Appendix N

Sea Level Rise and Coastal Hazard Analysis

Sywest Industrial Building Project

Sea Level Rise and Coastal Hazard Analysis

prepared by

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July 2024

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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1 Introduction

This technical report presents the results of the sea level rise and coastal hazard analysis for the proposed Sywest Industrial Building Project (Project), located in Goleta, California. Due to the Project site's proximity to the ocean, the tidal waters of the Goleta Slough, and to San Jose, Atascadero, and San Pedro Creeks, this report assesses potential flooding on the Project site should sea level rise to the projected scenarios estimated for the California coastline.

Since the Project site is located in a low-lying area and close to the Pacific Ocean, inundation from future sea level rise is a threat to the Project site (Goleta Slough Management Committee 2015). Therefore, this technical report analyzes the potential for future inundation from sea level rise (e.g., coastal inundation due to storm surges) on the Project site. The findings of this study will also inform the design of the proposed Project to improve its resilience to sea level rise and coastal hazards from climate change, and to avoid negative impacts to the proposed Project from flooding on the Project site should the projected sea level rise occur. In addition, this technical report is intended to inform future planning, design, and management efforts to reduce sea level rise and coastal hazard impacts to the proposed Project from inundation.

The analysis followed the *California Coastal Commission Sea Level Rise Policy Guidance, Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits* (CCC 2018) (subsequently referenced in this report as Sea Level Rise Guidance) and the *State of California Sea Level Rise Guidance* (OPC 2018), which are currently considered by CCC as best available science. The Sea Level Rise Guidance (Chapter 6) recommends using different sea level rise scenarios depending on the type of the project and associated risk. To provide careful attention to minimizing risk to the proposed Project and avoiding impacts to coastal resources over the life of the Project, Rincon addressed the sea level rise and coastal hazards at the Project site based on the CCC requirements for addressing sea level rise in coastal development permits, and utilizing the methodology determined by CCC (2018). The analysis includes the following steps:

1) Establish the projected sea level rise range for the Project (see Chapter 3),
2) Determine how sea level rise impacts may constrain development on the Project site (see Chapter 4),
3) Determine how the Project may impact coastal resources over time, considering sea level rise (see Chapter 5), and
4) Identity project alternatives to both avoid resource impacts and minimize risks to the proposed Project (see Chapter 5).

Included in this technical report is a coastal hazard analysis that considers the potential of flooding from the creeks and a vulnerability assessment to tsunamis, as required by CCC (2018). This report utilized the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map to assess the potential for flooding from the creeks to occur on the Project site. A tsunami hazard assessment is included in this report based on maps prepared by the California Tsunami Program (State of California 2021). Analysis of coastal confluence flooding and the joint probability of creek flooding and storm surge is outside the scope of this study.

The Project site is located on an 11.77-acre site (5.98 acres to be developed) at 907 South Kellogg Avenue in Goleta, California. The Project site is identified as Assessor's Parcel Number 071-190-035. Site access is provided from South Kellogg Avenue via a paved access road that runs along the northeastern Project site boundary. Surrounding land uses include industrial uses to the north and west, the San Jose Creek flood control channel and State Route 217 to the southeast, and a tidal wetland/stormwater infrastructure to the southwest. The Project site was historically used as a drive-in movie theater. In addition, a public market was previously hosted on Sundays on the Project site. Operations of the public market and drive-in theater ceased in September 2022.

The Project involves development of a 70,594-square-foot industrial warehouse building with 60,939 square feet of landscaping and 102 parking spaces within the northern portion of the Project site (herein referred to as Development Area). For the construction of the Project, between 4 to 6 feet of fill would be imported to raise the existing grade of the Development Area and raise the finished floor elevation[1] (FFE) above the base floodplain elevation (BFE) on the Project site (Earth Systems Pacific 2023).

The Project site is located northwest of State Route 217 within the Coastal Zone. The entirety of the Project site is within a flood hazard zone area (Zone A), as defined by the FEMA and within an area subject to future sea level rise. San Jose Creek, located along the eastern Project site boundary, is designated as a riparian/marsh/vernal pool and considered to be an Environmentally Sensitive Habitat Area per the Conservation Element of the City of Goleta's (City's) General Plan. Land adjacent to the southwestern boundary of the Project site is also identified as an Environmentally Sensitive Habitat Area. In addition, a wetland delineation report concluded that the Project will not permanently impact state and federally regulated waters and wetlands. However, project construction will temporarily impact 588 square feet of waters of the U.S., which are regulated by the U.S. Army Corps of Engineers, Central Coast Regional Water Quality Control Board, and California Department of Fish and Wildlife (Watershed 2023). The Project site is just outside the tsunami hazard zone as indicated by the map updated on July 8, 2021, and prepared by the California Tsunami Program for Santa Barbara County (State of California 2021).

Since the City of Goleta does not have an adopted Local Coastal Program, the Development Plan must be reviewed and approved by the CCC following City review and action on the Project. The City would evaluate and determine the Project's consistency with City policies and regulations. The Project would be required to obtain a Coastal Development Permit from the CCC. The CCC would evaluate the Project's consistency with the California Coastal Act. Following discretionary approval from the CCC, the City has authority to effectuate the Coastal Development Permit and the Development Plan through issuance of a Land Use Permit.

Pursuant to a Development Agreement between the City and the Applicant, the Project will be reviewed under the previous zoning code (Article II, Coastal Zoning Code) as it existed prior to adoption of the "New Zoning Ordinance" (Municipal Code Title 17) in April 2020. However, all General Plan policies, including the uncertified Land Use Plan policies as well as those related to streamside protection area (SPA) buffers, remain applicable. As part of the Development agreement, the applicant will grant the City an easement on the project site for maintenance access to San Jose Creek. Although the previous zoning code does not include specific development standards related to SPA setbacks, General Plan Conservation Element Policy CE 2-2, *Stream Protection Areas,* which requires a 100-foot setback from San Jose Creek, is still applicable to the proposed project. However, Policy CE 2-2 specifies that the City can approve a reduction in the setback (to no less than 25 feet) based on a site-specific assessment if: 1) there is no feasible

[1] Finished Floor Elevation means the floor elevation of any portion of a residence or building as measured from topographic elevations based on the vertical datum adopted.

alternative siting for development that will avoid the SPA upland buffer; and 2) the project's impacts will not have significant adverse effects on streamside vegetation or the biotic quality of the stream.

This technical report includes:

1) Introduction (this Section);
2) Local Background, which presents regional characteristics, and discussing sea level rise and flood history at the Project adjacencies (this Section);
3) Existing Datasets and Reports, which presents information about the proposed Project, topographic characteristics for the site, and data to support the sea level rise study (Section 2);
4) Sea Level Rise Analysis Methodology, which presents the National Oceanic and Atmospheric Administration's (NOAA) value for the extreme water level, chosen value for sea level rise scenario, and the calculation of the design water level (Section 3);
5) Analytical Results and Findings, which discusses the results obtained from the sea level rise analysis at the Project site (Section 4);
6) Conclusions and Recommendations, which includes measures to minimize potential impacts (Section 5); and
7) References, which includes the resources and references used for this study (Section 6).

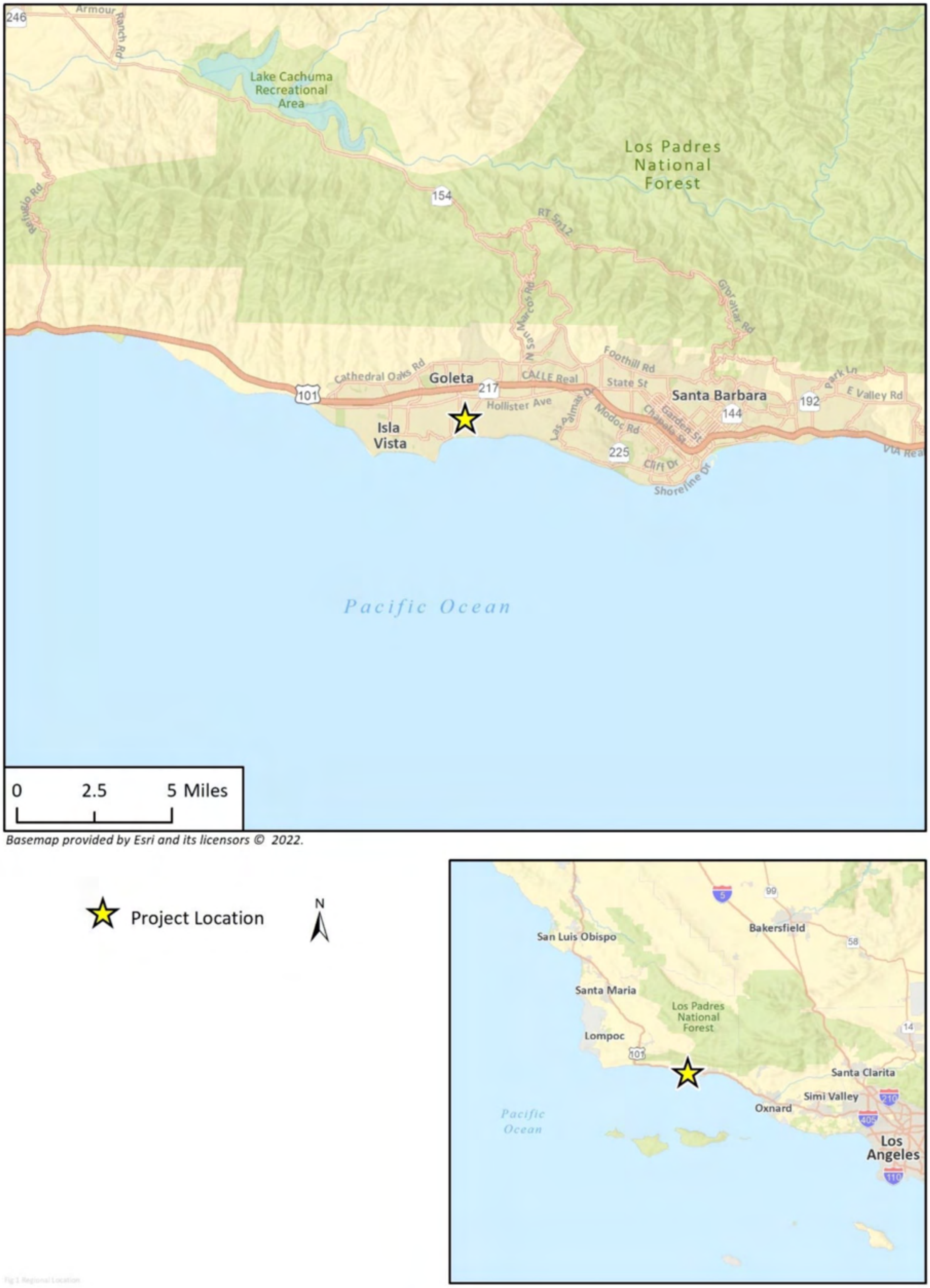
The units of measurement used in this report are in Imperial Units (e.g., inches, feet, miles), and the vertical datum used is the North American Vertical Datum 1988 (NAVD88).

1.1 Regional Location

The Project site is located northwest of State Route 217 (Figure 1) near Goleta Beach County Park and Goleta Slough. The Project site is situated in a low-lying coastal area that comprises the Santa Barbara Airport and industrial land, which will likely be subjected to future inundation from sea level rise and coastal flooding due to climate change forecasted over the next several decades (Goleta Slough Management Committee 2012). Figure 2 presents the Project location and shows the Project site boundary, the Development Area (i.e., the area of the Project site that would be developed with the industrial warehouse building), and the location of the transects used for the sea level rise and coastal hazard analysis (Transects A, B, C, and D).

The Project site fronts San Jose Creek and is near Atascadero and San Pedro Creeks (Figure 2). These creeks are subjected to tidal fluctuation that could inundate the Project site due to flooding and coastal inundation during extreme meteorological-marine events (e.g., storm surges, king tides) and expected future sea level rise (Goleta Slough Management Committee 2012). Southwest of the Project site is the Old San Jose Creek, a concrete-lined channel that is the prior alignment of San Jose Creek. However, the Old San Jose Creek still serves to convey local drainage from the surrounding developed area. The Old San Jose Creek discharges into San Jose Creek through two 48-inch culverts with flap gates. The flap gates are designed to prevent coastal flooding at the Old San Jose Creek and its adjacent lands (City of Goleta 2020).

Figure 1 Regional Location



Basemap provided by Esri and its licensors © 2022.

Figure 2 Project Location and Transects A, B, C, and D

Imagery provided by Microsoft Bing and its licensors © 2023.
Additional data provided by National Wetlands Inventory, 2021.

The coastline of the city of Goleta is characterized by long and narrow beaches, eroding coastal cliffs and sand-deprived shorelines, and two coastal wetlands: Goleta Slough and Devereux Slough (City of Goleta 2015). Goleta Beach County Park, a south-facing beach, is located south of the Project site. According to Goleta Slough Management Committee (2015), surveys carried out at Goleta Beach County Park indicate that the typical beach berm crest elevation is approximately 10 feet (NAVD88) during fall and early winter (typically the highest elevation) and aids in preventing coastal inundation. Goleta Beach County Park has a narrow shoreline and is armored with riprap, and is experiencing an erosional trend that is anticipated to exacerbate as sea level rises (Goleta Slough Management Committee 2015). However, since the Project site is located approximately 0.6 mile north of Goleta Beach County Park, it is unlikely that it will be impacted by shoreline erosion, wave runup, wave overtopping, or worsening of wave storms due to climate change impacts.

Goleta Slough, situated about 0.5 mile southwest of the Project site, is a tidal estuary adjacent to the Pacific Ocean and intermittently open to tidal exchange. As many California estuaries are, the slough is subjected to natural pressure (extreme flooding events), and pressures due to urban development (e.g., airport, buildings, roads) (Myers et al. 2017). When the Goleta Slough inlet naturally closes with beach sand, it increases its water level and consequently increases flood risks within Goleta Slough and adjacent areas, and diminishes its capacity to convey the tributary creeks' stormwater runoff (Goleta Slough Management Committee 2015). Presently, the estuary is vulnerable to coastal flooding from major storms, to inundation from sea level rise and storm surges, and to siltation from increased flooding along creeks (City of Goleta 2015). In addition to its biological and ecological value, Goleta Slough is also important for protecting the adjacent areas against flooding due to its floodwater storage capacity (Goleta Slough Management Committee 2012).

