleared of vehicles and equipment in anticipation of construction. Barren land accounts for approximately 19.96 acres (~70%) of the BSA.

<u>Ruderal</u>

The BSA includes disparate sections of ruderal vegetation, which is defined by the high occurrence of invasive plant species that occupy disturbed landscapes such as parking lots.

Ruderal vegetation includes weedy, fragmented roadside grasses and forbs, as well as the native and non-native ornamental species that have been planted along the boundaries of Curtola Parkway, Sonoma Boulevard, and Coral Road. Ruderal vegetation comprises approximately 7.31 acres (~26%) of the BSA.

Mare Island Strait

Mare Island Strait is an estuarine channel that runs between Mare Island and the mainland, where it links the Napa River to the Carquinez Strait and eventually to San Pablo Bay. The salinity of the strait depends on the season, water flow, and local tides; however, upstream freshwater diversions for agriculture have artificially increased the salinity of Mare Island Strait over time (Sommer et al. 2020). The BSA contains two small portions of Mare Island Strait which runs along the western edge of the Work site. The southernmost portion of the Mare Island Strait present in the BSA includes the site of the future headwall for the proposed storm drain. The BSA contains approximately 0.86 acres (~3% of the BSA) of Mare Island Strait. During the September 6, 2021 site visit, at low tide, a mud flat that extended approximately 80 feet toward the Strait was observed. For an hour, only a few inches of water occurred within the mudflat. Photographs of the mudflat are included in **Appendix G**.

Shoreline

In total, approximately 1,000 linear feet of Mare Island Strait shoreline extends along the western boundary of the BSA, encompassing approximately 0.48 acres (~2% of the BSA). The northernmost 400 linear feet of shoreline is steeply sloped (1.5:1) with rip rap at the toe of the slope. Moving south, the next 480 linear feet of shoreline includes a crenulated sheet pile wall. For the remaining 160 linear feet, in which the outfall is proposed, the slope consists of steep slopes with rip rap along the embankment and at the toe of the slope. Photographs of the shoreline are included in **Appendix G**. No oysters (native or non-native) were observed on the rocky shoreline. Also, no riparian vegetation occurs along the shoreline, as vegetation is limited to sparse ruderal weeds.

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V:\2265_McCune Weir\Vallejo Storm Drain\Biology\F4_Veg Comm.mxd

Source: ESRI Maps Online; Dokken Engineering 12/8/2021; Created By: cfavro

1 inch = 150 feet

0 150 300 450 600 750 Feet

Figure 4
Land Cover within the Biological Study Area

Vallejo Storm Drain Replacement Work
Solano County, California

Wildlife

Wildlife observed within the BSA consisted of local bird species such as the California gull (*Larus californicus)*, rock pigeon (*Columbia livia*), mallard (*Anas platyrhynchos*), and killdeer (*Charadrius vociferus*), among others. Most bird observations were recorded as soaring over the BSA and frequently in proximity to the water; however, species were observed throughout the entire area. Although not observed during the biological survey, observations of cottontail rabbits (*Sylvilagus bachmani*) were discussed with PG&E's environmental consultant field staff.

Table 1. Species Observed

Common Name	Scientific Name	Native (N)/ Non-Native (X)
Plant Species		
Blessed milk thistle	*Silybum marianum*	X
Blue gum	*Eucalyptus globulus*	X
Bristly oxtongue	*Helminthotheca echioides*	X
California bay	*Umbrellularia californica*	N
California burclover	*Medicago polymorpha*	X
Cheeseweed	*Malva parviflora*	X
Clover	*Trifolium ssp.*	N
Coast live oak	*Quercus agrifolia*	N
Coyote brush	*Baccharis pilularis*	N
English ivy	*Hedera helix*	X
Fiddleneck	*Amsinckia ssp.*	N
Field marigold	*Calendula arvensis*	X
Foxtail barley	*Hordeum murinum*	X
Plantain	*Plantago sp.*	X
Poison hemlock	*Conium maculatum*	X
Storksbill	*Erodium sp.*	X
Wild oat	*Avena sativa*	X
Wild radish	*Raphanus sativus*	X
Wildlife Species		
American crow	*Corvus brachyrhynchos*	N
Anna's hummingbird	*Calypte anna*	N
California gull	*Larus californicus*	N
Canada goose	*Branta canadensis*	N
Cottontail rabbit	*Sylvilagus bachmani*	N
House finch	*Haemorhous mexicanus*	N
Killdeer	*Charadrius vociferus*	N
Mallard	*Anas platyrhynchos*	N
Northern mockingbird	*Mimus polyglottos*	N
Rock pigeon	*Columba livia*	X

Habitat Connectivity

The CDFW Biogeographic Information & Observation System (CDFW 2021a) was reviewed to determine if the BSA is located within an Essential Connectivity Area. The BSA is within an area of Terrestrial Connectivity Rank 1 – Limited connectivity opportunity. This ranking indicates that land use within the region, such as urban development, limits opportunities for habitat connectivity and no connectivity importance has been assigned to this region. Due to this low ranking and the scope of this Work, implementation of the Work would not have a substantial adverse effect to any existing habitat connectivity networks.

3.2 Regional Species and Habitats and Natural Communities of Concern

Plant and animal species have special status if they have been listed as such by Federal or State agencies or by one or more special interest groups, such as CNPS. Prior to the field survey, literature searches were conducted using USFWS IPaC, CDFW CNDDB, CNPS, and NMFS databases to identify regionally sensitive species with potential to occur within the BSA. **Table 2. Special Status Species with Potential to Occur in the Work Vicinity** provides the list of regional special status species returned by the database searches, describes the habitat requirements for each species, and states if the species was determined to have potential to occur within the BSA. Based on database searches, there were 29 plant species and 30 wildlife species with the potential to occur within the region for which the Work is proposed to occur. Seven species were determined to have the potential to occur within the BSA: the delta smelt (*Hypomesus transpacificus*), the longfin smelt (*Spirinchus thaleichthys*), CCC and CV steelhead DPSs (*Oncorhynchus mykiss irideus*), Chinook salmon (*Oncorhynchus tshawytscha*) CV spring run and Sacramento River winter run ESUs, and green sturgeon (*Acipenser medirostris*).

Table 2. Special Status Species with Potential to Occur in the Work Vicinity

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Amphibian Species						
California red-legged frog	*Rana draytonii*	Fed: State: CDFW:	T -- SSC	The species is endemic to California and northern Baja California. Inhabits lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Associated with humid forests, woodlands, grasslands, coastal scrub, and streamsides. The species requires 11-20 weeks of permanent water for larval development and must have access to estivation habitat; estivation occurs from late summer to early winter. If wetlands are dry, requires animal burrows or other moist refuges. Occurs close to permanent and quiet stream pools, marshes, and ponds. Breeds from March to July in northern regions and January to July in southern regions. Occurs from elevations near sea level to 5,200 feet.	A	**Presumed Absent:** According to CNDDB, the nearest recent (2006) occurrence of this species is 4 miles from the BSA; however, the region between the observation and the BSA is heavily urbanized and would inhibit relocation. This species requires shrubby, emergent riparian vegetation as habitat and occurs close to permanent pools of quiet water, marshes, and ponds. The BSA does not include any of these habitat types that could potentially suit this species. Due to a lack of potentially suitable habitat, this species is presumed absent from the BSA.
Foothill yellow-legged frog	*Rana boylii*	Fed: State: CDFW:	-- E SSC	Inhabits shallow streams and riffles with rocky substrate and open, sunny banks in a variety of habitats including chaparral and woodland forests. Tadpoles require water for at least three or four months to complete development. Breeds March to May, with eggs laid in clusters on the downstream side of rocks in shallow, slow-moving water, attached to rocks, pebbles, and vegetation. Occurs from	A	**Presumed Absent:** There are no recent CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include shallow streams that would act as suitable habitat for this species. Due to the absence of local occurrences as well as the lack of potentially suitable habitat, this species is presumed absent from the BSA.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				elevations near sea level to 6,700 feet.		
Bird Species						
Bank swallow	*Riparia riparia*	Fed: State: CDFW:	-- T --	A migratory colonial nester inhabiting lowland and riparian habitats west of the deserts during spring through fall. Majority of current breeding populations occur along the Sacramento and Feather Rivers in the north CV. Forages in grassland, brushland, wetlands, and cropland during migration. Requires vertical banks or cliffs with fine textured/sandy soils for nesting (tunnel and burrow excavations). Nests exclusively near streams, rivers, lakes, or the ocean. Breeds from May through July.	A	**Presumed Absent:** There are no local recent occurrences of this species; the last occurrence is historical (1893) and is located nearly 12 miles from the BSA. This species utilizes riparian habitats and requires vertical banks for nesting, and neither of these habitats are present within the BSA. Due to a lack of potentially suitable habitat and with no local recent occurrences, this species is presumed to be absent from the BSA.
California black rail	*Laterallus jamaicensis coturniculus*	Fed: State: CDFW:	-- T FP	A rare, yearlong California resident of brackish and freshwater emergent wetlands in delta and coastal locations, including the San Francisco Bay area, Sacramento-San Joaquin Delta, Morro Bay, the Salton Sea, and lower Colorado River. The species is extirpated from San Diego County and the majority of coastal southern California. Occurs in tidal emergent wetlands dominated by pickleweed, in brackish marshes dominated by bulrushes with pickleweed, and in freshwater wetlands dominated by bulrushes, cattails, and saltgrass. Species prefers high wetland areas, away from areas experiencing fluctuating water levels. Requires vegetation providing adequate overhead cover	A	**Presumed Absent:** There is a local recent (2011) CNDDB occurrence of this species 1.5 miles from the BSA. However, this species occurs in tidal emergent wetlands dominated by pickleweed; the BSA does not contain emerging wetland habitat or any plant species associated with the species. Due to a lack of potentially suitable habitat, this species is presumed to be absent from the BSA.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				for nesting. Eggs are laid from March through June.		
California Ridgway's rail	*Rallus obsoletus obsoletus*	Fed: State: CDFW:	E E FP	Previously known as the clapper rail. Depend on mudflats or shallow wetland habitat for cover and foraging habitat. Present in brackish areas around San Francisco, Monterey, and Morro bays. Preys on crabs, mussels, and insects. Breeds between mid-march and July with average clutch sizes of around 5-8 eggs. Decline of species is related to lost of emergent wetland habitat.	A	**Presumed Absent:** The only recent (2017) local CNDDB occurrences of this species are located 3.5 miles away from the BSA in Benicia State Park. The BSA does not contain mudflats or shallow wetland habitat that would serve as potentially suitable habitat for this species. Due to a lack of suitable habitat and with no local occurrences, this species is presumed absent from the BSA.
California least tern	*Sternula antillarum browni*	Fed: State: CDFW:	E E FP	A Californian nesting migrant from April through September. Forages in near-shore ocean water and shallow estuaries and lagoons. Species nests in colonies on sandy soils with sparse vegetation along the ocean, lagoons, and bays. Breeds beginning in April.	A	**Presumed Absent:** There are no CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not contain lagoon or estuary habitat. Due to a lack of occurrences and with no potentially suitable habitat, this species is presumed to be absent from the BSA.
Swainson's hawk	*Buteo swainsoni*	Fed: State: CDFW:	-- T --	Inhabits grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, alfalfa or grain fields that support a stable rodent prey base. Breeds March to late August.	A	**Presumed Absent:** The nearest recent (2013) CNDDB occurrence of this species is 8.5 miles north of the BSA. The BSA and area surrounding does not contain suitable foraging habitat such as grasslands or agricultural fields. Due to a lack of habitat and with no local occurrences, this species is presumed to be absent from the BSA.
Tricolored blackbird	*Agelaius tricolor*	Fed: State: CDFW:	-- T SSC	Inhabits freshwater marsh, swamp and wetland communities, but may utilize agricultural or upland habitats that can support large colonies, often in the CV area. Requires dense nesting habitat that is protected from predators, is within 3-5 miles from a suitable foraging area containing	A	**Presumed Absent:** The nearest recent (2005) local CNDDB occurrence of this species is 7.5 miles from the BSA. This species inhabits freshwater marsh, swamp, and wetland communities, none of which are present within the BSA. Due to a lack of habitat, this species is presumed absent.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				insect prey and is within 0.3 miles of open water. Suitable foraging includes wetland, pastureland, rangeland, at dairy farms, and some irrigated croplands (silage, alfalfa, etc.). Nests in dense cattails, tules, willow, blackberry, wild rose, or tall herbs. Nests mid-March to early August, but may extend until October or November in the Sacramento Valley region.		
Western snowy plover	*Charadrius nivosus nivosus*	Fed: State: CDFW:	T -- SSC	Inhabits sandy or gravelly beaches along the coast, on estuarine salt ponds, and the shores of large alkali lakes. Species requires sandy, gravelly or friable soil substrate for nesting. Nests are often in proximity to driftwood, rocks, or defoliated bushes. Breeding occurs above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, and salt pans. Breeds April to August.	A	**Presumed Absent:** The nearest recent (2009) CNDDB occurrence of this species is 7 miles from the BSA in the Napa-Sonoma Marshes Wildlife Area. There are no sand or gravel beaches within the BSA. Due to a lack of habitat and with no local occurrences, this species is presumed absent from the BSA.
Northern spotted owl	*Strix occidentalis caurina*	Fed: State: CDFW:	T T --	Inhabits with dense canopy closure of mature and old-growth trees, abundant logs, standing snags and live trees with broken tops. Their nesting season is generally from February- June and usually mate for life. The species nests in the tops of trees or in cavities of naturally deformed or diseased trees forests. This species historically inhabited forests throughout British Columbia, western Washington and Oregon, and northwestern California; however much of their habitat has been	A	**Presumed Absent:** There are no recent or historic CNDDB occurrences of this species within 10 miles of the BSA. The BSA does not contain any old-growth trees and therefore does not provide potentially suitable habitat for this species. Due to the lack of occurrences and the absence of habitat, this species is presumed absent from the BSA.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				negatively impacted by timber harvesting and land conversions.		
Fish Species						
Delta smelt	*Hypomesus transpacificus*	Fed: State: CDFW:	T E --	This species is endemic to California and can tolerate a wide range of salinity and temperatures but is most commonly found in brackish waters. Juveniles require shallow waters with food rich sources. Adults require adequate flow and suitable water quality for spawning in winter and spring. Occurs within the Sacramento-San Joaquin Delta and seasonally within the Suisun Bay, Carquinez Strait and San Pablo Bay. Most often occurs in partially saline waters.	HP	**High Potential:** The BSA contains Mare Island Strait, an estuarine channel that links the Napa River to the Pacific Ocean. This species is commonly found in brackish waters, which occur in estuaries where saltwater meets freshwater such as the junction between Napa River and San Pablo Bay. Additionally, there is a recent (2006) CNDDB occurrence of this species 3 miles from the BSA in San Pablo Bay, which connects to Mare Island Strait through the Carquinez Strait. Due to the presence of habitat as well as the recent documented occurrence, this species is presumed to have a high potential of occurring in the BSA. The CDFW MWT collected 37 delta smelt in the 20 years of sampling at station 304 **Effect Determination:** The Work would have no potential for take of delta smelt as in-water work can be isolated from the BSA preventing potential take of the species. Effect to delta smelt habitat would be minimal loss of waters at MHW. The project would not have a substantial adverse effect, either directly or through habitat modifications, on this species.
Longfin smelt	*Spirinchus thaleichthys*	Fed: State: CDFW:	C T --	Within California, occurs slightly upstream from Rio Vista (on the Sacramento River in the Delta) including the Cache Slough region and Medford Island (on the San Joaquin River in the Delta) through	HP	**High Potential:** The BSA contains Mare Island Strait, an estuarine channel that links the Napa River to the Pacific Ocean. This species is known to occupy San Pablo Bay, which Mare Island Strait eventually feeds into (CDFW 2021d);

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				Suisun Bay and Suisun Marsh, the San Pablo Bay, the main San Francisco Bay, South San Francisco Bay, the Gulf of the Farallones, Humboldt Bay, and the Eel river estuary & local coastal areas. Resides in California and are primarily an anadromous estuarine species that can tolerate salinities ranging from freshwater to nearly pure seawater. Prefers temperatures in the range of 16-18°C and salinities ranging from 15-30 ppt. Their spatial distribution within a bay or estuary is seasonally variable. Longfin smelt may also make daily migrations; remaining deep during the day and rising to the surface at night.		additionally, CNDDB lists this species as presumed extant within the Mare Island Strait as of 2012. Therefore, this species is considered to have high potential of occurring within the BSA. The CDFW MWT collected 784 longfin smelt in the 20 years of sampling at station 304. **Effect Determination:** The Work would have no potential for take of longfin smelt, as in-water work can be isolated from the BSA preventing potential take of the species. Effect to longfin smelt habitat would be minimal loss of waters at MHW. The project would not have a substantial adverse effect, either directly or through habitat modifications, on this species.
Central California Coast Steelhead DPS	*Oncorhynchus mykiss irideus pop. 8*	Fed: State: CDFW:	T -- --	Southern California and central California steelhead utilize rivers and creeks from Pajaro River south to Santa Maria River. Spawning occurs in coastal watersheds while rearing occurs in freshwater or estuary habitats prior to emigrating to the ocean in the winter and spring. Preferred spawning sites contain gravel substrate with sufficient water flow and riverine cover. Rearing habitat contains sufficient feeding with associated riparian forest containing willow and cottonwoods. Migration upstream for reproduction occurs from October to May with spawning occurring January to April.	HP	**Low Potential:** The BSA contains Mare Island Strait, an estuarine channel that links the Napa River to the Pacific Ocean. The Napa River is known to support runs of this species. Additionally, there is one recent (2000) CNDDB occurrence of this species located 6 miles north of the BSA in the Napa River. Due to the extant status of this species in this waterway and with a recent local occurrence, this species is presumed to have a high potential of occurring within the BSA. The CDFW MWT collected 2 steelhead in the 20 years of sampling at station 304. **Effect Determination:** The Work would have no potential for take of steelhead CCC DPS as the species would not be present in the BSA during construction

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						(June 1 to November 15). Effect to Steelhead CCC DPS habitat would be minimal loss of waters at MHW. The project would not have a substantial adverse effect, either directly or through habitat modifications, on this species.
California CV Steelhead DPS	*Oncorhynchus mykiss irideus pop. 11*	Fed: State: CDFW:	T -- --	This species is known to occur along most of the California coast line and inhabits freshwater streams and tributaries in northern and central California. The preferred habitat consists of estuaries, freshwater streams and near shore habitat with productive coastal oceans. Spawning occurs in small freshwater streams and tributaries occurs from January through March and could extend into spring. Spawning occurs where cool, well oxygenated water is available year-round. Approximately 550-1,300 eggs are deposited in an area with good intergravel flow. The fry emerge from the gravel about 4-6 six weeks after hatching and remain in shallow protected areas associated with stream margin. Juveniles may remain in freshwater for the rest of their life cycle or return to the ocean. The principal remaining wild populations spawn annually in Deer and Mill Creeks in Tehama County, in the lower Yuba River, and a small population in the lower Stanislaus River.	HP	**Low Potential:** The Work area contains Mare Island Strait, an estuarine channel that links the Napa River to the Pacific Ocean. This species is only known to occupy the Feather River and the mainstem and tributaries of the Sacramento River. There are no documented CNDDB occurrences of this species within the waterway adjacent to the BSA. As the BSA is at the furthest extent of the species known range as well as the lack of occurrences, presence of this species is presumed very unlikely within the BSA. **Effect Determination:** The Work would have no potential for take of CV steelhead DPS as the species would not be present in the BSA during construction (June 1 to November 15). Effect to CV steelhead DPS habitat would be minimal loss of waters at MHW. The project would not have a substantial adverse effect, either directly or through habitat modifications, on this species.
Chinook salmon – CV spring-run ESU	*Oncorhynchus tshawytscha pop. 11*	Fed: State: CDFW:	T T --	Spring-run Chinook enter the Sacramento-San Joaquin River system to spawn, requiring larger gravel particle size and more water	HP	**Low Potential:** The BSA contains Mare Island Strait, an estuarine channel that links the Napa River to the Pacific Ocean. This species is known to occupy

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				flow through their redds than other salmonids. Remaining runs occur in Butte, Mill, Deer, Antelope, and Beegum Creeks, tributaries to the Sacramento River. Known to occur in Siskiyou and Trinity counties.		only in Feather River and the mainstem and tributaries of the Sacramento River. Additionally, there are no documented CNDDB occurrences of this species within the waterway adjacent to the BSA. Due to the BSA being at the furthest extent of the species known range as well as the lack of occurrences, the presence of this species is presumed very unlikely within the BSA. **Effect Determination:** The Work would have no potential for take of Chinook salmon, CV spring-run ESU as the species would not be present in the BSA during construction (June 1 to November 15). Effect to Chinook salmon, CV spring-run ESU habitat would be minimal loss of waters at MHW. The project would not have a substantial adverse effect, either directly or through habitat modifications, on this species.
Chinook salmon – Sacramento River winter-run ESU	*Oncorhynchus tshawytscha pop. 7*	Fed: State: CDFW:	E E --	Winter-run Chinook are currently restricted within the Sacramento River below Keswick dam; species does not spawn in tributaries. Species requires cold water over gravel beds to spawn.	HP	**Low Potential:** The BSA contains Mare Island Strait, an estuarine channel that links the Napa River to the Pacific Ocean. This species is restricted to the Sacramento River and its tributaries and is not known to occur in the Napa River or Mare Island Strait. There are no documented CNDDB occurrences of this species within the Mare Island Strait. Due to the BSA being at the furthest extent of the species' known range as well as the lack of occurrences, the species is presumed to be very unlikely within the BSA.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						Effect Determination: The Work would have no potential for take of Chinook salmon, CV winter-run ESU as the species would not be present in the BSA during construction (June 1 to November 15). Effect to Chinook salmon, CV winter-run ESU habitat would be minimal loss of waters at MHW. The project would not have a substantial adverse effect, either directly or through habitat modifications, on this species.
sPDS green sturgeon	*Acipenser medirostris*	Fed: State: CDFW:	T -- SSC	Most marine of the sturgeon species. Predominately spawns in the upper Sacramento River, with some recorded in the Rogue River, Klamath and Trinity Rivers (Klamath River basin). In the Sacramento River, green sturgeon spawn above Hamilton City up to Keswick Dam. Known to occupy other river bodies including the lower Feather River; spawning not recorded; no green sturgeon has ever been documented in the San Joaquin River or its tributaries. Large cobbles preferred for spawning, but may utilize a range of substrates from bedrock to sand. Spawning occurs March-July.	CH	**Low Potential:** The BSA contains Mare Island Strait, an estuarine channel that links the Napa River to the Pacific Ocean. Additionally, Mare Island Strait has been designated as critical habitat for this species. This species is not known to spawn in the Napa River and there are no documented CNDDB occurrences of the species in this waterway. Individuals of this species pass near the BSA as they journey to and from their river spawning sites and have been collected in San Pablo Bay (CalFish 2018). **Effect Determination:** The Work would have no potential for take of green sturgeon, as in-water work can be isolated from the BSA preventing potential take of the species. Loss of green sturgeon habitat would not occur as this bottom dwelling species generally does not utilize shallow habitat near the shoreline. The project would not have a substantial adverse effect, either directly or through habitat modifications, on

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						this species.
EFH for Salmon	--	--	--	EFH has been designated for salmon, within the Pacific Salmon Fisheries Management Plan by the NMFS under the MSA of 1976.	HP	**Present:** The Work is within the delineated boundaries of EFH for salmon. **Effect Determination:** The Work would result in minimal loss of EFH.
EFH for Groundfish	--	--	--	EFH has been designated for Groundfish by the NMFS under the MSA of 1976.	HP	**Present:** The Work is within the delineated boundaries of EFH for Groundfish. **Effect Determination:** The Work would result in minimal loss of EFH.
EFH for Coastal Pelagic Species	--	--	--	EFH has been designated for Coastal Pelagic Species by the NMFS under the MSA of 1976.	HP	**Present:** The Work is within the delineated boundaries of EFH for Coastal Pelagic Species. **Effect Determination:** The Work would result in minimal loss of EFH.
Invertebrate Species						
California freshwater shrimp	*Syncaris pacifica*	Fed: State: CDFW:	E E --	The species inhabits a broad range of stream and water temperature conditions characteristic of small, perennial coastal streams found only in low-elevations (less than 380 feet). Habitat conditions include streams 12 to 36 inches deep with exposed live roots of trees such as alders and willow along undercut banks greater than 6 inches, with overhanging woody debris or stream vegetation. Current known range limited to tributary streams in the lower Russian River, coastal streams flowing west directly to the Pacific Ocean, streams draining to Tomales Bay, and streams flowing southward into northern San Pablo Bay.	A	**Presumed Absent:** The only local CNDDB occurrence of this species is historic and located over 11 miles away from the BSA. Additionally, the BSA does not include the stream habitat that this species inhabits. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Callippe silverspot butterfly	*Speyeria callippe callippe*	Fed: State: CDFW:	E -- --	A medium-sized butterfly whose habitat includes viola plants. Known to occur in grassland habitats in the counties that border San Francisco Bay. Threatened by habitat fragmentation as a result of urban development. Forages on a variety of plant species where it feeds on flower nectar. One flight of adults per year.	A	**Presumed Absent:** All recent (2009) CNDDB occurrences are concentrated in Sulphur Springs Valley 4 miles east of the BSA. Additionally, the BSA does not include grassland habitat, which serves as potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed to be absent from the BSA.
San Bruno elfin butterfly	*Callophrys mossii bayensis*	Fed: State: CDFW:	E -- --	Inhabits rocky slopes and ledges in coastal scrub around San Bruno Mountain. Prefers steep, north facing slopes that receive little direct sunlight. The species' host plant is broadleaf stone crop (Sedum spathulifolium); however, the species feeds on other flowers as well, such as mountain manzanita (Arctostaphylos montaraensis) and huckleberry (Vaccinium ovatum). Adult flight period occurs late February to mid-April.	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the host plant and foraging plants of this species were not observed within the BSA, and the BSA is located approximately 30 miles from San Bruno Mountain. Due to a lack of occurrences and with no potentially suitable habitat, this species is presumed to be absent from the BSA.
Monarch- California overwintering population	*Danaus plexippus pop. 1*	Fed: State: CDFW:	C -- --	Winter roosts along the coast from northern Mendocino to Baja California. Utilizes wind protected tree groves in proximity to nectar and water sources. Host plants include milkweed species such as *Asclepias syriaca, A. incarnara,* and *A. speciosa*. Suitable habitat includes fields, meadows, weedy areas, marshes, and roadsides. Mass adult migrations occur from August to October.	A	**Presumed Absent:** The nearest recent (2015) CNDDB occurrence of this species is located on Mare Island, less than 1 mile from the BSA. However, no *Asclepias* species were observed within the BSA, which are host plants that monarch butterflies require. Due to a lack of potentially suitable habitat, this species is presumed absent from the BSA.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Fed: State: CDFW:	T -- --	Species requires red or blue elderberry (*Sambucus sp.)* as host plants. Typically occurs in moist	A	**Presumed Absent:** The only recent (2004) CNDDB occurrence of this species is over 11 miles from the BSA.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				valley oak woodlands associated with riparian corridors in the lower Sacramento River and upper San Joaquin River drainages. Adults are active, feeding, and breeding from March until June (sea level-3,000 feet).		Additionally, no elderberry bushes were observed within the BSA, which are a requirement for this species. Due to a lack of habitat and with no local occurrences, this species is presumed absent from the BSA.
Vernal pool fairy shrimp	*Branchinecta lynchi*	Fed: State: CDFW:	T -- --	In California, species inhabits portions of Tehama county, south through the CV, and scattered locations in Riverside County and the Coast Ranges. Species is associated with smaller and shallower cool-water vernal pools approximately 6 inches deep and short periods of inundation. In the southernmost extremes of the range, the species occurs in large, deep cool-water pools. Inhabited pools have low to moderate levels of alkalinity and total dissolved solids. The shrimp are temperature sensitive, requiring pools below 50 F to hatch and dying within pools reaching 75 F. Young emerge during cold-weather winter storms.	A	**Presumed Absent:** The nearest recent (2003) local CNDDB occurrence of this species is around 8.5 miles north of the BSA. There are no vernal pools present within the BSA, which serve as potentially suitable habitat for this species. Due to a lack of habitat and with no local occurrences, this species is presumed to be absent from the BSA.
Conservancy fairy shrimp	*Branchinecta conservatio*	Fed: State: CDFW:	E -- --	Inhabits relatively large and turbid clay bottomed playa vernal pools. Species requires pools to continuously hold water for a minimum of 19 days and must remain inundated into the summer months. Occupied playa pools typically are 1 to 88 acres in size, but species may utilize smaller, less turbid pools.	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, there are no vernal pools within the BSA, which serve as habitat for this species. Due to a lack of habitat and with no local occurrences, this species is presumed absent from the BSA.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Western bumble bee	*Bombus occidentalis*	Fed: State: CDFW:	-- -- CE	The habitat for this species is described as open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. Most reports of B. occidentalis nests are from underground cavities such as old squirrel or other animal nests and in open west-southwest slopes bordered by trees, although a few nests have been reported from above-ground locations such as in logs among railroad ties. Elevations of known sites range from sea level to over 2,000 m asl.	A	**Presumed Absent:** There are no recent CNDDB occurrences of this species within 10 miles of the BSA. The BSA does not provide suitable grassland, chaparral, or mountain meadow habitat to support this species. Due to a lack of habitat and with no recent local occurrences, this species is presumed absent from the BSA.
Mammal Species						
Salt-marsh harvest mouse	*Reithrodontomys raviventris*	Fed: State: CDFW:	E E FP	Small mammal found exclusively in saline emergent wetlands of San Francisco Bay and its tributaries. Likely to subsist on leaves, seeds, and stems of salt marsh plants. Nests above ground in a bed of grasses and sedges. Capable of drinking salt water, though fresh water is still required. Pickleweed remains its primary habitat. Breeds March to November, and averages 4 young per litter. Capable of producing 2 litters per year.	A	**Presumed Absent:** Most observations of this species on CNDDB are historic; the closest recent (2005) observation is located nearly 6 miles from the BSA. This mammal is found exclusively in saline emergent wetlands, which are not present within the BSA. Due to a lack of potentially suitable habitat and with no local occurrences, this species is presumed absent from the BSA.
Reptile Species						
Alameda whipsnake	*Masticophis lateralis euryxanthus*	Fed: State: CDFW:	T T --	The species is typically found in chaparral, northern coastal sage scrub, open woodlands, and coastal sage scrub. Frequents canyons, rocky hillsides, pond edges, and stream courses. Rock outcrops, rock	A	**Presumed Absent:** There is one recent (2002) CNDDB occurrence of this species 6 miles south of the BSA. This species is typically found in habitat types that are not present within the BSA. Additionally, there are no canyons,

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				crevices and mammal burrows are important features of their habitat because they provide safe escape from predators and heat and a place to hibernate. The species may travel up to 500 feet into nearby grasslands and stay there for periods ranging from a few hours to several weeks at a time. Courtship and mating take place from late-March through mid-June. Eggs are laid in late spring and early summer.		ponds, or streams within the BSA. Due to a lack of habitat and with no local occurrences of this species, the species is presumed absent from the BSA.
Giant garter snake	*Thamnophis gigas*	Fed: State: CDFW:	T T --	A highly aquatic species that inhabits marsh, swamp, wetland (including agricultural wetlands), sloughs, ponds, rice fields, low gradient streams and irrigation/drainage canals adjacent to uplands. Ideal habitat contains both shallow and deep water with variations in topography. Species requires adequate water during the active season (April-November), emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat and mammal burrows estivation. Requires grassy banks and openings in waterside vegetation for basking and higher elevation uplands for cover and refuge from flood waters during winter dormant season. Mating occurs in the spring and females bear live young.	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. The BSA does not include any wetland, swamp, or marsh habitat that would act as potentially suitable habitat for this species. Due to a lack of habitat and with no local CNDDB occurrences, this species is presumed absent from the BSA.
Plant Species						
Big tarplant	*Blepharizonia plumosa*	Fed: State: CDFW:	-- 1B.1 --	An annual herb inhabiting dry hills and plains of valley and foothill grassland communities, often within	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				clay soils. Flowers July-October (0-1,660 feet).		Additionally, the BSA does not include foothill grassland habitat. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Congdon's tarplant	*Centromadia parryi ssp. congdonii*	Fed: State: CDFW:	-- 1B.1 --	An annual herb endemic to California, inhabiting wetlands in the arid west and inhabiting both wetlands and non wetlands in the mountains, valley, and coast. Also found in alkaline soils in foothill and valley grassland habitats. Blooms May-October (0-980 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not contain wetland or grassland habitat, which serve as potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Santa Cruz tarplant	*Holocarpha macradenia*	Fed: State: CDFW:	-- 1B.1 --	An annual herb endemic to California, inhabiting grassy areas and clay soils in coastal prairie and valley grassland habitats. Blooms June-October (0-650 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include coastal prairie or valley grassland habitat which this species inhabits. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Carquinez goldenbush	*Isocoma argute*	Fed: State: CDFW:	-- 1B.1 --	A perennial shrub inhabiting akaline soils in valley and foothill grasslands. Flowers August-December (0-65 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not contain grassland communities that this species inhabits. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Contra Costa goldfields	*Lasthenia conjugens*	Fed: State: CNPS:	-- 1B.1 --	An annual herb inhabiting cismontane woodland, alkaline playas, valley and foothill grasslands, and vernal pools with mesic soils. Flowers March-June (0-1,540 feet).	A	**Presumed Absent:** The nearest and only recent (2017) CNDDB occurrence is located 10 miles away from the BSA. Additionally, the BSA does not include any of the habitat types this species is

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						known to inhabit. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Legenere	*Legenere limosa*	Fed: State: CDFW:	-- 1B.1 --	An annual herb inhabiting wet areas, vernal pools, and ponds. Flowers April-June (0-2,900 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include vernal pools or ponds, which serves as potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Mason's lilaeopsis	*Lilaeopsis masonii*	Fed: State: CDFW:	-- 1B.1 --	A perennial rhizomatous herb found exclusively in the Sacramento-San Joaquin River Delta and San Francisco Bay. Found in low elevation freshwater and brackish mashes adjacent to surface water. Flowers June-August (0-100 feet).	A	**Presumed Absent:** The nearest recent (2007) occurrence of this species is located 3 miles away from the BSA. The BSA does not include marsh habitat that this species inhabits. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Two-fork clover	*Trifolium amoenum*	Fed: State: CDFW:	-- 1B.1 --	An annual herb inhabiting serpentine soils in coastal bluff scrub and valley/foothill grasslands. Flowers April-June (15-1,360 feet).	A	**Presumed Absent:** There are no recent CNDDB occurrences of this species in the vicinity of the BSA. Additionally, the BSA does not contain serpentine soils that this species inhabits. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Alkali milk-vetch	*Astragalus tener var. tener*	Fed: State: CDFW:	-- 1B.2 --	An annual herb inhabiting low ground and alkaline soils of playas, alkaline flats, vernally moist meadows, vernal pools, and valley and foothill grassland of adobe clay. Flowers March-June (0-200 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not contain any of the habitat types this species is known to inhabit. Due to a lack of local occurrences and with no potentially

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						suitable habitat, this species is presumed absent from the BSA.
Big-scale balsamroot	*Balsamorhiza macrolepis*	Fed: State: CDFW:	-- 1B.2 --	A perennial herb inhabiting open grassy or rocky slopes and valleys within chaparral, cismontane woodland, valley and foothill grassland communities; sometimes occurs in serpentinite soils. Flowers March-June (300-5,100 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA is not located within chaparral, cismontane woodland, or grassland communities, and therefore does not include potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Mt. Diablo fairy-lantern	*Calochortus pulchellus*	Fed: State: CDFW:	-- 1B.2 --	A perennial bulbiferous herb that occurs in foothill woodland, chaparral, and valley grassland communities. Blooms April-June (200-800 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any foothill woodland, chaparral, or valley grassland habitat. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Tiburon paintbrush	*Castilleja affinis var. neglecta*	Fed: State: CDFW:	-- 1B.2 --	A perennial herb native to California, inhabiting serpentine soils in valley and foothill grassland communities. Flowers April-June (200-1,300 feet).	A	**Presumed Absent:** The only recent (2013) CNDDB occurrence of this species is located 5.5 miles north of the BSA. The BSA does not contain any serpentinite soils and does not provide potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Holly-leaved ceanothus	*Ceanothus purpureus*	Fed: State: CDFW:	-- 1B.2 --	A perennial evergreen shrub inhabiting volcanic, rocky, chaparral and cismontane woodland vegetative communities. Common in Napa, Shasta, Solano, Sonoma, and Trinity	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include the habitat community types that this species is known to inhabit. Due to a lack

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				counties. Flowers February-June (400-2,100 feet).		of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Pappose tarplant	*Centromadia parryi ssp. parryi*	Fed: -- State: 1B.2 CDFW: --		An annual herb inhabiting chaparral, coastal scrub, meadows, seeps, marshes, swamps (coastal salt), and valley foothill grasslands often with alkaline soils. Flowers May-November (0-1,375 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any of the habitat types this species is known to inhabit. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Soft salty bird's-beak	*Chloropyron mole ssp. molle*	Fed: -- State: 1B.2 CDFW: --		An annual herb that occurs in coastal salt marshes and wetland-riparian habitats. Flowers July-November (0-30 feet).	A	**Presumed Absent:** The nearest local CNDDB occurrence of this species is 3.5 miles away from the BSA in Benicia State Park. The BSA does not contain any coastal salt marsh or wetland-riparian habitat, which serve as potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Western leatherwood	*Dirca occidentalis*	Fed: -- State: 1B.2 CDFW: --		A shrub that inhabits a variety of communities including north coastal coniferous, closed cone pine, and mixed evergreen forests. Also found in foothill woodland, chaparral, and wetland-riparian habitats. Blooms January-March (150-1200 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any of the habitat types this species is known to inhabit. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Tiburon buckwheat	*Eriogonum luteolum var. caninum*	Fed: -- State: 1B.2 CDFW: --		An annual herb that inhabits chaparral, coastal prairie, and valley grassland communities. Grows in serpentine soils. Flowers May-September (0-2100 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not contain any serpentine soils, which this species requires to grow. Due to a lack of local

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Jepson's coyote thistle	*Eryngium jepsonii*	Fed: State: CDFW:	-- 1B.2 --	A perennial herb inhabiting moist clay soils within valley and foothill grassland and vernal pool communities. Flowers April-August (0-1,640 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any grassland or vernal pool habitat that could serve as potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
San Joaquin spearscale	*Atriplex joaquinana*	Fed: State: CDFW:	-- 1B.2 --	An annual herb inhabiting alkaline soils of chenopod scrub, meadows and seeps, playas and valley and foothill grassland communities. Flowers April-September (0-2,740 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not contain any of the habitat communities that this species is known to inhabit. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Fragrant fritillary	*Fritillaria liliacea*	Fed: State: CDFW:	-- 1B.2 --	A perennial herb (bulb) inhabiting serpentine soils within cismontane woodlands, coastal priairies, coastal scrub, valley and foothill grasslands. Blooms February-April (10-1,350 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any serpentine soils or the habitat types that could serve as potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Mt. Diablo helianthella	*Helianthella castanea*	Fed: State: CDFW:	-- 1B.2 --	A perennial herb endemic to California, inhabiting rocky, axonal soils in partial shade within broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley grassland, and foothill grassland communities. Blooms March-June (200-4,300 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not contain any of the habitat types that this species is known to inhabit. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Delta tule pea	*Lathyrus jepsonii var. jepsonii*	Fed: State: CDFW:	-- 1B.2 --	A perennial herb inhabiting freshwater and brackish marshes of coastal and estuarine communities. Flowers May-September (0-20 feet).	A	**Presumed Absent:** The nearest CalFlora occurrence of this species is located 3.5 miles from the BSA in Benicia State Park. Additionally, the BSA does not contain any marsh communities that serve as potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Long styled sand-spurrey	*Spergularia macrotheca*	Fed: State: CDFW:	-- 1B.2 --	A perennial herb that can be found in alkaline marshes, mud flats, and meadows. Flowers February-May (0-200 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any alkali marshes, mud flats, or meadows that could serve as habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Suisun Marsh aster	*Symphyotrichum lentum or Aster lentus*	Fed: State: CDFW:	-- 1B.2 --	A perennial rhizomatous herb inhabiting wetlands, freshwater marsh, and brackish-marsh communities. Flowers May-November (0-10 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any wetland or marsh habitat that could serve as potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						suitable habitat, this species is presumed absent from the BSA.
Saline clover	*Trifolium hydrophilum*	Fed: State: CDFW:	-- 1B.2 --	An annual herb inhabiting mesic, alkaline soils of salt marsh, marshes and swamps, vernal pools, and valley and foothill grasslands. Flowers April-June (0 - 1,000 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any of the habitat types that this species is known to inhabit. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Bolander's water-hemlock	*Cicuta maculate var. bolanderi*	Fed: State: CDFW:	-- 2B.1 --	A perennial herb inhabiting coastal marshes and swamps with fresh or brackish water. Blooms July-September (0-660 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any marsh or swamp habitat that could serve as suitable habitat for this species. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Lyngbye's sedge	*Carex lyngbyei*	Fed: State: CDFW:	-- 2B.2 --	A perennial grasslike herb that occurs in brackish areas such as coastal salt marshes and wetlands. Flowers April-August (0 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any salt marsh or wetland habitat that this species is known to inhabit. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.
Dwarf downingia	*Downingia pusilla*	Fed: State: CDFW:	-- 2B.2 --	An annual herb inhabiting vernal pools and mesic soils in valley and foothill grassland communities. Flowers March-May (0-1,500 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any vernal pools or mesic soils, which serve as potentially suitable habitat for this species. Due to a lack of local occurrences and with no potentially

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						suitable habitat, this species is presumed absent from the BSA.
Chaparral ragwort	*Senecio aphanactis*	Fed: State: CDFW:	-- 2B.2 --	An annual herb native to California and Baja California, inhabiting alkaline soils in cismontane woodland, coastal scrub, and chaparral communities. Blooms January-May (50-2,600 feet).	A	**Presumed Absent:** There are no recent or historical CNDDB occurrences of this species within 10 miles of the BSA. Additionally, the BSA does not include any cismontane woodland, coastal shrub, or chapparal communities. Due to a lack of local occurrences and with no potentially suitable habitat, this species is presumed absent from the BSA.

Federal Designations (Fed): (FESA, USFWS) **E:** Federally listed, endangered **T:** Federally listed, threatened **DL**: Federally listed, delisted	**State Designations (CA):** (CESA, CDFW) **E:** State-listed, endangered **T:** State-listed, threatened
Other Designations CDFW_SSC: CDFW Species of Special Concern CDFW_FP: CDFW Fully Protected	
California Native Plant Society (CNPS) Designations: ***Note: according to CNPS (Skinner and Pavlik 1994), plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions.*** **1A:** Plants presumed extinct in California. **1B:** Plants rare and endangered in California and throughout their range. **2:** Plants rare, threatened, or endangered in California but more common elsewhere in their range. **3:** Plants about which need more information; a review list. **Plants 1B, 2, and 4 extension meanings:** _**.1 Seriously** endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat) _**.2 Fairly** endangered in California (20-80% occurrences threatened) _**.3** Not very endangered in California (<20% of occurrences threatened or no current threats known)	
Habitat Potential Absent [A] - No habitat present and no further work needed. Habitat Present [HP] - Habitat is or may be present. The species may be present. Critical Habitat [CH] – Project is within designated critical habitat.	
Potential for Occurrence Criteria: **Present**: Species was observed on site during a site visit or focused survey. **High**: Habitat (including soils and elevation factors) for the species occurs on site and a known occurrence has been recorded within 5 miles of the site. **Low-Moderate**: Either low quality habitat (including soils and elevation factors) for the species occurs on site and a known occurrence exists within 5 miles of the site; or suitable habitat strongly associated with the species occurs on site, but no records were found within the database search. **Presumed Absent**: Focused surveys were conducted, and the species was not found, or species was found within the database search but habitat (including soils and elevation factors) do not exist on site, or the known geographic range of the species does not include the survey area.	
Source: (CDFW 2021b), (CNPS 2021), (Calflora 2021), (Jepson 2021), (USFWS 2021), (NMFS 2021).	

4. Results: Biological Resources, Discussion of Impacts, and Mitigation

4.1 Habitats and Natural Communities of Special Concern

Within the BSA, Mare Island Strait has been identified as a natural community of special concern and is discussed in this section. Additionally, the following communities of special concern under NMFS and USFWS jurisdiction have been identified as present within the BSA: sDPS green sturgeon critical habitat and salmon, groundfish, and coastal pelagic species EFH. **Table 3. Impacts to Sensitive Natural Habitats** and **Figure 5. Work Impacts** outline the impacts to Mare Island Strait, the sDPS green sturgeon critical habitat, and EFH. Control measures, BMPs, and AMMs for these communities are discussed in detail in this section.

Table 3. Impacts to Sensitive Natural Habitats

Impact Type (acres)	Sensitive Natural Habitat
	Mare Island Strait (Jurisdictional Water of the U.S./State, sDPS Green Sturgeon Critical Habitat, and EFH)
Temporary	0.01 acre/456 square feet
Permanent	0.01 acre/459 square feet
Total	**0.02 acre/915 square feet**

4.1.1 Mare Island Strait

Mare Island Strait is an estuarine channel that runs between Mare Island and the mainland and links the Napa River to the Carquinez Strait and subsequently San Pablo Bay. Formerly used by the Mare Island Naval Shipyard up until 1993, the strait is now primarily used for recreational boating and freight shipping. Mare Island Strait is approximately 3 miles long, 1,400 feet wide, and has a dredged depth of 30 feet. The salinity of the strait depends on the season, water flow, and local tides; however, upstream freshwater diversions for agriculture have artificially increased the salinity of Mare Island Strait over time (Sommer et al. 2020). Due to local urban development, the strait is sparsely vegetated with ruderal species along its banks (including blessed milk thistle (*Silybum marianum*) and wild radish (*Raphanus sativus*)). The BSA contains approximately 0.86 acre of Mare Island Strait.

Work Impacts to Mare Island Strait

The Work is anticipated to have minimal temporary and permanent impacts to Mare Island Strait (**Table 3**; **Figure 5**). Temporary impacts to Mare Island Strait would occur to allow construction equipment access, coffer dam installation, and for constructing the outfall, totaling in approximately 0.01 acre/456 square feet. Permanent impacts to the Strait would occur due to the permanent installation of the proposed storm drain, headwall, and riprap, totaling in approximately 0.01 acre/459 square feet.

Control Measures, BMPs, and AMMs for Mare Island Strait

The following control measures, BMPs, and AMMs would be incorporated into the Work design and Work management to reduce potential impacts to Mare Island Strait within the BSA.

CM-1: Every individual working involved in construction will attend a biological awareness training session delivered by a qualified biologist. This training program will include information regarding the sensitive habitats and special-status species occurring or potentially occurring within the Work area, and the importance of avoiding impacts to these species and their habitat.

CM-2: BMPs will be incorporated into Work design and Work management to minimize impacts on the environment including erosion and the release of pollutants (e.g. oils, fuels):

- Exposed soils and material stockpiles will be stabilized, through watering or other measures, to prevent the movement of dust at the Work site caused by wind and construction activities such as traffic and grading activities;
- All construction roadway areas will be properly protected to prevent excess erosion, sedimentation, and water pollution;
- All vehicle and equipment fueling/maintenance will be conducted outside of any surface waters;
- Equipment used in and around jurisdictional waters will be in good working order and free of dripping or leaking contaminants;
- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life will be prevented from contaminating the soil or entering jurisdictional waters;
- All erosion control measures and storm water control measures will be properly maintained until the site has returned to a pre-construction state;
- All temporarily disturbed areas will be restored to pre-construction conditions;
- All construction materials will be hauled off-site after completion of construction;
- Upon completion of construction activities, any temporary barriers to surface water flow will be removed in a manner that will allow flow to resume with the least disturbance to the substrate.

CM-3: All in-water work will occur outside of the salmonid migratory season (June 1 to November 15). All work will occur within a cofferdam which isolates the Work area from the waters of Mare Island Strait. Cofferdam installation will occur at low tide when only a few inches of water are present in the in-water work area.

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V:\2265_McCune Weir\Vallejo Storm Drain\Biology\F5_Impacts.mxd

Source: ESRI Maps Online; Dokken Engineering 12/8/2021; Created By: cfavro

1 inch = 50 feet

0 50 100 150 200 250 Feet

Figure 5
Work Impacts

Vallejo Storm Drain Replacement Work
Solano County, California

4.1.2 Southern DPS Green Sturgeon Critical Habitat

The sDPS green sturgeon critical habitat is defined by several Physical and Biological Features (PBFs), including access to food resources, adequate aquatic flow, water quality, sediment quality, sufficient water depth, and access to a migratory corridor. These requirements were evaluated by the National Oceanic and Atmospheric Administration (NOAA) in determining the critical habitat for this species in 2009 (74 FR 52299). Areas designated as sDPS green sturgeon critical habitat include coastal bays, estuaries, and certain qualifying rivers spanning from Cape Flattery, Washington to Monterey Bay, California. Specifically, sDPS green sturgeon critical habitat includes the Napa River, Carquinez Strait, and San Pablo Bay. Mare Island Strait serves as an important connection between the Napa River, Carquinez Strait, and San Pablo Bay; therefore, sDPS green sturgeon critical habitat is located within the Work's BSA.

It is anticipated that the Work would result in changes to critical habitat that are expected to be discountable (extremely unlikely to occur) and insignificant (too small to detect or measure) for the sDPS green sturgeon.

Work Impacts to Green Sturgeon Critical Habitat

The Work is anticipated to result in temporary and permanent impacts to sDPS green sturgeon critical habitat (**Table 3**; **Figure 5**). Temporary impacts to the sDPS green sturgeon critical habitat would occur to allow construction equipment access for constructing the outfall of the proposed storm drain, totaling in approximately 0.01 acre/456 square feet. Permanent impacts to the critical habitat would occur due to the permanent installation of the proposed storm drain, headwall, and riprap, totaling in approximately 0.01 acre/459 square feet.

Control Measures, BMPs, and AMMs for the Green Sturgeon Critical Habitat

The implementation of measures **CM-1** through **CM-3** into the Work design and Work management would reduce potential impacts of erosion and the introduction of pollutants into the sDPS green sturgeon critical habitat within the BSA.

4.1.3 Presence of EFH

The NMFS has identified and mapped EFH for each life stage of nearly 1,000 federally managed fish species. Within the Work area, EFH for salmon, groundfish, and coastal pelagic species are all present.

It is anticipated that the Work would result in changes to EFH that are expected to be discountable (extremely unlikely to occur) and insignificant (too small to detect or measure).

Work Impacts to EFH

The Work is anticipated to have temporary and permanent impacts to EFH (**Table 3**; **Figure 5**). Temporary impacts to the EFH would occur to allow construction equipment access for constructing the outfall of the proposed storm drain, totaling in approximately 0.01 acre/456 square feet. Permanent impacts to the EFH would occur due to the permanent installation of the proposed storm drain, headwall, and riprap, totaling in approximately 0.01 acre/459 square feet.

Control Measures, BMPs, and AMMs for EFH

The implementation of measures **CM-1** through **CM-3** into the Work design and Work management would reduce potential impacts of erosion and the introduction of pollutants into the EFH within the BSA.

4.2 Special-Status Plant Species

Prior to field surveys, a list of regional special status plant species with potential to occur within the Work vicinity was compiled from database searches. The potential for each species to occur within the BSA was determined by analyzing the habitat requirements of each species and comparing the habitat requirements to available habitat within the BSA. After a careful comparison between habitat requirements and the habitat available within the BSA, no special status plants were determined to have potential to occur and no Work-related impacts to special status plant species are anticipated.

4.3 Special-Status Wildlife Species

Prior to field surveys, a list of regional special-status wildlife species with potential to occur within the Work vicinity was compiled from database searches. The potential for each species to occur within the BSA was determined by analyzing the habitat requirements of each species and comparing the habitat requirements to available habitat within the BSA. After a careful comparison between habitat requirements and the habitat available within the BSA, seven special status wildlife species were determined to have potential to occur within the Work area: delta smelt, longfin smelt, CCC and CV steelhead DPSs, Chinook salmon CV spring run and Sacramento River winter-run ESUs, and green sturgeon. The delta smelt is federally threatened and state endangered, longfin smelt is state threatened and a federal candidate species, steelhead are federally threatened, Chinook salmon CV spring run ESU is state and federally threatened, Chinook salmon Sacramento River winter run is state and federally endangered, and green sturgeon is a federally threatened species.

Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including consequences of other activities that are caused by the proposed action. The analysis of effects of the action first identifies stressors from Work actions, then exposure to stressors, and finally the response to exposure to stressors to determine consequences. The effects of the action are used to make determinations for each listed species and critical habitat.

4.3.1 Delta Smelt

The delta smelt is a federally threatened and state endangered species that only occurs in the San Francisco Estuary. Their life cycle follows a four-stage pattern that begins with spawning in freshwater in the spring, migrating to low-salinity zones in the summer, maturation during the fall, and an upstream spawning migration in the winter. Spawning occurs in backwater sloughs and edgewaters, where adhesive eggs are released in batches. The delta smelt is a small fish that preys upon planktonic copepods, cadocerans, and amphipods. Due to their size and poor swimming behavior, delta smelt are limited to specific, predictable regions; however, they can tolerate large swings in salinity (CDFW 2021c).

Threats to delta smelt include reductions in freshwater outflows, loss of water due to diversion, changes in food organisms, the introduction of toxic substances, competition, and a loss of genetic integrity.

The delta smelt was determined to have a high potential to occur within the BSA due to recent local documented occurrences and the presence of habitat.

4.3.1.1 Stressors from the Action

Although delta smelt have a high potential to occur within the Work area due to the presence of suitable aquatic habitat, the Work has no potential to directly impact the delta smelt with the implementation of appropriate BMPs. Construction of the proposed storm drain outflow and associated riprap would result in approximately 0.01 acres/456 square feet of temporary impacts and 0.01 acres/459 square feet of permanent impacts to the eastern bank of Mare Island Strait. Modification to the aquatic habitat would be minor and is not expected to decrease the overall habitat quality present within the Work area. Placement of riprap via an onshore excavator may result in temporarily increased turbidity within the water column in the vicinity of the Work area. However, **CM-1** through **CM-3** and **CM-4**, below, would be incorporated to avoid the potential impacts of erosion, the introduction of pollutants, and turbidity on this species.

4.3.1.2 Exposure to Stressors from the Action

Delta smelt located in proximity to the Work area could be juveniles maturing in low-salinity estuarine zones in the summer and fall months before they begin their upstream winter migration for spawning (CDFW 2021c). The construction of a headwall and riprap would result in a permanent 0.01-acre reduction of potential habitat for this species. However, delta smelt is typically found in the surface layer of open water; permanent Work impacts are limited to a tidal region just offshore and are not likely to adversely impact this species. Delta smelt feed on planktonic species that are suspended throughout the water column. Therefore, permanent Work impacts would have a negligible effect on foraging habitat.

4.3.1.3 Response to Exposure

Delta smelt may temporarily avoid the Work area vicinity due to in-water work, however ample habitat within the Strait adjacent to the BSA is available for refuge. The permanent modification to aquatic habitat would be minor and is not likely to adversely affect the habitat of delta smelt – no adverse response from individuals is expected.

4.3.1.4 Effects of the Action

The Work has no potential of directly impacting delta smelt due to isolation of the Work area from the water column and all stressors to this species would be temporary. Modifications to Mare Island Strait are minimal and occur in tidal zones and are not likely to adversely affect this species. Therefore, the Work would not result in take of the delta smelt.

4.3.1.5 Cumulative Effects

No current, reasonably foreseeable, non-federal actions having the potential to affect delta smelt have been identified in the Action Area. This Work would not encourage changes to the existing land use patterns. Soil within the Work area is being remediated for future development

concurrent with the City of Vallejo's city plan; however, future land development is not anticipated to contribute to cumulative effects on this aquatic species.

4.3.1.6 Determination

The Work would have no potential for take of delta smelt as in-water work can be isolated from the BSA preventing potential take of the species. Effects to delta smelt habitat would be minimal loss of waters at MHW. The Work would not have a substantial adverse effect, either directly or through habitat modifications, on this species.

4.3.1.7 Control Measures, BMPs, and AMMs

In addition to **CM-1** through **CM-3**, the following measure would be incorporated into the Work design and Work management to reduce potential impacts to delta smelt within the BSA.

CM-4: A turbidity curtain or sheet pile will be installed surrounding the proposed storm drain's outfall construction area and will remain in place for the duration of outfall construction. Placement of the turbidity curtain or sheet pile will be at the discretion of the contractor as long as the Work meets water quality objectives for turbidity.

4.3.2 Longfin Smelt

The longfin smelt is under jurisdiction of USFWS and is a state threatened and federal candidate species that resides in California's bay, estuary, and nearshore coastal environments. The San Francisco Estuary and Sacramento-San Joaquin Delta hosts the largest longfin smelt population in California, although they are also found in North Coast locations such as the Humboldt Bay and Eel River. Individuals of this species do not have a long lifespan, and usually reach maturity at around two years of age.

Adult longfin smelt spend their life in saltwater estuaries and migrate to low salinity tributaries or freshwater rivers to spawn. Newly hatched larvae are swept downstream into brackish waters, where they use currents to stay in regions where freshwater and saltwater mix. Individuals are usually found in the middle of the water column or below and are rarely found in water above 71°F. Primary threats to longfin smelt include the reduction of freshwater outflows, losses of water to diversion, toxic substances in the water, and competition with introduced or invasive species (CDFW 2021d).

The longfin smelt was determined to have a high potential to occur within the BSA because it is presumed extant within Mare Island Strait.

4.3.2.1 Stressors from the Action

Although longfin smelt have a high potential to occur within the Work area due to the presence of suitable aquatic habitat, the Work has a low potential to directly impact the longfin smelt with the implementation of appropriate BMPs. Construction of the proposed storm drain outflow and associated riprap would result in temporary and permanent impacts to the eastern bank of Mare Island Strait. Modification to the aquatic habitat would be minor and is not expected to decrease the overall habitat quality present within the Work area. No vegetation removal is required. Placement of riprap via an onshore excavator may result in temporarily increased turbidity within the water column in the vicinity of the Work area. However, **CM-1** through **CM-4** would be

incorporated to avoid the potential impacts of erosion, the introduction of pollutants, and turbidity on this species.

4.3.2.2 Exposure to Stressors from the Action

Longfin smelt spend their adult lives in nearshore coastal zones and estuaries. The construction of a headwall and riprap would result in a permanent 0.01-acre reduction of potential habitat for adults of this species. However, longfin smelt is typically found in the surface layer of open water; permanent Work impacts are limited to a tidal region just offshore and are not likely to adversely impact this species. Longfin smelt feed on opossum shrimp that are suspended throughout the water column. Therefore, permanent Work impacts would have a negligible effect on foraging habitat.

4.3.2.3 Response to Exposure

Longfin smelt may temporarily avoid the Work area vicinity due to the in-water work; however, ample habitat within the Strait adjacent to the BSA is available for refuge. The permanent modification to aquatic habitat would be minor and is not likely to adversely affect the habitat of longfin smelt – no adverse response from individuals is expected.

4.3.2.4 Effects of the Action

The Work has no potential of directly impacting longfin smelt due to isolation of the Work area from the water column and all stressors to this species would be temporary. Modifications to Mare Island Strait are minimal and occur in tidal zones and are not likely to adversely affect this species. Therefore, the Work would not result in take of the longfin smelt.

4.3.2.5 Cumulative Effects

No current, reasonably foreseeable, non-federal actions having the potential to affect delta smelt have been identified in the Work area. This Work would not encourage changes to the existing land use patterns. Soil within the Work area is being remediated for future development concurrent with the City of Vallejo's city plan; however, future land development is not anticipated to contribute to cumulative effects on this aquatic species.

4.3.2.6 Determination

The Work would have no potential for take of longfin smelt, as in-water work can be isolated from the BSA preventing potential take of the species. Effect to longfin smelt habitat would be minimal loss of waters at MHW. The Work would not have a substantial adverse effect, either directly or through habitat modifications, on this species.

4.3.2.7 Control Measures, BMPs, and AMMs

The implementation of measures **CM-1** through **CM-4** into the Work design and Work management would reduce potential impacts of erosion, the release of pollutants, and turbidity to longfin smelt within the BSA.

4.3.3 CCC and CV Steelhead DPS

The CCC steelhead DPS and CV steelhead DPS are federally listed as threatened species and are under jurisdiction of NMFS. Steelheads typically migrate to marine waters after spending one

year or more in fresh water. In the marine environment, the species typically matures for one to three years before returning to natal stream to spawn at three or four years of age. Unlike other Pacific salmon, steelheads are capable of spawning more than once before they die. The steelhead spawning season typically stretches from December through April. The length of time it takes for eggs to hatch depends mostly on water temperature. After several months, fry emerge from the gravel and begin to feed. Juveniles rear in freshwater from one to four years (usually two years). Steelhead do not necessarily migrate to the ocean at any set age. Some individuals will remain in a stream, mature, and even spawn without ever going to sea while others will migrate to sea at less than a year old.

Primary threats to the survival of steelhead are naturally-spawning resident coastal rainbow trout that are likely much more abundant now than historically because of their wide-spread introduction into most suitable waters in the state, including reservoirs. Steelhead are severely impacted by dams, development, urbanization, water diversions, timber harvest, agriculture, and other land use practices across the state. Most conservation actions are focused on bolstering anadromous populations via hatchery propagation, release of juvenile steelhead, and habitat restoration.

4.3.3.1 Stressors from the Action

Although steelhead have the potential to occur within the Work area due to the presence of suitable aquatic habitat, the Work has a low potential to directly impact steelhead with the implementation of appropriate BMPs. Construction of the proposed storm drain outflow and associated riprap would result in approximately 0.01 acre/456 square feet of temporary impacts and 0.01 acre/459 square feet of permanent impacts to the eastern bank of Mare Island Strait. Modification to the aquatic habitat would be minor and are not expected to decrease the overall habitat quality present within the Work area. Placement of riprap via an onshore excavator may result in temporarily increased turbidity within the water column in the vicinity of the Work area. However, **CM-1** through **CM-4** would be incorporated to avoid the potential impacts of erosion, the introduction of pollutants, and turbidity on these species.

4.3.3.2 Exposure to Stressors from the Action

The Work area is located within an estuary along a migratory pathway for steelhead, and both juvenile and adult individuals may have potential to occur. The construction of a headwall and riprap would result in a permanent 0.01-acre reduction of potential habitat for this species. However, steelhead require natural cover such as overhanging trees, aquatic vegetation, boulders, and side channels in order to avoid predators; Work impacts are limited to a shallow tidal region just offshore that does not contain these features, and therefore are not likely to adversely impact this species. Additionally, steelhead feed on aquatic invertebrates and other fish located throughout the water column; therefore, permanent Work impacts would have a negligible effect on foraging habitat. Individuals within the water column may be subject to temporarily increased turbidity from the placement of riprap.

4.3.3.3 Response to Exposure

The Work would be conducted within the window of June 15 to November 15, when steelhead would not be present within the BSA. The permanent modification to aquatic habitat would be

minor and is not likely to adversely affect the habitat of steelhead – no adverse response from individuals is expected.

4.3.3.4 Effects of the Action

The Work has a low potential of directly impacting steelhead and all stressors to this species would be temporary. Modifications to Mare Island Strait would be minimal and occur in tidal zones that do not contain several key habitat requirements for this species. Therefore, the Work may affect, but is not likely to adversely affect the CCC and CV steelhead DPSs.

4.3.3.5 Cumulative Effects

No current, reasonably foreseeable, non-federal actions having the potential to affect steelhead have been identified in the Work area. This Work would not encourage changes to the existing land use patterns. Soil within the Work area is being remediated for future development concurrent with the City of Vallejo's city plan; however, future land development is not anticipated to contribute to cumulative effects on these aquatic species.

4.3.3.6 Determination

The Work would have no potential for take of steelhead as they would not be present in the BSA during construction (June 1 to November 15). Effect to steelhead habitat would be minimal loss of waters at MHW. The Work would not have a substantial adverse effect, either directly or through habitat modifications, on these species.

4.3.3.7 Control Measures, BMPs, and AMMs

The implementation of measures **CM-1** through **CM-4** into the Work design and Work management would reduce potential impacts of erosion, the release of pollutants, and turbidity to CCC and CV steelhead DPSs within the BSA.

4.3.4 Chinook Salmon – CV Spring Run and Sacramento River Winter Run ESUs

CV spring run Chinook salmon are state and federally listed as threatened, while Sacramento River winter run Chinook salmon are state and federally endangered. The spring run ESU enters the Sacramento-San Joaquin River system to spawn, requiring larger gravel particle size and more water flow through their redds than other salmonids. Remaining spring runs occur in Butte, Mill, Deer, Antelope, and Beegum Creeks, tributaries to the Sacramento River. The spring run is also known to occur in Siskiyou and Trinity counties. Winter run Chinook are currently restricted within the Sacramento River below Keswick dam and the species does not spawn in tributaries. The winter run ESU requires cold water over gravel beds to spawn.

4.3.4.1 Stressors from the Action

Although Chinook salmon ESUs have the potential to occur within the Work area due to the presence of suitable aquatic habitat, the Work has no potential to directly impact Chinook salmon with the implementation of appropriate BMPs. Construction of the proposed storm drain outflow and associated riprap would result in approximately 0.01 acres/456 square feet of temporary impacts and 0.01 acres/459 square feet of permanent impacts to the eastern bank of Mare Island Strait. Modification to the aquatic habitat would be minor and is not expected to decrease the overall habitat quality present within the Work area. Placement of riprap via an onshore excavator may result in temporarily increased turbidity within the water column in the vicinity of the Work

area. However, **CM-1** through **CM-4** would be incorporated to avoid the potential impacts of erosion, the introduction of pollutants, and turbidity on these species.

4.3.4.2 Exposure to Stressors from the Action

Per **CM-3**, the Work would occur outside of the salmonid migratory season; therefore, Chinook salmon would not be present within the BSA when in-water work is occurring and the species would not be exposed to temporary stressors potentially resulting from the Work. The construction of a headwall and riprap would result in a permanent 0.01-acre reduction of potential habitat for this species. However, permanent impacts are limited to a shallow tidal region just offshore, which the species is less likely to inhabit; therefore, permanent impacts are not likely to adversely impact this species.

4.3.4.3 Response to Exposure

Chinook salmon may temporarily avoid the Work area vicinity due to the temporarily increased turbidity from the placement of riprap. The permanent modification to aquatic habitat would be minor and is not likely to adversely affect the habitat of Chinook salmon – no adverse response from individuals is expected.

4.3.4.4 Effects of the Action

The Work has no potential of directly impacting Chinook salmon due to the isolation of the Work area from the water column and the Work occurring outside of the salmonid migration period. Modifications to Mare Island Strait are minimal and occur in tidal zones and are not likely to adversely affect these species. Therefore, the Work would not result in take of Chinook salmon CV spring-run and Sacramento River winter-run ESUs.

4.3.4.5 Cumulative Effects

No current, reasonably foreseeable, non-federal actions having the potential to affect Chinook salmon have been identified in the Work area. This Work would not encourage changes to the existing land use patterns. Soil within the Work area is being remediated for future development concurrent with the City of Vallejo's city plan; however, future land development is not anticipated to contribute to cumulative effects on these aquatic species.

4.3.4.6 Determination

The Work would have no potential for take of the Chinook salmon CV spring-run and Sacramento River winter-run ESUs as the species would not be present in the BSA during construction (June 1 to November 15). Effect to Chinook salmon habitat would be minimal loss of waters at MHW. The project would not have a substantial adverse effect, either directly or through habitat modifications, on the species.

4.3.4.7 Control Measures, BMPs, and AMMs

The implementation of measures **CM-1** through **CM-4** into the Work design and Work management would reduce potential impacts of erosion, the release of pollutants, and turbidity to Chinook salmon within the BSA.

4.3.5 Green Sturgeon

The green sturgeon sDPS is federally threatened and considered a Species of Special Concern by CDFW. The green sturgeon is the most marine of the sturgeon species; however, it predominately spawns in the upper Sacramento River, with some spawning recorded in the Rogue River, Klamath and Trinity Rivers. Large cobbles are preferred for spawning, but the species may utilize a range of substrates from bedrock to sand.

The green sturgeon is threatened by loss of spawning habitat, due to competing water resource needs between humans and fish. Dams, altered flows, and water diversions impede migration. Furthermore, pollutants, fishing, poaching, and invasive species also pose threats to this species.

4.3.5.1 Stressors from the Action

Green sturgeon has a low potential to occur within the work area, as the species is typically a bottom dweller and spends less time in shallow habitat near the shore. Construction of the proposed storm drain outflow and associated riprap would result in approximately 0.01 acres/456 square feet of temporary impacts and 0.01 acres/459 square feet of permanent impacts to the eastern bank of Mare Island Strait. This modification to the aquatic habitat would occur within shallow areas not typically utilized by green sturgeon; therefore, it would not decrease overall habitat quality for the species. Placement of riprap via an onshore excavator may result in temporarily increased turbidity within the water column in the vicinity of the Work area; however, **CM-1** through **CM-4** would be incorporated to avoid the potential impacts of erosion, pollutants, and turbidity on these species.

4.3.5.2 Exposure to Stressors from the Action

The construction of a headwall and riprap would result in a permanent 0.01-acre reduction of potential habitat for this species. However, green sturgeon is typically found in deeper waters as a bottom-dwelling species, and permanent Work impacts are limited to a shallow tidal region just offshore and are not likely to adversely impact this species.

4.3.5.3 Response to Exposure

Green sturgeon may temporarily avoid the Work area vicinity due to the temporarily increased turbidity from the placement of riprap; however, the species is a bottom dwelling species and generally does not utilize shallow habitat near the shoreline, which is where the Work would occur. As such, no adverse response from green sturgeon individuals due to the permanent modification to aquatic habitat is expected.

4.3.5.4 Effects of the Action

The Work has no potential of directly impacting green sturgeon due to isolation of the Work area from the water column and all stressors to the species would be temporary. Modifications to Mare Island Strait would occur in tidal zones, and as this bottom dwelling species generally does not utilize shallow habitat near the shoreline, the Work is not likely to adversely affect these species. Therefore, the Work would not result in take of green sturgeon.

4.3.5.5 Cumulative Effects

No current, reasonably foreseeable, non-federal actions having the potential to affect green sturgeon have been identified in the Work area. This Work would not encourage changes to the

existing land use patterns. Soil within the Work area is being remediated for future development concurrent with the City of Vallejo's city plan; however, future land development is not anticipated to contribute to cumulative effects on this aquatic species.

4.3.5.6 Determination

The Work would have no potential for take of green sturgeon, as in-water work can be isolated from the BSA preventing potential take of the species. Loss of green sturgeon habitat would not occur as this bottom dwelling species generally does not utilize shallow habitat near the shoreline. The Project would not have a substantial adverse effect, either directly or through habitat modifications, on this species.

5. Conclusions and Regulatory Determinations

5.1 Federal Resource Agency Communication Summary

Table 4. Federally Listed Species Determinations lists the 22 federally listed species that were returned via database searches and the presence determinations made for each species. Seven federally listed species have the potential to occur within the BSA: delta smelt, longfin smelt, CCC and CV steelhead DPS, Chinook salmon CV spring run and Sacramento River winter-run ESUs, and green sturgeon. The Work would have approximately 0.01 acre/456 square feet of temporary impacts and 0.01 acre/459 square feet of permanent impacts to Mare Island Strait, the shared habitat of these species. With the implementation of control measures, BMPs, and AMMs, take of the delta smelt, longfin smelt, and steelhead is not expected. Because the Work may affect, but is not likely to adversely affect the delta smelt, longfin smelt, and steelhead, and informal consultation with NMFS and USFWS is required. Due to the minimal permanent impacts expected to occur within Mare Island Strait, the Work is not expected to substantially degrade critical habitat for sDPS green sturgeon.

Table 4. Federally Listed Species Determinations

Species Name	Federal Status	Potential	Effect Determination
Alameda whipsnake (*Masticophis lateralis euryxanthus*)	Threatened	Absent	No Effect
California freshwater shrimp (*Syncaris pacifica*)	Endangered	Absent	No Effect
California least tern (*Sternula antillarum browni*)	Endangered	Absent	No Effect
California red-legged frog (*Rana draytonii*)	Threatened	Absent	No Effect
California ridgeway's rail (*Rallus obsoletus obsoletus*)	Endangered	Absent	No Effect
Callippe silverspot butterfly (*Speyeria callippe callippe*)	Endangered	Absent	No Effect
CCC Steelhead DPS (*Oncorhynchus mykiss irideus pop. 8*)	Threatened	High Low Potential	No Potential for Take
Chinook salmon – CV spring run ESU (*Oncorhynchus tshawytscha pop. 11*)	Threatened	Low Potential	No Potential for Take
Chinook salmon – Sacramento River winter run ESU (*Oncorhynchus tshawytscha pop. 7*)	Endangered	Low Potential	No Potential for Take
Conservancy fairy shrimp (*Branchinecta conservatio*)	Endangered	Absent	No Effect
Contra Costa goldfields (*Lasthenia conjugens*)	Endangered	Absent	No Effect
CV steelhead DPS (*Oncorhynchus mykiss irideus pop. 11)*	Threatened	Low Potential	No Potential for Take

Delta smelt (*Hypomesus transpacificus*)	Threatened	High Potential	No Potential for Take
Giant garter snake (*Thamnophis gigas*)	Threatened	Absent	No Effect
Longfin smelt (*Spirinchus thaleichthys*)	Candidate	High Potential	No Potential for Take
Monarch – California overwintering pop. (*Danaus plexippus pop. 1*)	Candidate	Absent	No Effect
Northern spotted owl (*Strix occidentalis caurina*)	Threatened	Absent	No Effect
Salt-marsh harvest mouse (*Reithrodontomys raviventris*)	Endangered	Absent	No Effect
San Bruno elfin butterfly (*Callophrys mossii bayensis*)	Endangered	Absent	No Effect
sDPS green sturgeon (*Acipenser medirostris*)	Threatened	Low Potential	No Potential for Take
Soft salty bird's beak (*Chloropyron molle ssp. molle*)	Endangered	Absent	No Effect
Tiburon paintbrush (*Castella affinsis var. neglecta*)	Endangered	Absent	No Effect
Two-fork clover (*Trifolium amoenum*)	Endangered	Absent	No Effect
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Threatened	Absent	No Effect
Vernal pool fairy shrimp (*Branchinecta lynchi*)	Threatened	Absent	No Effect
Western snowy plover (*Charadrius nivosus nivosus*)	Threatened	Absent	No Effect

5.2 Essential Fish Habitat Consultation Summary

The BSA includes EFH for multiple species including freshwater salmon, groundfish, and coastal pelagic species. USACE would formally consult with NOAA Fisheries for potential impacts to this EFH as part of the section 7 consultation for the Work.

5.3 California Endangered Species Act Consultation Summary

Four state listed species were determined to have the potential to occur within the BSA: delta smelt, longfin smelt, Chinook salmon CV spring run ESU, and Chinook salmon Sacramento River winter run ESU. With control measures, BMPs, and AMMs, the Work is not anticipated to have take of these species. An Incidental Take Permit from CDFW is not anticipated at this time.

5.4 Wetlands and Other Waters Coordination Summary

The Work is anticipated to have minimal temporary and permanent impacts to Mare Island Strait. Temporary impacts to the strait are anticipated to be approximately 0.01 acre/456 square feet and the permanent impacts are anticipated to be 0.01 acre/459 square feet. If required, appropriate compensatory mitigation for the permanent loss of waters of the U.S./State (Mare Island Strait) would be determined during the permitting phase of the Work; however, compensatory mitigation is not anticipated. PG&E would obtain appropriate permits for this Work,

including a Section 401 Certification under the CWA from the Regional Water Board, a Section 404 and Section 10 RHA Permit from USACE, and a Streambed Alteration Agreement under Section 1602 of the CFG Code from the CDFW.

5.5 Invasive Species

In February 1999, EO 13112 was signed, requiring Federal agencies to work on preventing and controlling the introduction and spread of invasive species. Measure **CM-5** would be incorporated into the Work plans to ensure that invasive species are not introduced or spread.