The Goleta Slough watershed is about 45 square miles and includes the drainages of seven creeks including San Jose and Atascadero creeks, located southeast of the Project site, and San Pedro Creek, situated west of the site (Goleta Slough Management Committee 2012). The annual flow in these creeks is dependent on the amount of rainfall in their watersheds. These creeks are influenced by the mixed semidiurnal tide type (two daily high tides separated by low tides, each with unequal height and unequal amplitude for tidal cycles). The tidal influences extend from the mouth of Goleta Slough at Goleta Beach County Park up to its tributary streams (Goleta Slough Management Committee 2012).

1.2 Sea Level Rise

Sea level rise is an increase in the level of the ocean due to the effects of global warming. Over the last century, ocean thermal expansion[2] was the sole major contributor to global mean sea-level rise, accounting for about 50 percent of sea level rise. The remaining 50 percent was from the melting of mountain glaciers and ice caps, and the loss of ice from the great polar ice sheets that cover Greenland and Antarctica. While these ice sheets are not expected to melt completely on the centennial or millennial timescale, the melting of fraction of them would raise sea level substantially, with catastrophic consequences for global shorelines (NOAA 2022).

Sea levels in California are expected to rise in the coming decades as a result of global greenhouse gas emissions. Of special importance for California is future redistribution of ice and water caused by the retreat of the polar ice sheets, especially on Antarctica (OPC 2017). It is anticipated that until

[2] Thermal expansion occurs when water gets warmer, causing the volume of water to expand.

the mid-century, the most damaging events for the California coast will be dominated by large El-Niño-driven storm events in combination with high tides and large waves. By the end of the century, as sea levels continue to rise, scientists project that even small storms will cause substantial damage and large events will have unprecedented consequences (CCC 2018). The negative impacts of sea level rise include regular rising tides, coastal erosion, wave impact, storm flooding, and fluvial flooding. Climate change is expected to increase the rate of sea level rise dependent on the extent of warming temperatures.

Large portions of the California coast are susceptible to coastal erosion. As sea levels rise, the amount of time that beaches are exposed to waves and abnormally high tides increases, furthering beach erosion and substantially narrowing the width of the beaches (CCC 2018.). Sandy beaches and dunes are at risk of erosion related to sea level rise, with low-lying areas, such as those in the City, being at particular risk (OPC 2017). Furthermore, climate change may cause low-lying coastal areas to experience more frequent flooding and an increase in the inland extent of 100-year coastal floods.

Rising sea levels will cause waves to force water further inland, especially during coastal storm events (OPC 2017). If waves become larger and more frequent, they are expected to increase erosion of coastline, possibly damaging properties, and development. These impacts would also affect roads, residential areas, parks and open space, critical facilities, as well as commercial and industrial areas along California's coastline.

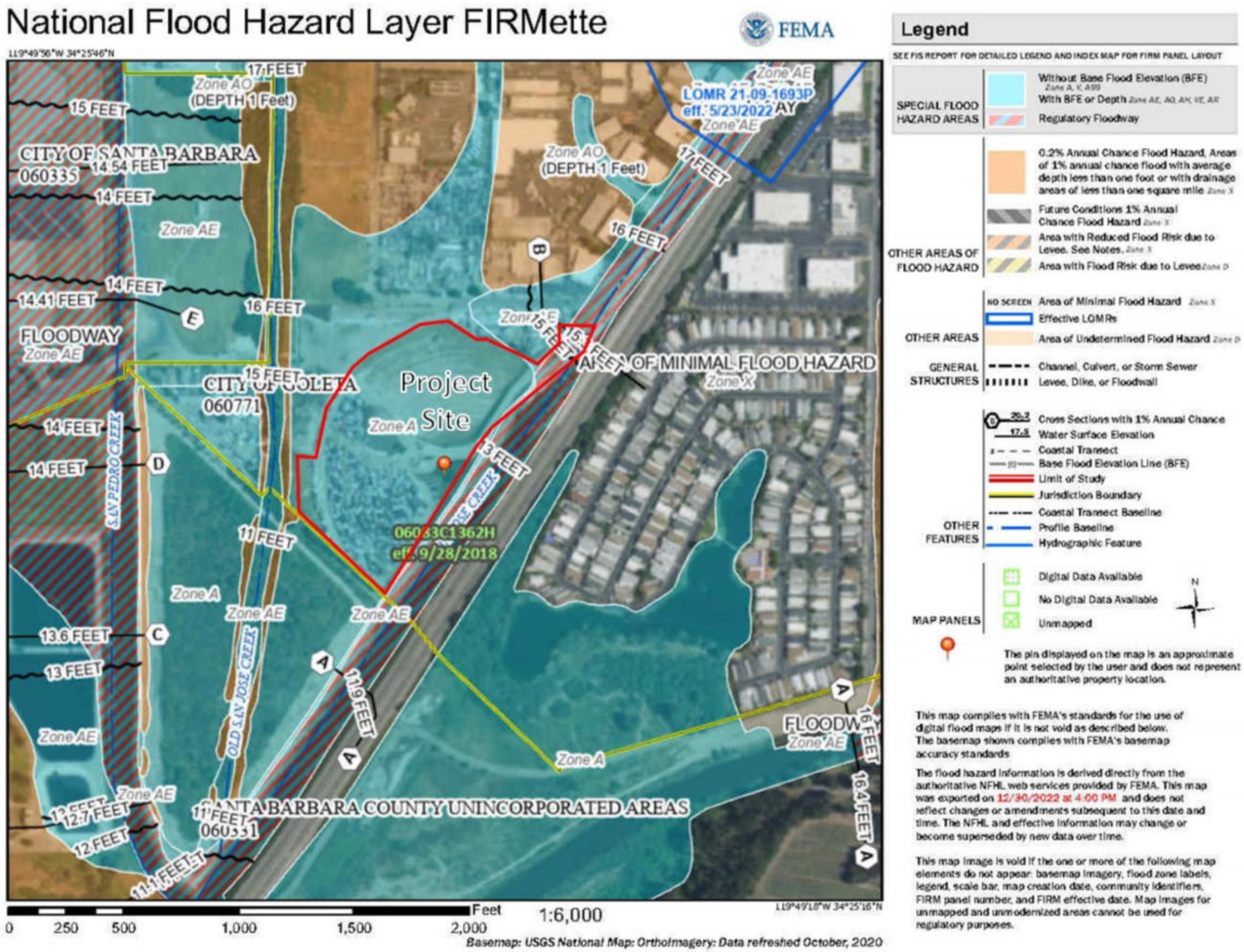
1.3 Flood History at Goleta Slough and Adjacent Creeks

In the existing condition, rainfall on the project site surface flows from north to south toward the southern property line and San Jose Creek. It is collected and pumped from there into existing outlets into San Jose Creek. Off-site stormwater does not enter the project site due to the presence of an existing earthen berm around the project site.

Due to the distance from the ocean, fluvial flooding from San Jose Creek is the primary inundation risk for the Project site. Since the site is in a low-lying area, it also has topographic connectivity with Goleta Slough (Goleta Slough Management Committee 2015). In the case of an extreme water level event, the southwestern portion of the Project site would be affected by flooding at Goleta Slough. The FEMA Flood Insurance Rate Map for the Project site is Map No. 06083C1362H, effective on 09/28/2018. The FEMA map indicates that the Project site is situated in a flood hazard area (Zone A), which has a 1 percent annual chance of flooding. The Project site is not within the Regulatory Floodway.[3] However, the adjacent San Jose Creek channel has a designated Regulatory Floodway with a BFE of 13 feet (NAVD88) (Figure 3, Project site boundary is shown in red.). The FEMA map does not consider water elevation due to future sea level rise. FEMA maps also do not consider certain scenarios, such as a closed Goleta Slough inlet which could contribute to increase flooding impacts at the Slough's adjacency. In addition, the FEMA maps do not consider the earthen berm that surrounds the project site because the berm lacks the characteristics required to meet the definition of an accredited levee recognized by FEMA. Therefore, the FEMA map depicts the project site as located within a 100-year floodplain even though the site, in its current condition, would not be inundated by the 100-year flood (Stantec Consulting Service Inc. 2023b).

[3] A Regulatory Floodway is the channel of a river and the adjacent areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Figure 3 FEMA Flood Map for the Project Site



Prior to 1861, the Goleta Slough was part of a permanently flooded, shallow estuarine embayment. During the 1861–1862 winter, drastic floods deposited a massive amount of sediment that changed the dynamics of the area, creating a shallow lagoon with extensive adjoining intertidal wetlands. After this event, major El Niño events caused localized floods that added large amounts of sediment and debris into Goleta Slough once the flow velocities dropped as the creeks' flows entered the slough (Goleta Slough Management Committee 2015).

Consequently, the high input of sediment and debris combined with the development and channelization of the creeks reduce their capacity to convey floodwater through development areas. Therefore, the Santa Barbara County Flood Control District and the City implement a maintenance program to regularly remove sediment from the creeks. The maintenance program includes San Jose, Atascadero, and San Pedro creeks and is essential to improve flood protection at the creeks' vicinity. The program increases the creeks' capacity to convey flood flows and reduces the potential of flooding in the areas adjacent to the creeks and the slough, including the area of the Project site (City of Goleta 2020).

Two major floods occurred at Goleta Slough in the last century causing damage to the facilities adjacent to the Slough, including to the Santa Barbara Airport located, 0.4 mile west of the Project site. These events happened when high stream flow occurred simultaneously with high water levels at Goleta Slough due to high tides. The largest event happened in 1969 with the highest water level, exceeding 12 feet (NAVD88), observed in Goleta Slough. The second largest event occurred in 1995, when the water level reached 10 feet (NAVD88) (Goleta Slough Management Committee 2015).

The peak stream flows in Atascadero Creek registered 4,000 cubic feet per second in 1969 and 10,000 cubic feet per second in 1995. Even though the flow was greater in 1995, the structural improvements and widening of the creek made after the 1969 event contributed to reducing the overflow into Goleta Slough. The fact that in 1969 the water elevation was higher and ocean conditions were worse indicates that floods at Goleta Slough are not only driven by precipitation and stream flow. The combination of a high volume of precipitation with storm surges, even for a short period of time, could generate water level elevation higher than estimated in this report, previous studies, and sea level rise models (City of Goleta 2015).

The inlet of Goleta Slough naturally closes with beach sand periodically that increases water levels in the slough, consequently increasing flood risks. Prior to 2012, these natural closures were managed and mechanically opened by breaching the inlet by the Santa Barbara County Flood Control District. Since the management program was discontinued in 2013, emergency permits for opening the inlet have been required on four occasions to reduce flood risks. These were in March and May 2013 and February and December 2014, when heavy rains raised the water level elevation at the Slough, causing an imminent risk of flooding in the adjacent areas (Goleta Slough Management Committee 2015). This makes the management program of Goleta Slough essential to reduce flooding risks in the adjacent areas and improve creeks' flood conveyance capacity. Even though Goleta Slough is 0.5 mile south of the Project site, the slough and Project site are topographically connected due to the low-topography of the area.

All creeks within the city exhibit some level of flood hazard. The most extreme flood hazards occur within the eastern portion of the city, with extensive flood risk in Old Town. During the Winter 2017, a major storm caused structural damages to approximately 100 feet of the San Jose Creek channel. An emergency repair project took place and restored the damaged area. Additionally, the City has invested in projects such as the San Jose Creek Flood Control and Fish Passage Project and the San

Jose Creek Channel Improvement Project. All these projects aided in substantially lessening flood risks and increasing the San Jose Creek flood conveyance capability (City of Goleta 2020).

With the worsening of climate change, flood hazards at the Project area are likely to increase in frequency. Therefore, a Stormwater Control Plan and a Preliminary Drainage Design engineering report were prepared for the proposed Project that calculated the return period for flooding events at the site. The reports presented the calculation of the BFE of San Jose Creek at the Project site, determined the required FFE of the proposed industrial building to reduce risk of flooding to the proposed Project, and verified that the sizing of the proposed drainage features would adequately convey storm flows (Stantec Consulting Service Inc. 2023a). As stated above, the earthen berm surrounding the site is not an accredited levee; therefore, the BFE for the San Jose Creek was used to determine the potential flood elevation on the project site for purposes of analyzing flood risk and determining the required FFE of the proposed industrial building. Because the berm currently prevents the project site from being inundated during a 100-year storm event, this represents a conservative estimate of the maximum flood levels on the project site that could occur if the berm were not in place to keep flood waters from entering the project site.

2 Existing Datasets and Reports

This report assesses potential future inundation on the Project site from projected future sea level rise, flood risks from the creeks, and tsunami risk. The sea level rise and coastal hazards analysis for the Project relies on the following:

- Best available science, as stipulated by CCC (2018).
- State guidance, methods, and recommendations specified in the CCC's and OPC's 2018 sea level rise guidance (discussed in Section 2.1).
- Publicly available data for the Project site, including flood maps from FEMA (discussed in Section 1.2), Lidar dataset (discussed in Section 2.4), results from the U.S. Geological Survey (USGS) Coastal Storm Modeling System (CoSMoS) utilized for a large-scale analysis (discussed in Section 2.2), and tsunami maps from California Tsunami Maps and Data (discussed in Section 2.5).
- Technical and engineering reports prepared for the proposed Project (discussed in Section 2.3). The Preliminary Grading and Drainage Plan shows topographic Sections with the proposed grading and fill within the Development Area (Appendix A). The Geotechnical Engineering Report presents preliminary geotechnical recommendations, including soil parameters, grading design, ground motion, seismic design parameters, potential for soil liquefaction, and groundwater level.
- Previous studies conducted at the vicinity of the Project site. These studies provided additional information regarding sea level rise and coastal hazard at the Project site, characterize the conditions of the city's creeks, including San Jose, Atascadero, San Pedro, and Old San Jose creeks, and informed about management plans for Goleta Slough and city creeks (discussed in Section 2.3).