CM-5: Prior to arrival at the Work site and prior to leaving the Work site, construction equipment that may contain invasive plants and/or seeds will be cleaned to reduce the spreading of noxious weeds.

5.6 Other

5.6.1 General Wildlife

To minimize and avoid potential effects to local wildlife, the following measures **CM-6** through **CM-8** have been incorporated into the Work design.

CM-6: All food-related trash will be disposed into closed containers and will be removed from the Work area daily. Construction personnel will not feed or otherwise attract wildlife to the Work area.

CM-7: The contractor will not apply rodenticide or herbicide within the Work area during construction.

CM-8: If any wildlife is encountered during the course of construction, said wildlife will be allowed to leave the construction area unharmed.

5.6.2 Migratory Birds

Native birds are protected by the MBTA and CFG Code Section 3513. The implementation of measure **CM-9** would avoid all potential impacts to migratory birds.

CM-9: Prior to vegetation removal or initial ground disturbance during the nesting bird season (February 1st – September 30th) a pre-construction nesting bird survey will be conducted by a qualified biologist prior to the start of work. The nesting bird survey will include the Work area plus a 300-foot buffer. Within 2 weeks of the nesting bird survey, all areas surveyed by the biologist will be cleared by the contractor or a supplemental nesting bird survey is required.

A minimum 100 foot no-disturbance buffer will be established around any active nest of migratory birds and a minimum 300 foot no-disturbance buffer will be established around any nesting raptor species. The contractor will immediately stop work in the buffer area until the appropriate buffer is established and is prohibited from conducting work that could disturb the birds (as determined by a qualified biologist and in coordination with wildlife agencies) in the buffer area until a qualified biologist determines the young have

fledged. A reduced buffer can be established if determined appropriate by a qualified biologist and approved by CDFW.

6. References

Calflora 2021	Calflora. 2021. Plants of California. Available at: <http://www.calflora.org/> (accessed: April 19, 2021).
CDFW 2021a	California Department of Fish and Wildlife. 2021. Biogeographic Information and Observation System. Available at: <https://wildlife.ca.gov/Data/BIOS> (accessed: April 13, 2021).
CDFW 2021b	California Department of Fish and Wildlife. 2021. California Natural Diversity Database. Available at: <http://www.dfg.ca.gov/biogeodata/cnddb/> (accessed: April 13, 2021).
CDFW 2021c	California Department of Fish and Wildlife. 2021. Delta Smelt. Available at: < https://wildlife.ca.gov/Conservation/Fishes/Delta-Smelt> (accessed: May 3, 2021)
CDFW 2021d	California Department of Fish and Wildlife. 2021. Longfin Smelt Fact Sheet. Available at: <https://www.dfg.ca.gov/delta/projects.asp?ProjectID=LONGFINSMELT> (accessed: May 3, 2021)
CNPS 2021	California Native Plant Society. 2021. Inventory of Rare and Endangered Plants. Available at: <http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi/BrowseAZ?name=quad> (accessed: April 13, 2021).
Jepson 2021	Jepson eFlora. 2021. Geographic Subdivisions of California. Available at: <http://ucjeps.berkeley.edu/eflora/geography.html> (accessed: April 19, 2021).
NMFS 2021	National Marine Fisheries Service. 2021. NOAA Fisheries ESA Listed Species, Critical Habitat, Essential Fish Habitat, and MMPA Species Data within California, West Coast Region. (requested: April 13, 2021)
NRCS 2021	Natural Resource Conservation Service. 2021. Custom Soil Resources Report for San Joaquin County, California. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> (accessed April 19, 2021).
Sommer et al. 2009	Sommer, T., et al. Evaluation of a large-scale flow manipulation to the upper San Francisco Estuary: Response of habitat conditions for an endangered native fish. < https://doi.org/10.1101/2020.06.02.129429 > (accessed: May 3, 2021)
Tides.net	Tides.net. 2021. Vallejo Tides. Available at: <https://www.tides.net/california/2865/> (accessed 12/1/2021).
U.S. Climate Data 2021	U.S. Climate Data. 2021. Napa Weather Averages. Available at: <http://www.usclimatedata.com> (accessed: April 19, 2021).
USFWS 2021	United States Fish and Wildlife Service. 2021. Official Species List: U.S. Department of the Interior – Fish and Wildlife Service: Sacramento Fish and Wildlife Office. Consultation Code 08ESMF00-2021-SLI-0930 (requested: April 13, 2021).

Appendix A: CEQA Addendum

CALIFORNIA ENVIRONMENTAL QUALITY ACT
NOTICE OF DETERMINATION

To: Office of Planning and Research
State Clearinghouse
P.O. Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 95812-3044

From: Department of Toxic Substances Control
Site Mitigation and Restoration Program
700 Heinz Ave
Berkeley, CA 96710

Subject: FILING OF NOTICE OF DETERMINATION IN COMPLIANCE WITH SECTION 21108 OR 21152 OF THE PUBLIC RESOURCES CODE

Project Title: Former Vallejo Manufactured Gas Plant Site

State Clearinghouse No.: 2018102054

Project Location: (Operable Unit 1) – Intersection of Curtola Parkway and Sonoma Boulevard
(Operable Unit 2) – 2226 & 240 Curtola Parkway
Vallejo, California 94590

County: Solano County

Project Description: The former Vallejo manufactured gas plant (MGP) site is comprised of Operable Unit 1 (OU-1) and Operable Unit 2 (OU-2) Both properties are privately owned and currently leased by Pacific Gas & Electric Company (PG&E).

The remediation of the OU-1 site involves soil excavation and off-site disposal of impacted soil at permitted disposal facilities and backfilling with clean imported backfill material to create a clean soil cap; transportation of Portland cement and sodium persulfate to the OU-1 site for soil stabilization; stabilization of deeper soil using in situ chemical oxidation coupled with in situ soil stabilization (ISCO/ISS); institutional controls that would include land use covenants restricting certain land uses, including restricting the use of on-site groundwater, cap-maintenance requirements, and a restriction on activities that could compromise the integrity of the cap; and groundwater monitoring which includes groundwater sampling of new groundwater monitoring wells. It is anticipated that the planned ISCO/ISS would address vapor intrusion issues.

The remediation of the OU-2 site involves soil excavation and off-site disposal of impacted soil at permitted disposal facilities, and institutional controls such as land use covenants or deed restrictions.

The duration of the entire remediation project is anticipated to be approximately three and a half years. However, the work would progress in phases over several distinct areas. Construction work within 100 feet of the fence line and 200 feet of the neighboring residences and businesses at OU-1 represents less than about 20% of the site area and total construction duration. The entire duration of work at OU-2 would last up to 16 weeks.

As ☒ Lead Agency ☐ ~~a Responsible Agency~~ under the California Environmental Quality Act (CEQA), DTSC approved the above-described project on September 12, 2019 and has made the following determinations:

1. The project ☐ ~~will~~ ☒ will not have a significant effect on the environment.
2. A ☒ Negative Declaration ☐ ~~Mitigated Negative Declaration~~ ☐ ~~Environmental Impact Report~~ was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures ☐ ~~were~~ ☒ were not made a condition of project approval.
4. A Statement of Overriding Considerations ☐ ~~was~~ ☒ was not adopted for this project.
5. Findings ☒ were ☐ ~~were not~~ made pursuant to the provisions of CEQA.

This is to certify that the final environmental document, comments and responses, and the record of project approval are available to the public at the following location:

Department of Toxic Substances Control
Site Mitigation and Restoration Program
700 Heinz Ave
Berkeley, CA 96710

Envirostor link: https://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=60001753

Megan Indermill	Project Manager	(510) 540-3972
Contact Person Name	Contact Person Title	Phone #

Julie Pettijohn 9/12/2019

Branch Chief Signature — Date

Julie Pettijohn	Environmental Program Manager I	(510) 540 - 3843
Branch Chief Name	Branch Chief Title	Phone #

TO BE COMPLETED BY OPR ONLY

Date Received For Filing and Posting at OPR:

Governor's Office of Planning & Research

SEP 13 2019

STATE CLEARINGHOUSE

Appendix B: USFWS Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Consultation Code: 08ESMF00-2021-SLI-1521
Event Code: 08ESMF00-2021-E-04455
Project Name: Vallejo Storm Drain Realignment

April 13, 2021

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

Project Summary

Consultation Code: 08ESMF00-2021-SLI-1521
Event Code: 08ESMF00-2021-E-04455
Project Name: Vallejo Storm Drain Realignment
Project Type: WATER SUPPLY / DELIVERY
Project Description: Storm drain realignment near Mono St in Vallejo, CA.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.096334850000005,-122.25555955729027,14z



Counties: Solano County, California

Endangered Species Act Species

There is a total of 16 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) *Masticophis lateralis euryxanthus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5524	Threatened
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Callippe Silverspot Butterfly *Speyeria callippe callippe* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3779	Endangered
San Bruno Elfin Butterfly *Callophrys mossii bayensis* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered

Crustaceans

NAME	STATUS
California Freshwater Shrimp *Syncaris pacifica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7903	Endangered
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Contra Costa Goldfields *Lasthenia conjugens* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7058	Endangered
Soft Bird's-beak *Cordylanthus mollis ssp. mollis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8541	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix C: CNDDB Species List

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Mare Island (3812213) OR Benicia (3812212) OR Cuttings Wharf (3812223) OR Cordelia (3812222))
 AND (Federal Listing Status IS (Endangered OR Threatened OR Proposed Endangered OR Proposed Threatened OR Candidate) OR State Listing Status IS (Endangered OR Threatened OR Rare OR Candidate Endangered OR Candidate Threatened))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Alameda whipsnake *Masticophis lateralis euryxanthus*	ARADB21031	Threatened	Threatened	G4T2	S2	
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
California black rail *Laterallus jamaicensis coturniculus*	ABNME03041	None	Threatened	G3G4T1	S1	FP
California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G2	S2	
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California Ridgway's rail *Rallus obsoletus obsoletus*	ABNME05011	Endangered	Endangered	G3T1	S1	FP
callippe silverspot butterfly *Speyeria callippe callippe*	IILEPJ6091	Endangered	None	G5T1	S1	
Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered	None	G1	S1	1B.1
Delta smelt *Hypomesus transpacificus*	AFCHB01040	Threatened	Endangered	G1	S1	
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	Endangered	G3	S3	SSC
longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	
Mason's lilaeopsis *Lilaeopsis masonii*	PDAPI19030	None	Rare	G2	S2	1B.1
monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012	Candidate	None	G4T2T3	S2S3	
salt-marsh harvest mouse *Reithrodontomys raviventris*	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
soft salty bird's-beak *Chloropyron molle ssp. molle*	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
steelhead - central California coast DPS *Oncorhynchus mykiss irideus pop. 8*	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S3	
Tiburon paintbrush *Castilleja affinis var. neglecta*	PDSCR0D013	Endangered	Threatened	G4G5T1T2	S1S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
two-fork clover *Trifolium amoenum*	PDFAB40040	Endangered	None	G1	S1	1B.1
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened	None	G3T2	S3	
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
western bumble bee *Bombus occidentalis*	IIHYM24250	None	Candidate Endangered	G2G3	S1	
western snowy plover *Charadrius nivosus nivosus*	ABNNB03031	Threatened	None	G3T3	S2	SSC

Record Count: 24

Appendix D: CNPS Species List

CNPS California Native Plant Society

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

37 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3812223, 3812222 3812213 and 3812212;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	Jul-Oct	1B.1	S1S2	G1G2
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	May-Oct(Nov)	1B.1	S1S2	G3T1T2
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	1B.1	S1	G1
Isocoma arguta	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	1B.1	S1	G1
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G1
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	1B.1	S2	G2
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	1B.1	S1	G1
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S1	G2T1
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	Apr-Jun	1B.2	S2	G2
Castilleja affinis var. neglecta	Tiburon paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Jun	1B.2	S1S2	G4G5T1T2
Ceanothus purpureus	holly-leaved ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Jun	1B.2	S2	G2
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2
Chloropyron molle ssp. molle	soft bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Nov	1B.2	S1	G2T1
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	1B.2	S2	G2
	Tiburon	Polygonaceae	annual herb	May-Sep	1B.2	S2	G5T2

Eriogonum luteolum var. caninum	buckwheat						
Eryngium jepsonii	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2	G2
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	1B.2	S2	G5T2
Spergularia macrotheca var. longistyla	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May(Jun)	1B.2	S2	G5T2
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2	S2	G2
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	2B.1	S2?	G5T4T5
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	Apr-Aug	2B.2	S3	G5
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Erigeron biolettii	streamside daisy	Asteraceae	perennial herb	Jun-Oct	3	S3?	G3?
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S2S3	G3?
Polygonum marinense	Marin knotweed	Polygonaceae	annual herb	(Apr)May-Aug(Oct)	3.1	S2	G2Q
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	annual herb	Mar-May	3.2	S3S4	G3G4
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	Mar-Aug	4.2	S3S4	G4T4
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May	4.2	S3	G3
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	4.2	S3	G4
Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	4.3	S3	G5

Suggested Citation

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 13 April 2021].

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Contributors
The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project

Appendix E: NMFS Species List

From: Vincent Chevreuil
To: nmfswcrca.speceislist@noaa.gov
Subject: Vallejo Storm Drain Project
Date: Monday, April 19, 2021 3:26:54 PM
Attachments: image001.png

Quad Name **Mare Island**

Quad Number **38122-A3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) - **X**
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat - **X**
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat - **X**
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH - **X**
Coastal Pelagics EFH - **X**
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds - **X**

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Appendix F: NRCS Soil Report List

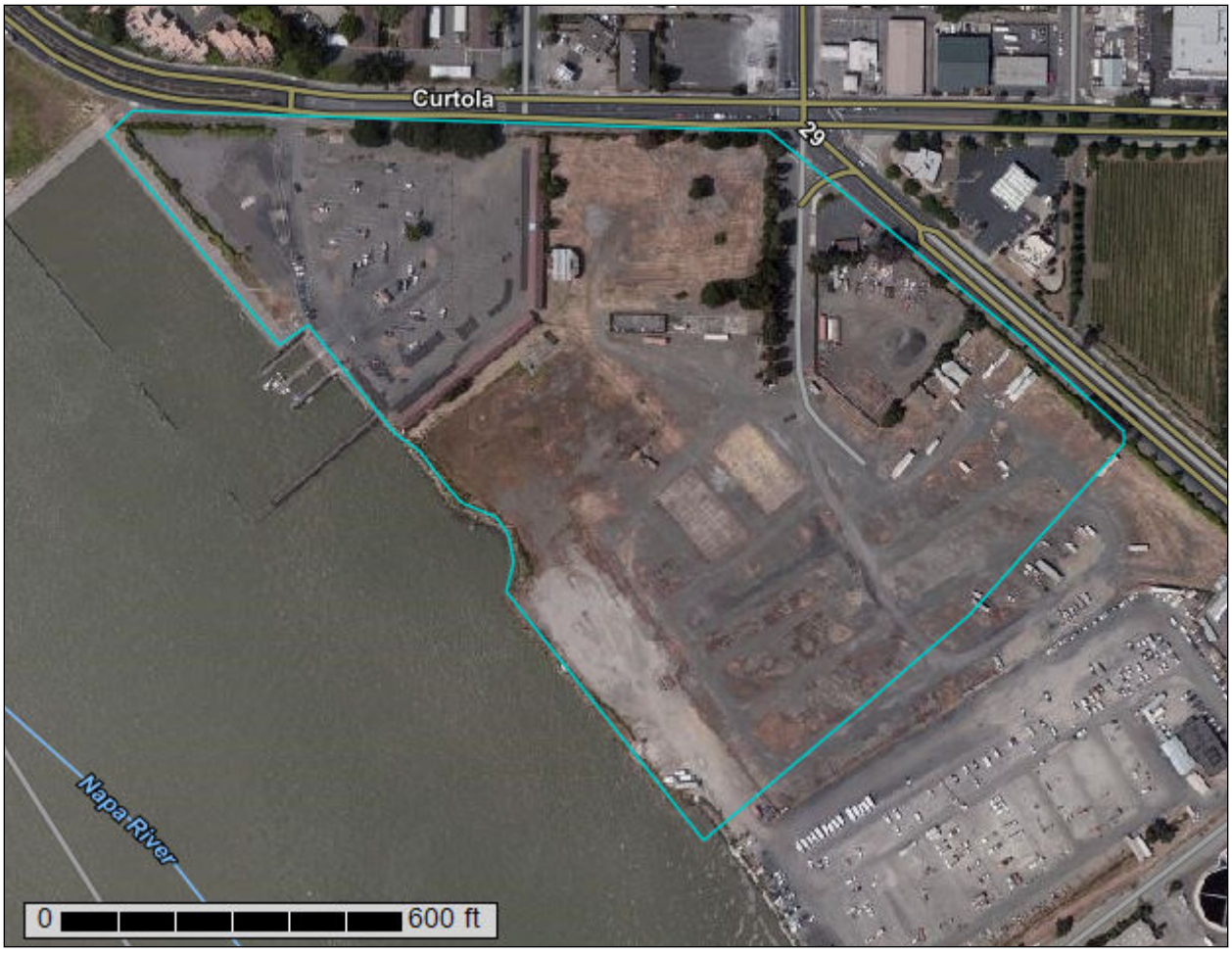
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Solano County, California



April 19, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

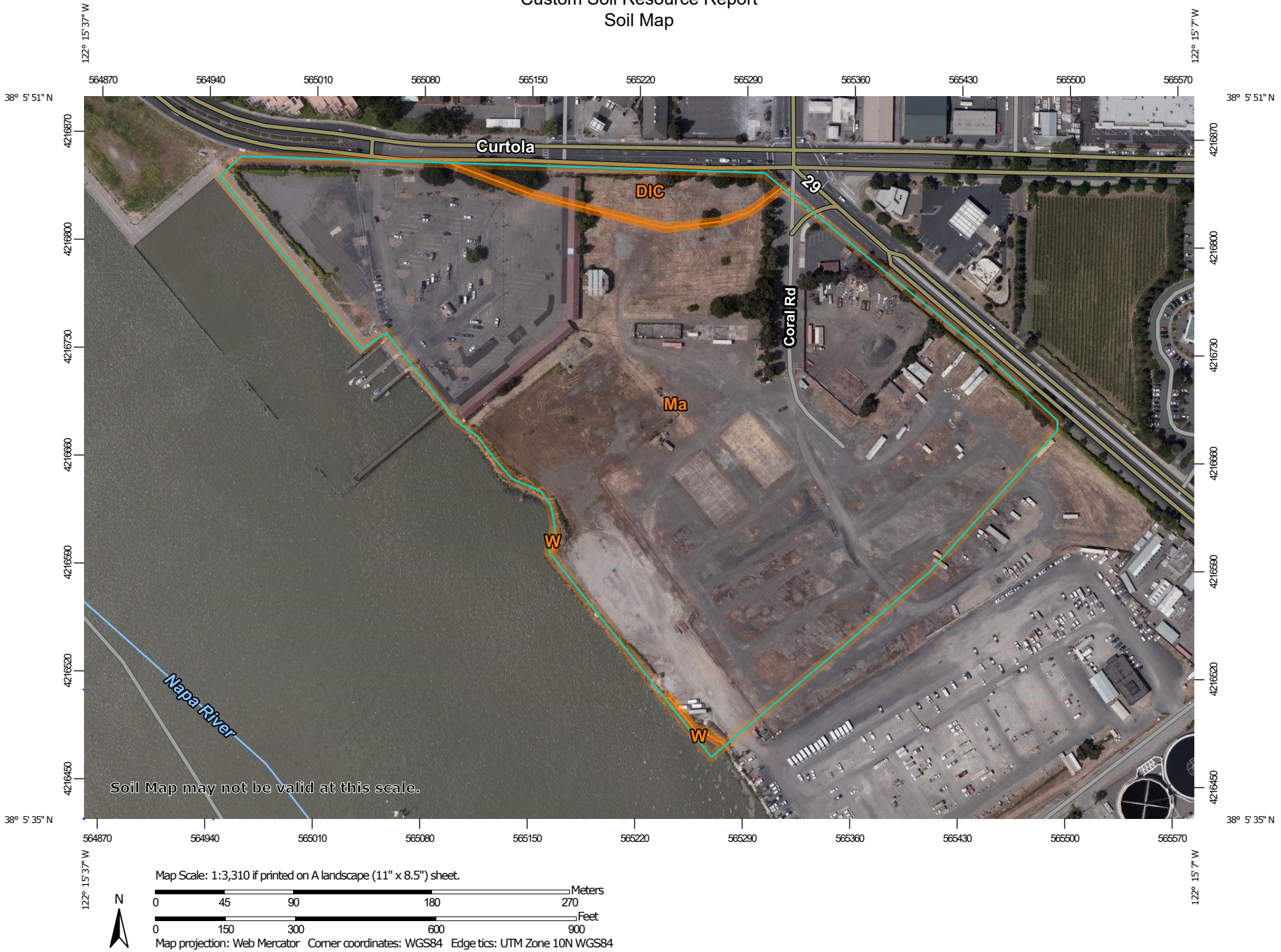
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:3,310 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 45 90 180 270

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Solano County, California
Survey Area Data: Version 14, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 1, 2019—May 31, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DIC	Dibble-Los Osos clay loams, 2 to 9 percent slopes	1.3	4.7%
Ma	Made land	25.4	95.0%
W	Water	0.1	0.2%
Totals for Area of Interest		**26.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Solano County, California

DIC—Dibble-Los Osos clay loams, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: h9l9
Elevation: 100 to 2,000 feet
Mean annual precipitation: 20 to 30 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 225 to 260 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Dibble and similar soils: 60 percent
Los osos and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dibble

Setting

Landform: Mountains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sandstone

Typical profile

H1 - 0 to 13 inches: clay loam
H2 - 13 to 30 inches: clay loam
H3 - 30 to 59 inches: bedrock

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R015XE020CA
Hydric soil rating: No

Description of Los Osos

Setting

Landform: Mountains

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 7 inches: clay loam
H2 - 7 to 25 inches: clay loam, clay
H2 - 7 to 25 inches: bedrock
H3 - 25 to 59 inches:

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R015XE020CA
Hydric soil rating: No

Minor Components

Millsholm

Percent of map unit: 10 percent
Hydric soil rating: No

Ma—Made land

Map Unit Setting

National map unit symbol: h9ln
Elevation: 0 to 2,500 feet
Farmland classification: Not prime farmland

Map Unit Composition

Made land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Made Land

Setting

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mine spoil or earthy fill

Typical profile

H1 - 0 to 60 inches: variable

Interpretive groups

Land capability classification (irrigated): 8
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Valdez

Percent of map unit: 5 percent
Landform: Alluvial fans
Hydric soil rating: Yes

Unnamed

Percent of map unit: 5 percent
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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Appendix G: Representative Photographs



Photo 1. Photograph of the junction on Coral Road where the existing storm drain turns west, taken facing west. The proposed storm drain would run east (April 2021).



Photo 2. Photograph of the existing storm drain's path as it runs southwest to Mare Island Strait, adjacent to the metal storage units. Notice the ruderal vegetation (April 2021).



Photo 3. Current exit of the existing storm drain into Mare Island Strait (April 2021).



Photo 4. Photo of the southeastern boundary of the BSA, facing northeast. The proposed storm drain would run parallel to this established fence line (April 2021).



Photo 4. Photo of the exit of the proposed storm drain into Mare Island Strait. The proposed storm drain would extend 24 feet into the strait (April 2021).



Photo 5. Photo representative of the ruderal vegetation present in patches throughout the BSA (April 2021).



Photo 5. Photo representative of the parking lot that provides boat access located in the northwestern extent of the Work area (April 2021).

Attachment C

Biological Resources Technical Report Cover Letter

JOHNSON MARIGOT
CONSULTING, LLC

February 8, 2022

Integral
Attn: Bridgette DeShields,
2455 Bennett Valley Rd, Suite C101
Santa Rosa, California 95404

Regarding: Vallejo MGP Vallejo Storm Drain Replacement Work,
California Environmental Quality Act (CEQA) Addendum

Dear Ms. DeShields:

Please find the enclosed Biological Resources Technical Report for the Vallejo Storm Drain Replacement Work, Solano County, California prepared by Dokken Engineering dated January 2022 (BRTR). Johnson Marigot Consulting, LLC (JMC) is completing permit applications to federal and state agencies for the proposed work. The enclosed BRTR accurately represents the project, although slight changes to the engineering design have been made (enclosed). Proposed mitigation measures would continue to adequately protect the environment and reduce effects to a less-than-significant level. It should be expected that within the project authorizations the in-water work window may be narrowed from the June 1 to November 30 to August 1 to November 15 as a result of the use of the U.S. Fish and Wildlife Service's "Formal Programmatic Consultation on the Issuance of Section 10 and 404 Permits for Projects with Relatively Small Effects on the Delta Smelt (*Hypomesus transpacificus*) and its Critical Habitat within the Jurisdiction of the Sacramento Fish and Wildlife Office of the U.S. Fish and Wildlife Service, California" dated December 1, 2004.

Sincerely,



Paula Gill
Johnson Marigot Consulting, LLC
Paula.Gill@johnson-marigot.com
(415) 317-4941

eCC: Max Reyhani, mreyhani@terrapg.com
Melitta Rorty, m2rq@pge.com

Enclosures:
- Biological Resources Technical Report for the Vallejo Storm Drain Replacement Work, Solano County, California prepared by Dokken Engineering dated January 2022 (BRTR)
-Updated Plans and Drawings dated January 2022

Attachment D

Control Measures

Attachment D: Control Measures

Biological Resources

The following control measures (CMs), which include best management practices (BMPs), and avoidance and minimization measures (AMMs), would be incorporated into the Work design and Work management:

CM-1: Every individual working involved in construction will attend a biological awareness training session delivered by a qualified biologist. This training program will include information regarding the sensitive habitats and special-status species occurring or potentially occurring within the Work area, and the importance of avoiding impacts to these species and their habitat.

CM-2: BMPs will be incorporated into Work design and Work management to minimize impacts on the environment including erosion and the release of pollutants (e.g., oils, fuels):

- Exposed soils and material stockpiles will be stabilized, through watering or other measures, to prevent the movement of dust at the Work site caused by wind and construction activities such as traffic and grading activities.
- All construction roadway areas will be properly protected to prevent excess erosion, sedimentation, and water pollution.
- All vehicle and equipment fueling/maintenance will be conducted outside of any surface waters.
- Equipment used in and around jurisdictional waters will be in good working order and free of dripping or leaking contaminants.
- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life will be prevented from contaminating the soil or entering jurisdictional waters.
- All erosion control measures and stormwater control measures will be properly maintained until the site has returned to a pre-construction state.
- All temporarily disturbed areas will be restored to pre-construction conditions.
- All construction materials will be hauled offsite after completion of construction.
- Upon completion of construction activities, any temporary barriers to surface water flow will be removed in a manner that will allow flow to resume with the least disturbance to the substrate.

CM-3: All in-water work will occur outside of the salmonid migratory season (August 1 to November 15). All Work will occur within a cofferdam, which isolates the Work area from the waters of Mare Island Strait. Cofferdam installation will occur at low tide when only a few inches of water are present in the in-water work area.

CM-4: A turbidity curtain or sheet pile will be installed surrounding the proposed storm drain's outfall construction area and will remain in place for the duration of outfall construction. Placement of the turbidity curtain or sheet pile will be at the discretion of the contractor as long as the Work meets water quality objectives for turbidity.

Cultural Resources

The following CMs and AMMs would be incorporated into the Work management:

CR-1 Unidentified Cultural Materials*:* Should buried, unforeseen archaeological deposits be encountered during any construction activity, Work must cease within a 50-ft radius of the discovery. In accordance with 36 Code of Federal Regulations (CFR) Part 800.13, a qualified archaeologist must be notified to document the discovery, assess its significance, and recommend treatment. In the event that human remains, or any associated funerary artifacts are discovered during construction, all Work must cease within the immediate vicinity of the discovery. In accordance with the California Environmental Quality Act and the California Health and Safety Code (Section 7050.5), the Solano County coroner must be contacted immediately. If the remains are deemed to be Native American, the coroner will notify the Native American Heritage Commission, which will in turn appoint and notify a Most Likely Descendent (MLD) to act as a tribal representative. The MLD will work with a qualified archaeologist to determine the proper treatment of the human remains and associated funerary objects. Construction activities will not resume until either the human remains are exhumed, or the remains are avoided via Work construction design change.

CR-2 Relinquishment of Artifacts: In the event that Native American cultural resources are inadvertently discovered during the course of constructing this Work, Pacific Gas and Electric shall relinquish ownership of all Native American cultural resources, including sacred items, burial goods, and all archaeological artifacts and non-human remains as part of the required mitigation for impacts to Native American cultural resources.

With the implementation of the AMMs, temporary impacts from construction activities and from the installation and placement of the existing storm drain would be less than significant.

Hydrology and Water Quality

The following types of stormwater erosion and sediment control BMPs would be implemented:

Erosion control BMPs:

- Preservation of existing vegetation (in non-construction areas)
- Soil binders
- Wood mulching
- Non-vegetative stabilization
- Wind erosion control

Sediment control BMPs:

- Silt fence
- Sediment trap
- Check dam
- Fiber rolls
- Gravel bag berm
- Street sweeping and vacuuming
- Sandbag barrier
- Storm drain inlet protection
- Compost socks and berms
- Biofilter bags
- Stabilized construction entrance/exit
- Stabilized construction roadway
- Entrance/outlet tire wash.

Attachment E

Technical Memorandum

WEST YOST
Water. Engineered.

2020 Research Park Drive
Suite 100
Davis CA 95618

530.756.5905 phone
530.756.5991 fax
westyost.com

TECHNICAL MEMORANDUM

DATE: January 26, 2022

Project No.: 913-60-20-02
SENT VIA: EMAIL

TO: Gary Foote, Terra Pacific Group

CC: Max Reyhani, Terra Pacific Group

FROM: Doug Moore, PE, RCE #58122

REVIEWED BY: John Goodwin, PE, RCE #40722

SUBJECT: PG&E Vallejo Remediation Site Storm Drain Predesign



The purpose of this Technical Memorandum (TM) is to present the predesign of the proposed storm drain in the Pacific Gas and Electric (PG&E) Vallejo Remediation Site (Site). The proposed storm drain will replace an existing 54-inch storm drain that runs through the site. The removal of the existing storm drain will facilitate the remediation of the contaminated soil. The existing and proposed storm drains are shown on Figure 1. The existing storm drain runs through the center of the Site where the remediation work must occur. The proposed storm drain runs around the perimeter of the Site and mostly avoids the area of the remediation work. The proposed storm drain also lies in or adjacent to existing and proposed future streets to minimize potential conflicts with future land uses.

This TM includes the following sections:

- Background and Existing On-Site Infrastructure
- Hydrologic and Hydraulic Evaluation
- Scour and Sediment Evaluation
- Removal of Existing Storm Drain and Outfall
- Bypass Pumping
- Construction Sequence
- Coordination with Vallejo Flood and Wastewater District (VFWD)
- Permit Support Data

BACKGROUND AND EXISTING ON-SITE INFRASTRUCTURE

This section presents a brief summary of relevant background information and identifies the existing on-site infrastructure.

Background

The Site covers about 26 acres in the area located south of Curtola Parkway, west of Sonoma Boulevard, and east of the Mare Island Straight. Contaminated soil exists on the Site and the existing storm drain could interfere with the soil remediation process. Thus, this TM presents an evaluation of removing the existing storm drain and constructing a new storm drain outside of the areas with contaminated soils.

Recently completed studies relevant to this TM include:

- Geotechnical Engineering Investigation Services, Former Vallejo Manufactured Gas Plant (MGP), Vallejo, Solano County, California, prepared by Hushmand Associates, Inc. for Terra Pacific Group, dated February 2014. This study included 33 exploratory borings and 31 soundings. Two subsurface cross sections were presented, and included an upper layer of fill material, a layer of Bay mud, and sedimentary bedrock (at depths of 9 feet to 51 feet). Groundwater was encountered at depths from 4 to 35 feet. The soils were found to be moderate to severely corrosive.
- Field Observation and Testing Services During Trench Investigation at Former Vallejo Manufactured Gas Plant, Vallejo, California, prepared by Hushmand Associates, Inc. for Terra Pacific Group, dated October 16, 2014. The field investigations included excavating 46 trenches with depths of 1 to 9 feet.
- Vallejo RAP Project Qualitative Drainage Summary, prepared by Ruggeri-Jensen-Azar, dated November 20, 2017. This preliminary document divides the site into 6 drainage watersheds, identifies the alignment of a 54-inch storm drain through the project site, and presents a proposed future drainage plan based on the existing 54-inch storm drain remaining as it is now.
- An evaluation of three alternative alignments for the new storm drain was prepared by West Yost on April 1, 2020. The three alignments are shown on Figure 1, and from the alternatives evaluation, the Kaiser Place alignment (yellow alignment on Figure 1) was selected because it runs around the perimeter of the soil remediation area.
- Terra Pacific Group, Vallejo Storm Drain Replacement Project, Vallejo, California Geotechnical Recommendations Report, by McMillen Jacobs Associates, December 2020 (Draft Report, Revision No. 0)

Existing On-Site Infrastructure

The known existing on-site infrastructure is shown on Figure 1 (green lines indicate existing storm drains and brown lines indicate existing sanitary sewers) and includes:

- A 39-inch storm drain running south in Coral Road, turning west at the end of Coral Road, and turning southwest near the City of Vallejo's (City's) boat launch storage buildings, and ending in the Mare Island Straight. Photos of this storm drain and associated structures are presented below.
  - The maintenance hole at the south end of Coral Road is shown in Photos 1 and 2. This maintenance hole includes a rectangular vault (not a typical circular maintenance hole).
    - The diameter of the storm drain from the north was measured to be 38 inches, which agrees closely with the diameter of 39 inches shown on the *Plan for Sonoma Street Storm Drain* record drawing running south in Coral Road from the intersection with Curtola Parkway. This drain is reinforced concrete pipe.

        - The diameter of the storm drain running west was measured to be 45 inches, but there is no record drawing with which to verify this diameter. There appeared to be a couple inches of sediment on the bottom of the maintenance hole, but the measurements were taken from the actual bottom of the maintenance hole. This drain is reinforced concrete pipe.
    - The maintenance hole behind the boat ramp storage buildings is shown in Photos 3 and 4. There was significant sediment accumulated in the bottom of this maintenance hole and accurate pipe measurements were not possible (the depth from the pipe crown to the sediment was about 30 inches). There is a storm drain that enters this maintenance hole from the north that includes a flap gate. This maintenance hole includes a rectangular vault (not a typical circular maintenance hole). This drain is reinforced concrete pipe. VFWD should verify if the storm drain from the north still exists and if it is active.
    - The outlet of the storm drain is show in Photos 5, 6, and 7. Photo 5 shows a tape measure across the outlet of the pipe, with a measurement of 46 inches. By scaling the diameter of the pipe to the tape measure, the diameter of the pipe was estimated to be 54 inches. The depth from the crown of the pipe to the sediment level was 19 inches, indicating that there is 35 inches of sediment accumulated in the pipe. This drain is reinforced concrete pipe.
- Several abandoned sewers are located in the interior of the site, but mostly within 300 feet of Curtola Parkway and Sonoma Boulevard.
- Based on old design and as-built drawings received from the VFWD (see Attachment A), there may by other abandoned sewers that served the Naval Reserve Station buildings (the buildings no longer exist on-site). There may also be abandoned water lines or other infrastructure needed for the Naval Reserve Station buildings. There may also be a 54-inch pipe extending southeast from the end of Coral Road (this is a different alignment than the 54-inch storm drain discussed above).



Photo 1.
Ring and lid of the maintenance hole at the south end of Coral Road.



Photo 2.
Inside of the maintenance hole at the south end of Coral Road.



Photo 3.
Ring and lid of the maintenance hole behind the boat ramp storage buildings.



Photo 4.
Inside of the maintenance hole behind the boat ramp storage buildings. Note: Flap gate on pipe entering from the north (bottom of Photo).



Photo 5.
Outlet of storm drain at Mare Island Straight.



Photo 6.
Looking inside (upstream) of the storm drain at Mare Island Straight.



Photo 7
Looking at the riverbank and riverbed at the existing outlet.

Other nearby infrastructure includes water, sewer, and storm drain pipelines located in Curtola Parkway and Solano Avenue. The flap gate shown in Photo 4 suggests that there could be a storm drain running northward from the maintenance hole. However, the VFWD's storm drain mapping does not show a pipe connecting to the maintenance hole at this location from the north. VFWD should confirm if this pipe still exists and if it is active.

HYDROLOGIC AND HYDRAULIC EVALUATION

A 65 percent design of the proposed trunk storm drain and removal of most of the existing drain are provided in Attachment B. The downstream end of the existing drain will be protected in place and will be used as an outlet for one proposed 18-inch storm drain (from the north) and one 12-inch storm drain (from the southeast). The VFWD Solano Avenue Lemon Street model was used for this hydrologic and hydraulic evaluation by adding the existing storm drain and tributary subsheds to the model, as shown on Figure 2. In 2019, the VFWD model was calibrated to reproduce observed flooding, and the calibrated model and calibration procedures were used in the hydrologic and hydraulic evaluation presented below. The catchment lengths were set to 2,400 feet for catchments of 20 acres and smaller, and 120 feet per acre for catchments larger than 20 acres.

Hydrologic Evaluation

The hydrologic evaluation is summarized in Table 1, and includes:

- An evaluation of impervious coverage for existing land uses for the off-site areas and the impervious coverage for the existing and redevelopment of the PG&E site. The proposed storm drain is sized for the existing land uses, but because the PG&E site will ultimately be redeveloped, the redeveloped conditions are also evaluated. The yellow shading indicates increases in redeveloped impervious coverage for subsheds in the PG&E site.
- Peak flow and peak unit flow (flow per acre) for the 15-year and 100-year design storms. The yellow shading indicates increases in redeveloped impervious coverage for subsheds with redeveloped land uses. The hydrologic results show that the future redevelopment will cause the on-site runoff to increase significantly. The proposed storm drain was sized (below) to function for both the existing land uses and for the redeveloped land uses.