2.1 Best Available Science

The CCC 2018 SLR Guidance document defines best available science as:

> At the time of this 2018 update, the best available science on sea level rise in California is the 2018 OPC Guidance, State of California Sea-Level Rise Guidance: 2018 Update (See Table 2 and Appendix G). As discussed in greater detail in Chapter 3 of this Guidance, these projections should be used in a scenario-based analysis to identify potential local impacts from sea level rise, incorporating storms, extreme water levels, and shoreline change. Other authoritative sea level science and projections may also be used, in part or in full, provided they are peer-reviewed, widely accepted within the scientific community, and locally relevant. The Commission will re-examine the best available science periodically and as needed with the release of new information on sea level rise4. In addition, Commission staff intends to submit a periodic status report to the Commission describing updates on the best available science and adaptation practices, and any potential recommended changes to the Guidance document.

[4] "Major scientific reports include the release of National and State Climate Assessments, IPCC Assessment Reports, and/or State guidance."

Currently, according to CCC (2018), the best science available for sea level rise projections along California's coast is based on Kopp et al. (2014). Appendix A of the Sea Level Rise Guidance (CCC 2018) provides a detailed discussion on the selection of Kopp (2014) study as the best available science in sea level rise science and in determining probabilistic projections for sea level rise in California. In February 2022 the OPC released a *State Agency Sea level Rise Action Plan for California* (Sea Level Rise Leadership Team 2022). This report still recognizes the CCC (2018) Sea Level Rise Guidance as the best available science for sea level rise projections in California's coast. Therefore, the sea level rise scenario determined in this study was obtained from CCC (2018).

2.2 CoSMoS Data

CoSMoS is a model developed by USGS that projects coastal flooding and shoreline changes due to sea level rise and coastal storms caused by climate changes. The model presents results for most California coastal locations, including the City of Goleta. It is a tool used to inform planners and decision-makers about potential future flooding impacts due to sea level rise and coastal storms. The model's results include long-term changes on shoreline position and bluffs due to erosion driven by sea level rise, flood projection for multiple coastal storms return periods and sea level rise scenarios, and projection on ground water level due to sea level rise. CoSMoS' outputs are accessible on the *Our Coast Our Future* website, and all data is publicly available.

CoSMoS results were utilized to assess potential inundation on the Project site from coastal flooding and changes to the groundwater table depth due to sea level rise. Even though CoSMoS is a powerful tool producing results useful for adaptation planning and to evaluate coastal hazard at local and regional scale, the model has its uncertainty. This study uses CoSMoS' result for the minimum and maximum potential range of flood extent from sea level rise to determine the potential for flood exposure at the Project site. The minimum and maximum flooding output shows the potential range of flood extent that may be experienced under any given sea level rise scenario. This range accounts for model uncertainty related to 1) model accuracy for prediction of total water levels, 2) underlying topographic elevation data, and 3) projections of vertical land motion (Barnard et al. 2019).

Because the model captures the existing topography on the Project site, this sea level rise and coastal hazard study used results from CoSMoS to determine the potential for coastal inundation on the Project site due to sea level rise before the construction of the proposed industrial building and without considering the FFE. The results for minimum and maximum flooding considered 6.6 feet of sea level rise and a 100-year storm scenario. See Section 4.1 for a discussion of the sea level rise CoSMoS results.

This study also considered the groundwater depth changes that would result from 6.6 feet of sea level rise. CoSMoS presents changes in the groundwater table due to sea level rise considering three different subsurface geology scenarios. These scenarios are defined as less permeable, moderate, and more permeable (Befus 2020). Based on results from the geotechnical report, this study assessed groundwater depth changes using the less permeable subsurface geology scenario. See Section 5.3 for a discussion of the groundwater CoSMoS results.

This report utilized CoSMoS data per CCC recommendations, as well as a site-specific sea level rise analysis described in Chapters 3 and 4. CoSMoS is a well-known tool that has been used for a variety of climate vulnerability and adaptation activities. Therefore, in this report CoSMoS provided 1) an initial determination of potential flooding due to sea level rise on a larger scale, and 2) results of the groundwater depth changes due to sea level rise. Conducting an additional site-specific analysis allowed consideration of the specific conditions of the Project site such as the Project life expectancy, the proposed FFE, sea level rise projections and extreme water level elevations determined from NOAA's station closer to the proposed Project. Consequently, the site-specific analysis provided additional detail on the potential impacts of sea level rise at the Project site.

2.3 Technical Reports and Previous Studies

Additional information regarding flood hazards and engineering considerations to avoid flooding at the Project site can be found in the Stormwater Control Plan and Preliminary Drainage Design engineering reports prepared for the proposed Project in 2022. Both documents consider potential flooding from San Jose Creek on the Project site based on the 100-year floodplain as mapped by FEMA. As discussed previously, the earthen berm surrounding the project site is not an accredited levee; therefore, the BFE for the San Jose Creek was used to determine the potential flood elevation on the project site for purposes of analyzing flood risk and determining the required FFE of the proposed industrial building. Because the berm currently prevents the project site from being inundated during a 100-year storm event, this represents a conservative estimate of the maximum flood levels on the project site that could occur if the berm were not in place to keep flood waters from entering the project site (Stantec Consulting Service Inc. 2023b). The Stormwater Control Plan evaluated opportunities and constraints for stormwater control at the site. Due to the low-lying and bowl-shaped characteristics of the Project site, the Stormwater Control Plan determined that a substantial amount of fill will be needed to elevate the proposed industrial warehouse building in order to direct drainage flows by gravity and protect the proposed building from flood inundation. In addition, the Project will include a drainage basin to reduce the post-Project stormwater runoff peak flow rate to at or below the pre-Project flow rate for the 2-, 5-, 10-, 25-, 50-, and 100-years rainfall events. The description of the new grading elevation is detailed in the engineering drawings for the Project (Appendix A), prepared on January 8, 2018, and revised on February 17, 2023. The drawings indicate that portions of the Development Area (Figure 2) will be raised to an elevation of approximate 15 feet (NAVD88) and the FFE will be at 16.5 feet (NAVD88).

The Preliminary Drainage Design report assessed the major drainage features of the Project site, floodplain safety, detention basin sizing, on-site storm drain sizing, and overland escape evaluation and verified that the sizing of the stormwater features to adequately convey stormwater flows (Stantec Consulting Service Inc. 2023a). The report determined that the BFE for the San Jose Creek floodplain at the Project site is 14.4 feet (NAVD88). Based on this BFE, the FFE for the proposed industrial warehouse building was determined to be 16.5 feet (NAVD88), which is 2 feet higher than the BFE. Therefore, the analysis of sea level rise and coastal hazard impacts presented in this report uses the 16.5 feet (NAVD88) elevation as grade elevation or FFE for the Project.

Appendix A presents the Preliminary Grading & Drainage Plan for the project as well as preliminary utilities and details, and topographic easement map. Appendix B presents engineering drawings from the Stormwater Control Plan for the Project showing the FFE for the proposed building. Additional discussion regarding the methods for calculating the BFE and defining the FFE can be found in the referenced engineering reports prepared for the Project.

Previous studies conducted by the City of Goleta, the County of Santa Barbara, and the Goleta Slough Management Committee were utilized to characterize the current vulnerability of the Project site and its vicinity to sea level rise and coastal hazards (City of Goleta 2015; County of Santa Barbara 2016, 2017; Goleta Slough Management Committee 2015). The previous studies also informed the existing conditions of the City of Goleta's creeks and the management plans adopted for the creeks and for Goleta Slough that would benefit the Project site minimizing its risks of being negatively impacted by the projected sea level rise (Goleta Slough Management Committee 2012, City of Goleta 2020).

2.4 Lidar Data

The topography of the Project site and its adjacency were characterized using a high-resolution Digital Elevation Model (DEM) obtained from the 2018 USGS Lidar: Southern California Wildfires, downloaded from the NOAA Data Access Viewer website managed by the NOAA Office for Coastal Management. The data was collected every 1 foot and presents a grid-size resolution of 3 feet by 3 feet. The data was downloaded in California State Plane, Zone 05, feet, NAD83 for the horizontal datum, and NAVD88, feet for the vertical datum. The vertical accuracy of the 2018 Lidar is 0.17 feet (5.3 centimeter). The 2018 Lidar data provided high resolution coverage for the Project site. This enabled Rincon's Coastal Scientist to determine the potential for coastal inundation at the Project site due to sea level rise.

The 2018 DEM was used to conduct spatial analysis on Geographic Information System (GIS) software to better understand how sea level rise could affect flooding at the Project site. The DEM was modified at the Project site to include the proposed industrial warehouse building with the proposed FFE of 16.5 feet (NAVD88) (Figure 4). The result of the spatial analysis using the modified DEM was a water level surface at the elevation of the design water level[5] (discussed in Section 2.5), which indicates potential flood levels on the Project site if the projected sea level rise occurs. In addition, four topographic transects at the Project site were extracted from the DEM to detail the potential flood levels resulting from sea level rise on the Development Area considering the FFE at 16.5 feet (NAVD88) and within the Project site boundary. The location of the transects are presented in Figure 2.

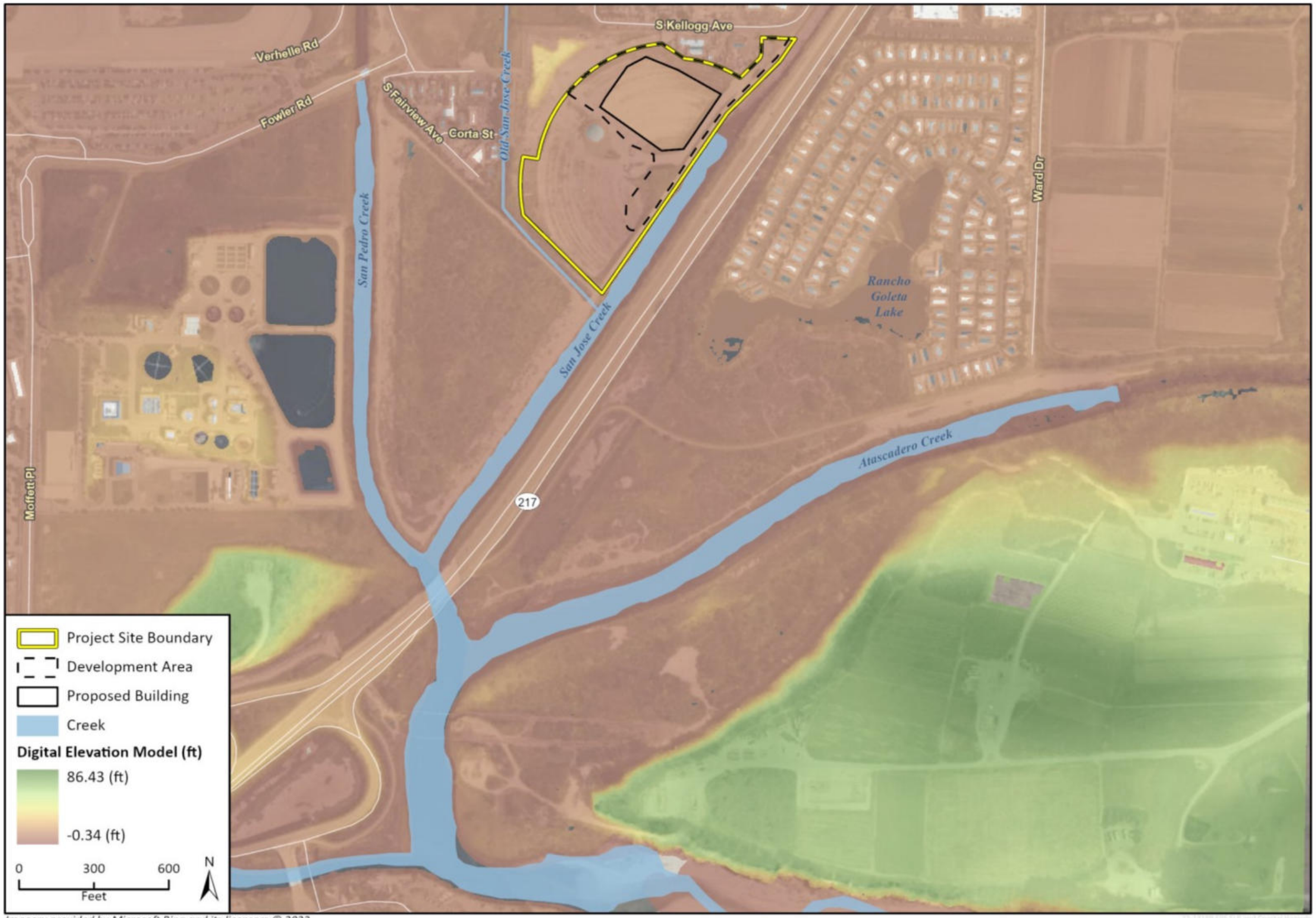
The raising of the existing grade proposed by the Project, as shown in the topographic section presented in Sheet 2 of Appendix A, was not included in the modified DEM since it is not uniform, yet it is important to mention that according to the Preliminary Grading & Drainage Plan, in addition to the FFE of 16.5 feet (NAVD88), a portion of the Project site (Development Area in Figure 2) will be raised on fill to 14-15 feet (NAVD88). This raise on fill was manually added to topographic transects extracted across the Development Area based on topographic sections from sheet 2 in Appendix A.