Water Surface Elevation Results

The water surface elevations (WSEs) and flooding depths from the hydraulic evaluation are summarized in Table 2 for existing conditions, the proposed storm drain with existing land uses, and proposed storm drain with redeveloped land uses for the 15-year and 100-year design storms. Yellow shading indicates reconstructed, new, removed, or abandoned maintenance holes. N.A. indicates locations where no facilities exist for the specific condition. The WSE results are discussed below:

- For the proposed storm drain with existing land uses and for the 15-year storm (the design condition and design storm), there is no flooding and the WSE is reduced at all locations (except there is no change in the Mare Island Straight). There are two locations where the freeboard is less than one foot, but if the storm drain is enlarged to increase the freeboard, the flow velocity becomes very low (see below).
- For the proposed storm drain with existing land uses and for the 100-year storm, there is some flooding for both existing and proposed conditions, but the proposed storm drain results in decreased flooding depths at all locations (except there is no change in the Mare Island Straight).
- For the proposed storm drain with redeveloped land uses and for the 15-year storm, there is flooding of up to 0.35 feet and at this location there is an increase in the WSE of 0.22 feet. This flooding occurs because of the increased impervious coverage from the redevelopment and does not occur because of the storm drain replacement. There are several locations with less than 1 foot of freeboard. This flooding and lack of freeboard will need to be resolved when the site is redeveloped and future sea level rise is also addressed.
- For the proposed storm drain with redeveloped land uses and for the 100-year storm, there is flooding of up to 2.48 feet in the upper watershed; but at this flooding location, the proposed storm drain reduced the flooding depth by 0.03 feet (from 2.51 feet to 2.48 feet). At the south end of Coral Road, the flooding depth increases by 0.31 feet to 2.13 feet. This increase in flooding occurs because of the increased impervious coverage from the redevelopment and does not occur because of the storm drain replacement. This flooding and lack of freeboard will need to be resolved when the site is redeveloped and future sea level rise is also addressed.

Table 1. Hydrologic Model Data and Results

Model Subshed Name	Map Subshed Number	Area, acres	Impervious Coverage, percent	15-Year Peak Flow, cfs	15-Year Unit Peak Flow, cfs/acre	100-Year Peak Flow, cfs	100-Year Unit Peak Flow, cfs/acre
Off-Site Existing Subsheds with Existing Land Uses (for comparison)							
S42_40	N.A.	11.9	90	8.7	0.73	13.1	1.10
S59_9	N.A.	21.2	80	15.7	0.74	23.9	1.13
S47B_49	N.A.	22	64	13.9	0.63	21.4	0.97
S15_23	N.A.	34.7	55	16.2	0.47	25.1	0.72
S2C_109	N.A.	4.5	47	3.6	0.81	5.7	1.27
Tributary and On-Site Subsheds with Existing Land Uses							
C-DT21015M	10	23.88	60	18.8	0.79	28.8	1.21
C-DT21012M	20	11.69	85	12.3	1.05	18.5	1.59
C-DT2008M	30	3.96	95	4.5	1.12	6.7	1.69
C-DT2006M	40	3.98	90	4.3	1.09	6.5	1.64
C-DT2005M	50	3.93	95	4.4	1.12	6.6	1.69
C-DT2002M	60	4.14	13	0.9	0.23	1.6	0.38
C-DT2001F[(a)]	70	3.57	65	2.2	0.62	3.4	0.95
C-DT2002Mb	80	11.42	20	3.5	0.30	5.6	0.49
Catchment_11[(a)]	100	4.56	0	1.2	0.27	2.2	0.48
Catchment_12[(a)]	110	3.06	0	0.8	0.27	1.5	0.48
Catchment_13[(a)]	90	8.76	10	3.5	0.40	5.8	0.66
Catchment_14[(a)]	120	3.55	95	4.4	1.23	6.5	1.84
Tributary and On-Site Subsheds with Redeveloped Land Uses (yellow shading indicates increased redeveloped impervious coverage)							
C-DT21015M	10	23.88	60	18.8	0.79	28.8	1.21
C-DT21012M	20	11.69	85	12.3	1.05	18.5	1.59
C-DT2008M	30	3.96	95	4.5	1.12	6.7	1.69
C-DT2006M	40	3.98	90	4.3	1.09	6.5	1.64
C-DT2005M	50	3.93	95	4.4	1.12	6.6	1.69
C-DT2002M	60	4.14	80	3.0	0.72	4.6	1.11
C-DT2001F[(a)]	70	3.57	90	2.8	0.78	4.2	1.18
C-DT2002Mb	80	11.42	80	8.3	0.72	12.6	1.11
Catchment_11	100	4.56	80	5.5	1.21	8.4	1.84
Catchment_12	110	3.06	80	3.7	1.21	5.6	1.84
Catchment_13	90	8.76	80	10.6	1.21	16.1	1.84
Catchment_14[(a)]	120	3.55	95	4.4	1.23	6.5	1.84
Change in Peak Flow and Unit Peak Flow (yellow shading indicates increased redeveloped impervious coverage)							
C-DT21015M	10	23.88	60	0.0	0.0	0.0	0.0
C-DT21012M	20	11.69	85	0.0	0.0	0.0	0.0
C-DT2008M	30	3.96	95	0.0	0.0	0.0	0.0
C-DT2006M	40	3.98	90	0.0	0.0	0.0	0.0
C-DT2005M	50	3.93	95	0.0	0.0	0.0	0.0
C-DT2002M	60	4.14	80	2.1	0.5	3.0	0.7
C-DT2001F[(a)]	70	3.57	90	0.6	0.2	0.8	0.2
C-DT2002Mb	80	11.42	80	4.8	0.4	7.0	0.6
Catchment_11	100	4.56	80	4.3	0.9	6.2	1.4
Catchment_12	110	3.06	80	2.9	0.9	4.2	1.4
Catchment_13	90	8.76	80	7.1	0.8	10.3	1.2
Catchment_14[(a)]	120	3.55	95	0.0	0.0	0.0	0.0

(a) Subshed is not tributary to existing or proposed storm drain.

Table 2. Summary of Model Node Data and Water Surface Elevation Model Results

Node	Location	MH Rim Elevation, feet	Inveret Elevation, feet	Existing Conditions		With Proposed Storm Drain and Existing Land Uses			With Proposed Storm Drain and Redeveloped Land Use Conditions		
				Water Surface Elevation, feet	Flooding (positive values) or Freeboard (negative values) Depth, feet	Water Surface Elevation, feet	Flooding (positive values) or Freeboard (negative values) Depth, feet	Change from Existing Conditions, feet	Water Surface Elevation, feet	Flooding (positive values) or Freeboard (negative values) Depth, feet	Change from Existing Conditions, feet
15-Year Design Storm (yellow shading indicates reconstructed, new, removed, or abandoned maintenance holes)											
DT21015M	Sonoma Blvd. at Georgia St.	40.4	30.64	33.04	-7.36	32.86	-7.54	-0.18	32.96	-7.44	-0.08
DT21012M	Sonoma Blvd. at York St.	30	19.67	25.39	-4.61	24.41	-5.59	-0.98	25.00	-5.00	-0.39
DT2008M	Sonoma Blvd. at Maine St.	19.4	9.92	17.24	-2.16	16.33	-3.07	-0.92	16.87	-2.53	-0.38
DT2006M	Sonoma Blvd. at Pennsylvania St.	17.3	5.93	13.73	-3.58	12.83	-4.47	-0.89	13.36	-3.95	-0.37
DT2005M	Sonoma Blvd. at Curtola Parkway	14	3.25	12.06	-1.94	11.20	-2.80	-0.86	11.71	-2.29	-0.35
DT2001M	On-Site, behind boat storage building	10.42	-0.98	9.48	-0.94	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DT2001F	On-Site, existing outfall	9.92	-4.5	9.10	-0.82	9.10	-0.82	0.00	9.10	-0.82	0.00
SDMH5	North end of Coral Road	13.32	2.85	N.A.	N.A.	10.69	-2.63	N.A.	N.A.	N.A.	N.A.
DT2002M	South end of Coral Road	10.43	1.33	10.56	0.13	10.29	-0.14	-0.27	10.78	0.35	0.22
SDMH1	On-Site, by Sonoma Blvd.	13	2.46	N.A.	N.A.	9.99	-3.01	N.A.	10.45	-2.55	N.A.
SDMH2	On-Site, by Sonoma Blvd.	10	2.21	N.A.	N.A.	9.78	-0.22	N.A.	10.22	0.22	N.A.
SDMH3	On-Site	11.09	1.98	N.A.	N.A.	9.48	-1.61	N.A.	9.90	-1.19	N.A.
SDMH4	On-Site	11.6	1.65	N.A.	N.A.	9.21	-2.39	N.A.	9.42	-2.18	N.A.
OUTFALL	On-Site, Proposed Outfall	14.5	1.52	N.A.	N.A.	9.10	-5.41	N.A.	9.10	-5.41	N.A.
100-Year Design Storm (yellow shading indicates reconstructed, new, removed, or abandoned maintenance holes)											
DT21015M	Sonoma Blvd. at Georgia St.	40.4	30.64	42.56	2.16	42.56	2.16	-0.01	42.56	2.16	0.00
DT21012M	Sonoma Blvd. at York St.	30	19.67	32.51	2.51	32.43	2.43	-0.08	32.48	2.48	-0.03
DT2008M	Sonoma Blvd. at Maine St.	19.4	9.92	21.38	1.98	20.92	1.52	-0.46	21.20	1.80	-0.18
DT2006M	Sonoma Blvd. at Pennsylvania St.	17.3	5.93	16.69	-0.61	15.87	-1.43	-0.82	16.34	-0.96	-0.35
DT2005M	Sonoma Blvd. at Curtola Parkway	14	3.25	14.41	0.41	13.40	-0.60	-1.01	13.98	-0.02	-0.43
DT2001M	On-Site, behind boat storage building	10.42	-0.98	10.61	0.19	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DT2001F	On-Site, existing outfall	9.92	-4.5	10.06	0.14	10.06	0.14	0.00	10.06	0.14	0.00
SDMH5	North end of Coral Road	13.32	2.85	N.A.	N.A.	12.54	-0.78	N.A.	N.A.	N.A.	N.A.
DT2002M	South end of Coral Road	10.43	1.33	12.25	1.82	11.89	1.46	-0.36	12.56	2.13	0.31
SDMH1	On-Site, by Sonoma Blvd.	13	2.46	N.A.	N.A.	11.42	-1.58	N.A.	12.07	-0.93	N.A.
SDMH2	On-Site, by Sonoma Blvd.	10	2.21	N.A.	N.A.	11.10	1.10	N.A.	11.74	1.74	N.A.
SDMH3	On-Site	11.09	1.98	N.A.	N.A.	10.65	-0.44	N.A.	11.31	0.22	N.A.
SDMH4	On-Site	11.6	1.65	N.A.	N.A.	10.25	-1.35	N.A.	10.60	-1.00	N.A.
OUTFALL	On-Site, Proposed Outfall	14.5	1.52	N.A.	N.A.	10.06	-4.45	N.A.	10.06	-4.45	N.A.

Peak Flow and Velocity Results

Table 3 shows the peak flow and velocity in each storm drain segment for existing conditions, with the proposed storm drain and existing land uses, and with the proposed storm drain and redeveloped land uses for the 15-year and the 100-year design storms. Yellow shading indicates reconstructed, new, removed, or abandoned storm drains. N.A. indicates locations where no facilities exist for the specific condition. The flow and velocity results are summarized below:

- For the proposed storm drain with existing land uses and for the 15-year storm (the design condition and design storm), the minimum flow velocity is 2.3 feet per second, which is slightly lower than the standard of 2.5 feet per second. If the storm drain size is reduced to increase the velocity, the WSEs would increase, providing less freeboard or more flooding than discussed above. Because of the low ground on the site and high tide levels used in the evaluation, it is impossible to achieve both the velocity and freeboard criteria. However, the proposed drain nearly achieves both criteria.
- For the proposed storm drain with existing land uses and for the 100-year storm, the minimum flow velocity is 2.9 feet per second, which exceeds the standard of 2.5 feet per second.
- For the proposed storm drain with redeveloped land uses and for the 15-year storm, the minimum flow velocity is 2.4 feet per second, which nearly meets the standard of 2.5 feet per second.
- For the proposed storm drain with redeveloped land uses and for the 100-year storm, the minimum flow velocity is 3.0 feet per second, which exceeds the standard of 2.5 feet per second.

SCOUR AND SEDIMENTATION EVALUATION

A stable channel evaluation was prepared to determine that scour protection is needed, and then the California Bank and Shore Rock Slope Protection Design Manual (CBSRSPSM) was used to size the riprap rock. Evaluation parameters are summarized below. This evaluation was performed for both the existing outlet and the proposed outlet. Evaluation parameters and results are summarized in this section.

Table 3. Summary of Model Link Data and Peak Flow and Velocity Model Results

Link	Location of Upstream Node	Upstream Node	Downstream Node	Length, feet	Pipoe Daimeter, feet	Pipe Daimeter, inches	Existing Conditions		With Proposed Storm Drain				With Proposed Storm Drain and Redeveloped Land Use Conditions			
							Flow, cfs	Velocity, ft/sec	Flow, cfs	Velocity, ft/sec	Change in Flow from Existing Conditions, cfs	Change in Velocity from Existing Condition, ft/sec	Flow, cfs	Velocity, ft/sec	Change in Flow from Existing Conditions, cfs	Change in Velocity from Existing Condition, ft/sec
15-Year Design Storm (yellow shading indicates reconstructed, new, removed, or abandoned storm drain pipes)																
DT21015M_DT21012M	Sonoma Blvd. at Georgia St.	DT21015M	DT21012M	371	1.75	21	18.7	7.8	18.7	7.8	0.1	0.0	18.7	7.8	0.0	0.0
DT1012M_DT2008M	Sonoma Blvd. at York St.	DT21012M	DT2008M	354	2.00	24	30.9	9.8	30.8	9.8	-0.1	0.0	30.8	9.8	-0.1	0.0
DT2008M_DT2006M	Sonoma Blvd. at Maine St.	DT2008M	DT2006M	365	2.50	30	35.3	7.2	35.2	7.2	-0.1	0.0	35.3	7.2	-0.1	0.0
DT2006M_DT2005M	Sonoma Blvd. at Pennsylvania St.	DT2006M	DT2005M	333	3.00	36	39.6	5.6	39.6	5.6	-0.1	0.0	39.6	5.6	-0.1	0.0
DT2005M_DT2002M	Sonoma Blvd. at Curtola Parkway	DT2005M	DT2002M	377	3.25	39	44.0	5.3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DT2002M_DT2001M	South end of Coral Road	DT2002M	DT2001M	395	4.00	48	48.5	3.9	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DT2001M_DT2001F	On-Site, behind boat storage building	DT2001M	DT2001F	379	4.50	54	48.5	3.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DT2005M_SDMH5	Sonoma Blvd. at Curtola Parkway	DT2005M	SDMH5	122	3.50	42	N.A.	N.A.	44.0	4.6	N.A.	N.A.	44.0	4.6	N.A.	N.A.
SDMH5_DT2002M	North end of Coral Road	SDMH5	DT2002M	252	4.00	48	N.A.	N.A.	44.0	3.5	N.A.	N.A.	44.0	3.5	N.A.	N.A.
DT2002M_SDMH1	South end of Coral Road	DT2002M	SDMH1	308	5.00	60	N.A.	N.A.	45.0	2.3	N.A.	N.A.	47.1	2.4	N.A.	N.A.
SDMH1_SDMH2	On-Site, by Sonoma Blvd.	SDMH1	SDMH2	355	5.00	60	N.A.	N.A.	45.0	2.3	N.A.	N.A.	47.1	2.4	N.A.	N.A.
SDMH2_SDMH3	On-Site, by Sonoma Blvd.	SDMH2	SDMH3	323	5.00	60	N.A.	N.A.	45.1	2.3	N.A.	N.A.	47.2	2.4	N.A.	N.A.
SDMH3_SDMH4	On-Site	SDMH3	SDMH4	465	5.00	60	N.A.	N.A.	48.6	2.5	N.A.	N.A.	65.8	3.4	N.A.	N.A.
SDMH4_OUTFALL	On-Site	SDMH4	OUTFALL	218	5.00	60	N.A.	N.A.	48.6	3.1	N.A.	N.A.	74.7	3.8	N.A.	N.A.
100-Year Design Storm (yellow shading indicates reconstructed, new, removed, or abandoned storm drain pipes)																
DT21015M_DT21012M	Sonoma Blvd. at Georgia St.	DT21015M	DT21012M	371	1.75	21	24.1	10.0	24.1	10.0	0.0	0.0	24.1	10.0	0.0	0.0
DT1012M_DT2008M	Sonoma Blvd. at York St.	DT21012M	DT2008M	354	2.00	24	36.8	11.7	38.2	12.1	1.4	0.4	37.5	11.9	0.7	0.2
DT2008M_DT2006M	Sonoma Blvd. at Maine St.	DT2008M	DT2006M	365	2.50	30	42.3	8.6	42.9	8.7	0.6	0.1	42.3	8.6	0.0	0.0
DT2006M_DT2005M	Sonoma Blvd. at Pennsylvania St.	DT2006M	DT2005M	333	3.00	36	46.5	6.6	48.3	6.8	1.8	0.3	47.1	6.7	0.6	0.1
DT2005M_DT2002M	Sonoma Blvd. at Curtola Parkway	DT2005M	DT2002M	377	3.25	39	52.6	6.3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DT2002M_DT2001M	South end of Coral Road	DT2002M	DT2001M	395	4.00	48	59.7	4.8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DT2001M_DT2001F	On-Site, behind boat storage building	DT2001M	DT2001F	379	4.50	54	59.7	3.8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DT2005M_SDMH5	Sonoma Blvd. at Curtola Parkway	DT2005M	SDMH5	122	3.50	42	N.A.	N.A.	54.7	5.7	N.A.	N.A.	53.7	5.6	N.A.	N.A.
SDMH5_DT2002M	North end of Coral Road	SDMH5	DT2002M	252	4.00	48	N.A.	N.A.	54.7	4.4	N.A.	N.A.	53.6	4.3	N.A.	N.A.
DT2002M_SDMH1	South end of Coral Road	DT2002M	SDMH1	308	5.00	60	N.A.	N.A.	56.5	2.9	N.A.	N.A.	58.3	3.0	N.A.	N.A.
SDMH1_SDMH2	On-Site, by Sonoma Blvd.	SDMH1	SDMH2	355	5.00	60	N.A.	N.A.	56.5	2.9	N.A.	N.A.	58.3	3.0	N.A.	N.A.
SDMH2_SDMH3	On-Site, by Sonoma Blvd.	SDMH2	SDMH3	323	5.00	60	N.A.	N.A.	56.7	2.9	N.A.	N.A.	59.4	3.0	N.A.	N.A.
SDMH3_SDMH4	On-Site	SDMH3	SDMH4	465	5.00	60	N.A.	N.A.	62.1	3.2	N.A.	N.A.	82.3	4.2	N.A.	N.A.
SDMH4_OUTFALL	On-Site	SDMH4	OUTFALL	218	5.00	60	N.A.	N.A.	62.1	3.2	N.A.	N.A.	94.1	4.8	N.A.	N.A.

Existing Outlet Scour Evaluation

- Pipe Diameter: 54-inch
- 15-year Peak Flow: 48.5 cubic feet per second (cfs)
- 15-Year Peak Velocity (assuming the pipe is clear of sediment): 3.1 feet per second
- 100-year Peak Flow: 59.7 cfs
- 100-Year Peak Velocity: 3.8 feet per second
- Bank Slope: 3H:1V (from LiDAR mapping)
- Riverbed Material: Fine gravel to alluvial silt (see Photos 5, 6, and 7)
- Riverbank Material: Broken concrete rubble (see Photos 5 and 7)

The stable bed velocity for fine gravel is 2.5 feet per second and is 2.0 for alluvial silt (non-cohesive). Both the 15-year and 100-year peak velocities exceed these stable bed velocities. Thus, there should be evidence of riverbed scour. As shown in Photo 7, there is a small channel scoured into the bed of the river. Although the existing storm drain does not discharge directly onto the riverbank, based on the 100-year velocity of 3.8 feet per second leaving the pipe, the CBSRSPSM recommends a minimum rock class of Backing No. 3, which has rock weights of 1 to 25 pounds. As shown in Photos 5 and 7, the riverbank is protected by broken concrete rubble that appears to be stable. This rubble appears to mostly exceed 25 pounds in weight.

Proposed Outlet with Buildout Land Uses Scour Evaluation (Representing the Worst Case for Scour)

- Pipe Diameter: 60-inch
- 15-year Peak Flow: 74.7 cfs
- 15-Year Peak Velocity (assuming the pipe is clear of sediment): 3.8 feet per second
- 100-year Peak Flow: 94.1 cfs
- 100-Year Peak Velocity: 4.8 feet per second
- Bank Slope: 3H:1V (from LiDAR mapping)
- Riverbed Material: Fine gravel to alluvial silt (based on air photos and comparison with existing outlet)
- Riverbank Material: Broken concrete rubble (based on air photos and comparison with existing outlet)

The stable bed velocity for fine gravel is 2.5 feet per second for fine gravel and is 2.0 for alluvial silt. Both the 15-year and 100-year peak velocities exceed these stable bed velocities. Although the existing storm drain does not discharge directly onto the riverbank, based on the 100-year velocity of 4.8 feet per second leaving the pipe, the CBSRSPSM recommends a minimum rock class of Backing No. 3. However, CBSRSPSM also recommends that in public access areas, larger rock (Light class) be used to prevent vandalism or theft of the rock. Thus, the outlet should be protected with a layer of Light Class Rock Slope Protection 2.5 feet thick. No rock layering is needed, but a Type A rock slope protection fabric will be placed under the rock.

Sedimentation Evaluation

As shown in Photos 5, 6, and 7, and on Sheet C03 (Attachment B), the existing outfall discharges to the Mare Island Straight at about elevation -1.2 feet NAVD, which is about 2.9 feet below the riverbed. Consequently, this existing storm drain is filled with sediment to about elevation 1.7 feet NAVD88.

The proposed storm drain was designed to minimize the potential for sediment to accumulate inside the pipe. As shown on sheet C02, the invert of the proposed storm drain at the outfall to the Mare Island Straight is 1.52 feet NAVD88, which is nearly above the sediment elevation in the existing storm drain. Thus, there should be no more than 0.18 feet of sediment accumulation in the proposed pipe (versus about 3 feet of sediment accumulation in the existing pipe). The proposed storm drain was designed with a slope of 0.007 ft/ft, which complies with the VFWD required minimum pipe slope. Raising the outlet of the storm drain above elevation 1.7 feet would require a pipe slope less than VFWD's minimum slope of 0.007 ft/ft.

REMOVAL OF EXISTING STORM DRAIN AND OUTFALL

After evaluating multiple options, for the reasons summarized below, it was determined the simplest and most cost-effective solution for the remediation work is to remove most of the existing storm drain, but also to keep and protect from damage the existing outfall so that the outfall can be used do drain the northwest corner of the project site (specifically subsheds 70 and 120 on Figure 2):

- Abandoning the existing storm drain in place would require the soil remediation work to occur around the existing pipe; consequently, the existing storm drain should be removed.
- Keeping the existing outfall will allow subsheds 70 and 120 to use the existing outfall and will prevent the need to construct a new outfall for the northwest corner of the project site when the site is redeveloped.
- Keeping the existing outfall will require construction of a maintenance hole at Station 11+25 (see sheet C03 in Attachment B). During low tide, the location of the new maintenance hole will be excavated. One segment of existing pipe will be removed, and a sandbag dam will be installed inside the remaining pipe. The sandbag dam will block water from flowing into the excavated area when the tide rises. Then the new maintenance hole will be constructed around then end of the existing outfall. The new maintenance hole will include one 12-inch pipe stub (from the south east) and one 18-inch pipe stub (from the north) for later connection of the on-site storm drains.

BYPASS PUMPING

The bypass pumping plan is shown in the Vallejo MPG Remediation Storm Drain Realignment Project 65% design submittal (Attachment B). SDMH-1, located on the corner of Sonoma Boulevard and Coral Road, will be the bypass pumping manhole. The above ground bypass piping will run south east adjacent to Sonoma Boulevard then south to DI-1. One 100-gallons per minute low flow pump and pipe are needed. Also, two or more storm event pumps and piping are needed to provide a total capacity of 40 cfs. All pumps will have sound attenuation. Temporary fencing will be installed to protect the bypass pumps and above ground piping.

CONSTRUCTION SEQUENCE

The construction is intended to minimize the construction schedule, reduce the interference with the soil remediation, and ensure adequate drainage for the off-site and on-site area exists at all times. The construction sequence is outlined below (see Attachment B):

1. Complete any soil remediation along the proposed 60-inch storm drain alignment
2. Construct the proposed 60-inch storm drain, maintenance holes, drain inlet, and headwall
3. Construct SDMH-1
4. Install the bypass pumping and piping
5. Remove and dispose of existing 54-inch storm drain outfall
6. Remove and dispose of existing 54-inch storm drain from the outfall to Coral Road
7. Remove the existing 39-inch storm drain in Coral Road
8. Complete soil remediation along Coral Road
9. Construct the proposed 54-inch storm drain and SDMH-DT2002M in Coral Rd and connect to the proposed 60-inch storm drain.
10. Remove the bypass pumping and piping.

COORDINATION WITH VFWD

The following items are needed from or will be provided to VFWD:

- Confirmation that there is not an active storm drain running north from the existing maintenance hole shown in Photo 3.
- Provide preliminary approval of the 65% plans provided in Attachment B.
- In the future, provide approval and sign the final plans. The final plans will show the easement along the proposed storm drain that will be granted to VFWD.
- A legal description and plat map of the easement will be prepared and provided to VFWD.
- When the proposed storm drain is constructed and the soil remediation work is completed, VFWD will take ownership of the storm drain and the easement.

PERMIT SUPPORT DATA

Data supporting the required permits is summarized below (the values below have been rounded up from the actual calculated values) this evaluation is based on the following key elevations (all elevations are in the NAVD88 datum):

- Below 1 foot: Mudflat
- 1.0 to 5.5 feet: Middle intertidal zone
- 5.5 to 7.5 feet: High intertidal zone

- 5.5 feet is the mean high-water elevation and is the limit of Rivers and Harbors Act jurisdiction. This elevation is also the limit of delta smelt shallow water habitat
- 7.5 feet is the high tide line and the limit of Clean Water Act jurisdiction.

Data supporting the permit applications is provided below:

- The headwall and rock scour protection have been set back from the Mare Island Straight by about 20 feet (see Sheet C04 in Attachment B). This allows all concrete and rock scour protection to be placed outside of (east of) the areas that are currently mudflat, middle intertidal zone, and high intertidal zone.
- The volume of excavation is up top 400 CY. The area of excavation is up to 3,000 square feet (in plan-view) and occurs in areas that are currently at elevations of 1.0 to 10.0 feet. Of this excavation, only about 15 CY is from above elevation 7.5 feet. No earthen fill will be placed in the areas that are currently mudflat, middle intertidal zone, and high intertidal zone.
- The volume of concrete for the headwall is up to 15 CY. The area of concrete is up to 120 square feet (in plan-view). This concrete will be placed in areas that are currently at about elevation 10 feet, which is outside of (east of) the areas that are currently mudflat, middle intertidal zone, and high intertidal zone. None of the concrete will be place in areas that are currently below elevation 7.5 feet.
- The volume or rock scour is up to 30 CY. The area of rock scour protection is up to 300 square feet (in plan-view). There will be a Caltrans Type A rock slope protection fabric placed under the rock. This rock scour protection will be placed in areas that are currently above elevation 8.0 feet which is outside of (east of) the areas that are currently mudflat, middle intertidal zone, and high intertidal zone. None of the rock will be place in areas that are currently below elevation 7.5 feet.
- To provide adequate cure time and to protect the Mare Island Straight water quality, the sheet pile coffer dam will be left in place for at least 10 days after the concrete is poured.



LEGEND

- Alternative 1 - Minimized Length
- Alternative 2 - Site Perimeter
- Alternative 3 - Existing Alignment
- SD — Existing Storm Drain
- ABAND SS — Abandoned Sanitary Sewer
- Proposed Manhole

N

0 87.5 175
SCALE IN FEET

WEST YOST

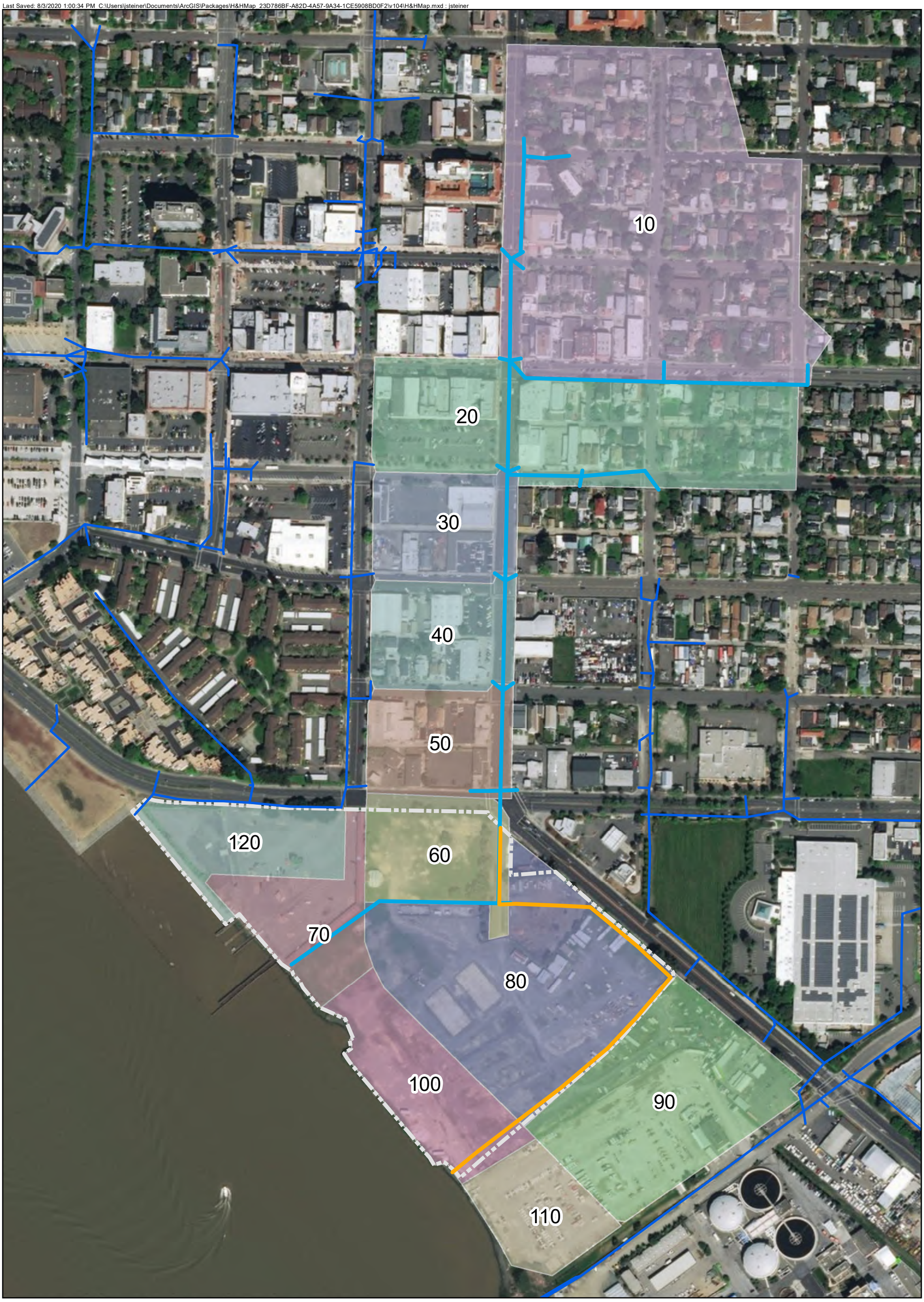
Figure 1

Existing Storm Drains, Existing Sanitary Sewers, and Proposed Storm Drain Alternatives

Terra Pacific Group
Vallejo Storm Drain Replacement

N:\Clients\913 Terra Pacific Group, Incorporated\60-20-01 Vallejo StormdrainICAD\Figures\SD Pipeline Alternatives PUBLIC.dwg 3/4/2021 5:32 PM jpavicic

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Symbology

- VSFCD Storm Drain Piping
- Existing Storm Drain
- Proposed Storm Drain
- Site Boundary
- 10-90 Stormwater Subsheds

N

0 150 300

Scale in Feet

Figure 2

Hydrologic and Hydraulic Evaluation

WEST YOST ASSOCIATES

Terra Pacific Group
P&GE Vallejo Remediation Site
Storm Drain Predesign

Attachment A

Old Utility Plans Related to the Project Site

CC-421-9

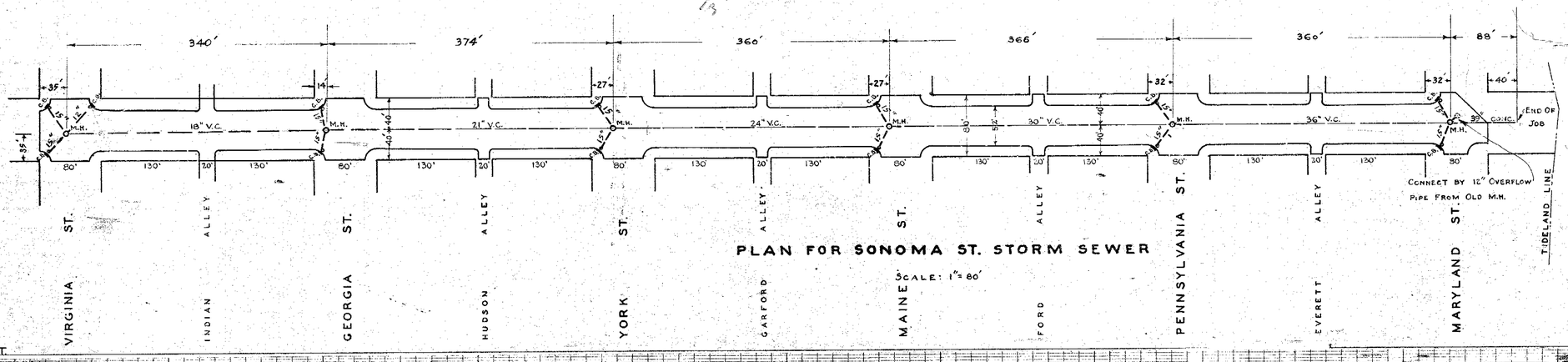
CITY OF VALLEJO

SONOMA STREET STORM SEWER

PREPARED BY G.D. Kilkenny CITY ENGINEER
APPROVED BY Frank B. Drew COMMISSIONER OF PUBLIC WORKS

DRAWN BY E.L.M. | DATE March 1936
BK. 34-60 PG. 55 | SCALE As shown

SHEET 1 OF 4 SHEETS

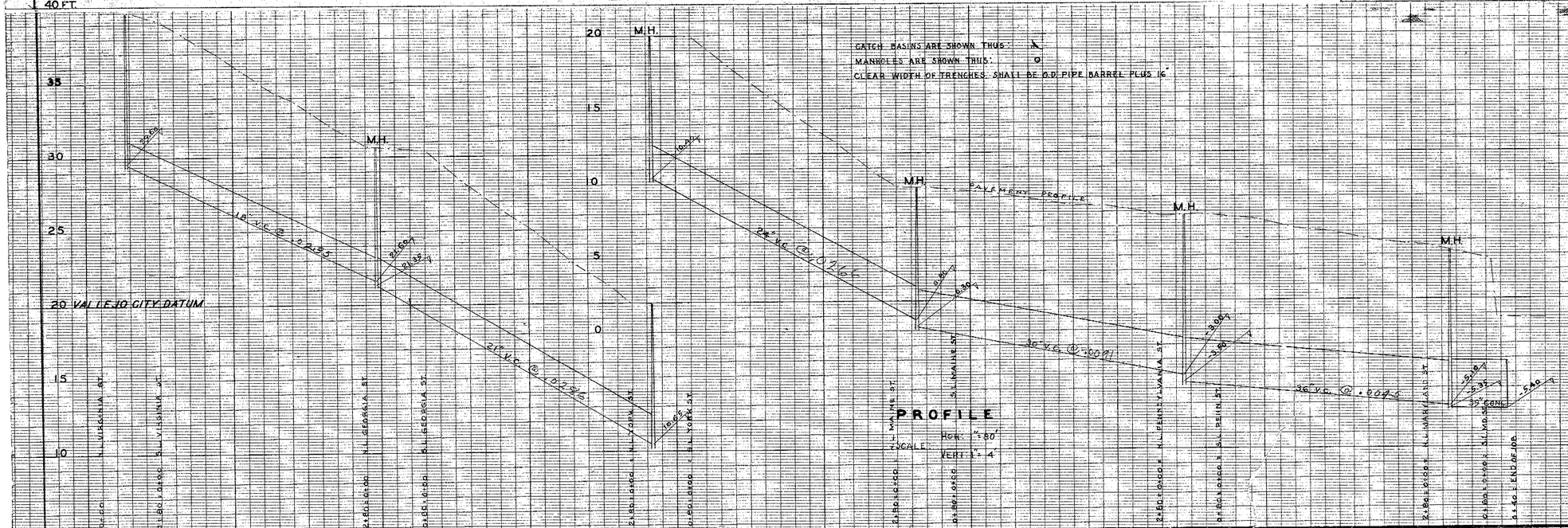


PLAN FOR SONOMA ST. STORM SEWER

SCALE: 1" = 80'

TIDELAND SURVEY № 20

CATCH BASINS ARE SHOWN THUS:
MANHOLES ARE SHOWN THUS:
CLEAR WIDTH OF TRENCHES SHALL BE O.D. PIPE BARREL PLUS 16"



NOTE: Invert grades at ℄ of M.H. are shown thus:

VALLEJO SANITATION AND FLOOD CONTROL DISTRICT
DATE FILED 7/16/52
NO. 1485

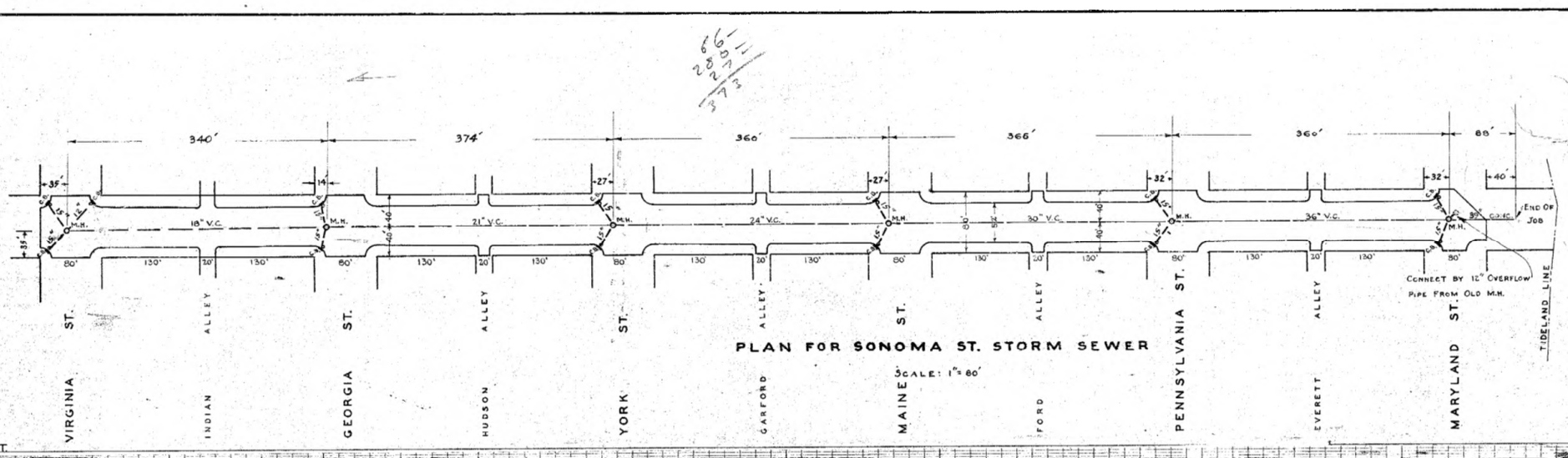
CITY OF VALLEJO

SONOMA STREET STORM SEWER

PREPARED BY G.D. Kilkenny CITY ENGINEER
APPROVED BY Frank Brew COMMISSIONER OF PUBLIC WORKS

DRAWN BY E.L.M. | DATE March 1936
BK 34-66 Pg. 55 | SCALE As Shown

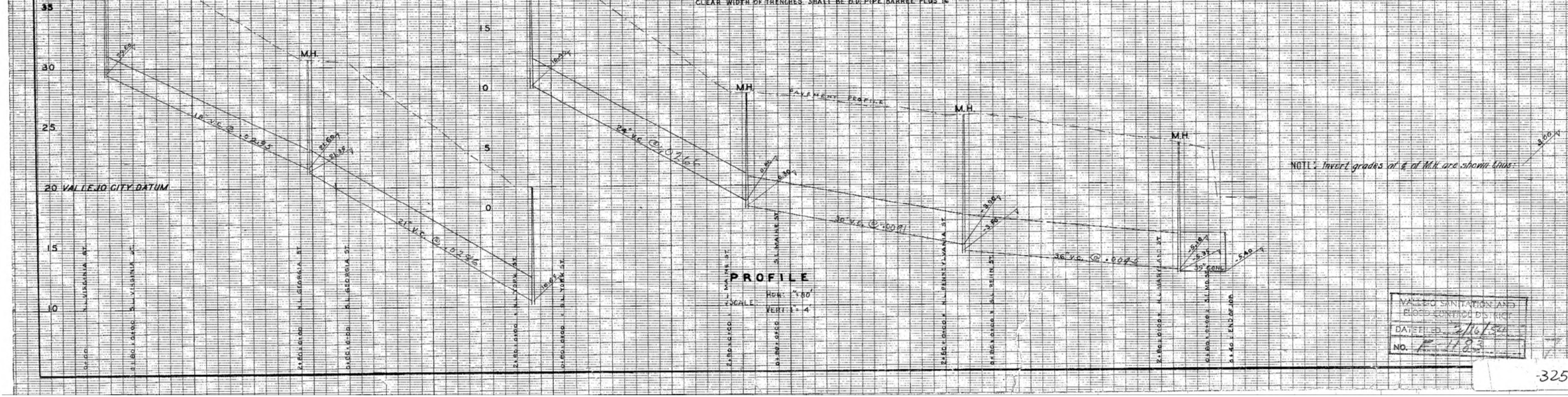
SHEET 1 OF 4 SHEETS



PLAN FOR SONOMA ST. STORM SEWER

SCALE: 1" = 80'

CATCH BASINS ARE SHOWN THUS: ▲
MANHOLES ARE SHOWN THUS: ○
CLEAR WIDTH OF TRENCHES SHALL BE O.D. PIPE BARREL PLUS 16"



PROFILE

HOR. SCALE: 1" = 80'
VERT. SCALE: 1" = 4'

VALLEJO SANITATION AND FLOOD CONTROL DISTRICT
DATE FILED 3/16/37
NO. F 1183

325

BARRACKS - A 242

BARRACKS - A 243

GUARD HOUSE A-240

DISPENSARY-A 238

PROPOSED CHAPEL & THEATER

6"SS — 8" — M.H. A — M.H. B — 10" — 10" — MH E

8'

4'

SUBSISTENCE A-239

RECREATION A-237

10"

M.H. D

PROP. LAUNDRY

BARRACKS - A 244

8 — FUTURE — M.H. C — 10

BARRACKS - A 245

PROPOSED GARAGE

BACHELOR OFFICER QUARTERS A-236

PROPOSED INTERCEPTOR SEWER

5+30

10'

54"

40'

PROPOSED 10"SS

EXISTING COMB. SEWER

PARCEL 'N'

10'

48"

10'

COVERFLOW

PLUG

0+00 = 12+08.12

PLOT PLAN

NO.	BY	DATE	REVISION

VALLEJO SANITATION & FLOOD CONTROL DISTRICT
SOLANO COUNTY, CALIFORNIA

SANITARY SEWERS
NAVAL RESERVE STATION
AT SOLANO AVE. & CORAL ROAD

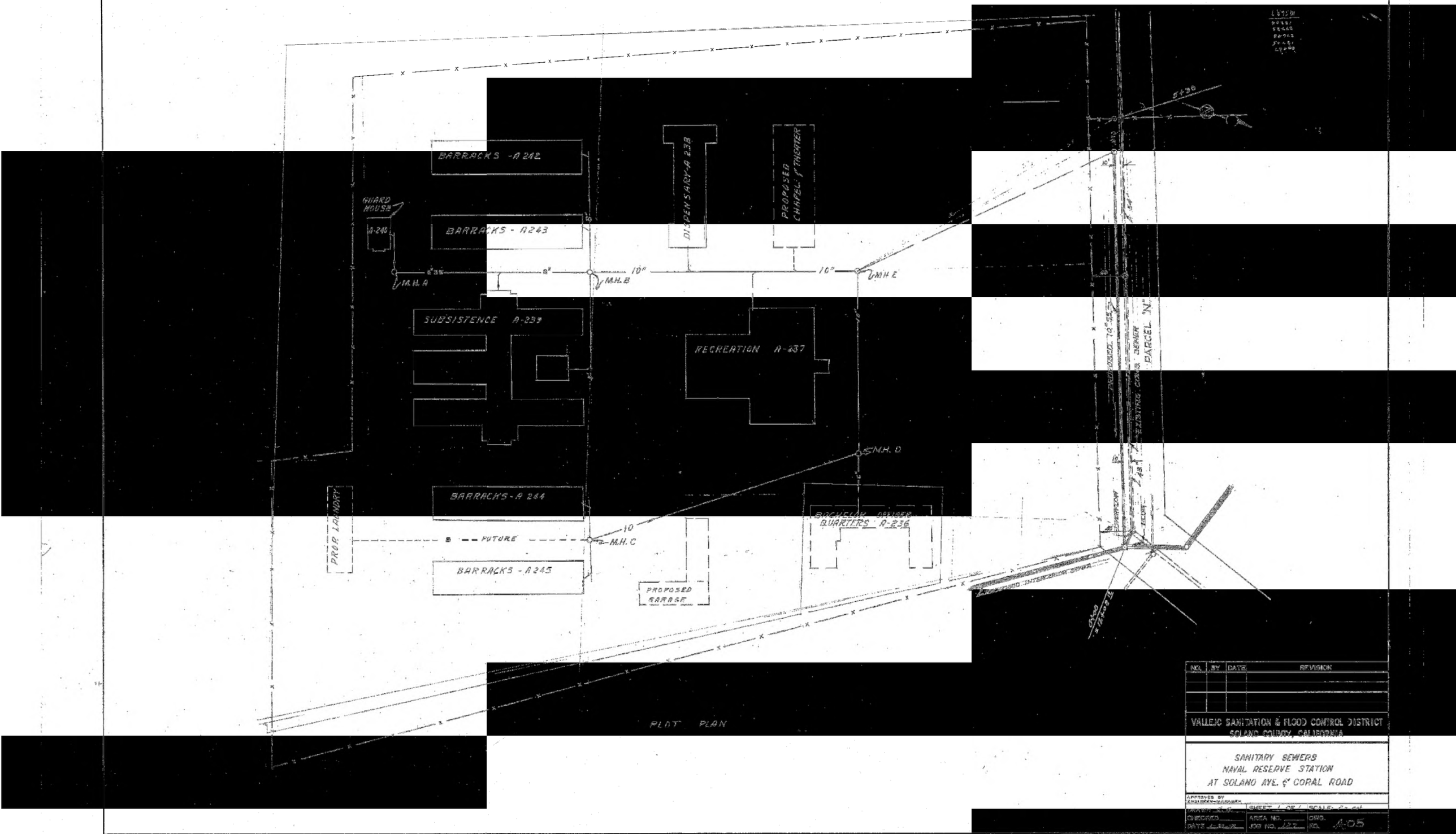
APPROVED BY ENGINEER-MANAGER

DRAWN C. G.
CHECKED
DATE 1-30-58

SHEET 1 OF 1
AREA NO.
JOB NO. 127

SCALE: 1" = 50'
DWG. NO. 405

PRINTED ON DIEPO NO. 1006H CLEARPRINT



NO.	BY	DATE	REVISION

VALLEJO SANITATION & FLOOD CONTROL DISTRICT
SOLANO COUNTY, CALIFORNIA

SANITARY SEWERS
NAVAL RESERVE STATION
AT SOLANO AVE. & CORAL ROAD

APPROVED BY
DRAWN
CHECKED
DATE

SHEET 1 OF 1 SHEETS SCALE: 1"=50'
AREA NO. DWG.
JOB NO. 122 NO. A-105

PRINTED ON DIEPO NO. 1000R CLEARPRINT

BEGINNING OF WORK

CITY OF VALLEJO

TULE SWAMP

FOURTH ST. EXTENSION

SONOMA ST.

MARYLAND ST.

P.G.&E.

CITY OF VALLEJO

TIDELAND SURVEY NO. 20

BLOCK 203

S 49° 49' 30" E

191.40

N 58° 45' E

S 1° 06' 30" W

378.82

3+67.75

31.75

M.H.

48" Reinforced concrete Pipe

Existing M.H.

39" Existing Sewer Re.Con.

272' Laid in 1937

Re. Con 16' Laid in 1937

60.92

341.17

150.14

74.75

40'

80'

S 81° 30' E 80.58

42.58

42.58

130.11

S 88° 33' 34" E

S 1° 26' 26" E

S 88° 33' 34" E

658.33

S 50° 46' W

54" I.D.

Existing 18" V.C. Sewer

660.92'

622.38

40'

80'

112'

32'

TREATED PILES AND TIMBER

Bulkhead

TRESTLE

LIMIT OF WORK

10+60.67

Dolphin

Dolphin

C.I.P. CONCRETE SEWER OUTLET

N

E

W

S

PLAN

SCALE: 1 IN. = 50 FT.

+10.00 VALLEJO CITY DATUM

PROFILE

SCALE

HOR. 1 IN. = 50 FT.

VERT. 1 IN. = 4 FT.

M.H.

0.00

Beginning of Work

-7.46

M.H.

-10.00

AB" R.C. PIPE

-7.40

Invert 39" I.D. Re Con. Slope .004883

Quarry Waste Fill

PILE FOUNDATION

Dredged Fill of Channel Clay Mud

Shale Surface

Shale -18.4

Shale -26.7

Shale -39.5

-10.00

Sonoma St.

0+00 & Maryland St.

0+50

0+80

1+00

1+50

2+00

2+50

3+00

3+51.75

3+67.75

3+99.75

4+50

5+00

5+50

6+00

6+50

7+00

7+50

8+00

8+50

9+00

9+16.67

9+30

0.00

Invert 54" I.D Re. Con. Slope .0032

Dredged Fill of Channel Clay Mud

UNTREATED PILE FOUNDATION

Work

-4.6 M.H.W

-7.5 M.T

9.57

-10.1 M.L.W.

of

Limit

TREATED PILE & TIMBER

10+00 Shale -46.2

10+28.67

10+40.67 Bulkhead

10+60.67

CONCRETE SEWER OUTLET

TRESTLE

SHEET 3 OF 22 SHEETS

CITY OF VALLEJO

PLAN AND PROFILE
SONOMA STREET
STORM SEWER

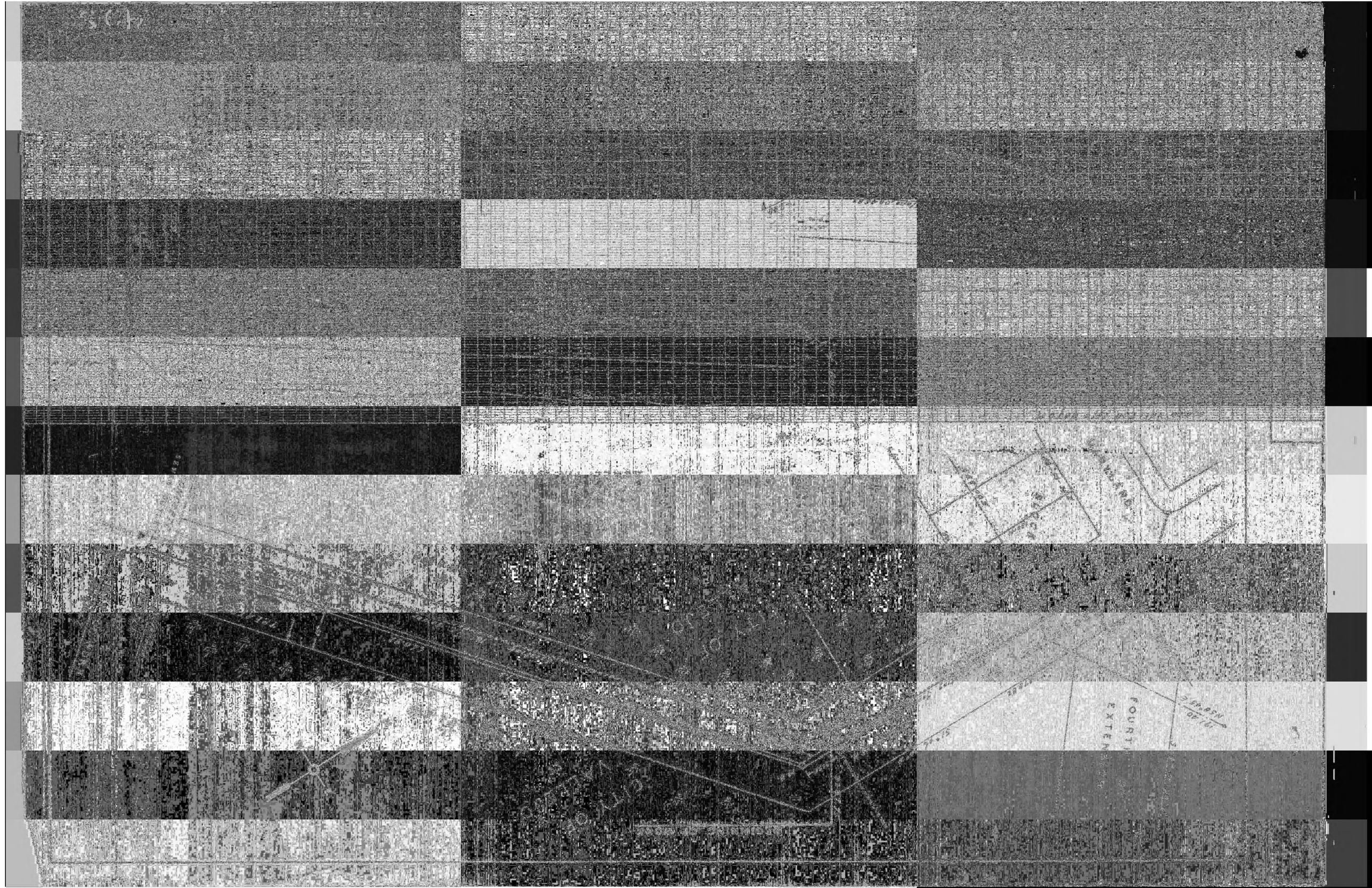
W. F. McHenry
ENGINEER OF PUBLIC WORKS

APPROVED BY _____ ENGINEER OF PUBLIC WORKS

DRAWN BY J.H.S. Oct. 27 '41

36-80 50-71 1" = 50'

403



FOURTH ST. EXTENSION

MARYLAND ST.

MONO SONOMA ST.

CITY OF VALLEJO

CITY OF VALLEJO

P G & E

TULE SWAMP

TULE SWAMP

EXISTING 48" I.D. CONCRETE PIPE

EXISTING 18" V.C. SEWER PIPE

Crushed & Filled Oct. 1974

ABANDON

BEGINNING OF WORK

CONSTRUCT 54" I.D. CONCRETE PIPE

M.H.

EXISTING TEMPORARY CONNECTION

EXISTING 54" I.D. CONC. PIPE

LIMIT OF WORK

BULKHEAD

CITY

TIDELAND SURVEY NO. 20

PLAN

SCALE: 1 IN. = 50 FT.

195.10'

BEGINNING OF WORK

LIMIT OF WORK

NEW MANHOLE

EXISTING M.H.

CITY BULKHEAD

CITY VALLEJO DATUM 0.00

-5.00

-10.00

-7.49

-8.59

.00321'/'

-9.09

-9.57

INVERT 54" I.D. CONCRETE PIPE

EXISTING PILE 42' TO HARD BOTTOM

TIMBER PILE FOUNDATION

EXISTING PILE 47' TO HARD BOTTOM

9.26' Design water surface elevation

0+00 0+50 1+00 1+50 2+00 2+50 3+00 3+11.75 3+50 4+00 4+50 5+00 5+09.85 5+50 6+00 6+40.47 6+52.47

PROFILE

VERTICAL SCALE: 1 IN. = 4 FT.

HORIZONTAL SCALE: 1 IN. = 50 FT.

PLAN AND PROFILE
SONOMA STREET
STORM SEWER

T. D. Kilkenny
CITY ENGINEER

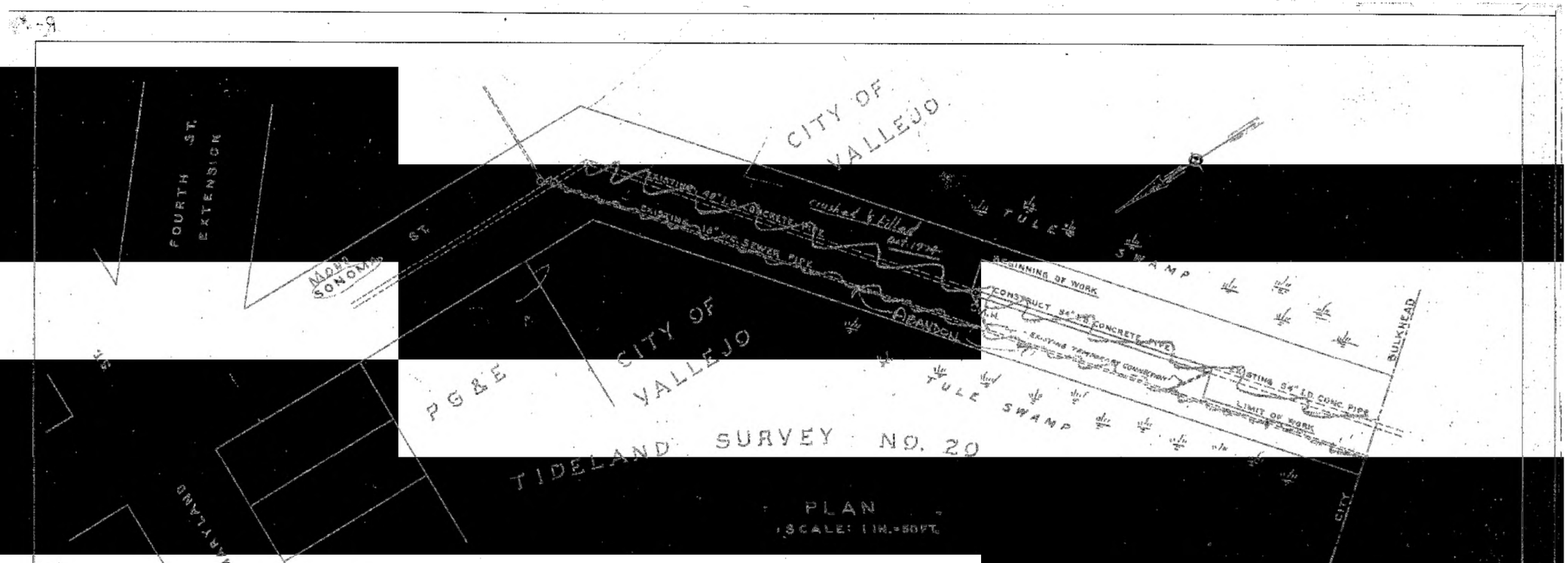
2238

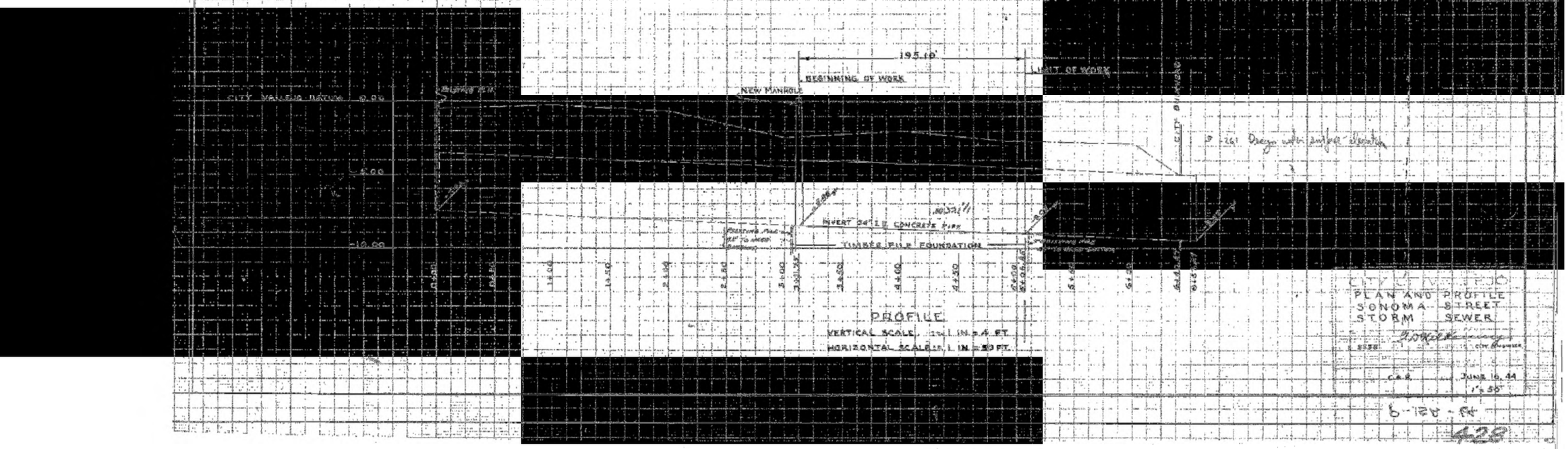
C.A.R.

JUNE 16, 44
1" = 50'

B-124-54

42


FOURTH ST
EXTENSION
MARYLAND
SONOMA ST
CITY OF VALLEJO
P G & E
CITY OF VALLEJO
TULE SWAMP
TULE SWAMP
BULKHEAD
CITY
EXISTING 48" I.D. CONCRETE PIPE
EXISTING 18" I.D. SEWER PIPE
crushed & filled
ABANDON
BEGINNING OF WORK
CONSTRUCT 54" I.D. CONCRETE PIPE
EXISTING TEMPORARY CONNECTION
EXISTING 54" I.D. CONC. PIPE
LIMIT OF WORK
TIDELAND SURVEY NO. 20
PLAN
SCALE: 1 IN.=50 FT.


195.10'
BEGINNING OF WORK
LIMIT OF WORK
NEW MANHOLE
CITY VALLEJO DATUM
INVERT 54" I.D. CONCRETE PIPE
TIMBER PILE FOUNDATION
PROFILE
VERTICAL SCALE: 1 IN.=5 FT.
HORIZONTAL SCALE: 1 IN.=50 FT.
PLAN AND PROFILE
SONOMA STREET
STORM SEWER
Borden
City Engineer
C.S.B.
JUNE 16, 44
1" = 50'
6-128-54
428



LEGEND

- Alternative 1 - Minimized Length
- Alternative 2 - Site Perimeter
- Alternative 3 - Existing Alignment
- SD — Existing Storm Drain
- ABAND SS — Abandoned Sanitary Sewer
- Proposed Manhole

N

0 87.5 175
SCALE IN FEET

Add West Yost title block

Figure 1

Existing Storm Drains, Existing Sanitary Sewers, and Proposed Storm Drain Alternatives

Terra Pacific Group
Vallejo Storm Drain Replacement

N:\Clients\913 Terra Pacific Group, Incorporated\60-20-01 Vallejo Stormdrain\CAD\Figures\SD Pipeline Alternatives PUBLIC.dwg 3/24/2020 9:27 AM jpavicic

PARCEL MAP
VALLEJO WATERFRONT

A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED APRIL 29, 1952, IN BOOK 2 OF SURVEYS AT PAGE 37 AND A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED MAY 28, 1964, IN BOOK 8 OF SURVEYS AT PAGE 90.

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA

dk CONSULTING
CIVIL ENGINEERING–PLANNING–SURVEYING
1440 MARIA LANE, SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 932–6868
SEPTEMBER 2011

OWNER'S STATEMENT:

THE UNDERSIGNED DO HEREBY STATE THAT THEY ARE THE ONLY PARTIES HAVING ANY RECORD TITLE INTEREST IN ALL THE LAND DELINEATED WITHIN THE DISTINCTIVE BORDER OF THIS PARCEL MAP, AND HEREBY CONSENT TO THE PREPARATION AND RECORDATION OF SAID MAP, AND THAT SAID MAP SHOWS ALL EASEMENTS DISCLOSED OF RECORD.

IN WITNESS THEREOF, THE UNDERSIGNED HAVE CAUSED THEIR NAMES TO BE SUBSCRIBED ON THIS FOURTH DAY OF OCTOBER, 2011.

CITY OF VALLEJO,
A MUNICIPAL CORPORATION

BY: Phil Batchelor

TITLE: CITY MANAGER

BY: _____

TITLE: _____

THE REDEVELOPMENT AGENCY OF THE CITY OF VALLEJO,
A MUNICIPAL CORPORATION

BY: Phil Batchelor

TITLE: EXECUTIVE DIRECTOR

BY: _____

TITLE: _____

ACKNOWLEDGMENT:

STATE OF CALIFORNIA)
COUNTY OF Solano)SS
ON October 4, 2011 BEFORE ME, DAWN G. Abrahamson, Notary Public
PERSONALLY APPEARED Phil Batchelor, WHO
PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON(S) WHOSE NAMES(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE/SHE/THEY EXECUTED THE SAME IN HIS/HER/THEIR AUTHORIZED CAPACITY(IES), AND THAT BY HIS/HER/THEIR SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S), OR THE ENTITY UPON BEHALF OF WHICH THE PERSON(S) ACTED, EXECUTED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT.

WITNESS MY HAND AND OFFICIAL SEAL
SIGNATURE: Dawn G. Abrahamson
NOTARY NAME: DAWN G. ABRAHAMSON
NOTARY PHONE: (707) 648-4528
NOTARY REGISTRATION NUMBER: 1827375
MY COMMISSION EXPIRES: 1/15/2013
COUNTY OF PRINCIPLE PLACE OF BUSINESS: Solano

ACKNOWLEDGMENT:

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NOTARY REGISTRATION NUMBER: 1827375
MY COMMISSION EXPIRES: 1/15/2013
COUNTY OF PRINCIPLE PLACE OF BUSINESS: Solano

COUNTY TAX COLLECTOR'S STATEMENT

I, CHARLES LOMELI, COUNTY TAX COLLECTOR OF SOLANO COUNTY, CALIFORNIA, DO HEREBY STATE THAT ACCORDING TO THE RECORDS OF THIS OFFICE, THERE ARE NO LIENS AGAINST THIS SUBDIVISION OR ANY PART THEREOF, FOR UNPAID STATE, COUNTY, MUNICIPAL OF LOCAL TAXES, EXCEPT TAXES FOR SPECIAL ASSESSMENTS NOT YET PAYABLE.

I ALSO CERTIFY THAT A GOOD AND SUFFICIENT BOND TO THE BENEFIT OF SOLANO COUNTY HAS BEEN FILED WITH THIS OFFICE IN THE SUM OF $ N/A WHICH IS IN THE AMOUNT ESTIMATED BY THE ASSESSOR OF SOLANO COUNTY AS BEING A LIEN, BUT NOT YET PAYABLE FOR TAXES AND SPECIAL ASSESSMENTS AGAINST THE LAND CONSTITUTING THIS SUBDIVISION, AND THAT ALL CERTIFICATES REQUIRED UNDER THE PROVISIONS OF SECTION 66492 AND 66493 OF THE GOVERNMENT CODE HAVE BEEN FILED. THIS CERTIFICATE VOID AFTER 12-31-11 FILE NO. PM-09

10/31/11
DATED:

Mengna Saunders, Deputy
BY:
CHARLES LOMELI
COUNTY TAX COLLECTOR
SOLANO COUNTY, STATE OF CALIFORNIA

SURVEYOR'S STATEMENT:

THIS MAP WAS PREPARED UNDER MY DIRECTION AND IS PREPARED FROM A FIELD SURVEY MADE ON THE GROUND IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCE AT THE REQUEST OF THE REDEVELOPMENT AGENCY OF THE CITY OF VALLEJO AND THE CITY OF VALLEJO , IN MARCH, 2008. I HEREBY STATE THE PROPERTY CORNERS SHOWN WILL BE SET BY DECEMBER, 2012.

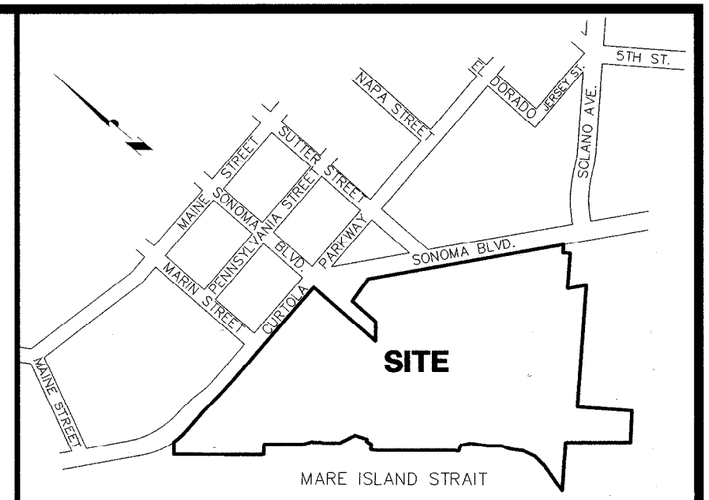
LICENSED LAND SURVEYOR
DANIEL DRUMMOND
No. 6333
EXP. DATE 12-31-12
STATE OF CALIFORNIA

DANIEL DRUMMOND

DATED: 9/23/11

L.S.. NO. 6333

REGISTRATION EXPIRES: 12/31/10



VICINITY MAP
NOT TO SCALE

PLANNING DIVISION'S STATEMENT

I, MICHELLE D. HIGHTOWER, ACTING PLANNING MANAGER OF THE PLANNING DIVISION OF THE CITY OF VALLEJO, COUNTY OF SOLANO, STATE OF CALIFORNIA, DID EXAMINE THIS PARCEL MAP ENTITLED "VALLEJO WATERFRONT" AND DID DETERMINE THAT SAID PARCEL MAP CONFORMS WITH THE CHANGES PERMITTED AND ALL REQUIREMENTS IMPOSED AS A CONDITION TO ITS ACCEPTANCE AND DO APPROVE SAID PARCEL MAP.

Michelle D. Hight

MICHELLE D. HIGHTOWER, ACTING PLANNING MANAGER
PLANNING DIVISION OF THE CITY OF VALLEJO, SOLANO COUNTY, CALIFORNIA

CITY ENGINEER'S STATEMENT

I, DAVID KLEINSCHMIDT, CITY ENGINEER OF THE CITY OF VALLEJO, SOLANO COUNTY, CALIFORNIA DO HEREBY STATE THAT I HAVE EXAMINED THIS PARCEL MAP, AND ANY APPROVED ALTERATIONS THEREOF; THAT ALL PROVISIONS OF STATE LAWS AND LOCAL ORDINANCES GOVERNING THE FILING OF SUBDIVISION MAPS HAVE BEEN COMPLIED WITH, AND THAT THIS MAP IS TECHNICALLY CORRECT.

_____ DATE: 10/4/2011

DAVID KLEINSCHMIDT, CITY ENGINEER, R.C.E. 33787
LICENSE EXPIRES: 6/30/12

ASSESSOR/RECORDER'S STATEMENT

FILED THIS 7th DAY OF December 2011, AT 2:10 P.M. IN BOOK 50 OF PARCEL MAPS AT PAGE 18 AT THE REQUEST OF FIRST AMERICAN TITLE COMPANY. 201100110531

Marc C. Tonnesen
MARC C. TONNESEN
COUNTY ASSESSOR/RECORDER
SOLANO COUNTY, STATE OF CALIFORNIA
by Michelle Morehouse

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50 PM 18

PARCEL MAP
VALLEJO WATERFRONT

A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED APRIL 29, 1952, IN BOOK 2 OF SURVEYS AT PAGE 37 AND
A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED MAY 28, 1964, IN BOOK 8 OF SURVEYS AT PAGE 90.

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA

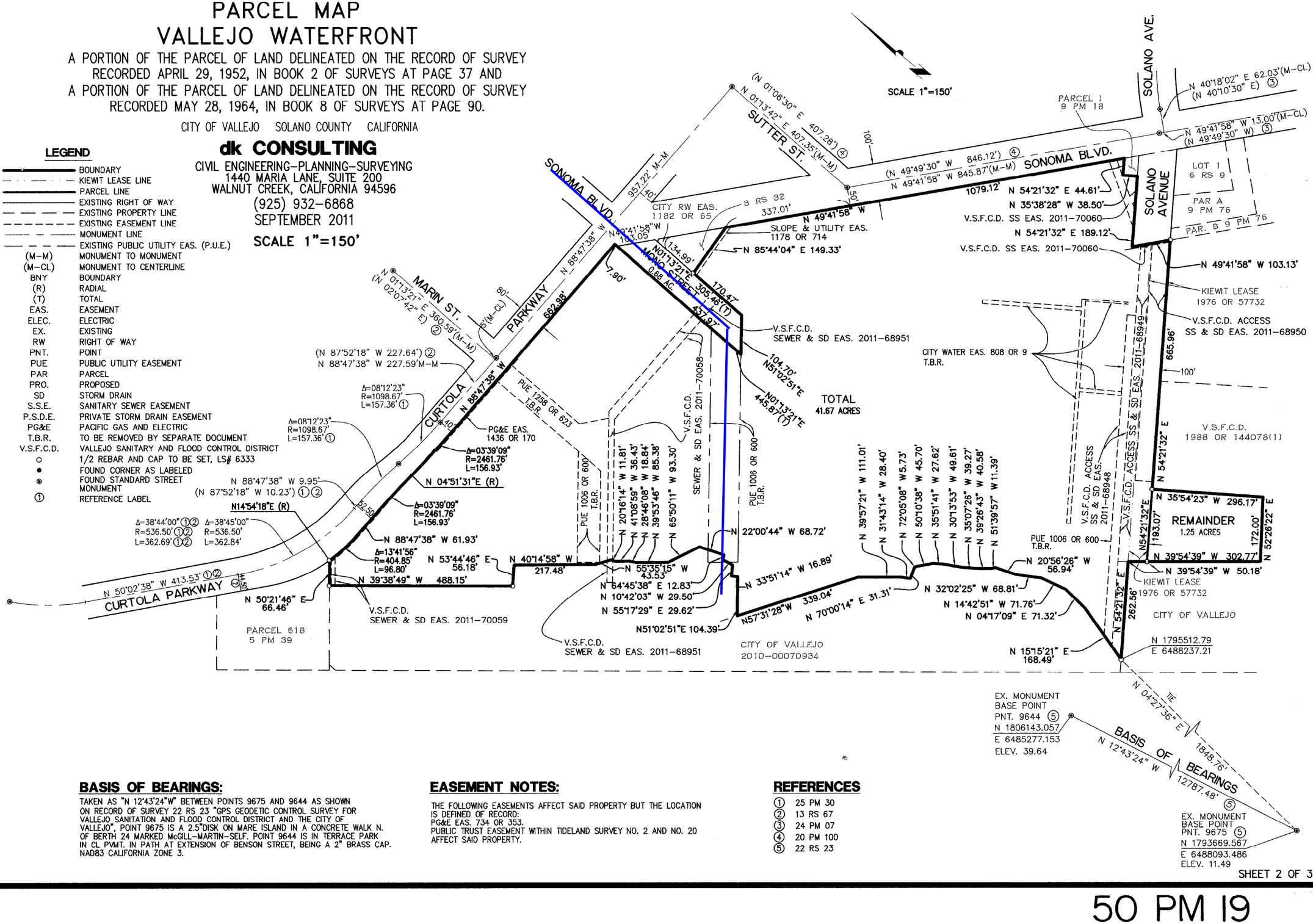
dk CONSULTING
CIVIL ENGINEERING–PLANNING–SURVEYING
1440 MARIA LANE, SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 932–6868

SEPTEMBER 2011

SCALE 1"=150'

LEGEND

———	BOUNDARY
— · — · —	KIEWIT LEASE LINE
———	PARCEL LINE
———	EXISTING RIGHT OF WAY
— — — —	EXISTING PROPERTY LINE
– – – –	EXISTING EASEMENT LINE
———	MONUMENT LINE
— – – —	EXISTING PUBLIC UTILITY EAS. (P.U.E.)
(M–M)	MONUMENT TO MONUMENT
(M–CL)	MONUMENT TO CENTERLINE
BNY	BOUNDARY
(R)	RADIAL
(T)	TOTAL
EAS.	EASEMENT
ELEC.	ELECTRIC
EX.	EXISTING
RW	RIGHT OF WAY
PNT.	POINT
PUE	PUBLIC UTILITY EASEMENT
PAR	PARCEL
PRO.	PROPOSED
SD	STORM DRAIN
S.S.E.	SANITARY SEWER EASEMENT
P.S.D.E.	PRIVATE STORM DRAIN EASEMENT
PG&E	PACIFIC GAS AND ELECTRIC
T.B.R.	TO BE REMOVED BY SEPARATE DOCUMENT
V.S.F.C.D.	VALLEJO SANITARY AND FLOOD CONTROL DISTRICT
○	1/2 REBAR AND CAP TO BE SET, LS# 6333
●	FOUND CORNER AS LABELED
◉	FOUND STANDARD STREET MONUMENT
①	REFERENCE LABEL



BASIS OF BEARINGS:

TAKEN AS "N 12°43'24"W" BETWEEN POINTS 9675 AND 9644 AS SHOWN ON RECORD OF SURVEY 22 RS 23 "GPS GEODETIC CONTROL SURVEY FOR VALLEJO SANITATION AND FLOOD CONTROL DISTRICT AND THE CITY OF VALLEJO", POINT 9675 IS A 2.5"DISK ON MARE ISLAND IN A CONCRETE WALK N. OF BERTH 24 MARKED McGILL–MARTIN–SELF. POINT 9644 IS IN TERRACE PARK IN CL PVMT. IN PATH AT EXTENSION OF BENSON STREET, BEING A 2" BRASS CAP. NAD83 CALIFORNIA ZONE 3.