2.5 California Tsunami Maps and Data

The California Tsunami Program in cooperation with the California Geological Survey prepared California Tsunami Hazard Area Maps and Data to assist coastal cities and counties with identifying tsunami hazards within their jurisdiction. In addition, the Tsunami Hazard Maps were prepared to assist cities and counties in identifying tsunami hazards for response planning. These maps are publicly available on the California Department of Conservation website. The maps are based on the State of California 2009 Tsunami Inundation Maps for Emergency Planning and show the coastal areas that could be exposed to tsunami hazards during a tsunami event. They are modeled based on inundation limits for the 975-year return period tsunami event and prepared using the best currently available science. The maps are regularly updated. This study used the Tsunami Hazard Area Map for the County of Santa Barbara, updated on July 8, 2021 (Figure 5).

[5] Design water level elevation is the elevation used to conduct the sea level rise analysis and was obtained by adding the value for the projected sea level rise value to the value for the 1 percent annual exceedance probability of extreme water conditions.

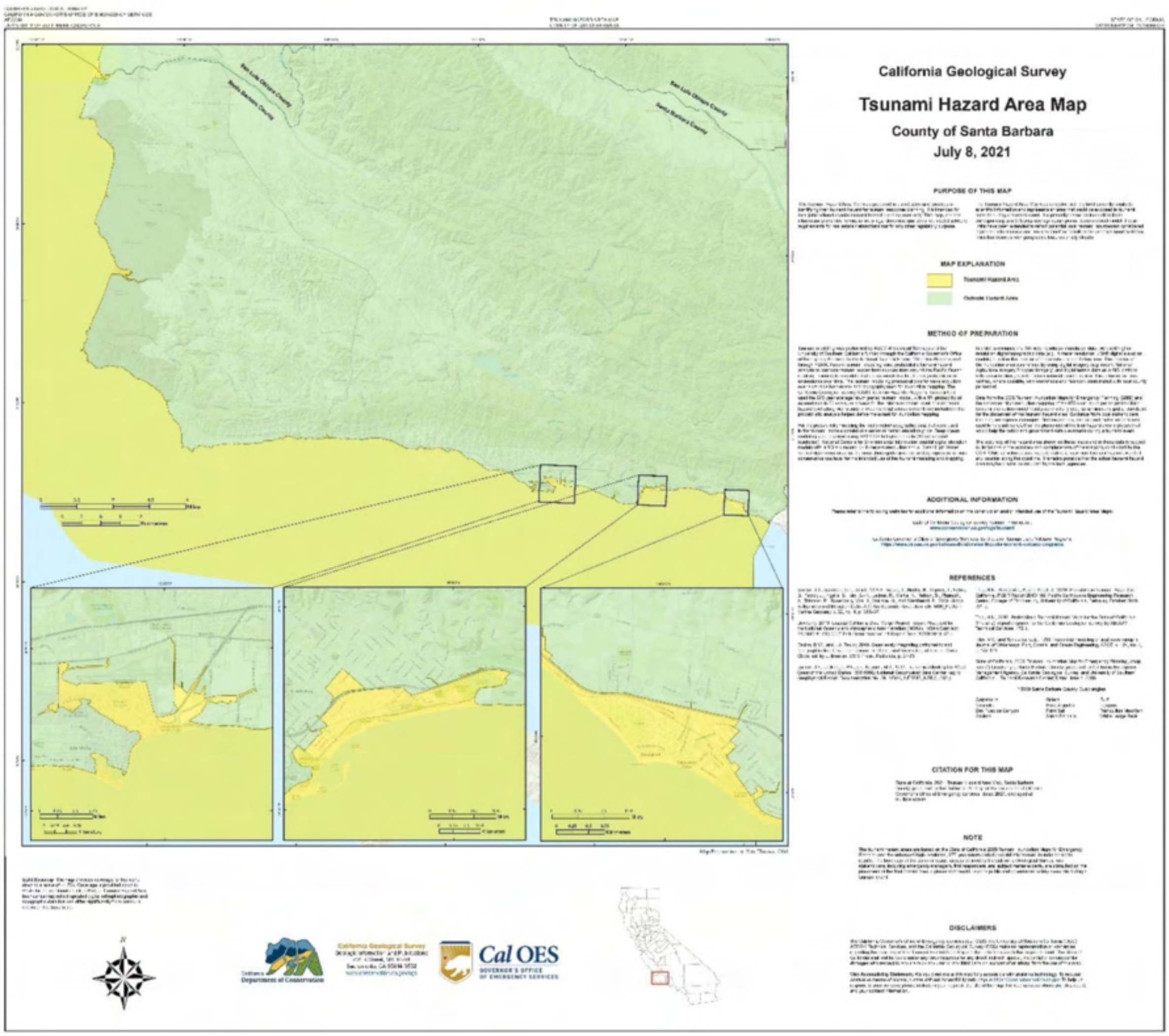
Figure 4 2018 Digital Elevation Map



Imagery provided by Microsoft Bing and its licensors © 2023.
Additional data provided by National Wetlands Inventory, 2021; NOAA, Lidar, 2018.

DEM extracted from 2018 Lidar data and modified to add the FFE of 16.5 feet (NAVD88) at the proposed Project location (estimated from the engineering draws). Elevations are in NAVD88.

Figure 5 Tsunami Hazard Area Map for the County of Santa Barbara

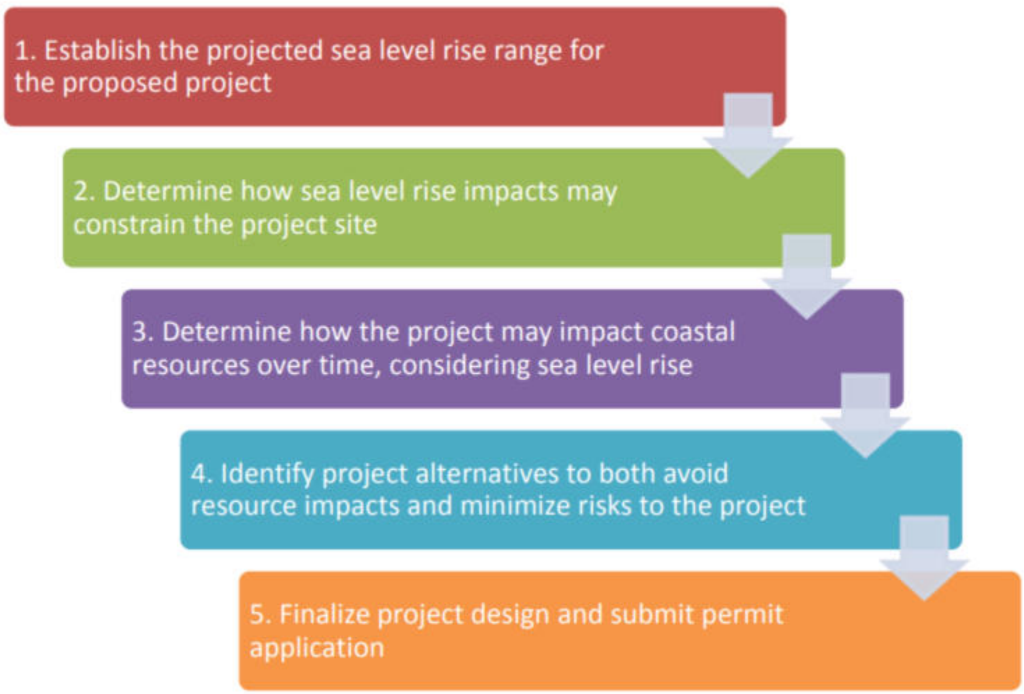


Updated in July 8, 2021.

3 Sea Level Rise Analysis Methodology

The methods outlined in each subsection below are inclusive of methods common to CCC for addressing sea level rise in coastal development permits and incorporate additional available data metrics or procedures that benefit the sea level and coastal hazard analysis and its ability to evaluate the potential impacts of sea level rise on the Project during its life expectancy. The CCC Sea Level Rise Guidance stipulates a detailed process for addressing sea level rise as part of Coastal Development Permits. The process is presented in Figure 6 below. Furthermore, the parameters used to conduct the sea level rise analysis, as well as the methodologies applied and described in the following sections, and the discussion of the results and conclusion presented in the following chapters follow CCC's process for addressing sea level rise in Coastal Development Permits (Figure 6). This report is intended to demonstrate compliance with Steps 1-4. Step 5 is intended to occur subsequent to the CEQA process.

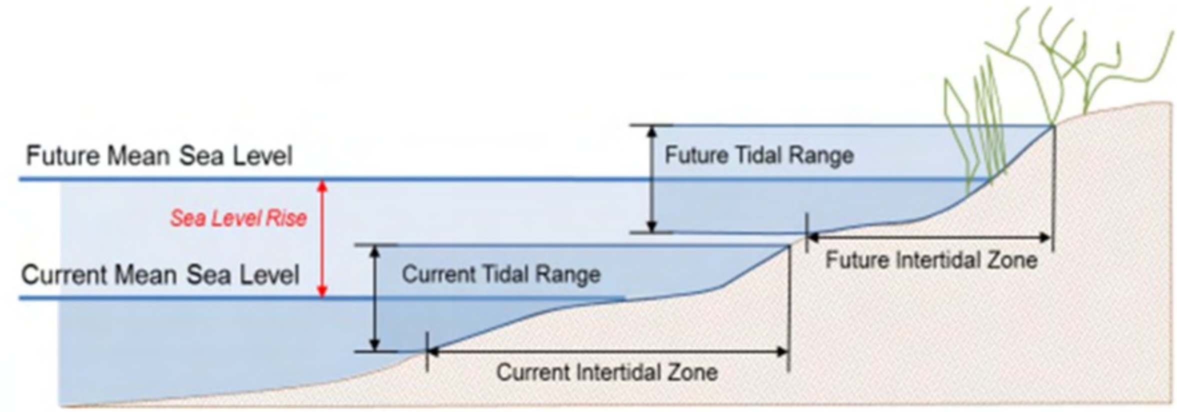
Figure 6 Process for Addressing Sea Level Rise in Coastal Development Permits



Source: CCC 2018

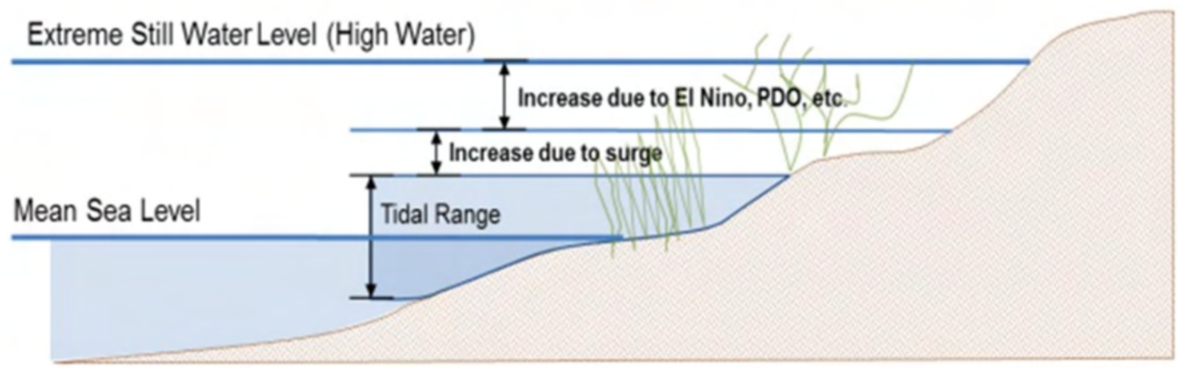
Sea level rise projection defined by OPC (2018) for the California coastline and probabilistic extreme water levels elevation from NOAA were used to 1) design the water level elevation, and 2) to conduct a site-specific analysis within the Project site boundary to estimate the potential coastal inundation on the proposed Project site due to sea level rise. Figure 7 and Figure 8 presents a graphical representation of mean sea level elevation changes due to sea level rise (Figure 7), and the changes of water level in case of extreme events (e.g., storm surges, El Niño, and Pacific Decadal Oscillations [PDOs] events) (Figure 8). The design water level elevation is determined by adding the values for the defined sea level rise scenario to the defined probabilistic extreme water levels elevation.

Figure 7 Representation of Changes to Tide Range and Intertidal Zone Due to Sea Level Rise



Source: CCC 2018

Figure 8 Representation of Changes on Water Level Due to Extreme Events



Source: CCC 2018

This technical study used the following parameters to conduct the site-specific sea level rise analysis for the proposed Project:

- FFE at 16.5 feet (NAVD88), discussed in Section 2.3.
- Life expectancy of the Project until 2100, discussed in Section 3.1.
- Sea level rise projection of 6.6 feet considering the Medium-High Risk Aversion Scenario for the Santa Barbara Tide Gauge, discussed in Section 3.1.
- Extreme water level elevation from NOAA tide gauge at Rincon Island at 8.18 feet (NAVD88), discussed in Section 3.2.
- Design water level elevation for the extreme scenario in 2100 at 14.78 feet (NAVD88), discussed in Section 3.3.

A detailed description of the method to define the chosen parameters for a site-specific analysis at the Project site are discussed in the following sections.

3.1 Sea Level Rise Projection

State of California sea level rise policy guidance is evolving rapidly as important advances in sea level rise science unfold. Guidance regarding projected sea level rise in California is outlined in the CCC's and OPC's 2018 sea level rise guidance. As mentioned in Section 2.1, these are considered by CCC the best available science for sea level rise projection along California's coast. The CCC sea level rise policy guidance utilized the values recommended for sea level projections by the OPC. These consist of Low Risk Aversion (about 17 percent probability sea level rise exceeds a given value), Medium-High Risk Aversion (0.5 percent probability, or 1-in-200 chance sea level rise meets or exceeds), and Extreme Risk Aversion or H++ Scenario (single scenario with no probability associated to it).

The CCC also provides guidance on selecting the sea level rise scenario for the potential impacts at developments and site risks associated with sea level rise. The guidance states that for projects with greater consequences and/or lower ability to adapt, such as residential and commercial structures, the projection scenario that should be used is the Medium-High Risk Aversion scenario (1-in-200 chance or 0.5 percent probability sea level rise exceeds the projected scenario). Although the proposed use is industrial warehouse, residential and commercial structures are a close approximation of industrial/warehouse uses with a similar consequence and ability to adapt as commercial and residential. Therefore, a Medium-High Risk Aversion scenario was selected.