EASEMENT NOTES:

THE FOLLOWING EASEMENTS AFFECT SAID PROPERTY BUT THE LOCATION IS DEFINED OF RECORD:
PG&E EAS. 734 OR 353.
PUBLIC TRUST EASEMENT WITHIN TIDELAND SURVEY NO. 2 AND NO. 20 AFFECT SAID PROPERTY.

REFERENCES

① 25 PM 30
② 13 RS 67
③ 24 PM 07
④ 20 PM 100
⑤ 22 RS 23

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50 PM 19

PARCEL MAP
VALLEJO WATERFRONT

A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED APRIL 29, 1952, IN BOOK 2 OF SURVEYS AT PAGE 37 AND
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CITY OF VALLEJO SOLANO COUNTY CALIFORNIA

dk CONSULTING
CIVIL ENGINEERING–PLANNING–SURVEYING
1440 MARIA LANE, SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 932–6868

SEPTEMBER 2011
SCALE 1"=100'

SCALE 1"=100'

LEGEND

- BOUNDARY
- PARCEL LINE
- PROPOSED EASEMENT LINE
- EXISTING RIGHT OF WAY
- EXISTING PROPERTY LINE
- EXISTING EASEMENT LINE
- MONUMENT LINE
- KIEWIT LEASE LINE
- (R) RADIAL
- (T) TOTAL
- V.S.F.C.D. VALLEJO SANITARY AND FLOOD CONTROL DISTRICT
- FOUND STANDARD STREET MONUMENT

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SUTTER ST.
SONOMA BLVD.
V.S.F.C.D. PARCEL 1 9 PM 18
1079.12'(T)
475.58'
N 54°21'32" E 44.61'
N 35°38'28" W 38.50'
V.S.F.C.D. SS EAS. 2011–70060
N 54°21'32" E 189.12'
N49°41'58"W 41.28'
KIEWIT LEASE 1976 OR 57732
UNITED STATES OF AMERICA 267 OR 238 CITY RW 805 OR 204(2)
LOT 1 6 RS 9
PAR A 9 PM 75
PAR. 1 9 PM 1
N49°41'58"W 61.85'
N49°41'58"W 103.05'
CITY RW EAS. 1182 OR 65
1178 OR 714 (1) 8 RS 32
N 85°44'04" E 149.33'
N 49°41'58" W 506.54'
SLOPE & UTILITY EAS. 1178 OR 714
N40°18'02"E(R)
Δ=90°00'05" R=20.00' L=31.42'
97.00'
N40°18'02"E(R)
Δ=89°59'55" R=20.00' L=31.42'
N 40°18'07" E 244.18'
57.00'
Δ=09°10'37" R=578.50' L=92.66'
Δ=09°10'37" R=521.50' L=83.53'
MONO STREET 0.68 AC.
7.90'
134.99'
N01°13'21"E
170.47'
305.48'(T)
437.97'
445.57'(T)
N01°13'21"E
104.70'
N51°02'51"E
V.S.F.C.D. SEWER & SD EAS. 2011–68951
MARIN ST.
CURTOLA PARKWAY
662.98'(T)
391.94'
N01°12'22"E(R)
Δ=89°58'55" R=20.00' L=31.41'
N 01°13'27" E 332.95'
97.00'
N 88°47'38" W 174.04'
N01°12'22"E(R)
Δ=90°01'05" R=20.00' L=31.42'
N 01°13'27" E 249.35'
57.00'
PG&E EAS. 1436 OR 170
Δ=03°39'09" R=2461.76' L=156.93'
PARCEL 3
2.61 ACRES
N 04°51'31" E(R)
Δ=01°37'03" R=2461.76' L=69.49'
N 01°13'27" E 277.67'
N 88°46'33" W 420.29'
N03°14'28"E(R)
Δ=02°02'06" R=2461.76' L=87.44'
N 88°47'38" W 61.93'
N14°54'18"E(R)
Δ=13°41'56" R=404.85' L=96.80'
N 50°21'46" E 66.46'
N 39°38'49" W 488.15'
PARCEL 618 5 PM 39
V.S.F.C.D. SEWER & SD EAS. 2011–70059
56.18'
N 53°44'46" E
V.S.F.C.D. SEWER & SD EAS. 2011–68951
CITY OF VALLEJO 2010–00070934
V.S.F.C.D. SEWER & SD EAS. 2011–70058
PARCEL 2
13.98 ACRES
Δ=41°44'43" R=271.50' L=197.81'
N 40°31'16" W 675.34'
N 49°28'44" E 373.10'
N 49°28'44" E 373.10'
Δ=90°00'00" R=20.00' L=31.42'
57.00'
Δ=90°00'00" R=20.00' L=31.42'
N40°31'16"W 370.01
Δ=47°05'59" R=28.00' L=23.02'
Δ=28°26'06" R=55.00' L=27.30'
PARCEL 1
8.70 ACRES
V.S.F.C.D. ACCESS SS & SD EAS. 2011–68949
549.88'
859.03'(T)
665.96'
V.S.F.C.D. ACCESS SS & SD EAS. 2011–68950
SOLANO AVE.
N 54°21'32" E
60.00'
N30°48'51"E(R)
N02°22'45"E(R)
Δ=86°27'19" R=28.00' L=32.46'
V.S.F.C.D. SS & SD EAS. 1988 OR 1440781(1)
N35°54'23"W 296.17'(T)
REMAINDER SEE SHEET 2
N54°21'32"E 193.07'
50.18'
302.77'
N 39°54'39" W 352.95'(T)
KIEWIT LEASE 1976 OR 57732
VSFCD ACCESS SS & SD EAS. 2011–68948
N 54°21'32" E 262.56'
CITY OF VALLEJO
N 15°15'21" E 168.49'
PARCEL 4
15.13 ACRES
N 55°35'15" W 43.53'
N 40°14'58" W 217.48'
N 20°16'14" W 11.81'
N 41°08'59" W 36.43'
N 28°46'08" W 18.84'
N 39°53'46" W 85.38'
N 65°50'11" W 93.30'
N 22°00'44" W 68.72'
N 64°45'38" E 12.83'
N 10°42'03" W 29.50'
N 55°17'29" E 29.62'
N51°02'51"E 104.39'
N 33°51'14" W 16.89'
N57°31'28"W 339.04'
N 31°43'14" W 28.40'
N 39°57'21" W 111.01'
N 70°00'14" E 31.31'
N 72°05'08" W 5.73'
N 50°10'38" W 45.70'
N 35°51'41" W 27.62'
N 30°13'53" W 49.61'
N 35°07'26" W 39.27'
N 39°26'43" W 40.58'
N 51°39'57" W 11.39'
N 20°56'26" W 56.94'
N 32°02'25" W 68.81'
N 14°42'51" W 71.76'
N 04°17'09" E 71.32'
CITY OF VALLEJO 2010–00070934

BASIS OF BEARINGS:
TAKEN AS "N 12°43'24"W" BETWEEN POINTS 9675 AND 9644 AS SHOWN ON RECORD OF SURVEY 22 RS 23 "GPS GEODETIC CONTROL SURVEY FOR VALLEJO SANITATION AND FLOOD CONTROL DISTRICT AND THE CITY OF VALLEJO", POINT 9675 IS A 2.5"DISK ON MARE ISLAND IN A CONCRETE WALK N. OF BERTH 24 MARKED McGILL–MARTIN–SELF. POINT 9644 IS IN TERRACE PARK IN CL PVMT. IN PATH AT EXTENSION OF BENSON STREET, BEING A 2" BRASS CAP. NAD83 CALIFORNIA ZONE 3.

SHEET 3 OF 3

50 PM 20

PARCEL MAP
VALLEJO WATERFRONT

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CITY OF VALLEJO SOLANO COUNTY CALIFORNIA

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A MUNICIPAL CORPORATION

BY: Phil Batchelor

TITLE: CITY MANAGER

BY: _____

TITLE: _____

THE REDEVELOPMENT AGENCY OF THE CITY OF VALLEJO,
A MUNICIPAL CORPORATION

BY: Phil Batchelor

TITLE: EXECUTIVE DIRECTOR

BY: _____

TITLE: _____

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PERSONALLY APPEARED Phil Batchelor, WHO PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON(S) WHOSE NAMES(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE/SHE/THEY EXECUTED THE SAME IN HIS/HER/THEIR AUTHORIZED CAPACITY(IES), AND THAT BY HIS/HER/THEIR SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S), OR THE ENTITY UPON BEHALF OF WHICH THE PERSON(S) ACTED, EXECUTED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT.

WITNESS MY HAND AND OFFICIAL SEAL
SIGNATURE: Dawn G. Abrahamson
NOTARY NAME: DAWN G. ABRAHAMSON
NOTARY PHONE: (707) 648-4528
NOTARY REGISTRATION NUMBER: 1827375
MY COMMISSION EXPIRES: 1/15/2013
COUNTY OF PRINCIPLE PLACE OF BUSINESS: Solano

ACKNOWLEDGMENT:

STATE OF CALIFORNIA)
COUNTY OF Solano)SS
ON October 4, 2011, BEFORE ME, DAWN G. Abrahamson, Notary Public
PERSONALLY APPEARED Phil Batchelor, WHO PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON(S) WHOSE NAMES(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE/SHE/THEY EXECUTED THE SAME IN HIS/HER/THEIR AUTHORIZED CAPACITY(IES), AND THAT BY HIS/HER/THEIR SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S), OR THE ENTITY UPON BEHALF OF WHICH THE PERSON(S) ACTED, EXECUTED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT.

WITNESS MY HAND AND OFFICIAL SEAL
SIGNATURE: Dawn G. Abrahamson
NOTARY NAME: DAWN G. ABRAHAMSON
NOTARY PHONE: (707) 648-4528
NOTARY REGISTRATION NUMBER: 1827375
MY COMMISSION EXPIRES: 1/15/2013
COUNTY OF PRINCIPLE PLACE OF BUSINESS: Solano

COUNTY TAX COLLECTOR'S STATEMENT

I, CHARLES LOMELI, COUNTY TAX COLLECTOR OF SOLANO COUNTY, CALIFORNIA, DO HEREBY STATE THAT ACCORDING TO THE RECORDS OF THIS OFFICE, THERE ARE NO LIENS AGAINST THIS SUBDIVISION OR ANY PART THEREOF, FOR UNPAID STATE, COUNTY, MUNICIPAL OF LOCAL TAXES, EXCEPT TAXES FOR SPECIAL ASSESSMENTS NOT YET PAYABLE.

I ALSO CERTIFY THAT A GOOD AND SUFFICIENT BOND TO THE BENEFIT OF SOLANO COUNTY HAS BEEN FILED WITH THIS OFFICE IN THE SUM OF $ N/A, WHICH IS IN THE AMOUNT ESTIMATED BY THE ASSESSOR OF SOLANO COUNTY AS BEING A LIEN, BUT NOT YET PAYABLE FOR TAXES AND SPECIAL ASSESSMENTS AGAINST THE LAND CONSTITUTING THIS SUBDIVISION, AND THAT ALL CERTIFICATES REQUIRED UNDER THE PROVISIONS OF SECTION 66492 AND 66493 OF THE GOVERNMENT CODE HAVE BEEN FILED. THIS CERTIFICATE VOID AFTER 12-31-11 FILE NO. 4M-09

10/31/11
DATED:

BY: Glengna Saunders, Deputy
CHARLES LOMELI
COUNTY TAX COLLECTOR
SOLANO COUNTY, STATE OF CALIFORNIA

SURVEYOR'S STATEMENT:

THIS MAP WAS PREPARED UNDER MY DIRECTION AND IS PREPARED FROM A FIELD SURVEY MADE ON THE GROUND IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCE AT THE REQUEST OF THE REDEVELOPMENT AGENCY OF THE CITY OF VALLEJO AND THE CITY OF VALLEJO , IN MARCH, 2008. I HEREBY STATE THE PROPERTY CORNERS SHOWN WILL BE SET BY DECEMBER, 2012.

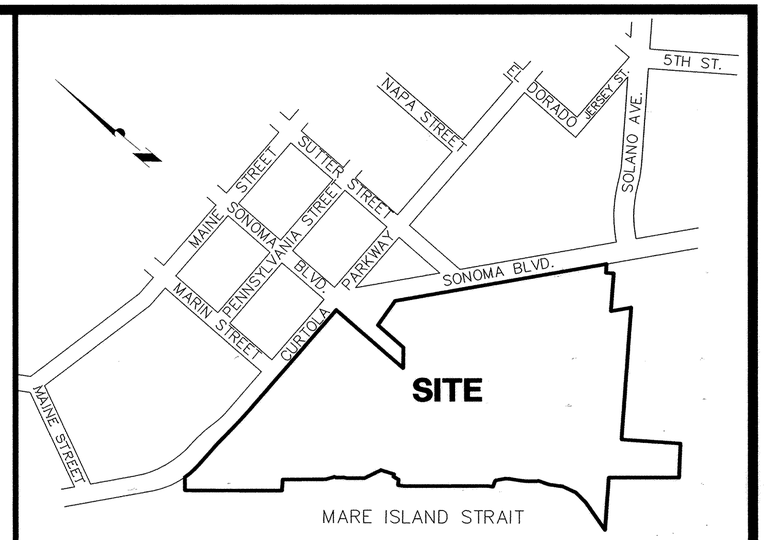
LICENSED LAND SURVEYOR
DANIEL DRUMMOND
No. 6333
EXP. DATE 12-31-12
STATE OF CALIFORNIA

DANIEL DRUMMOND

DATED: 9/23/11

L.S.. NO. 6333

REGISTRATION EXPIRES: 12/31/10



VICINITY MAP
NOT TO SCALE

PLANNING DIVISION'S STATEMENT

I, MICHELLE D. HIGHTOWER, ACTING PLANNING MANAGER OF THE PLANNING DIVISION OF THE CITY OF VALLEJO, COUNTY OF SOLANO, STATE OF CALIFORNIA, DID EXAMINE THIS PARCEL MAP ENTITLED "VALLEJO WATERFRONT" AND DID DETERMINE THAT SAID PARCEL MAP CONFORMS WITH THE CHANGES PERMITTED AND ALL REQUIREMENTS IMPOSED AS A CONDITION TO ITS ACCEPTANCE AND DO APPROVE SAID PARCEL MAP.

Michelle D. Hightower

MICHELLE D. HIGHTOWER, ACTING PLANNING MANAGER
PLANNING DIVISION OF THE CITY OF VALLEJO, SOLANO COUNTY, CALIFORNIA

CITY ENGINEER'S STATEMENT

I, DAVID KLEINSCHMIDT, CITY ENGINEER OF THE CITY OF VALLEJO, SOLANO COUNTY, CALIFORNIA DO HEREBY STATE THAT I HAVE EXAMINED THIS PARCEL MAP, AND ANY APPROVED ALTERATIONS THEREOF; THAT ALL PROVISIONS OF STATE LAWS AND LOCAL ORDINANCES GOVERNING THE FILING OF SUBDIVISION MAPS HAVE BEEN COMPLIED WITH, AND THAT THIS MAP IS TECHNICALLY CORRECT.

DATE: 10/4/2011

DAVID KLEINSCHMIDT, CITY ENGINEER, R.C.E. 33787
LICENSE EXPIRES: 6/30/12

ASSESSOR/RECORDER'S STATEMENT

FILED THIS 7th DAY OF December 2011, AT 2:10 PM. IN BOOK 50 OF PARCEL MAPS AT PAGE 18 AT THE REQUEST OF FIRST AMERICAN TITLE COMPANY. 201100110531

Marc C. Tonnesen
MARC C. TONNESEN
COUNTY ASSESSOR/RECORDER
SOLANO COUNTY, STATE OF CALIFORNIA
by Michelle Morehouse

50 PM 18

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PARCEL MAP
VALLEJO WATERFRONT

A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED APRIL 29, 1952, IN BOOK 2 OF SURVEYS AT PAGE 37 AND
A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED MAY 28, 1964, IN BOOK 8 OF SURVEYS AT PAGE 90.

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA

dk CONSULTING
CIVIL ENGINEERING–PLANNING–SURVEYING
1440 MARIA LANE, SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 932–6868

SEPTEMBER 2011

SCALE 1"=150'

LEGEND

———	BOUNDARY
— · — · —	KIEWIT LEASE LINE
———	PARCEL LINE
———	EXISTING RIGHT OF WAY
— — — —	EXISTING PROPERTY LINE
- - - - -	EXISTING EASEMENT LINE
—— – ——	MONUMENT LINE
—— – – ——	EXISTING PUBLIC UTILITY EAS. (P.U.E.)
(M–M)	MONUMENT TO MONUMENT
(M–CL)	MONUMENT TO CENTERLINE
BNY	BOUNDARY
(R)	RADIAL
(T)	TOTAL
EAS.	EASEMENT
ELEC.	ELECTRIC
EX.	EXISTING
RW	RIGHT OF WAY
PNT.	POINT
PUE	PUBLIC UTILITY EASEMENT
PAR	PARCEL
PRO.	PROPOSED
SD	STORM DRAIN
S.S.E.	SANITARY SEWER EASEMENT
P.S.D.E.	PRIVATE STORM DRAIN EASEMENT
PG&E	PACIFIC GAS AND ELECTRIC
T.B.R.	TO BE REMOVED BY SEPARATE DOCUMENT
V.S.F.C.D.	VALLEJO SANITARY AND FLOOD CONTROL DISTRICT
○	1/2 REBAR AND CAP TO BE SET, LS# 6333
●	FOUND CORNER AS LABELED
◉	FOUND STANDARD STREET MONUMENT
①	REFERENCE LABEL

SCALE 1"=150'

SOLANO AVE.
SONOMA BLVD.
SUTTER ST.
MARIN ST.
CURTOLA PARKWAY
CURTOLA PARKWAY
MONO STREET
SOLANO AVENUE
SOLANO AVENUE

(N 01°06'30" E 407.28') ④
N 01°13'42" E 407.35'(M–M)
957.22' M–M
40'
100'
50'
(N 49°49'30" W 846.12') ④
N 49°41'58" W 845.87'(M–M)
1079.12'
N 49°41'58" W
N 49°41'58"W 153.05
CITY RW EAS. 1182 OR 65
8 RS 32
337.01'
SLOPE & UTILITY EAS. 1178 OR 714
N 85°44'04" E 149.33'
(134.99')
N01°13'21"E
0.68 AC.
7.90'
170.47'
305.46'(T)
437.97'
V.S.F.C.D. SEWER & SD EAS. 2011–68951
104.70'
N51°02'51"E
N01°13'21"E
445.87'(T)
TOTAL
41.67 ACRES
PARCEL I
9 PM 18
N 40°18'02" E 62.03'(M–CL)
(N 40°10'30" E) ③
N 49°41'58" W 13.00'(M–CL)
(N 49°49'30" W) ③
LOT 1
6 RS 9
PAR A
9 PM 76
PAR. B 9 PM 76
N 54°21'32" E 44.61'
N 35°38'28" W 38.50'
V.S.F.C.D. SS EAS. 2011–70060
N 54°21'32" E 189.12'
V.S.F.C.D. SS EAS. 2011–70060
N 49°41'58" W 103.13'
KIEWIT LEASE 1976 OR 57732
V.S.F.C.D. ACCESS SS & SD EAS. 2011–68950
665.96'
100'
CITY WATER EAS. 808 OR 9 T.B.R.
V.S.F.C.D. 1988 OR 144078(1)
N 54°21'32" E
N 35°54'23" W 296.17'
REMAINDER
1.25 ACRES
193.07'
172.00'
N54°21'32"E
N 39°54'39" W 302.77'
N 52°26'22" E
N 39°54'39" W 50.18'
KIEWIT LEASE 1976 OR 57732
CITY OF VALLEJO
262.56'
N 54°21'32" E
V.S.F.C.D. ACCESS SS & SD EAS. 2011–68948
V.S.F.C.D. ACCESS SS & SD EAS. 2011–68949
PUE 1006 OR 600 T.B.R.
N 20°56'26" W 56.94'
N 32°02'25" W 68.81'
N 14°42'51" W 71.76'
N 04°17'09" E 71.32'
N 15°15'21" E 168.49'
N 1795512.79
E 6488237.21
N 39°57'21" W 111.01'
N 31°43'14" W 28.40'
N 72°05'08" W 5.73'
N 50°10'38" W 45.70'
N 35°51'41" W 27.62'
N 30°13'53" W 49.61'
N 35°07'26" W 39.27'
N 39°26'43" W 40.58'
N 51°39'57" W 11.39'
N 20°16'14" W 11.81'
N 41°08'59" W 36.43'
N 28°46'08" W 18.84'
N 39°53'46" W 85.38'
N 65°50'11" W 93.30'
PUE 1006 OR 600 T.B.R.
SEWER & SD EAS. 2011–70058
V.S.F.C.D.
N 22°00'44" W 68.72'
N 33°51'14" W 16.89'
N57°31'28"W 339.04'
N 70°00'14" E 31.31'
N51°02'51"E 104.39'
V.S.F.C.D. SEWER & SD EAS. 2011–68951
CITY OF VALLEJO 2010–00070934
N 64°45'38" E 12.83'
N 10°42'03" W 29.50'
N 55°17'29" E 29.62'
N 55°35'15" W 43.53'
PUE 1006 OR 600 T.B.R.
N 40°14'58" W 217.48'
N 53°44'46" E 56.18'
N 88°47'38" W 61.93'
Δ=13°41'56" R=404.85' L=96.80'
N 39°38'49" W 488.15'
N 50°21'46" E 66.46'
V.S.F.C.D. SEWER & SD EAS. 2011–70059
PARCEL 618 5 PM 39
N 50°02'38" W 413.53' ①②
448.39'
Δ=38°44'00" ①② R=536.50' ①② L=362.69' ①②
Δ=38°45'00" R=536.50' L=362.84'
N14°54'18"E (R)
N 88°47'38" W 9.95'
(N 87°52'18" W 10.23') ①②
52.50'
Δ=03°39'09" R=2461.76' L=156.93'
N 04°51'31"E (R)
Δ=03°39'09" R=2461.76' L=156.93'
Δ=08°12'23" R=1098.67' L=157.36' ①
Δ=08°12'23" R=1098.67' L=157.36' ①
PG&E EAS. 1436 OR 170
PUE 1258 OR 623 T.B.R.
N 88°47'38" W
662.98'
N 88°47'38" W
(N 87°52'18" W 227.64') ②
N 88°47'38" W 227.59'M–M
N 01°13'21" E (N 02°07'42" E) ② 360.59'(M–M)
80'
5'(M–CL)
PARKWAY
MARIN ST.
N 01°13'21"W
(N 02°07'42"W)

EX. MONUMENT BASE POINT PNT. 9644 ⑤
N 1806143.057
E 6485277.153
ELEV. 39.64

N 04°27'36" E 1848.76'
BASIS OF BEARINGS
N 12°43'24" W 12787.48' ⑤

EX. MONUMENT BASE POINT PNT. 9675 ⑤
N 1793669.567
E 6488093.486
ELEV. 11.49

BASIS OF BEARINGS:

TAKEN AS "N 12°43'24"W" BETWEEN POINTS 9675 AND 9644 AS SHOWN ON RECORD OF SURVEY 22 RS 23 "GPS GEODETIC CONTROL SURVEY FOR VALLEJO SANITATION AND FLOOD CONTROL DISTRICT AND THE CITY OF VALLEJO", POINT 9675 IS A 2.5"DISK ON MARE ISLAND IN A CONCRETE WALK N. OF BERTH 24 MARKED McGILL–MARTIN–SELF. POINT 9644 IS IN TERRACE PARK IN CL PVMT. IN PATH AT EXTENSION OF BENSON STREET, BEING A 2" BRASS CAP. NAD83 CALIFORNIA ZONE 3.

EASEMENT NOTES:

THE FOLLOWNG EASEMENTS AFFECT SAID PROPERTY BUT THE LOCATION IS DEFINED OF RECORD:
PG&E EAS. 734 OR 353.
PUBLIC TRUST EASEMENT WITHIN TIDELAND SURVEY NO. 2 AND NO. 20 AFFECT SAID PROPERTY.

REFERENCES

① 25 PM 30
② 13 RS 67
③ 24 PM 07
④ 20 PM 100
⑤ 22 RS 23

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PARCEL MAP
VALLEJO WATERFRONT

A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED APRIL 29, 1952, IN BOOK 2 OF SURVEYS AT PAGE 37 AND
A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED MAY 28, 1964, IN BOOK 8 OF SURVEYS AT PAGE 90.

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA

dk CONSULTING
CIVIL ENGINEERING–PLANNING–SURVEYING
1440 MARIA LANE, SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 932–6868

SEPTEMBER 2011
SCALE 1"=100'

SCALE 1"=100'

LEGEND

- BOUNDARY
- PARCEL LINE
- PROPOSED EASEMENT LINE
- EXISTING RIGHT OF WAY
- EXISTING PROPERTY LINE
- EXISTING EASEMENT LINE
- MONUMENT LINE
- KIEWIT LEASE LINE
- (R) RADIAL
- (T) TOTAL
- V.S.F.C.D. VALLEJO SANITARY AND FLOOD CONTROL DISTRICT
- FOUND STANDARD STREET MONUMENT

SUTTER ST.
SONOMA BLVD.
V.S.F.C.D. PARCEL 1 9 PM 18
1079.12'(T)
475.58'
N 54°21'32" E 44.61'
N 35°38'28" W 38.50'
V.S.F.C.D. SS EAS. 2011–70060
N 54°21'32" E 189.12'
N49°41'58"W 41.28'
KIEWIT LEASE 1976 OR 57732
N49°41'58"W 61.85'
665.96'
859.03'(T)
549.88'
N 54°21'32" E
60.00'
V.S.F.C.D. ACCESS SS & SD EAS. 2011–68949
V.S.F.C.D. ACCESS SS & SD EAS. 2011–68950
SOLANO AVE.
UNITED STATES OF AMERICA 267 OR 238
CITY RW 805 OR 204(2)
LOT 1 6 RS 9
PAR A 9 PM 76
PAR. 9 PM 1-10
N 85°44'04" E 149.33'
N 49°41'58" W 506.54'
CITY RW EAS. 1182 OR 65
1178 OR 714 (1) 8 RS 32
SLOPE & UTILITY EAS. 1178 OR 714
N40°18'02"E(R)
97.00'
Δ=89°59'55" R=20.00' L=31.42'
Δ=90°00'05" R=20.00' L=31.42'
N 40°18'07" E 244.18'
57.00'
Δ=09°10'37" R=578.50' L=92.66'
Δ=09°10'37" R=521.50' L=83.53'
N49°41'58"W 103.05'
MONO STREET 0.68 AC.
7.90'
134.99'
N01°13'21"E
170.47'
305.46'(T)
437.97'
445.87'(T)
N01°13'21"E
104.70'
N51°02'51"E
V.S.F.C.D. SEWER & SD EAS. 2011–68951
V.S.F.C.D. SEWER & SD EAS. 2011–70058
MARIN ST.
CURTOLA PARKWAY
662.98'(T)
391.94'
N01°12'22"E(R)
Δ=89°58'55" R=20.00' L=31.41'
97.00'
N 01°13'27" E 332.95'
N 01°13'27" E 249.35'
57.00'
N 88°47'38" W 174.04'
N01°12'22"E(R)
Δ=90°01'05" R=20.00' L=31.42'
PG&E EASS. 1436 OR 170
Δ=03°39'09" R=2461.76' L=156.93'
PARCEL 1 8.70 ACRES
PARCEL 2 13.98 ACRES
PARCEL 3 2.61 ACRES
PARCEL 4 15.13 ACRES
373.10'
N 49°28'44" E
Δ=41°44'43" R=271.50' L=197.81'
N 40°31'16" W 675.34'
Δ=90°00'00" R=20.00' L=31.42'
Δ=90°00'00" R=20.00' L=31.42'
N40°31'16"W 370.01
Δ=47°05'59" R=28.00' L=23.02'
N02°22'45"E(R)
Δ=28°26'06" R=55.00' L=27.30'
N30°48'51"E(R)
Δ=65°27'19" R=28.00' L=32.48'
V.S.F.C.D. SS & SD EAS. 1988 OR 14407(11)
N35°54'23"W 296.17'(T)
REMAINDER SEE SHEET 2
N54°21'32"E 193.07'
50.18'
302.77'
N 39°54'39" W 352.95'(T)
KIEWIT LEASE 1976 OR 57732
VSFCD ACCESS SS & SD EAS. 2011–68948
N 54°21'32" E 262.56'
CITY OF VALLEJO
N 15°15'21" E 168.49'
N 04°17'09" E 71.32'
N 14°42'51" W 71.76'
N 32°02'25" W 68.81'
N 20°56'26" W 56.94'
N 39°57'21" W 111.01'
N 31°43'14" W 28.40'
N 70°00'14" E 31.31'
339.04'
N57°31'28"W
N51°02'51"E 104.39'
N 33°51'14" W 16.89'
N 55°17'29" E 29.62'
N 10°42'03" W 29.50'
N 64°45'38" E 12.83'
N 22°00'44" W 68.72'
N 55°35'15" W 43.53'
N 40°14'58" W 217.48'
56.18'
N 53°44'46" E
N 39°38'49" W 488.15'
N 50°21'46" E 66.46'
N14°54'18"E(R)
Δ=13°41'56" R=404.85' L=96.80'
N 88°47'38" W 61.93'
N03°14'28"E(R)
Δ=02°02'06" R=2461.76' L=87.44'
N 01°13'27" E 277.67'
N 88°46'33" W 420.29'
N 04°51'31" E(R)
Δ=01°37'03" R=2461.76' L=69.49'
N 20°16'14" W 11.81'
N 41°08'59" W 36.43'
N 28°46'08" W 18.84'
N 39°53'46" W 85.38'
N 65°50'11" W 93.30'
N 72°05'08" W 5.73'
N 50°10'38" W 45.70'
N 35°51'41" W 27.62'
N 30°13'53" W 49.61'
N 35°07'26" W 39.27'
N 39°26'43" W 40.58'
N 51°39'57" W 11.39'
V.S.F.C.D. SEWER & SD EAS. 2011–68951
V.S.F.C.D. SEWER & SD EAS. 2011–70059
PARCEL 618 5 PM 39
CITY OF VALLEJO 2010–00070934
CITY OF VALLEJO 2010–00070934

BASIS OF BEARINGS:

TAKEN AS "N 12°43'24"W" BETWEEN POINTS 9675 AND 9644 AS SHOWN ON RECORD OF SURVEY 22 RS 23 "GPS GEODETIC CONTROL SURVEY FOR VALLEJO SANITATION AND FLOOD CONTROL DISTRICT AND THE CITY OF VALLEJO", POINT 9675 IS A 2.5"DISK ON MARE ISLAND IN A CONCRETE WALK N. OF BERTH 24 MARKED McGILL–MARTIN–SELF. POINT 9644 IS IN TERRACE PARK IN CL PVMT. IN PATH AT EXTENSION OF BENSON STREET, BEING A 2" BRASS CAP. NAD83 CALIFORNIA ZONE 3.

SHEET 3 OF 3

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PARCEL MAP
VALLEJO WATERFRONT

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CITY OF VALLEJO SOLANO COUNTY CALIFORNIA

dk CONSULTING
CIVIL ENGINEERING--PLANNING--SURVEYING
1440 MARIA LANE, SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 932--6868

SEPTEMBER 2011

OWNER'S STATEMENT:

THE UNDERSIGNED DO HEREBY STATE THAT THEY ARE THE ONLY PARTIES HAVING ANY RECORD TITLE INTEREST IN ALL THE LAND DELINEATED WITHIN THE DISTINCTIVE BORDER OF THIS PARCEL MAP, AND HEREBY CONSENT TO THE PREPARATION AND RECORDATION OF SAID MAP, AND THAT SAID MAP SHOWS ALL EASEMENTS DISCLOSED OF RECORD.

IN WITNESS THEREOF, THE UNDERSIGNED HAVE CAUSED THEIR NAMES TO BE SUBSCRIBED ON THIS FOURTH DAY OF OCTOBER, 2011.

CITY OF VALLEJO,
A MUNICIPAL CORPORATION

BY: Phil Batchelor

TITLE: CITY MANAGER

BY: _____

TITLE: _____

THE REDEVELOPMENT AGENCY OF THE CITY OF VALLEJO,
A MUNICIPAL CORPORATION

BY: Phil Batchelor

TITLE: EXECUTIVE DIRECTOR

BY: _____

TITLE: _____

ACKNOWLEDGMENT:

STATE OF CALIFORNIA
COUNTY OF SOLANO } SS
ON OCTOBER 24, 2011 BEFORE ME DAWN G. ABRAHAMSON, Notary Public
PERSONALLY APPEARED PHIL BATCHELOR WHO
PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON(S) WHOSE NAMES(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE/SHE/THEY EXECUTED THE SAME IN HIS/HER/THEIR AUTHORIZED CAPACITY(IES), AND THAT BY HIS/HER/THEIR SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S), OR THE ENTITY UPON BEHALF OF WHICH THE PERSON(S) ACTED, EXECUTED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT.

WITNESS MY HAND AND OFFICIAL SEAL
SIGNATURE: Dawn G. Abrahamson
NOTARY NAME: DAWN G. ABRAHAMSON
NOTARY PHONE: (707) 648-4528
NOTARY REGISTRATION NUMBER: 1827375
MY COMMISSION EXPIRES: 1/15/2013
COUNTY OF PRINCIPLE PLACE OF BUSINESS: Solano

ACKNOWLEDGMENT:

STATE OF CALIFORNIA
COUNTY OF Solano } SS
ON October 24, 2011 BEFORE ME DAWN G. Abrahamson, Notary Public
PERSONALLY APPEARED Phil Batchelor WHO
PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON(S) WHOSE NAMES(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE/SHE/THEY EXECUTED THE SAME IN HIS/HER/THEIR AUTHORIZED CAPACITY(IES), AND THAT BY HIS/HER/THEIR SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S), OR THE ENTITY UPON BEHALF OF WHICH THE PERSON(S) ACTED, EXECUTED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT.

WITNESS MY HAND AND OFFICIAL SEAL
SIGNATURE: Dawn G. Abrahamson
NOTARY NAME: DAWN G. ABRAHAMSON
NOTARY PHONE: (707) 648-4528
NOTARY REGISTRATION NUMBER: 1827375
MY COMMISSION EXPIRES: 1/15/2013
COUNTY OF PRINCIPLE PLACE OF BUSINESS: Solano

COUNTY TAX COLLECTOR'S STATEMENT

I, CHARLES LOMELI, COUNTY TAX COLLECTOR OF SOLANO COUNTY, CALIFORNIA, DO HEREBY STATE THAT ACCORDING TO THE RECORDS OF THIS OFFICE, THERE ARE NO LIENS AGAINST THIS SUBDIVISION OR ANY PART THEREOF, FOR UNPAID STATE, COUNTY, MUNICIPAL OF LOCAL TAXES, EXCEPT TAXES FOR SPECIAL ASSESSMENTS NOT YET PAYABLE.

I ALSO CERTIFY THAT A GOOD AND SUFFICIENT BOND TO THE BENEFIT OF SOLANO COUNTY HAS BEEN FILED WITH THIS OFFICE IN THE SUM OF $ N/A, WHICH IS IN THE AMOUNT ESTIMATED BY THE ASSESSOR OF SOLANO COUNTY AS BEING A LIEN, BUT NOT YET PAYABLE FOR TAXES AND SPECIAL ASSESSMENTS AGAINST THE LAND CONSTITUTING THIS SUBDIVISION, AND THAT ALL CERTIFICATES REQUIRED UNDER THE PROVISIONS OF SECTION 66492 AND 66493 OF THE GOVERNMENT CODE HAVE BEEN FILED. THIS CERTIFICATE VOID AFTER 12-31-11 FILE NO. PM-84

10/31/11
DATED:

Georgia Saunders, Deputy
BY:
CHARLES LOMELI
COUNTY TAX COLLECTOR
SOLANO COUNTY, STATE OF CALIFORNIA

SURVEYOR'S STATEMENT:

THIS MAP WAS PREPARED UNDER MY DIRECTION AND IS PREPARED FROM A FIELD SURVEY MADE ON THE GROUND IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCE AT THE REQUEST OF THE REDEVELOPMENT AGENCY OF THE CITY OF VALLEJO AND THE CITY OF VALLEJO , IN MARCH, 2008. I HEREBY STATE THE PROPERTY CORNERS SHOWN WILL BE SET BY DECEMBER, 2012.