Thus, in this study the selection of the sea level rise scenario followed the CCC sea level rise guidance. Since the Project is an industrial structure with lower ability to adapt to sea level rise, but does not present a considerable public health, public safety, or environmental impact should that level of sea level rise occur, the projection scenario chosen for this analysis is the Medium-High Risk Aversion Scenario projected for the Santa Barbara Tide Gauge (from Table G-8, CCC 2018) (Table 1), which is valid for the City of Goleta. Additionally, since the expected life of an industrial structure such as the proposed Project is about 75 years, the analysis conservatively analyzed the projected sea level rise for the year 2100. Consequently, according to Table 1, the sea level rise projection of 6.6 feet was used to assess potential sea level rise changes on the Project site.

Table 1 Sea Level Rise Projections for the Santa Barbara Tide Gauge

Projected Sea Level Rise (in feet): *Santa Barbara*			
	Probabilistic Projections (in feet) (based on Kopp et al. 2014)		H++ Scenario (Sweet et al. 2017)
	Low Risk Aversion	Medium-High Risk Aversion	Extreme Risk Aversion
	Upper limit of "likely range" (~17% probability SLR exceeds...)	*1-in-200 chance (0.5% probability SLR exceeds...)*	*Single scenario (no associated probability)*
2030	0.4	0.7	1.0
2040	0.7	1.1	1.6
2050	1.0	1.8	2.5
2060	1.3	2.5	3.6
2070	1.7	3.3	4.9
2080	2.1	4.3	6.3
2090	2.6	5.3	7.9
2100	3.1	6.6	9.8
2110*	3.2	6.9	11.5
2120	3.7	8.2	13.7
2130	4.2	9.5	16.0
2140	4.8	11.0	18.6
2150	5.3	12.6	21.4

Table G-8 from CCC sea level rise guidance.

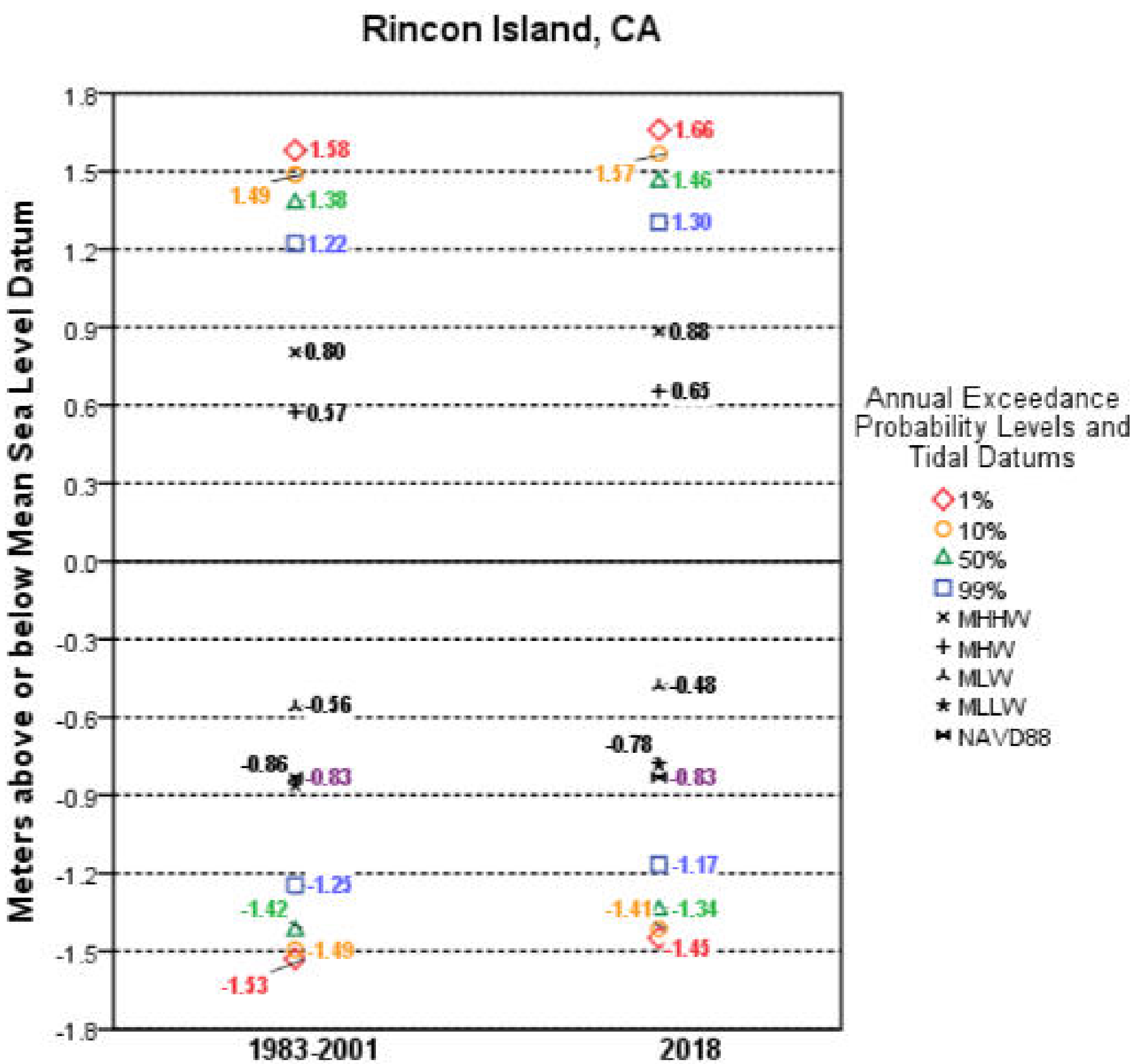
3.2 Extreme Water Level

Extreme high water levels at coastal locations are an important factor for coastal hazards assessment. The extreme water levels measured in coastal areas are called storm tides and are the combination of astronomical tides, storm surges, and limited wave setup caused by breaking waves (NOAA 2013). NOAA provides exceedance probability, which is the likelihood that water levels will exceed a given elevation, based on a statistical analysis of historic values for diverse locations along the U.S. coastline. These exceedance probability levels are useful in planning and assessing coastal hazards on coastal developments and infrastructure, and indicate the likelihood of an area being inundated over a defined future time period (NOAA 2022). In addition, the exceedance level can be used in combination with sea level rise projection to design extreme water levels and Project exceedance levels in the future. Therefore, this study used the exceedance probability of extreme water level determined by NOAA to design the extreme water level elevation (described in Section 3.3) for a site-specific sea level rise analysis at the proposed Project area.

The exceedance probability of an extreme water level for the Project site was obtained from the NOAA tide gauge at Rincon Island (Station No. 9411270) in Ventura County. This station is the closest to the Project site (approximately 20 miles south) and offers the exceedance probability of extreme water level, making it the most suitable for assessing the impacts of sea level rise combined with the extreme water level exceedance probability at the Project site. The 99 percent, 50 percent, 10 percent, and 1 percent exceedance probability levels are shown in Figure 9 and represent the current estimates of the probability of exceeding a given value in any year (return period) at the Rincon Island Station.

This analysis considered only the most extreme scenario for the probability of water level exceedance, which is the 1 percent annual exceedance probability levels (100-years return period) relative to the 2018 Epoch (Figure 9). Since the values were given in meters and Mean Sea Level datum, they were converted to feet and to NAVD88. After conversion, the 1 percent annual exceedance probability of extreme water level for the Project site is 8.18 feet (NAVD88).

Figure 9 Annnual Exceedance Probability Levels Calcuated at NOAA's Rincon Island Station (No. 9411270)



Values are in meters and relative to Mean Sea Level datum.

3.3 Design Water Level

The 1 percent design water level elevation[6] was estimated to evaluate whether the water level would be above the FFE of the proposed industrial building causing inundation to the proposed industrial building should the 1 percent annual exceedance probability of extreme water level (100 years return period) and the projected sea level rise occur. The 1 percent design water level elevation is based on the Medium-High Risk Aversion projections for 2100, estimated for the Santa Barbara Tide Gauge (from Table G-8, CCC 2018), combined with the 1 percent annual exceedance probability (100 years return period) of extreme high water levels caused by storm surges. Using the 1 percent annual exceedance probability of extreme water level for the Project site, which is 8.18 feet (NAVD88), added to the adopted sea level rise scenario of 6.6 feet, gives the 1 percent design water level elevation at 14.78 feet (NAVD88) for the sea level rise scenario in 2100.

Therefore, in this study, a 1 percent design water level elevation of 14.78 feet (NAVD88) in 2100 was used for a site-specific analysis at the Project area. The 1 percent design water level elevation takes into consideration storm surge, El Niño events, and king tides and represents the best estimation for the expected water level elevation within the Project site. The joint probability of creek flooding and storm surge was not considered in this study.

[6] Flood water surface elevation that has a 1-percent chance of being equaled or exceeded in any given year.

4 Sea Level Rise and Groundwater Analytical Results and Findings

4.1 Sea Level Rise

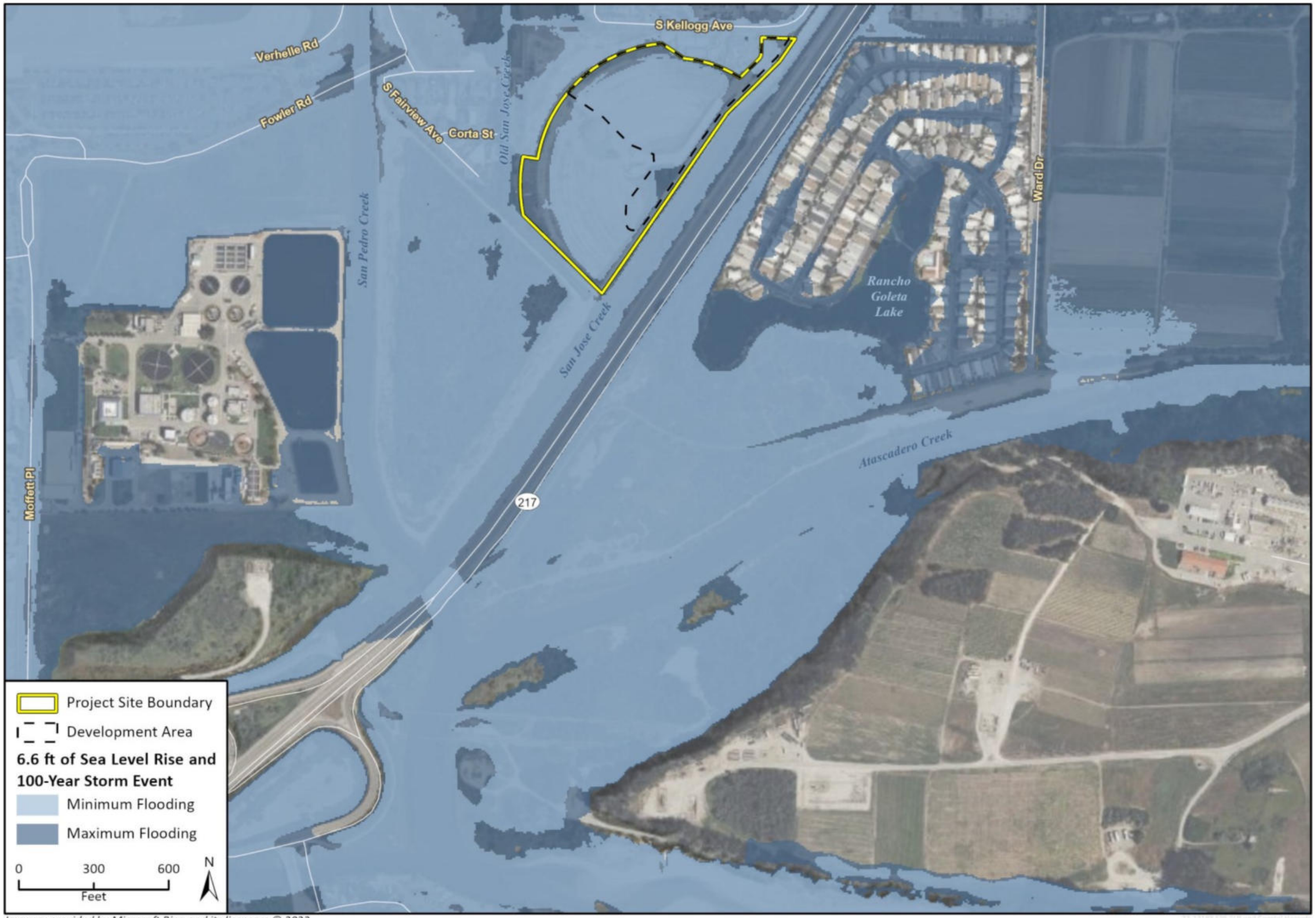
As discussed in Section 1.1., the Project site is situated in a low-lying area approximately 0.6 mile from the coastline that protects the Project site against additional impacts due to sea level rise and climate change such as waves, wave run-up, or wave overtopping, as well as shoreline and bluff erosion that would affect sites fronting the ocean or closer to the shoreline. However, the Project site is near creeks that are currently subject to flooding due to stormwater runoff and coastal inundation from storm surges, making the location of the proposed industrial building an area vulnerable to inundation from future sea level rise.

According to results of the future minimum and maximum flooding from CoSMoS, without the proposed grading and fill in the Development Area, the Project site would be mostly inundated during 100-year storm events considering the defined scenario of 6.6 feet sea level rise in 2100 and the 100-year storm frequency (Figure 10). This is mainly because of the low elevation of the Project site (approximately 9 feet, NAVD88) and a bowl shape that concentrates flooding water in the Project site and makes it difficult for stormwater to drain from the Project site.

Even though CoSMoS is a powerful tool for assessing flood levels due to sea level rise on coastal locations, it does not represent the conditions of the Project site after the modifications proposed by the Project. Consequently, a site-specific analysis using the 1 percent design water level elevation combined with the DEM from the 2018 Lidar (modified to include the proposed FFE), and the extracted topographic transects, better represent the potential flood levels resulting from sea level rise in 2100 at the Project site, the proposed Development Area, and the proposed building.