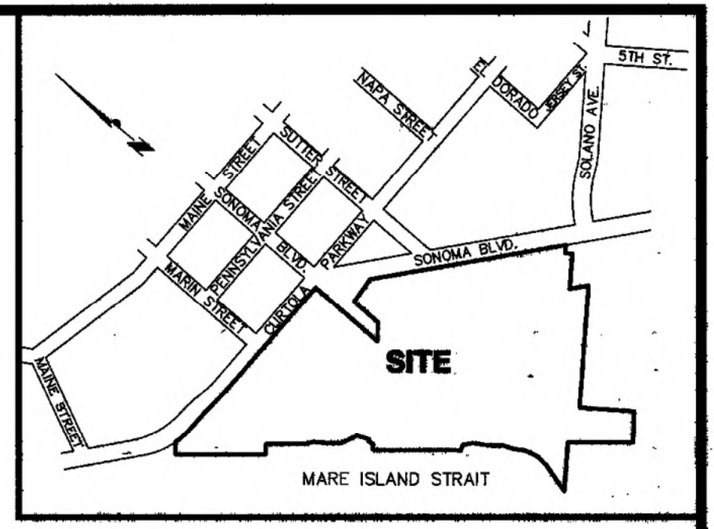
LICENSED LAND SURVEYOR DANIEL DRUMMOND No. 6333 EXP. DATE 12-31-12 STATE OF CALIFORNIA

DANIEL DRUMMOND

DATED: 9/23/11

L.S.. NO. 6333

REGISTRATION EXPIRES: 12/31/10



VICINITY MAP
NOT TO SCALE

PLANNING DIVISION'S STATEMENT

I, MICHELLE D. HIGHTOWER, ACTING PLANNING MANAGER OF THE PLANNING DIVISION OF THE CITY OF VALLEJO, COUNTY OF SOLANO, STATE OF CALIFORNIA, DID EXAMINE THIS PARCEL MAP ENTITLED "VALLEJO WATERFRONT" AND DID DETERMINE THAT SAID PARCEL MAP CONFORMS WITH THE CHANGES PERMITTED AND ALL REQUIREMENTS IMPOSED AS A CONDITION TO ITS ACCEPTANCE AND DO APPROVE SAID PARCEL MAP.

Michelle D. Hight

MICHELLE D. HIGHTOWER, ACTING PLANNING MANAGER
PLANNING DIVISION OF THE CITY OF VALLEJO, SOLANO COUNTY, CALIFORNIA

CITY ENGINEER'S STATEMENT

I, DAVID KLEINSCHMIDT, CITY ENGINEER OF THE CITY OF VALLEJO, SOLANO COUNTY, CALIFORNIA DO HEREBY STATE THAT I HAVE EXAMINED THIS PARCEL MAP, AND ANY APPROVED ALTERATIONS THEREOF; THAT ALL PROVISIONS OF STATE LAWS AND LOCAL ORDINANCES GOVERNING THE FILING OF SUBDIVISION MAPS HAVE BEEN COMPLIED WITH, AND THAT THIS MAP IS TECHNICALLY CORRECT.

_____ DATE: 10/4/2011

DAVID KLEINSCHMIDT, CITY ENGINEER, R.C.E. 33787
LICENSE EXPIRES: 6/30/12

ASSESSOR/RECORDER'S STATEMENT

FILED THIS 7th DAY OF December 20 11, AT 2:10 P.M. IN BOOK 30 OF PARCEL MAPS AT PAGE 18 AT THE REQUEST OF FIRST AMERICAN TITLE COMPANY. 201100110551

Marc C. Tonnesen
MARC C. TONNESEN
COUNTY ASSESSOR/RECORDER
SOLANO COUNTY, STATE OF CALIFORNIA
by Michelle Mahon

SHEET 1 OF 3

F:\Projects\2007\071039-Vallejo\dwg\parcel map\0739PM2.dwg 9/23/2011 9:54:39 AM PDT

50 PM 18

PARCEL MAP
VALLEJO WATERFRONT

A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED APRIL 29, 1952, IN BOOK 2 OF SURVEYS AT PAGE 37 AND
A PORTION OF THE PARCEL OF LAND DELINEATED ON THE RECORD OF SURVEY RECORDED MAY 28, 1964, IN BOOK 8 OF SURVEYS AT PAGE 90.

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA

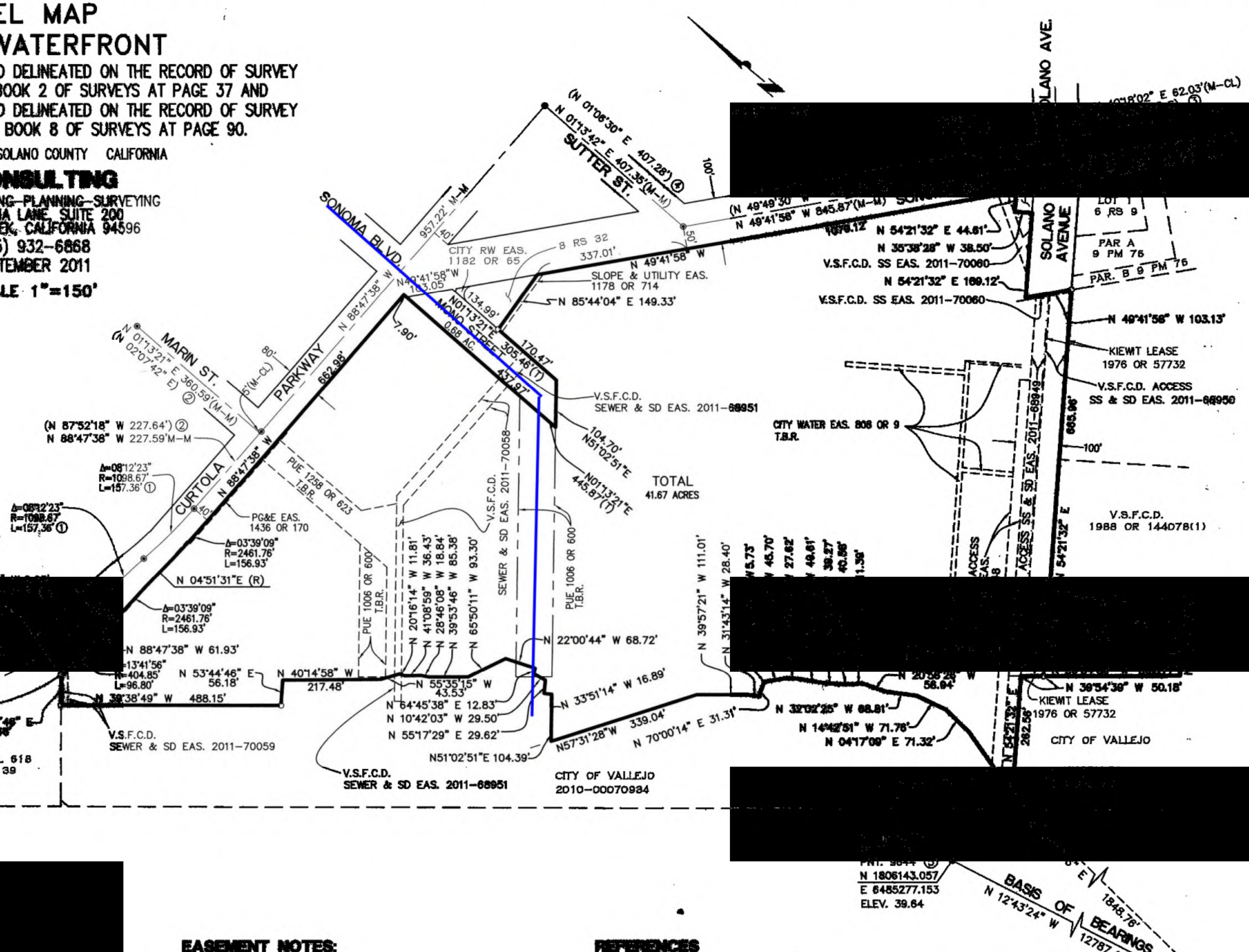
dk CONSULTING
CIVIL ENGINEERING–PLANNING–SURVEYING
1440 MARIA LANE, SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 932-6868
SEPTEMBER 2011

SCALE 1"=150'

LEGEND

(line)	BOUNDARY
(line)	KIEWIT LEASE LINE
(line)	PARCEL LINE
(line)	EXISTING RIGHT OF WAY
(line)	EXISTING PROPERTY LINE
(line)	EXISTING EASEMENT LINE
(line)	MONUMENT LINE
(line)	EXISTING PUBLIC UTILITY EAS. (P.U.E.)
(M–M)	MONUMENT TO MONUMENT
(M–CL)	MONUMENT TO CENTERLINE
BNY	BOUNDARY
(R)	RADIAL
(T)	TOTAL
EAS.	EASEMENT
ELEC.	ELECTRIC
EX.	EXISTING
RW	RIGHT OF WAY
PNT.	POINT
PUE	PUBLIC UTILITY EASEMENT
PAR	PARCEL
PRO.	PROPOSED
SD	STORM DRAIN
S.S.E.	SANITARY SEWER EASEMENT
P.S.D.E.	PRIVATE STORM DRAIN EASEMENT
PG&E	PACIFIC GAS AND ELECTRIC
T.B.R.	TO BE REMOVED BY SEPARATE DOCUMENT
V.S.F.C.D.	VALLEJO SANITARY AND FLOOD CONTROL DISTRICT
o	1/2 REBAR AND CAP TO BE SET, LS# 6333
●	FOUND CORNER AS LABELED

[redacted]



[redacted]

TAKEN AS "N 12°43'24"W" BETWEEN POINTS 9675 AND 9844 AS SHOWN ON RECORD OF SURVEY 22 RS 23 "GPS GEODETIC CONTROL SURVEY FOR VALLEJO SANITATION AND FLOOD CONTROL DISTRICT AND THE CITY OF VALLEJO", POINT 9675 IS A 2.5"DISK ON MARE ISLAND IN A CONCRETE WALK N. OF BERTH 24 MARKED McGILL–MARTIN–SELF. POINT 9844 IS IN TERRACE PARK IN CL PVMT. IN PATH AT EXTENSION OF BENSON STREET, BEING A 2" BRASS CAP. NAD83 CALIFORNIA ZONE 3.

EASEMENT NOTES:

THE FOLLOWING EASEMENTS AFFECT SAID PROPERTY BUT THE LOCATION IS DEFINED OF RECORD:
PG&E EAS. 734 OR 353.
PUBLIC TRUST EASEMENT WITHIN TIDELAND SURVEY NO. 2 AND NO. 20 AFFECT SAID PROPERTY.

REFERENCES

① 25 PM 30
② 13 RS 67
③ 24 PM 07
④ 20 PM 100
⑤ 22 RS 23

[redacted]

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PARCEL MAP

VALLEJO WATERFRO

A PORTION OF THE PARCEL OF LAND DELINEATED ON
RECORDED APRIL 29, 1952, IN BOOK 2 OF SURVE
A PORTION OF THE PARCEL OF LAND DELINEATED ON
RECORDED MAY 28, 1964, IN BOOK 8 OF SUR

CITY OF VALLEJO SOLANO COUNTY CA

dk CONSULTING

CIVIL ENGINEERING–PLANNING–SURVEYING
1440 MARIA LANE, SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 932-6868

SEPTEMBER 2011

SCALE 1"=100'

LEGEND

- BOUNDARY
- PARCEL LINE
- PROPOSED EASEMENT LINE
- EXISTING RIGHT OF WAY
- EXISTING PROPERTY LINE
- EXISTING EASEMENT LINE
- MONUMENT LINE
- KIEWIT LEASE LINE
- (R) RADIAL
- (T) TOTAL
- V.S.F.C.D. VALLEJO SANITARY AND FLOOD CONTROL DISTRICT
- FOUND STANDARD STREET MONUMENT

F:\Projects\2007\071039-Vallejo\dwg\parcel map\071039PM2.dwg 9/23/2011 8:54:36 AM PDT

CITY RW EAS. 1182 OR 65

N 85°44'04" E 149.33'

N 49°41'56" W 506.54'

N49°41'56"W 103.05'

SLOPE & UTILITY EAS. 1178 OR 714

N40°18'02"E(R)

Δ=89°58'55" R=20.00' L=31.42

97.00'

V.S.F.C.D. SEWER & SD EAS. 2011-68951

MARIN ST.

CURTOLA PARKWAY

N01°12'22"E(R)

Δ=89°58'55" R=20.00' L=31.41'

N 01°13'27" E 332.95'

N 01°13'27" E 249.35'

57.99'

PG&E EAS. 1436 OR 170

Δ=03°39'08" R=2461.76' L=156.93'

PARCEL 3
2.61 ACRES

N 04°51'31" E(R)

Δ=01°37'03" R=2461.76' L=69.49'

N03°14'28"E(R)

N 88°46'33" W 420.39'

N 01°13'27" E 277.67'

N 50°21'46" E 56.48'

N 39°38'49" W 498.15'

PARCEL 618
5 PM 39

V.S.F.C.D. SEWER & SD EAS. 2011-70059

56.18'
N 53°44'46" E

V.S.F.C.D. SEWER & SD EAS. 2011-68951

CITY OF VALLEJO
2010-00070934

N 40°14'56" W 217.48'

N 22°00'44" W 68.72'

N 64°45'38" E 12.83'

N 10°42'03" W 29.50'

N 55°17'29" E 29.62'

N51°02'51"E 104.39'

N 33°51'14" W 16.88'

N57°31'26"W 339.04'

N 70°00'14" E 31.31'

V.S.F.C.D. SEWER & SD EAS. 2011-70058

PARCEL 2
13.98 ACRES

Δ=41°44'43" R=271.50' L=197.81'

N 40°31'16" W 675.34'

Δ=90°00'00" R=20.00' L=31.42'

57.90'

Δ=90°00'00" R=20.00' L=31.42'

N40°31'16"W 370.01

Δ=47°05'59" R=28.00' L=23.02'

N30°48'57"E(R)

N02°22'45"E(R)

Δ=28°26'06" R=55.00' L=27.30'

N 72°05'08" W 5.73'
N 50°10'38" W 45.70'
N 35°51'41" W 27.62'
N 36°13'53" W 49.81'
N 35°07'28" W 39.27'
N 39°28'43" W 40.58'
N 51°39'57" W 11.39'

N 39°57'21" W 111.01'

N 20°56'28" W 56.94'

N 32°02'25" W 68.81'

N 14°42'51" W 71.76'

CITY OF VALLEJO
2010-00070934

PARCEL 1
8.70 ACRES

N 34°21'32" E 373.16'

N 49°28'44" E 373.16'

V.S.F.C.D. SS & SD EAS. 2011-68948

SOLANO

80.00'

V.S.F.C.D. ACCESS SS & SD EAS. 2011-68948

V.S.F.C.D. 1988 OR 144078(1)

N35°54'23"W 296.17'(T)

REMAINDER
SEE SHEET 2

N54°21'32"E 193.07'

50.18'

302.77'

N 36°54'39" W 352.95'(T)

KIEWIT LEASE 1976 OR 57732

N 54°21'32" E 189.12'

N 35°36'28" W 38.50'

V.S.F.C.D. SS EAS. 2011-70060

UNITED STATES 267° OF CITY RW 805

PAR A PM 781

PAR. 1 PM 781

BASIS OF BEARINGS:

TAKEN AS "N 12°43'24"W" BETWEEN POINTS 9875 ON RECORD OF SURVEY 22 RS 23 "GPS GEODET VALLEJO SANITATION AND FLOOD CONTROL DISTR VALLEJO", POINT 9875 IS A 2.5"DISK OR MARK OF BIRTH 24 MARKED McGILL–MARTIN–SELF. PO IN CL PVMT. IN PATH AT EXTENSION OF BENSON NAD83 CALIFORNIA ZONE 3.

SHEET 3 OF 3

50 PM 20

Attachment B

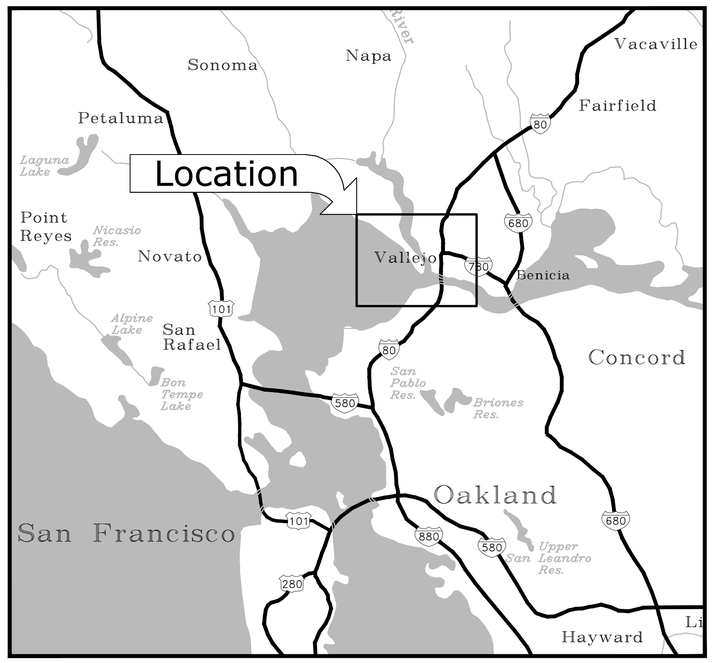
Vallejo MPG Storm Drain Realignment Project
65% Design Submittal

VALLEJO MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY

STORM DRAIN REALIGNMENT PROJECT

65% DESIGN SUBMITTAL

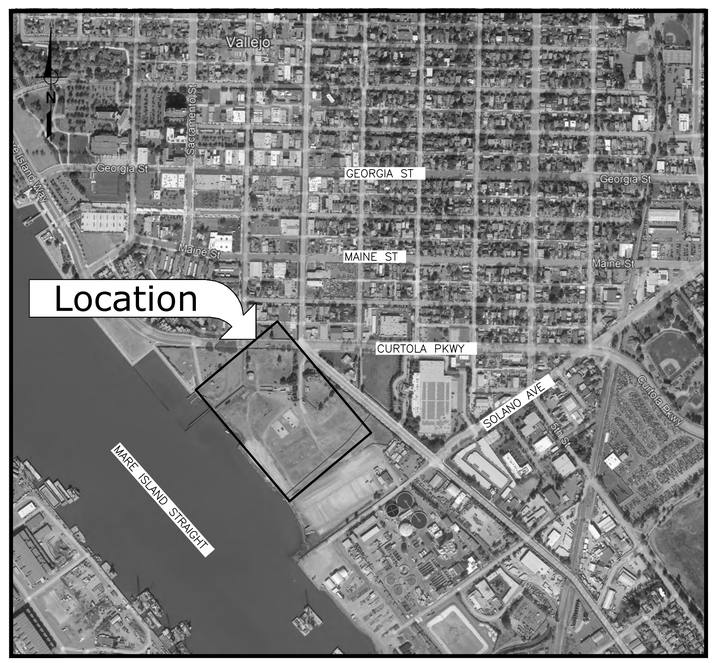
JANUARY 2022



VICINITY MAP

DRAWING INDEX

DRAWING NUMBER	TITLE	SHEET NUMBER
G01	TITLE SHEET, LOCATION MAPS, AND INDEX OF DRAWINGS	1
G02	GENERAL NOTES, ABBREVIATIONS, AND LEGEND	2
C01	PLAN AND PROFILE NEWSTORM DRAIN STA 0+00 TO STA 12+00	3
C02	PLAN AND PROFILE NEW STORM DRAIN STA 12+00 TO STA 21+50	4
C03	PLAN AND PROFILE EXISTING STORM DRAIN REMOVE AND DISPOSE	5
C04	CIVIL DETAILS	6
C05	BYPASS PUMPING AND CONSTRUCTION SEQUENCE	7
S1	STRUCTURAL GENERAL NOTES	8
S2	HEADWALL PLAN & SECTIONS	9



LOCATION MAP

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DOUGLAS J. MOORE
No. 58122
Exp. 6-30-22
CIVIL
STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

QC REVIEW: JDG
DATE:

THIS LINE IS 1 INCH
AT FULL SCALE IF NOT SCALE ACCORDINGLY

SCALE : AS SHOWN
DRAWN BY : JHP
DESIGNED BY : DTM
PROJ. MGR. : DTM

No.	ZONE	REVISIONS	BY	DATE

WEST YOST
Water. Engineered.

TERRA PACIFIC GROUP
Environmental Engineering, Consulting, and Construction

VALLEJO, MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY
TITLE SHEET, LOCATION MAPS, AND INDEX OF DRAWINGS

JOB NUMBER 913-60-20-02
DRAWING NUMBER **G01**
SHEET NUMBER 1 OF 9
REVISION

N:\Clients\913 Terra Pacific Group, Incorporated\60-20-02 Vallejo SD Design\CAD\Production\913-60-20-02-G01-C02.dwg 1/13/2022 8:37 AM jpavicic

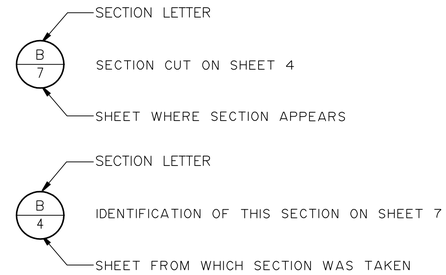
LEGEND

- 10" SS — EXISTING SANITARY SEWER, PIPE SIZE & DIRECTION
- 24" SD — EXISTING STORM DRAIN, PIPE SIZE & DIRECTION
- 10" W — EXISTING WATER MAIN, PIPE SIZE
- 12" GAS — EXISTING GAS MAIN, PIPE SIZE
- 10 — EXISTING CONTOUR
- EXISTING MANHOLE
- EXISTING SD CATCH BASIN OR DRAIN INLET
- EXISTING FIRE HYDRANT
- REMOVE EXISTING SD

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AGG	AGGREGATE BASE
APPROX	APPROXIMATE
AVE	AVENUE
CO	CLEAN OUT
CONC	CONCRETE
DI	DRAIN INLET
DIA	DIAMETER
EL	ELEVATION
EQ	EQUAL
(EX)/(E)	EXISTING
FL	FLOW LINE
FH	FIRE HYDRANT
GS	GROUND SURFACE
INV	INVERT
LF	LINEAR FOOT (FEET)
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
(N)	NEW
NAVD	NORTH AMERICAN VERTICAL DATUM
PG&E	PACIFIC GAS AND ELECTRIC COMPANY
RCP	REINFORCED CONCRETE PIPE
SCH	SCHEDULE
SD	STORM DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDMH	STORM DRAIN MANHOLE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
USA	UNDERGROUND SERVICE ALERT
VFWD/VSFCD	VALLEJO FLOOD & WASTEWATER DISTRICT OR VALLEJO SANITATION AND FLOOD CONTROL DISTRICT
W	WATER

SECTION & DETAIL DESIGNATIONS



DETAILS ARE CROSS REFERENCED IN A SIMILAR MANNER, EXCEPT THAT DETAILS ARE IDENTIFIED BY NUMBER RATHER THAN LETTER

GENERAL NOTES

STORM DRAIN NOTES

1. NEW STORMDRAIN SHALL BE ASTM C76 CLASS 5 RCP

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER — JAMES T. GLAS — No. C 91122 — Exp. 6-30-22 — CIVIL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

QC REVIEW: JDG

DATE:

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DESIGNED BY : DTM
PROJ. MGR. : DTM

No.	ZONE	REVISIONS	BY	DATE

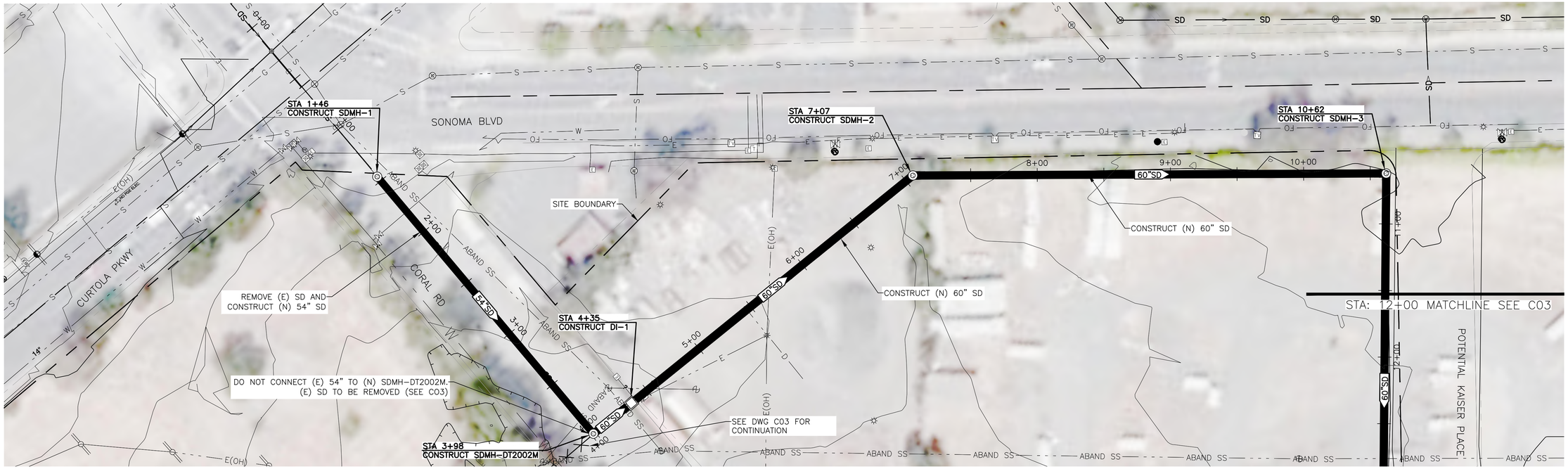
WEST YOST
Water. Engineered.

TERRA PACIFIC GROUP
Environmental Engineering, Consulting, and Construction

VALLEJO, MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY
GENERAL NOTES, ABBREVIATIONS, AND LEGEND

JOB NUMBER 913-60-20-02
DRAWING NUMBER **G02**
SHEET NUMBER 2 OF 9
REVISION

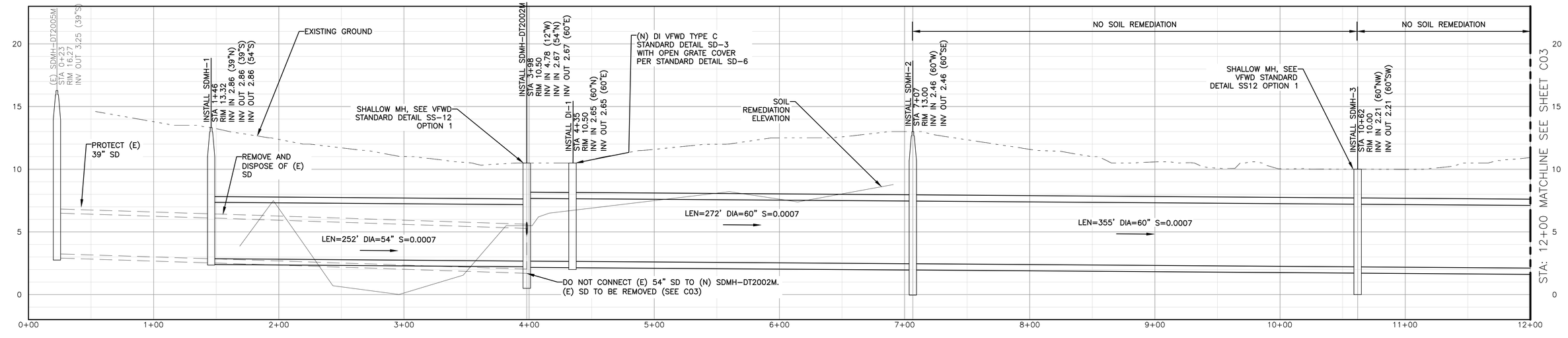
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PLAN

0 40 80

SCALE: 1"= 40'



PROFILE

SCALE: HOR:1"=40', VER:1"=4'

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER — DOUGLAS T. MOORE — No. 58122 Exp. 6-30-22 — CIVIL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

QC REVIEW: JDG

DATE:

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY

SCALE : AS SHOWN
DRAWN BY : JHP
DESIGNED BY : DTM
PROJ. MGR. : DTM

No.	ZONE	REVISIONS	BY	DATE

WEST YOST
Water. Engineered.

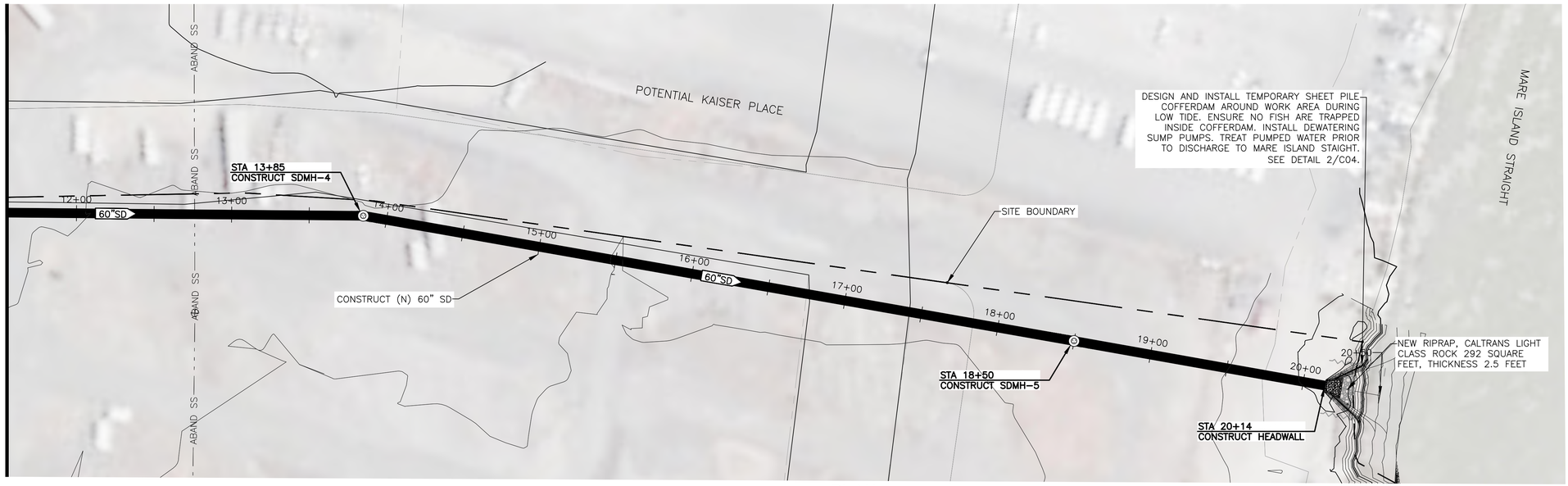
TERRA PACIFIC GROUP
Environmental Engineering, Consulting, and Construction

VALLEJO, MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY

PLAN AND PROFILE
NEWSTORM DRAIN STA 0+00 TO STA 12+00

JOB NUMBER 913-60-20-02
DRAWING NUMBER **C01**
SHEET NUMBER 3 OF 9
REVISION

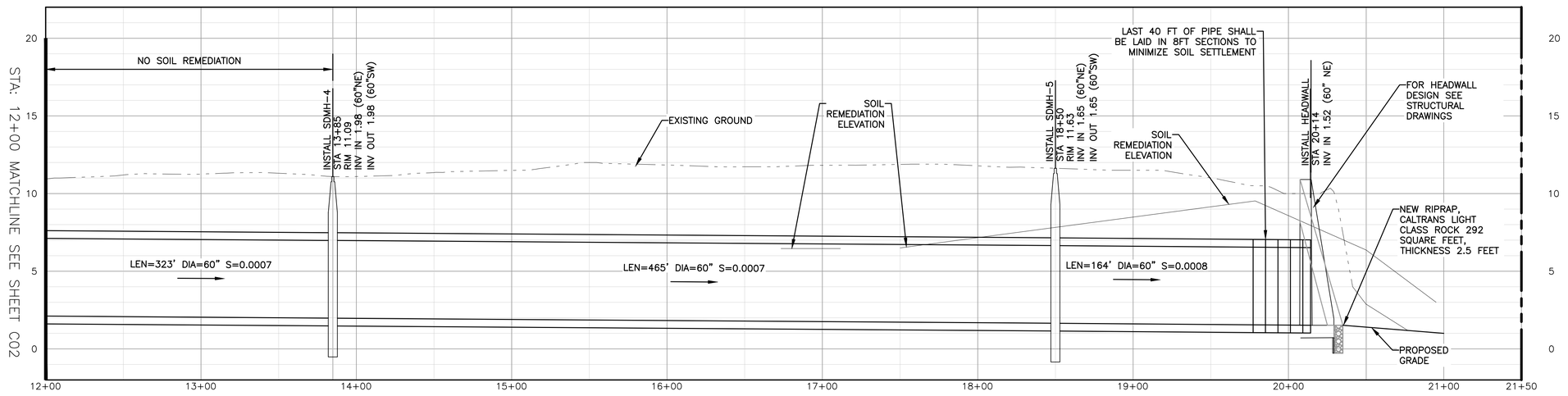
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PLAN

0 40 80

SCALE: 1" = 40'



PROFILE

SCALE: HOR:1"=40', VER:1"=4'

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DOUGLAS T. MORE No. 58122 Exp. 6-30-22 CIVIL STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

QC REVIEW: JDG

DATE:

THIS LINE IS 1 INCH
AT FULL SCALE IF NOT SCALE ACCORDINGLY

SCALE : AS SHOWN
DRAWN BY : JHP
DESIGNED BY : DTM
PROJ. MGR. : DTM

No.	ZONE	REVISIONS	BY	DATE

WEST YOST
Water. Engineered.

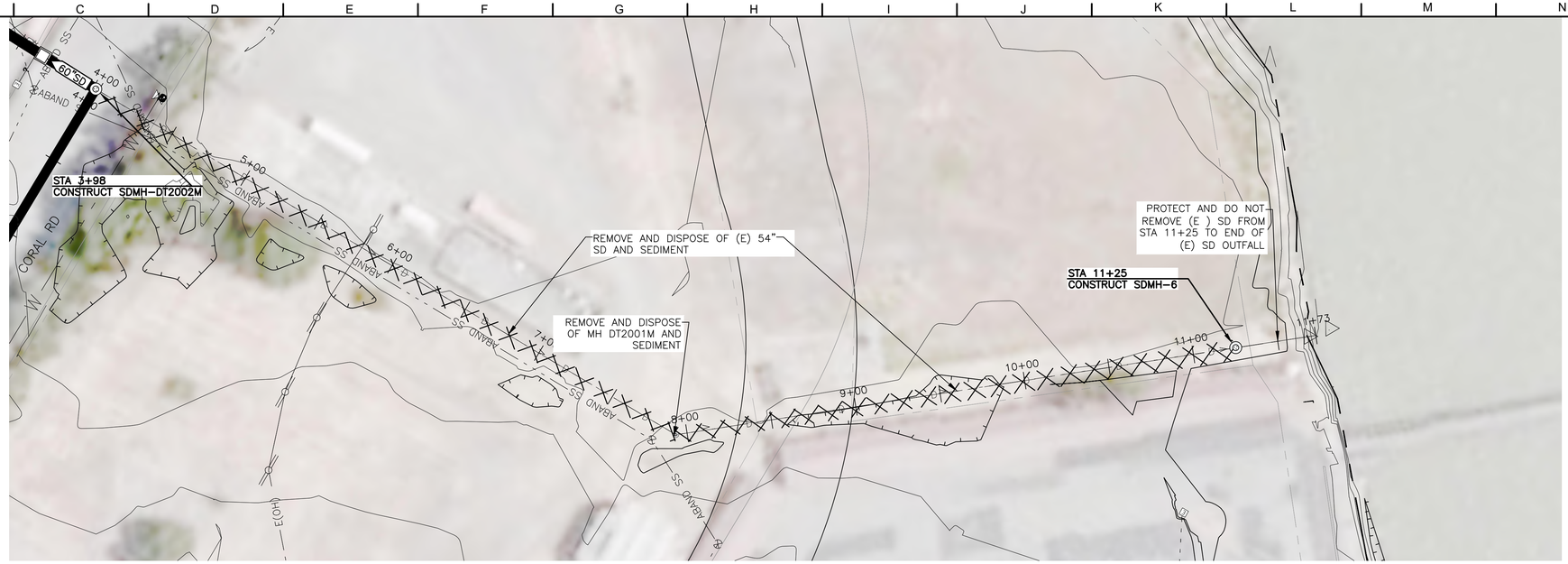
TERRA PACIFIC GROUP
Environmental Engineering, Consulting, and Construction

VALLEJO, MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY

PLAN AND PROFILE
NEW STORM DRAIN STA 12+00 TO STA 21+50

JOB NUMBER 913-60-20-02
DRAWING NUMBER **C02**
SHEET NUMBER 4 OF 9
REVISION

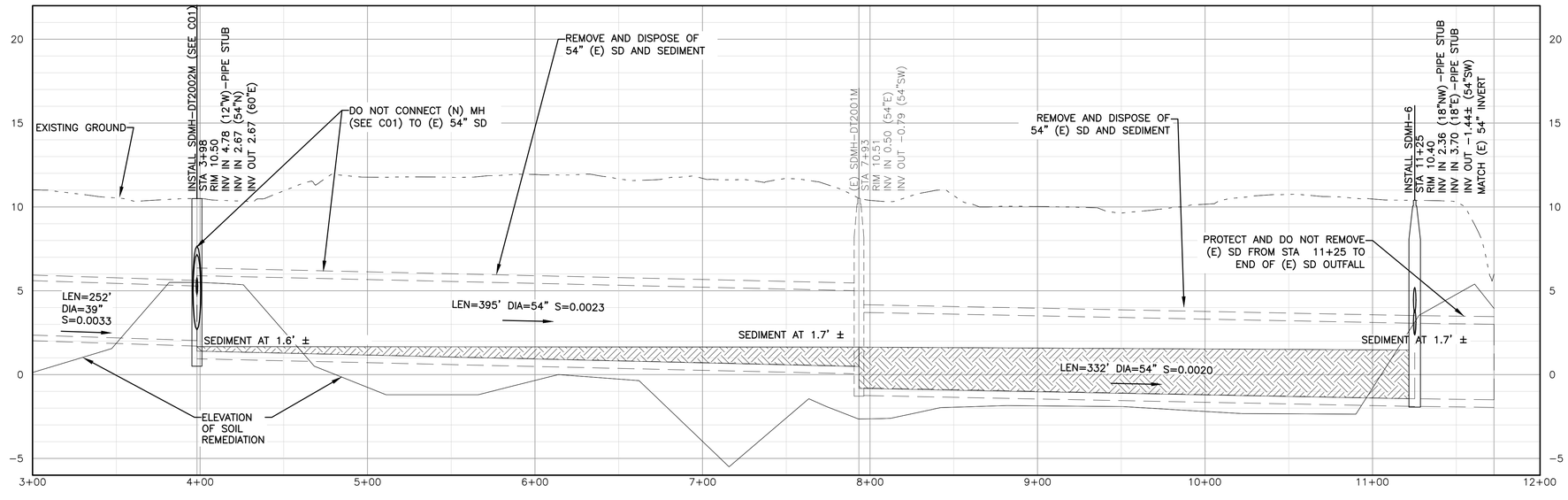
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PLAN

0 40 80

SCALE: 1" = 40'



PROFILE

SCALE: HOR:1"=40', VER:1"=4'

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DOUGLAS T. MOORE No. 58122 Exp. 6-30-22 CIVIL STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

QC REVIEW: JDG

DATE:

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY

SCALE : AS SHOWN
DRAWN BY : JHP
DESIGNED BY : DTM
PROJ. MGR. : DTM

No.	ZONE	REVISIONS	BY	DATE

WEST YOST
Water. Engineered.

TERRA PACIFIC GROUP
Environmental Engineering, Consulting, and Construction

VALLEJO, MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY

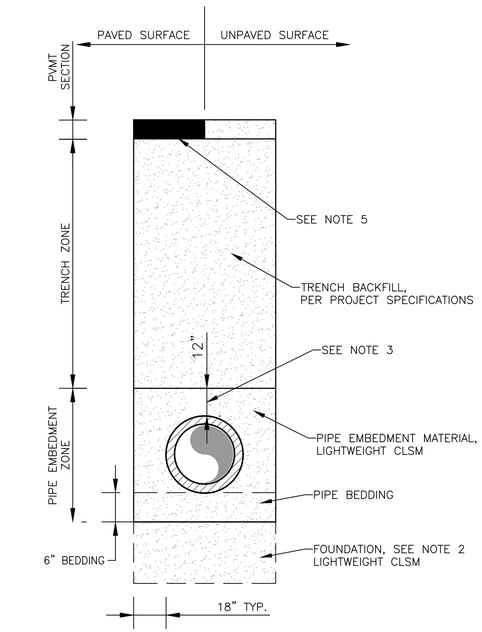
PLAN AND PROFILE EXISTING STORM DRAIN REMOVE AND DISPOSE

JOB NUMBER 913-60-20-02
DRAWING NUMBER **C03**
SHEET NUMBER 5 OF 9
REVISION

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PIPE TRENCH NOTES:

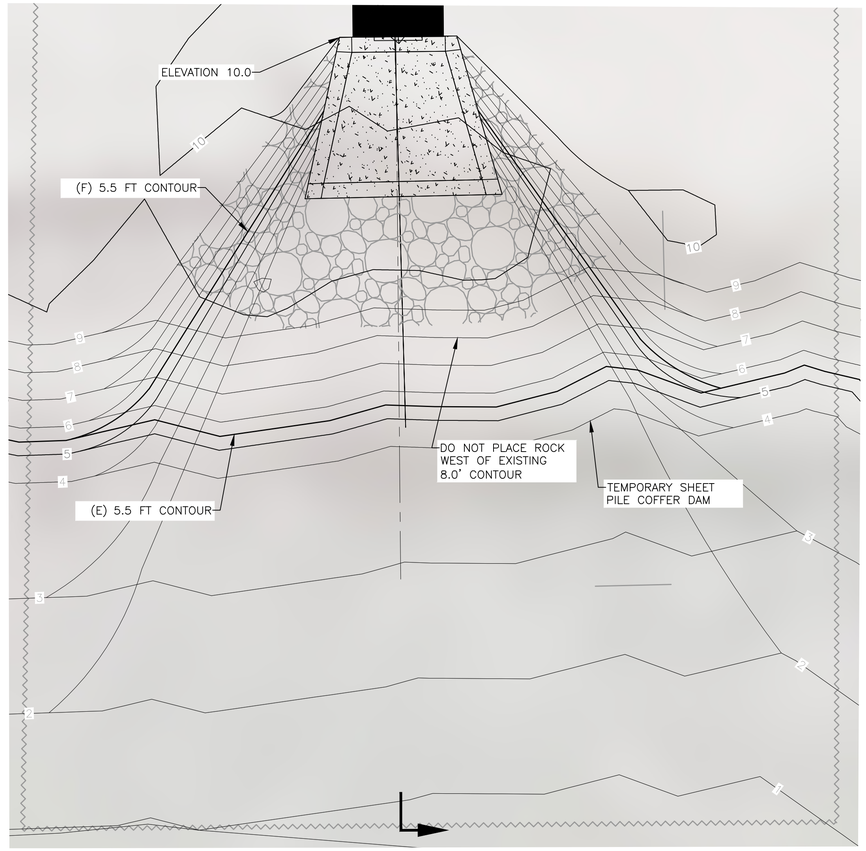
1. FOUNDATION MATERIAL AND PIPE EMBEDMENT MATERIAL SHALL BE LIGHTWEIGHT CLSM.
2. OVEREXCAVATION SHOULD BE REQUIRED UNTIL A FIRM UNYIELDING STABLE BASE MATERIAL IS REACHED OR A FIRM UNYIELDING STABLE BASE CAN BE CREATED BY THE PLACEMENT OF A LAYER OF FOUNDATION MATERIAL.
3. PIPELINE EMBEDMENT ZONE SHALL EXTEND FROM THE EXCAVATION SUBGRADE OR PIPELINE FOUNDATION MATERIAL TO A MINIMUM OF 12" OVER THE TOP OF THE PIPE.
4. PAVEMENT REPLACEMENT PER PROJECT SPECIFICATIONS.



TYPICAL TRENCH SECTION

DETAIL 1/—

NOT TO SCALE

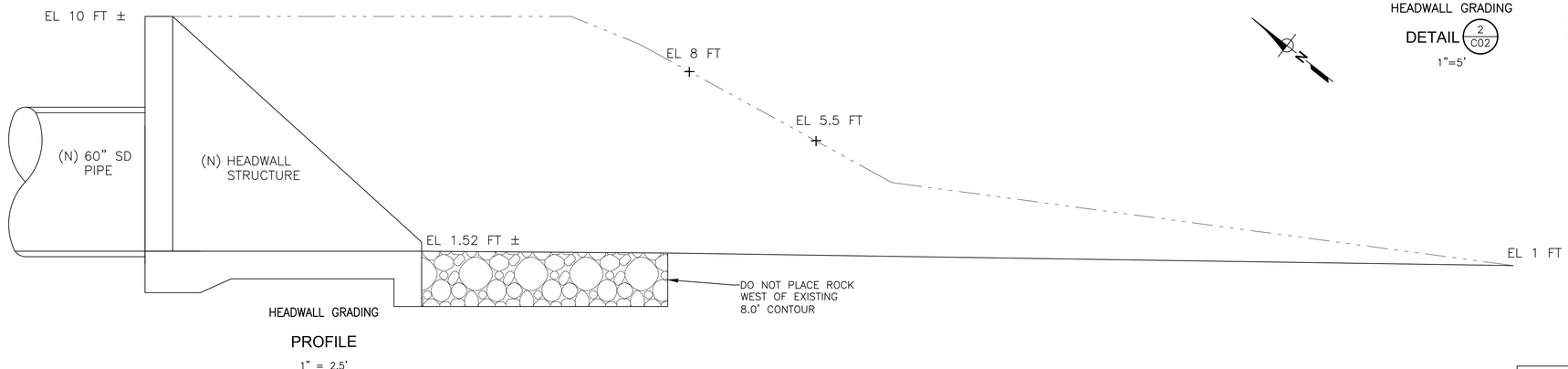


HEADWALL GRADING

DETAIL 2/C02

1"=5'

NOTE:
EXISTING CONTOURS BELOW 8 FT ARE APPROXIMATE.



HEADWALL GRADING

PROFILE

1" = 2.5'

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER — DOUGLAS T. GORE — No. C58122 — Exp. 6-30-22 — CIVIL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

QC REVIEW: JDG

DATE:

THIS LINE IS 1 INCH
AT FULL SCALE IF NOT SCALE ACCORDINGLY

SCALE : AS SHOWN
DRAWN BY : JHP
DESIGNED BY : DTM
PROJ. MGR. : DTM

No.	ZONE	REVISIONS	BY	DATE

WEST YOST
Water. Engineered.

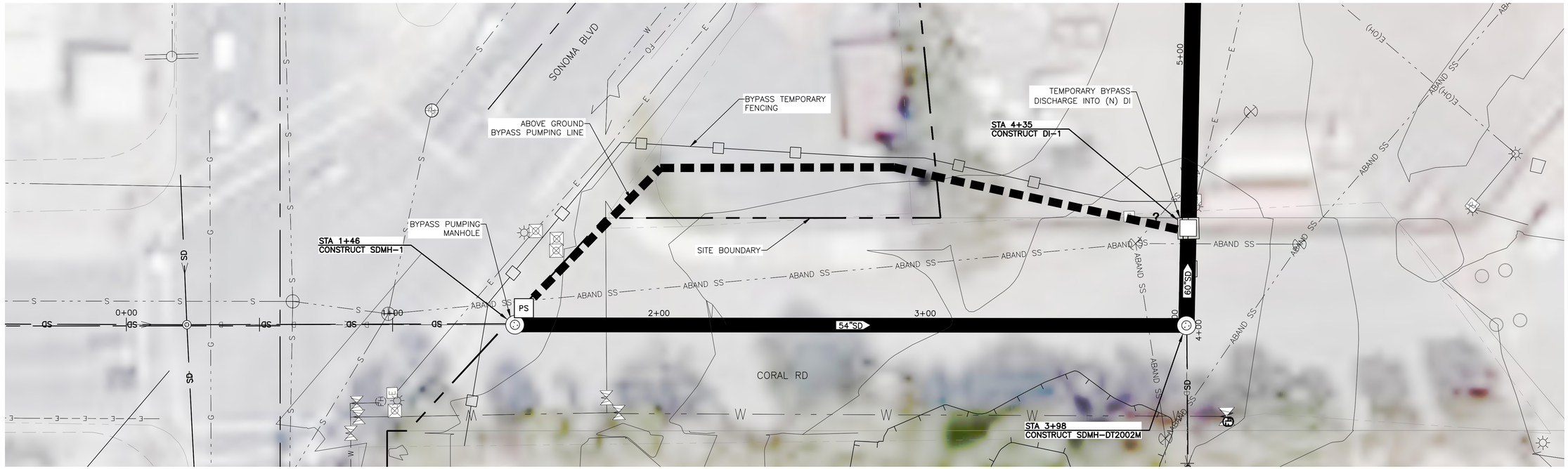
TERRA PACIFIC GROUP
Environmental Engineering, Consulting, and Construction

VALLEJO, MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY

CIVIL DETAILS

JOB NUMBER 913-60-20-02
DRAWING NUMBER **C04**
SHEET NUMBER 6 OF 9
REVISION

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PLAN

0 20 40

SCALE: 1" = 20'

LEGEND

- TEMPORARY FENCING
- D — EXISTING STORM DRAIN
- PROPOSED BYPASS PIPELINE
- PS — PROPOSED BYPASS PUMPS

BYPASS PUMPING AND PIPING

1) PROVIDE ONE 100 GPM BYPASS PUMP AND PIPING.
2) PROVIDE TWO OR MORE STORM EVENT PUMPS AND PIPING WITH TOTAL CAPACITY OF 40 CFS.
3) ALL PUMPS SHOULD HAVE SOUND ATTENUATION
4) BYPASS PUMPING AND PIPING SYSTEM SHALL INCLUDE WATER LEVEL MONITORING AND ALARMS.
5) CONTRACTOR SHALL SUBMIT A BYPASS PUMPING AND PIPING PLAN FOR REVIEW AND APPROVAL BY THE ENGINEER.

CONSTRUCTION SEQUENCING

1) COMPLETE SOIL REMEDIATION ALONG 60" STORM DRAIN ALIGNMENT (SEE C01 AND C02, STA 3+98 TO STA 20+40).
2) CONSTRUCT 60" STORM DRAIN, MAINTENANCE HOLES, DI, AND HEADWALL (SEE C01 AND C02, FROM DI STA 4+35 TO HEADWALL STA 20+40).
3) CONSTRUCT SDMH-1 (SEE C01).
4) SET UP BYPASS PUMPING AND PIPING (SEE C05).
5) REMOVE AND DISPOSE OF EXISTING 54" STORM DRAIN OUTFALL (SEE C03).
6) REMOVE AND DISPOSE OF EXISTING 54" STORM DRAIN FROM OUTFALL TO CORAL RD (SEE C03).
7) REMOVE THE EXISTING 39" STORM DRAIN IN CORAL RD (SEE C01).
8) COMPLETE SOIL REMEDIATION ALONG CORAL RD.
9) CONSTRUCT NEW 54" STORM DRAIN AND SDMH-DT2002M IN CORAL RD AND 60" SD (FROM SDMH-DT2002M STA 3+98 TO DI STA 4+35) AND CONNECT TO THE PROPOSED 60" STORM DRAIN.
10) REMOVE THE BYPASS PUMPING AND PIPING.

PRELIMINARY 65% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER — DOUGLAS T. MOORE — No. 58122 — Exp. 6-30-22 — CIVIL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

QC REVIEW: JDG

DATE:

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY

SCALE : AS SHOWN
DRAWN BY : JHP
DESIGNED BY : DTM
PROJ. MGR. : DTM

No.	ZONE	REVISIONS	BY	DATE

WEST YOST
Water. Engineered.

TERRA PACIFIC GROUP
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VALLEJO, MPG REMEDIATION
VALLEJO, CA, SOLANO COUNTY

BYPASS PUMPING AND CONSTRUCTION SEQUENCE

JOB NUMBER 913-60-20-02
DRAWING NUMBER **C05**
SHEET NUMBER 7 OF 9
REVISION

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GENERAL:

1. INTERPRETATION OF DRAWINGS & SPECIFICATIONS
   - 1.1 WHERE APPLICABLE, SPECIFICATIONS HAVE BEEN PREPARED FOR THIS PROJECT AND ARE ARRANGED IN SEVERAL SECTIONS, BUT SUCH SEPARATION SHALL NOT BE CONSIDERED AS THE LIMITS OF THE WORK REQUIRED BY ANY SEPARATE TRADE. THE TERMS AND CONDITIONS OF SUCH LIMITATIONS ARE WHOLLY BETWEEN THE CONTRACTOR AND SUBCONTRACTORS.
   - 1.2 IN GENERAL, THE WORKING DETAILS WILL INDICATE DIMENSIONS, POSITIONS AND KIND OF CONSTRUCTION, AND THE SPECIFICATIONS WILL INDICATE QUALITIES AND METHODS. ANY WORK INDICATED ON THE WORKING DETAILS MENTIONED BUT NOT IN THE SPECIFICATIONS, OR VICE VERSA, SHALL BE FURNISHED AS THOUGH FULLY SET FORTH IN BOTH. WORK NOT PARTICULARLY DETAILED, MARKED OR SPECIFIED, SHALL BE THE SAME AS SIMILAR PARTS THAT ARE DETAILED, MARKED OR SPECIFIED. IF CONFLICTS OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS, THE MOST EXPENSIVE MATERIALS OR METHODS WILL PREVAIL.
   - 1.3 SHOULD AN ERROR APPEAR IN THE WORKING DETAILS OR SPECIFICATIONS OR IN WORK DONE BY OTHERS AFFECTING THIS WORK, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT ONCE AND IN WRITING. IF THE CONTRACTOR PROCEEDS WITH THE WORK SO AFFECTED WITHOUT HAVING GIVEN SUCH WRITTEN NOTICE AND WITHOUT RECEIVING THE NECESSARY APPROVAL, DECISION OR INSTRUCTION IN WRITING FROM THE OWNER, THEN THEY SHALL HAVE NO VALID CLAIM AGAINST THE OWNER, FOR THE COST OF SO PROCEEDING AND SHALL MAKE GOOD ANY RESULTING DAMAGE OR DEFECT. NO VERBAL APPROVAL, DECISION, OR INSTRUCTION SHALL BE VALID OR BE THE BASIS FOR ANY CLAIM AGAINST THE OWNER, ITS OFFICERS, EMPLOYEES, OR AGENTS. THE FOREGOING INCLUDES TYPICAL ERRORS IN THE SPECIFICATIONS OR NOTATIONAL ERRORS IN THE WORKING DETAILS WHERE THE INTERPRETATION IS DOUBTFUL OR WHERE THE ERROR IS SUFFICIENTLY APPARENT AS TO PLACE A REASONABLY PRUDENT CONTRACTOR ON NOTICE THAT, SHOULD THEY ELECT TO PROCEED, THEY ARE DOING SO AT THEIR OWN RISK.
2. CONSTRUCTION SHALL CONFORM TO THE 2019 CBC AND ALL APPLICABLE CODES AND REGULATIONS.
3. SHOP DRAWING NOTE:
   - 3.1 SHOP DRAWINGS SHALL BE SUBMITTED IN THE FORM OF ONE REPRODUCIBLE AND TWO COPIES OF EACH SHEET.
   - 3.2 THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE STRUCTURAL ENGINEER THAT THEY UNDERSTAND THE DESIGN CONCEPT BY INDICATING WHICH MATERIALS THEY INTEND TO FURNISH AND INSTALL, AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS THEY INTEND TO USE.
   - 3.3 PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW TO THE STRUCTURAL ENGINEER. SHOP DRAWING SUBMITTALS SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO CONCRETE MIX DESIGNS, STRUCTURAL STEEL, REINFORCING STEEL, MASONRY UNITS, GROUT MIX DESIGNS, GLUED LAMINATED BEAMS, AND PRE-FABRICATED WOOD ROOF FRAMING ITEMS SUCH AS I-JOISTS AND TRUSSES WHERE THESE ELEMENTS ARE INDICATED ON THE DRAWINGS.
   - 3.4 PRIOR TO SUBMISSION THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SHALL STAMP SUBMITTALS AS BEING "REVIEWED FOR CONFORMANCE"
   - 3.5 SHOP DRAWING SUBMITTALS PROCESSED BY THE STRUCTURAL ENGINEER ARE NOT CHANGE ORDERS.
   - 3.6 ANY DETAIL ON THE SHOP DRAWING THAT DEVIATES FROM THE CONTRACT DOCUMENTS SHALL CLEARLY BE MARKED WITH THE NOTE "THIS IS A CHANGE".
   - 3.7 SHOP DRAWINGS OR CALCULATIONS SUBMITTED FOR REVIEW THAT REQUIRE RESUBMITTAL FOR RE-REVIEW SHALL BE BILLED HOURLY FOR SUCH TIME TO THE GENERAL CONTRACTOR. RE-REVIEW WILL NOT PROCEED WITHOUT WRITTEN APPROVAL FROM THE GENERAL CONTRACTOR FOR ADDITIONAL ENGINEERING REVIEW SERVICES.
4. SAFETY NOTE:
   - 4.1 IT IS THE CONTRACTORS RESPONSIBILITY TO COMPLY WITH THE PERTINENT SECTIONS, AS THEY APPLY TO THIS PROJECT, OF THE "CONSTRUCTION SAFETY ORDERS" ISSUED BY THE STATE OF CALIFORNIA LATEST EDITION, AND ALL OSHA REQUIREMENTS.
   - 4.2 THE OWNER AND THE STRUCTURAL ENGINEER DO NOT ACCEPT ANY RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO COMPLY WITH THESE REQUIREMENTS.
   - 4.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE DESIGN AND CONSTRUCTION OF ALL FORMS AND SHORING REQUIRED.
5. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER WHERE A CONFLICT OR A DISCREPANCY OCCURS BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER PORTION OF THE CONTRACT DOCUMENTS OR EXISTING FIELD CONDITIONS. SUCH NOTIFICATION SHALL BE GIVEN IN DUE TIME SO AS NOT TO AFFECT THE CONSTRUCTION SCHEDULE. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH STRUCTURAL DRAWINGS PRIOR TO COMMENCING ANY WORK.
6. WHERE NO SPECIFIC DETAIL IS SHOWN, THE CONSTRUCTION SHALL BE IDENTICAL OR SIMILAR TO THAT INDICATED FOR LIKE CASES OF CONSTRUCTION ON THIS PROJECT. SHOULD THERE BE ANY QUESTION, CONTACT THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING.
7. WHEN CONSTRUCTION ATTACHES TO AN EXISTING BUILDING, A COMPLETE SET OF DRAWINGS OF THE EXISTING BUILDING SHALL BE KEPT ON THE JOB SITE. CONTRACTOR TO OBTAIN THESE DRAWINGS FROM THE OWNER.
8. ANY SUBSTITUTIONS FOR STRUCTURAL MEMBERS, HARDWARE, OR DETAILS SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER. SUCH REVIEW WILL BE BILLED ON A TIME AND MATERIALS BASIS TO THE GENERAL CONTRACTOR WITH NO GUARANTEE THAT THE SUBSTITUTION WILL BE ALLOWED.
9. DO NOT SCALE DRAWINGS. CONTACT THE STRUCTURAL ENGINEER FOR ANY DIMENSIONS NOT SHOWN.
10. THESE DRAWINGS ARE NOT COMPLETE UNTIL REVIEWED AND ACCEPTED BY THE LOCAL BUILDING OFFICIAL AND SIGNED BY THE OWNER AND THE STRUCTURAL ENGINEER.
11. ALL DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTES THE ORIGINAL AND UNPUBLISHED WORK OF THE STRUCTURAL ENGINEER AND THE SAME MAY NOT BE DUPLICATED, USED OR DISCLOSED WITHOUT WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
12. THE STRUCTURE SHOWN ON THESE DRAWINGS IS STRUCTURALLY SOUND ONLY IN ITS COMPLETED FORM. THE STABILITY OF THIS STRUCTURE DEPENDS ON THE DIAPHRAGMS AND THE BRACING MEMBERS SHOWN. THE CONTRACTOR IS TO PROVIDE FOR THE DESIGN AND CONSTRUCTION OF SHORING FOR ALL EARTH, FORMS, CONCRETE, STEEL, WOOD, AND MASONRY TO RESIST GRAVITY, EARTH, WIND, SEISMIC, AND CONSTRUCTION LOADS. SHORING SHALL REMAIN IN PLACE UNTIL ALL DIAPHRAGMS AND LATERAL RESISTING ELEMENTS ARE IN PLACE IN THEIR ENTIRETY.

DESIGN CRITERIA:

1. CODE: 2019 CALIFORNIA BUILDING CODE (CBC)

CONCRETE AND REINFORCING STEEL:

1. CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318-14 & ACI 350.
2. THE MINIMUM 28 DAY STRENGTH AND TYPE OF CONCRETE SHALL BE AS FOLLOWS:
   LIGHTWEIGHT AGGREGATE 70 PCF (SEE GEOTECH REPORT SECTION 3.4.5)
   F'c= 3,000 PSI (MINIMUM 5 SACKS CEMENT PER CU. YD.).
3. ALL CONCRETE SHALL BE READY-MIX IN ACCORDANCE WITH ASTM-C94.
4. CONCRETE MIX DESIGN SHALL BE REVIEWED BY THE OWNER'S TESTING LABORATORY AND SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL. SELECTION OF CONCRETE MIX PROPORTIONS SHALL BE PER 2019 CBC SECTION 1903.
5. CEMENT SHALL CONFORM TO ASTM C-150 TYPE V.
6. CONCRETE AGGREGATES: LIGHTWEIGHT AGGREGATE SHALL CONSIST OF NATURAL VOLCANIC CINDER MEETING THE REQUIREMENTS OF ASTM C-330. SEE THE GEOTECHNICAL REPORT FOR ADDITIONAL REQUIREMENTS
7. REINFORCING SHALL CONFORM TO ASTM A706 GRADE 60.
8. WELDING OF REINFORCING STEEL SHALL CONFORM TO AWS D1.4 USING PROPER LOW HYDROGEN ELECTRODES. TACK WELDING TO REBAR IS STRICTLY PROHIBITED. SEE "REBAR WELDING".
9. REINFORCING STEEL SHALL BE DETAILED, FABRICATED, AND INSTALLED ACCORDING TO "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION" BY CRSI.
10. WIRE FABRIC SHALL CONFORM TO ASTM A-1064.
11. DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO THE FACE OF MAIN BARS AND DENOTE CLEAR COVERAGE. UNLESS OTHERWISE NOTED, CONCRETE COVERAGE SHALL BE AS FOLLOWS:

CONCRETE DEPOSITED DIRECTLY AGAINST GROUND (EXCEPT SLABS)	3"
FORMED CONCRETE EXPOSED TO WEATHER OR GROUND OR LIQUID	
#6 AND LARGER	2"
#5 AND SMALLER	2"
BEAMS (TOP BARS)	1½"
BEAMS (ALL OTHER MAIN REINFORCING)	2"
COLUMN MAIN REINFORCING	2"
WALLS AND SLABS (INTERIOR DRY FACES)	¾"
SLABS ON GROUND WITH ONE LAYER OF REINFORCEMENT	POSITION IN CENTER OF SLAB

12. REINFORCING STEEL PLACEMENT:
    - 12.1 ALL BARS SHOWN WITH LAPS OR SPLICES SHALL HAVE MIN LAP LENGTH UNLESS OTHERWISE NOTED.
    - 12.2 DOWEL ALL VERTICAL REBAR IN WALLS AND COLUMNS FROM FOUNDATION WITH SAME SIZE AND SPACING AS VERTICAL BARS.
    - 12.3 SPLICES IN ADJACENT BARS SHALL BE NOT LESS THAN 5'-0" APART.
    - 12.4 SPLICE CONTINUOUS BARS IN SOIL-BEARING GRADE BEAMS AS FOLLOWS: BOTTOM BARS AT MID-SPAN, TOP BARS AT CENTERLINE OF SUPPORT, UNLESS NOTED OTHERWISE.
    - 12.5 SPLICE CONTINUOUS BARS IN BEAMS, SPANDRELS, WALL BEAMS ETC. AS FOLLOWS: BOTTOM BARS AT CENTERLINE OF SUPPORT, TOP BARS AT MIDSPAN, UNLESS NOTED OTHERWISE.
    - 12.6 REINFORCING BARS SHALL BE RUN IN A MANNER THAT FORMS A CONTINUOUS SYSTEM OF BARS TYING ALL PARTS OF THE STRUCTURE TOGETHER. EXTEND ALL REINFORCING BARS AS FAR AS POSSIBLE IN EACH CONCRETE MEMBER AND TERMINATE BAR TO PROVIDE 2" OF CONCRETE COVER END OF BAR OR FACE OR BEND.
    - 12.7 BEAM STIRRUPS AND COLUMN TIES SHALL HOOK 135 DEGREES AROUND A CORNER BAR UNLESS NOTED OTHERWISE.
13. GENERAL:
    - 13.1 NO PIPES OR DUCTS SHALL BE PLACED IN CONCRETE SLABS, BEAMS, WALLS OR GRADE BEAMS UNLESS SPECIFICALLY DETAILED.
    - 13.2 REFER TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR ALL OPENINGS, FLANGES, MOULDS, GROOVES, CLIPS AND GROUNDS TO BE CAST IN CONCRETE.
14. CONSTRUCTION JOINTS SHALL BE MADE ROUGH AND ALL LAITANCE REMOVED FROM THE SURFACE. CONCRETE MAY BE ROUGHENED BY CHIPPING THE ENTIRE SURFACE, SANDBLASTING, OR HOSING THE SURFACE 4 TO 6 HOURS AFTER THE POUR WITH A FINE SPRAY.
15. REMOVE ALL DEBRIS FROM THE FORMS BEFORE PLACING ANY CONCRETE.
16. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED IN CONCRETE SHALL BE SECURELY POSITIONED BEFORE PLACING CONCRETE. OBTAIN APPROVAL OF ALL AFFECTED TRADES PRIOR TO PLACING CONCRETE.
17. MAXIMUM FREE FALL OF CONCRETE SHALL BE 3'-0".
18. WALLS SHALL BE PLACED IN HORIZONTAL LAYERS OF 2'-0" MAX DEPTH.
19. CONCRETE IN WALLS, PIERS, OR COLUMNS SHALL SET AT LEAST 2 HOURS BEFORE PLACING CONCRETE IF IT SUPPORTS BEAMS, SPANDRELS, OR SLABS.
20. REINFORCE ALL SLABS ON GRADE AS SHOWN ON DRAWINGS.
21. HORIZONTAL WALL BARS IN DOUBLE LAYER WALLS SHALL BE STAGGERED. USE #2 SPREADERS APPROXIMATELY EVERY THIRD INTERSECTION EACH DIRECTION FOR ALL DOUBLE LAYER WALLS. PLACE SPREADERS IN VERTICAL LINES WITH FORM TIES.
22. NO WOOD SPREADERS ARE ALLOWED. NO WOOD STAKES ARE ALLOWED IN AREAS TO BE CONCRETED.
23. MINIMUM WALL REINFORCING FOR TEMPERATURE AND SHRINKAGE CONTROL ARE:

WALL THICKNESS	SINGLE LAYER	DOUBLE LAYER
7" OR LESS	#4 @ 12" CC EW	
8"	#4 @ 10" CC EW	
9" AND 10"		#4 @ 16" CC EW
11" AND 12"		#4 @ 12" CC EW

24. NOTIFY THE ENGINEER 48 HOURS PRIOR TO PLACING CONCRETE.
25. REINFORCEMENT LAP SPLICE LENGTHS ARE:

	3,000 PSI	3,500 PSI	4,000 PSI
#6 AND SMALLER	$44d_b$	$41d_b$	$38d_b$
#7 AND LARGER	$55d_b$	$51d_b$	$48d_b$

    - 25.1 SPLICE LENGTHS SHOWN APPLY TO LAP CLASS B NORMAL WEIGHT CONCRETE FOR THE STRENGTHS SHOWN. THE REINFORCING IS UNCOATED GRADE 60 REINFORCING.
    - 25.2 INCREASE LAP SPLICE LENGTHS BY 30% FOR TOP REINFORCING. TOP REINFORCING IS HORIZONTAL REINFORCING WITH MORE THAN 12" OF CONCRETE BELOW THE SPLICE.
    - 25.3 INCREASE LAP LENGTHS BY 30% IF LIGHTWEIGHT CONCRETE IS USED.
    - 25.4 WHERE CLEAR SPACING OF BARS IS LESS THAN 2 db OR WHERE CLEAR COVER IS LESS THAN 1 db INCREASE LAP LENGTHS BY 50%, UNO.
26. MAXIMUM SPACING OF WALL CONST. JOINTS IS 30ft.

GEOTECHNICAL:

1. FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT BY McMILLEN JACOBS ASSOCIATES, DATED DECEMBER 2020.
2. ALL BUILDING PAD PREPARATION AND FOUNDATION WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GEOTECHNICAL REPORT. COPIES OF THE REPORT MAY BE OBTAINED FROM THE ENGINEER UPON REQUEST.
3. THE GEOTECHNICAL ENGINEER SHALL OBSERVE ALL FOOTING EXCAVATIONS PRIOR TO PLACEMENT OF REINFORCING STEEL AND CONCRETE.
4. FOUNDATION DEPTHS INDICATED ON PLANS ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL DEPTHS ARE TO BE DETERMINED BY THE GEOTECHNICAL ENGINEER ON THE JOBSITE.
5. WHEN STRUCTURAL OBSERVATION IS REQUIRED, STRUCTURAL ENGINEER SHALL OBSERVE FOOTING REINFORCING STEEL PRIOR TO CONCRETE PLACEMENT. PROVIDE 48 HOURS NOTICE TO STRUCTURAL ENGINEER PRIOR TO CONCRETE PLACEMENT.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING, BUT NOT LIMITED TO, LAGGING, SHORING, AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS, AND UTILITIES IN ACCORDANCE WITH THE LOCAL BUILDING DEPARTMENT.
7. FOUNDATION TYPE:

SPREAD FOOTING ALLOWABLE PRESSURES:	
D+L	1,000 PSF (⅓ INCREASE FOR WIND/SEISMIC)
RETAINING WALLS:	
AT-REST SOIL PRESSURE	80 PSF/FT

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REGISTERED PROFESSIONAL ENGINEER
BRADLEY ALAN FRIEDRICHS
32780
EXP. 9/30/2021
STRUCTURAL
STATE OF CALIFORNIA

Project

TERRA PACIFIC
HEADWALL

VALLEJO, CA

Sheet Title

GENERAL NOTES

The undersigned Engineer does not represent that these plans or the specifications in connection therewith are suitable, whether or not modified for any other site than the one for which they were specifically prepared. The Engineer disclaims responsibility for these plans and specifications if they are used in whole or in part at any other site.

The contractor shall verify and be responsible for all dimensions and conditions on the job and this office must be notified in writing of any variation from the dimensions and conditions shown by these drawings.

This drawing is not final or to be used for construction until signed by the Engineer and owner.

All drawings and written material appearing herein constitute the original and unpublished work of the Engineer and the same may not be duplicated, used or disclosed without written consent of the Engineer.

Engineer	BAF
Drawn By	DGG

Revisions

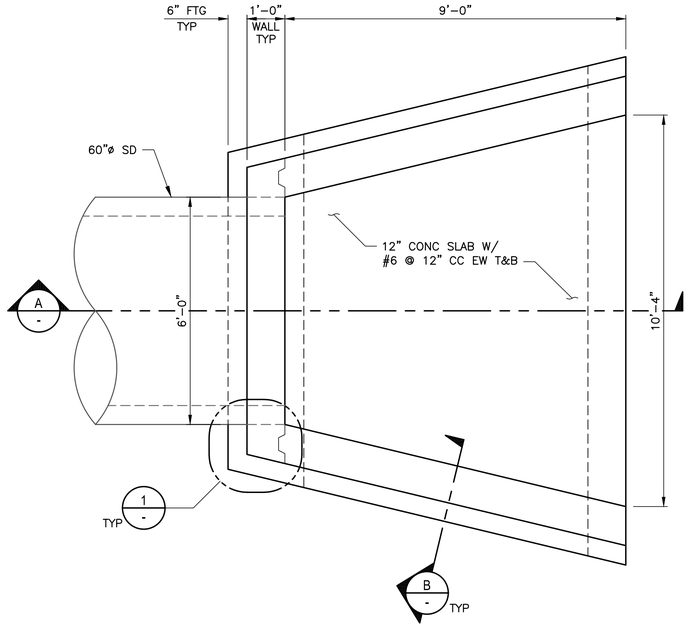
NO.	DATE	DESCRIPTION

Job No.	21006
Date	5/5/2021

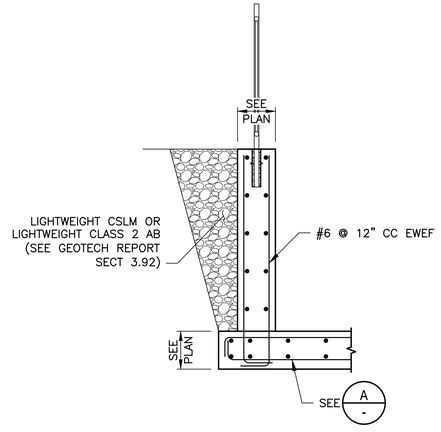
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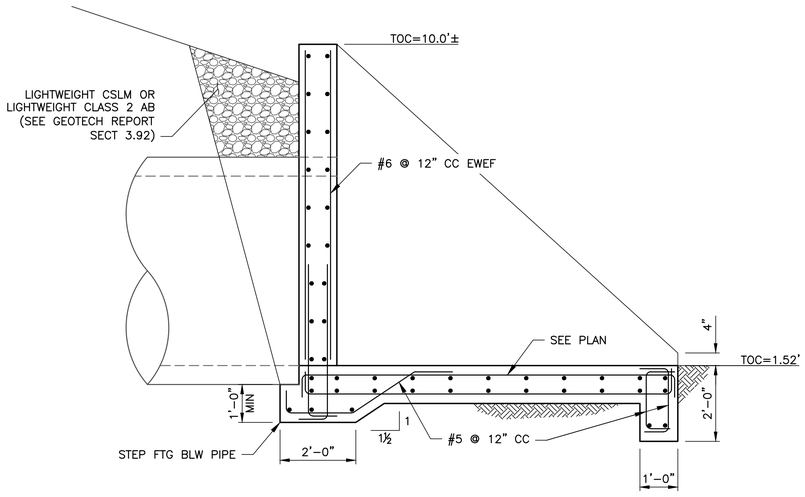
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PLOT DATE: May 05, 2021 - 12:32pm



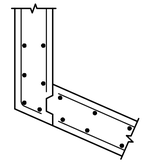
OUTLET PLAN
SCALE: ½"=1'-0"



SECTION
SCALE: ½"=1'-0"
B
-



SECTION
SCALE: ½"=1'-0"
A
-



OUTLET HEADWALL CONST JT
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1
-

FILE SPEC: Z:\21000 Jobs\21000\21006 Terra Pacific Headwall\CAD\21006 02 Plan & Sections.dwg
PLOT DATE: May 05, 2021 - 2:01pm

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REGISTERED PROFESSIONAL ENGINEER
BRADLEY ALAN FRIEDRICHS
92780
EXP. 9/30/2021
STRUCTURAL
STATE OF CALIFORNIA

Project

TERRA PACIFIC
HEADWALL

VALLEJO, CA

Sheet Title

PLAN & SECTIONS

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Engineer	BAF
Drawn By	DGG
Revisions	

NO.	*DATE*	*DESCRIPTION*

Job No.	21006
Date	5/5/2021

Drawing No.

S2.0