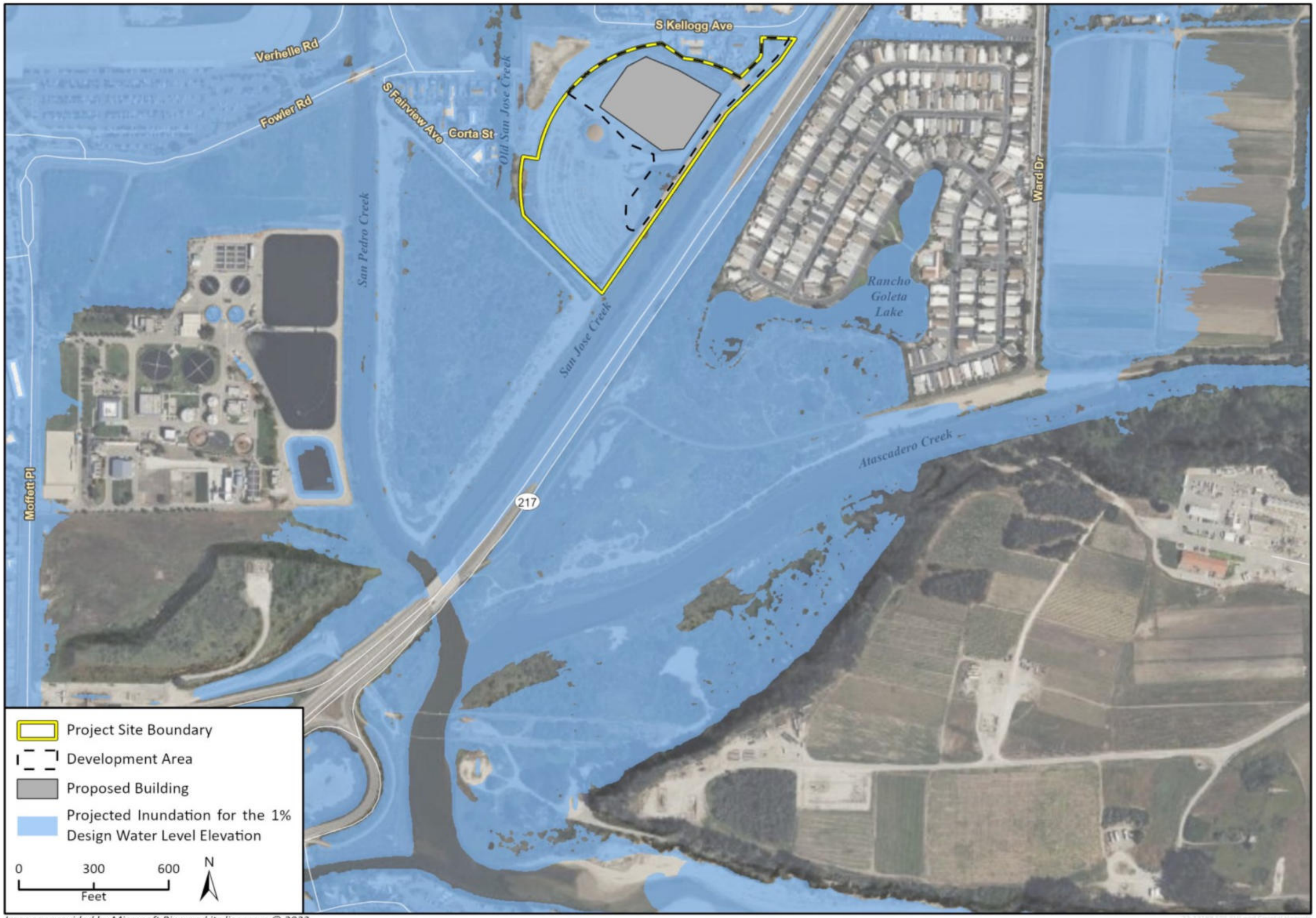
The water elevation surface generated from the spatial analysis and presented in Figure 11, shows that considering the 1 percent design water level elevation of 14.78 feet (NAVD88) the proposed industrial building with a FFE of 16.5 feet (NAVD88) would be floodproofed and would not be inundated considering the sea level rise in 2100 and the 100-years return period of storm surges event. Nevertheless, the results show that areas on the Project site surrounding the Development Area, which are lower than the estimated FFE and that will not be raised, would be inundated should the 1 percent design water level elevation scenario occur. The inundation would occur mainly due to backflow waters at San Jose Creek produced by storm surges, or in extreme events, due to the topography connectivity with Goleta Slough.

Figure 10 Minimum and Maximum Flooding from Sea Level Rise in 2100 based on CoSMos Data



Imagery provided by Microsoft Bing and its licensors © 2023.
Additional data provided by CoSMoS, Our Coast Our Future, Santa Barbara (pt. 2, UTM zone 11N) County, 2018.

Figure 11 Projected Innudation in 2100 from Sea Level Rise Based on Design Water Level Elevation Analysis



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The existing bank of San Jose Creek, which runs along almost the entire southeast Project site boundary between the Project site and the creek, is approximately 16 feet (NAVD88) high. Since the existing bank is higher than the BFE of San Jose Creek and the 1 percent design water level elevation, the bank would protect most of the Project site against inundation from San Jose Creek in the event the projected sea level rise scenario happens. The bank elevation declines below the 1 percent design water level elevation at the northeast part of the Project site boundary, along the access road that connects South Kellogg Avenue to the Project site. In this portion of the Project site, the access road and the San Jose Creek's bank are lower than the 14.78 feet (NAVD88) 1 percent design water level elevation. This indicates that this portion of the Project site would be flooded should the 1 percent design water level elevation occur, inundating the access road to the proposed Project.

The four transects extracted from the modified 2018 DEM (Figure 2) show the potential inundation at the Project site from the 1 percent design water level elevation with additional details. Transect A-A' (Figure 12) is located at the northern most portion of the Project site and shows that the access road between South Kellogg Avenue to the Project is 11.3 feet (NAVD88) high. It is approximately 3 feet lower than the 14.78 feet (NAVD88) estimated for the 1 percent design water level elevation. Even though the access road is approximately 4.7 feet higher than the projected sea level rise scenario for 2100 (6.6 feet), when considering the 1 percent annual exceedance probability of extreme water level, which would result in a water level of 14.78 feet (NAVD88), this portion of the property would be inundated and would affect the access to the building. Transect B-B' is located at the access road southwestern of transect A-A'. At this portion of the Project site, the access road is at a higher elevation of 15 feet (NAVD88). As shown in Figure 13, this portion of the Project site will likely not be inundated considering the 1 percent design water level elevation.

Transect C-C', presented in Figure 14, bisects the proposed industrial building and includes the proposed FFE of 16.5 feet (NAVD88). It also includes the proposed grade for the Development Area at approximate 15 feet (NAVD88), which was manually added into the transect based on the information from Sheet 2, Appendix A. The result shows that the FFE will be approximately 2 feet higher than the 1 percent design water level elevation projected for 2100. Therefore, the FFE of the proposed industrial building would be well above 14.78 feet (NAVD88), which would prevent the proposed building from being inundated from future sea level rise and storm surges. Transect C-C' shows also that the height of the Development Area with the proposed fill of 15 feet would be slightly above the 1 percent design water level of 14.78 feet (NAVD88), and the elevation of San Jose Creek's bank is approximately 16 feet (NAVD88), providing additional protection to the Development Area in case the water elevation reaches 14.78 feet (NAVD88) in 2100. Transect D-D' is located southwest of the proposed Development Area, where no structure will be built and no grading or placement of fill will occur. The results for this transect are presented in Figure 15 and indicate that the entire area would be below the 1 percent design water level elevation; however, the San Jose Creek's bank at this portion of the Project site is still higher than 14.78 feet (NAVD88), providing protection against inundation to the Project site should the 1 percent design water level elevation occur in 2100. In addition, due to the low-lying characteristics of the area, this portion of the Project site has topographic connectivity with Goleta Slough, increasing the risk of being inundated in the event the extreme water level occurs.

Figure 12 Transect A-A' - Access Road at the Northern Most Portion of the site

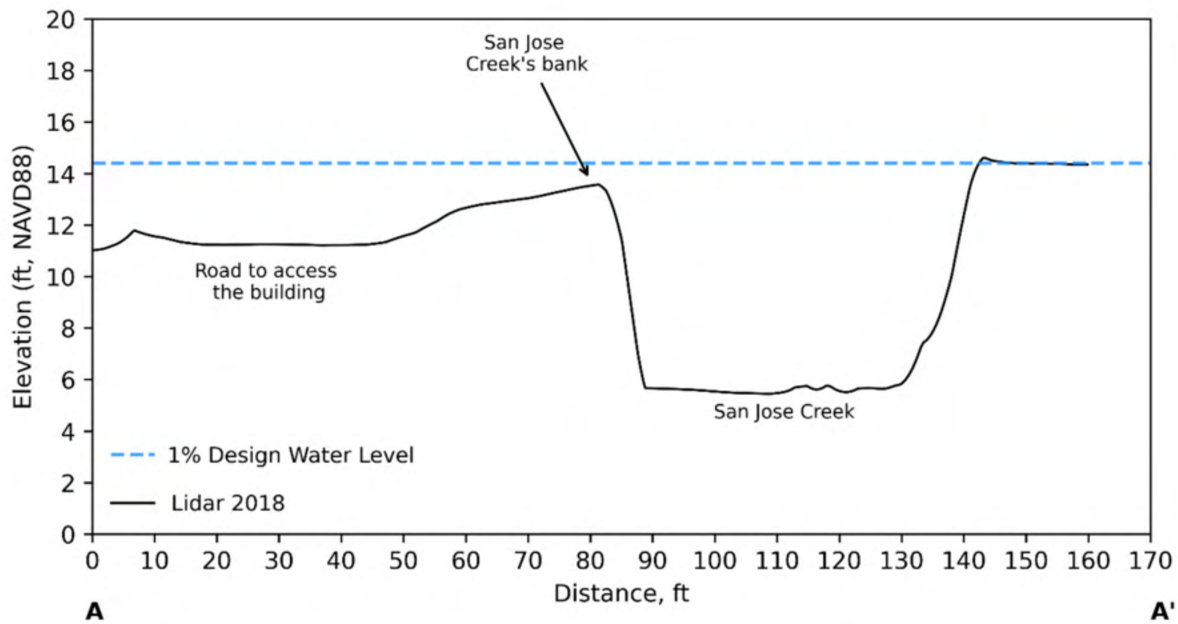


Figure 13 Transect B-B' – Access Road Southwest of Transect A-A'

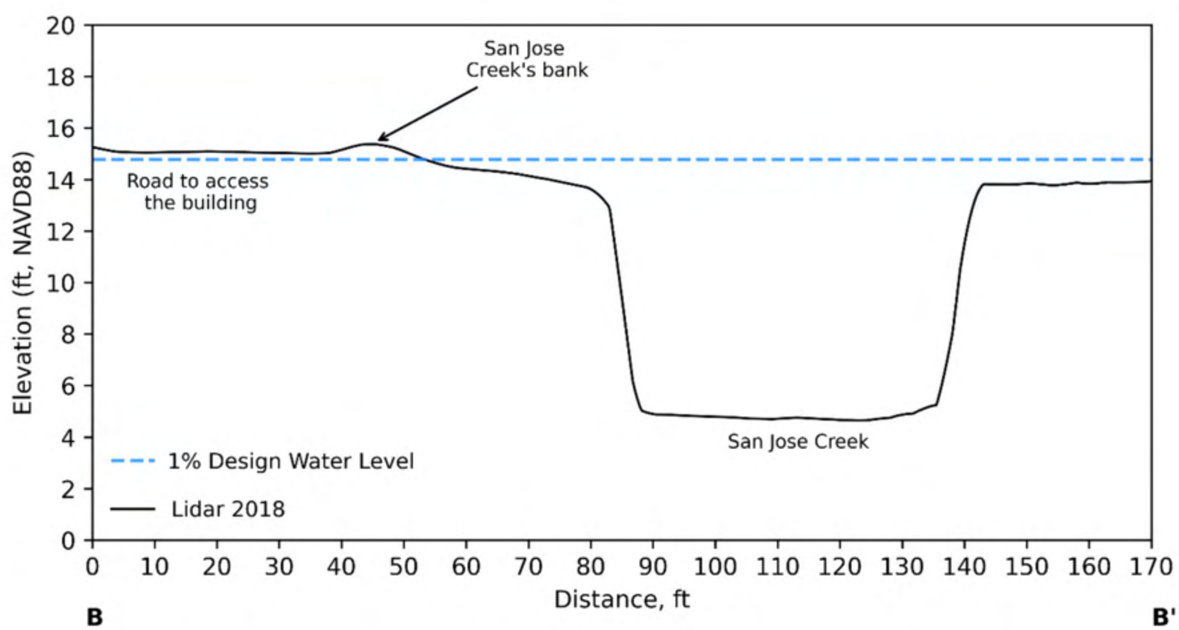
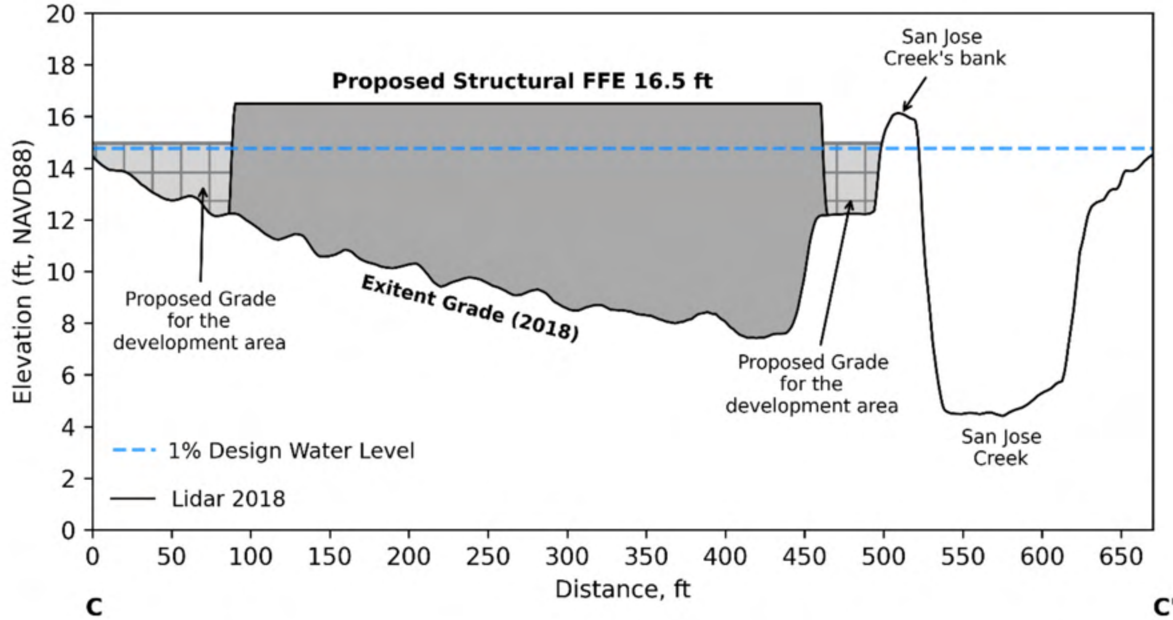
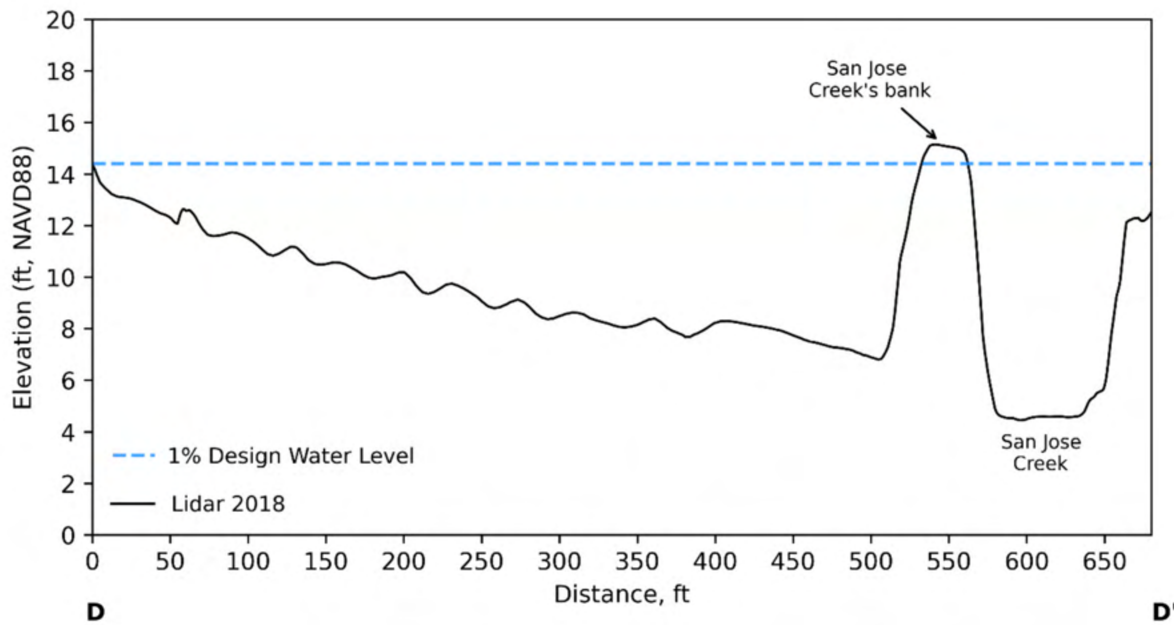


Figure 14 Transect C-C' - Across the Proposed Industrial Building



The proposed grade to 15 feet (NAVD88) was not extracted from the 2018 DEM, but artificially added to the figure based on topographic sections from sheet 2 in Appendix A.

Figure 15 Transect D-D' - South of the Proposed Industrial Building



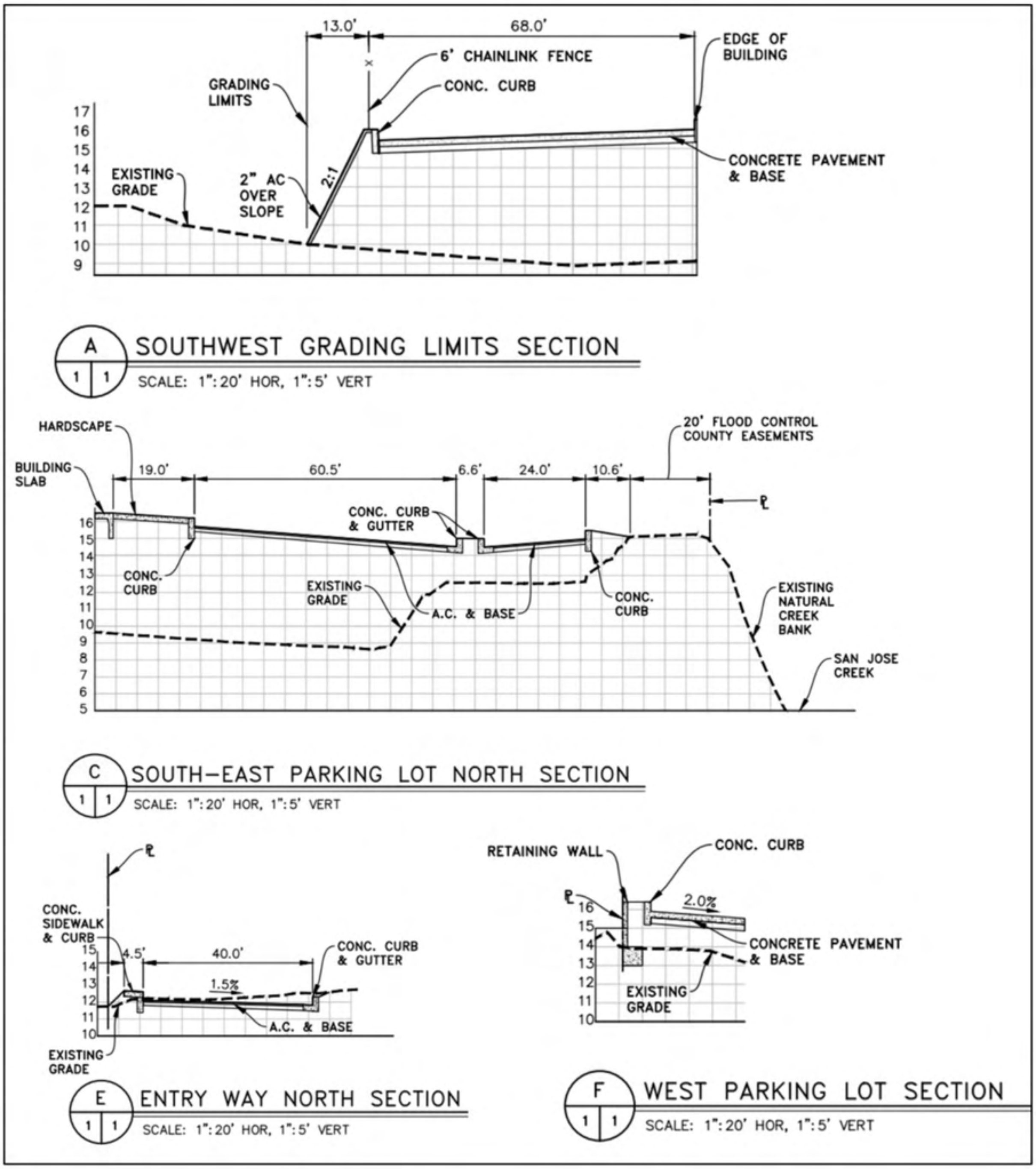
The topographic sections (Sheet 2, Appendix A) showing the preliminary grading plan for the Project were obtained across all boundaries surrounding the Development Area. Figure 16 presents the selected Sections A, C, E, and F located respectively southwest, southeast (fronting San Jose Creek), northeast (at the entrance of the Project site), and northwest of the Development Area (the specific locations are included in Sheet 1 Appendix A). Sections A, C, and F show that the Development area

(Figure 2) would be elevated to circa 15 feet (NAVD88). As mentioned above, this elevation is slightly higher than the 1 percent design water level elevation. Therefore, the proposed elevation of the Development area will aid in preventing inundation within the Development Area, while protecting the proposed building, which will have the FFE at 16.5 feet (NAVD88). Moreover, the grade at 15 feet (NAVD88) would interrupt the topographic connection with Goleta Slough and other low-lying areas southwest of the Project site, reducing the risk of coastal flooding, should sea level rise occur. Meanwhile, Section F corroborates Transect A-A’, and shows that at the entrance of the Project site, the grade and the access road would be lower than the 1 percent design water level, and if this scenario occurs, this portion of the Project site would be inundated, potentially preventing access to the Project site.

4.2 Groundwater

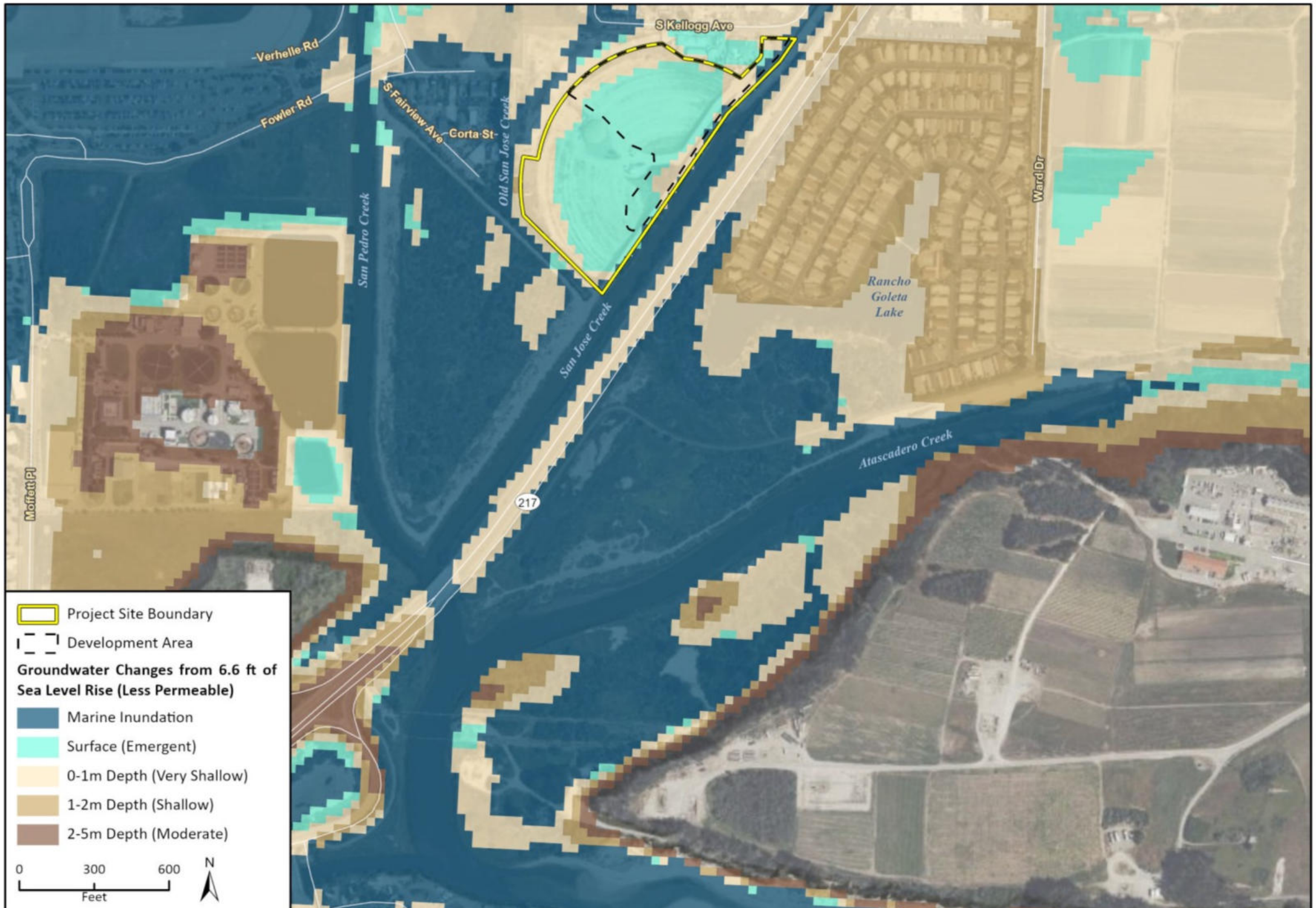
According to results from CoSMoS for the groundwater depth changes due to sea level rise, the projected 6.6 feet of sea level rise would cause groundwater levels to rise. Without the proposed grading and fill in the Development Area, the water table would emerge at the Project site but without causing permanent inundation (Figure 17). The Geotechnical and the Preliminary Drainage Design Engineering reports, as well as the Stormwater Control Plan, recognized that the groundwater elevation at the Project site is high in the existing condition. However, since a portion of the Project site (Development Area) will be raised and the FFE of the Project will be at 16.5 feet (NAVD88), it is unlikely that the rise of the groundwater table due to sea level rise would result in inundation of the industrial building.

Figure 16 Topographic Sections from the Preliminary Grade and Drainage Plan



The location of the selected sections are in Sheet 1, Appendix A. Elevations are in feet and NAVD88.

Figure 17 Groundwater Elevation in 2100 with Sea Level Rise



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Additional data provided by USGS, CoSMoS, 2020.

5 Conclusions and Recommendations

This technical study was prepared to analyze the potential for future inundation from sea level rise (e.g., coastal inundation due to storm surges) to occur on the Project site. The analysis adopted methodology presented in CCC (2018), is based on the best available science currently defined by CCC (2018), relies on publicly available data scientifically validated, and represents the best estimation of the likely sea level rise and coastal hazard impacts at the Project site and the proposed Project. The conclusions of this technical study are presented in the following sections.

5.1 Sea Level Rise

This technical report analyzes potential inundation resulting from sea level rise at the Project site. Based on this study, Rincon concluded that the proposed industrial building would not be inundated during a 100-year storm event for the projected Medium-High Risk Aversion sea level rise scenario for 2100. The project includes placement of fill to raise the elevation of the Development Area. The grade elevation of the Development Area is 15 feet (NAVD88), which is higher than the design water level elevation of 14.78 feet which provides flood protection for the building. The FFE of the proposed industrial building is designed to be at an elevation of 16.5 feet (NAVD88), which is well above the 1 percent design water level elevation of 14.78 feet (NAVD88) estimated for 2100.

The analysis found that areas inside the Project site, near the southwest corner and at the entrance of the Development Area, which are below the 1 percent design water level elevation and are planned to remain at the existing grade, would be inundated should the estimated scenario occur. Therefore, the San Jose Creek's bank, which runs along the east Project site boundary, and for the most part is at a higher elevation than the estimated 1 percent design water level, is essential to maintain most of the Project site safe against inundation. One exception is at the access road situated at the northeastern most portion of the site. In this location, the access road and the creek's bank are below the 1 percent design water level elevation of 14.78 feet (NAVD88) estimated for 2100. Therefore, should the 1 percent design water level elevation of 14.78 feet (NAVD88) occur, the northern portion of the access road would be inundated, potentially preventing access to the building.

Consequently, efforts to maintain the creek's bank at least to its current conditions are indispensable for avoiding inundation at the areas adjacent to the Development Area. The City and the County of Santa Barbara already have flood control maintenance and creeks maintenance programs implemented (City of Goleta 2020), as discussed in Section 1.2, which are crucial to increase creek capacity to convey flood flows and reduces the potential of flooding. Thus, the execution of creek maintenance programs is crucial to maintain the condition of San Jose Creek's bank in protecting part of the site against inundation.

Alternatives to reduce the potential risk at the northeastern portion of the access road would be raising this portion of the Project site to at least 15 feet (NAVD88) or coordination with the County of Santa Barbara and/or the City of Goleta to increase the height of San Jose Creek's bank at this portion of the Project site to an elevation higher than the estimated 1 percent design water level elevation.

The proposed building's design is specified in the Geotechnical and Preliminary Drainage Design engineering reports as well as in the Stormwater Control Plan and the Preliminary Grade and

Drainage Plan. These reports and plans include preliminary geotechnical recommendations, ground motion analysis, drainage features, and design to mitigate the risk of flooding from San Jose Creek, source control measures, grading and fill in the Development Area, and FFE. These reports also incorporate measures that would function as sea level rise adaptation strategies since they would help to minimize potential impacts of coastal inundation due to sea level rise to the proposed Project.

5.2 Flooding

In the existing condition, rainfall on the project site surface flows from north to south toward the southern property line and San Jose Creek. It is collected and pumped from there into existing outlets into San Jose Creek. Off-site stormwater does not enter the project site due to the presence of an existing earthen berm around the project site. However, the berm lacks the characteristics required to meet the definition of an accredited levee recognized by FEMA; therefore, the current FEMA map does not reflect the presence of the berm. As a result, the FEMA map depicts the project site as located within a 100-year floodplain even though the site, in its current condition, would not be inundated by the 100-year flood (Stantec Consulting Service Inc. 2023b).

Inundation from San Jose Creek due to rainfall is currently the most significant flooding risk for the Project site. As stated above, the earthen berm is not an accredited levee; therefore, the BFE for San Jose Creek was used to determine the potential flood elevation on the project site for purposes of analyzing flood risk and sea level rise risk on the project site. This represents a conservative estimate of the maximum flood levels on the project site that could occur if the earthen berm were not in place to keep flood waters from entering the project site.

The risk of flooding at the Project site is recognized in the Preliminary Drainage Design engineering report and the Stormwater Control Plan. The Preliminary Drainage Design report prepared for the Project assessed the drainage improvements required to ensure stormwater is adequately conveyed on the Project site (Stantec Consulting Service Inc. 2023a). Based on the FEMA map, the Preliminary Drainage Design study calculated the BFE for the San Jose Creek floodplain at 14.4 feet (NAVD88) and determined that the required FFE for the proposed industrial building is 16.5 feet (NAVD88), which is 2 feet higher than the BFE. Consequently, the proposed industrial building would not be inundated due to flooding from San Jose Creek during a 100-year storm event. The FEMA map does not consider water elevation due to future sea level rise. FEMA maps do not consider certain scenarios, such as a closed Goleta Slough inlet which could contribute to increase flooding impacts at the Slough’s adjacency. FEMA maps also do not consider the earthen berm that surrounds the project site because the berm lacks the characteristics required to meet the definition of an accredited levee recognized by FEMA (Stantec Consulting Service Inc. 2023b).

In addition, 4 and 6 feet of fill would be imported to raise a portion of the Project site (Development Area) to approximate 15 feet (NAVD88), in order to have the FFE at 16.5 feet (NAVD88). A drainage basin would be constructed to capture stormwater runoff from the development area. The grade elevation of the Development Area will be at 15 feet (NAVD88), which is slightly higher than the BFE, providing additional protection to the building. The drainage basin will ensure that, at the constructed area, the post-construction runoff peak flow would be equal or less than the pre-construction peak flow.

Areas adjacent to the Development Area, which are not proposed to be raised by fill, and the northeastern portion of the access road would be inundated should the estimated San Jose Creek BFE of 14.4 feet (NAVD88) occur. Therefore, the same recommendations for maintaining the San

Jose Creek's bank, at least to the current conditions, are also necessary to protect part of the Project site against flooding from the creek due to rainfall. Likewise, the alternatives proposed to mitigate flood risks at the access road, located at the entrance of the site, would ensure access to the building in case of flooding.

5.3 Groundwater

This study found that the proposed industrial building with an FFE of 16.5 feet (NAVD88) and the Development Area elevated to 15 feet (NAVD88) would not be inundated by the rise of the groundwater table due to sea level rise. Even though areas adjacent to the Development Area, within the Project site boundary, would have emerging groundwater, it is unlikely that it would cause inundation and affect the Project site.

5.4 Coastal Hazard

Since the Project site is approximately 0.6 mile from the shoreline of Goleta Beach, this study concludes that the proposed Project would not be subjected to additional coastal hazards, such as shoreline/bluff erosion, wave runup, and wave overtopping. Likewise, the Project would not create additional negative impact or affect public beach access. Moreover, maintenance efforts at Goleta Slough and at its inlet, such as conducting emergency openings of the inlet, are crucial to improve Goleta Slough's capacity to store floodwater from the creeks minimizing risks to the Project. Goleta Slough is approximately 0.5 mile southwest of the Project site; however, due to the possible topography connectivity with the Project site, high-water levels at the slough would inundate the unraised area southwest of the proposed Development Area. The proposed elevation of approximately 15 feet (NAVD88) at the Development Area would interrupt the topographic connectivity with the Slough reducing the risk of flooding and coastal inundation of the proposed Project. Still, the management programs at Goleta Slough are essential for reducing flooding hazards in its adjacent areas, which includes the Project site.

5.5 Coastal Resources

The Project proposes the construction of an industrial development with no beach access, where most of the Project site where development would occur is asphalt paved or a gravel parking lot (Watershed Environmental 2022). Due to the distance from coastal resources, it is unlikely that the Project would create additional negative impact or affect coastal resources, and public beach access, or increase shoreline and bluff erosion. Therefore, this analysis found that there are no anticipated impacts to local coastal resources.

The Wetland Delineation Report prepared in 2023 concluded that the Project site does not contain any federal or state jurisdictional wetlands or waters, or any state regulated riparian habitat, and the project will not direct impact any of the pickleweed saltmarsh wetland vegetation in San Jose or Old San Jose Creek (Watershed Environmental 2023). However, removal and replacement of the existing sump pump storm drain outlet with a new outlet to discharge water from the proposed detention basin will temporarily impact 36 feet square of waters of the U.S., which are regulated by the U.S. Army Corps of Engineers, Central Coast Regional Water Quality Control Board, and California Department of Fish and Wildlife.

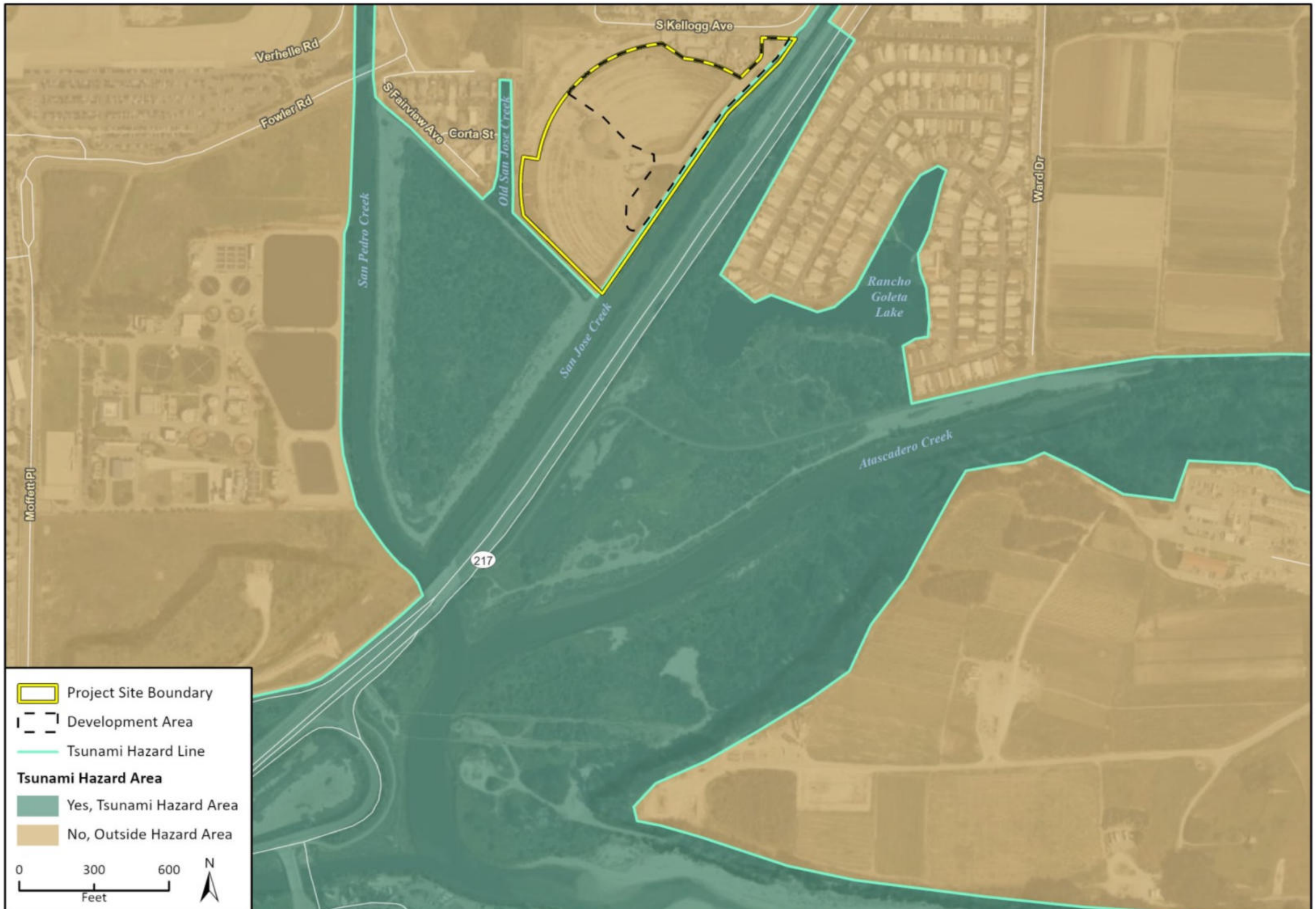
5.6 Tsunamis

The Project site is close to the Pacific Ocean, which is subjected to tsunami events generated from Channel Island faults (near field) and from Alaska and Japan faults (far field) that would approach the site. Nevertheless, the Tsunami Hazard Area Map for the County of Santa Barbara, updated on July 8, 2021, indicates that the Project site is outside the tsunami hazard zone as shown in Figure 18.

The City's General Plan/Coastal Land Use Plan (City of Goleta 2006) also presents a Tsunami Hazard Map on Figure 5.2 of Chapter 5.0 Safety Element: Coastal and Other Hazards. This figure was updated in June 2016 and presents the Tsunami Hazard Map dated January 31, 2009, which shows the that the Project site is in the tsunami hazards zone. However, as mentioned before, the Tsunami Hazard Map for the County of Santa Barbara, was updated on July 8, 2021 using the best available scientific information. The updated Tsunami Hazard Map indicates that the Project site is outside the tsunami hazard zone and it is unlikely that the site would be inundated by tsunami.

Since the Project site is adjacent to a tsunami hazard area it would be a positive initiative to consult accessible information regarding tsunami warning signs and how to react if a tsunami watch or warning are issued. The County of Santa Barbara's Emergency Management Plan for the Santa Barbara Operational Area and the Multi-Jurisdictional Hazard Mitigation Plan provide critical information to increase public awareness of local hazards including tsunami, while offering information about options and resources available to reduce the risks and a response plan to provide support after an emergency has happened (City of Santa Barbara 2013, Santa Barbara County 2017). These resources would also aid prepare for, mitigate, and handle emergencies, including in case of tsunami.

Figure 18 Tsunami Hazard Areas at the Project Site



Imagery provided by Microsoft Bing and its licensors © 2023.
Additional data provided by CGS, 2021.

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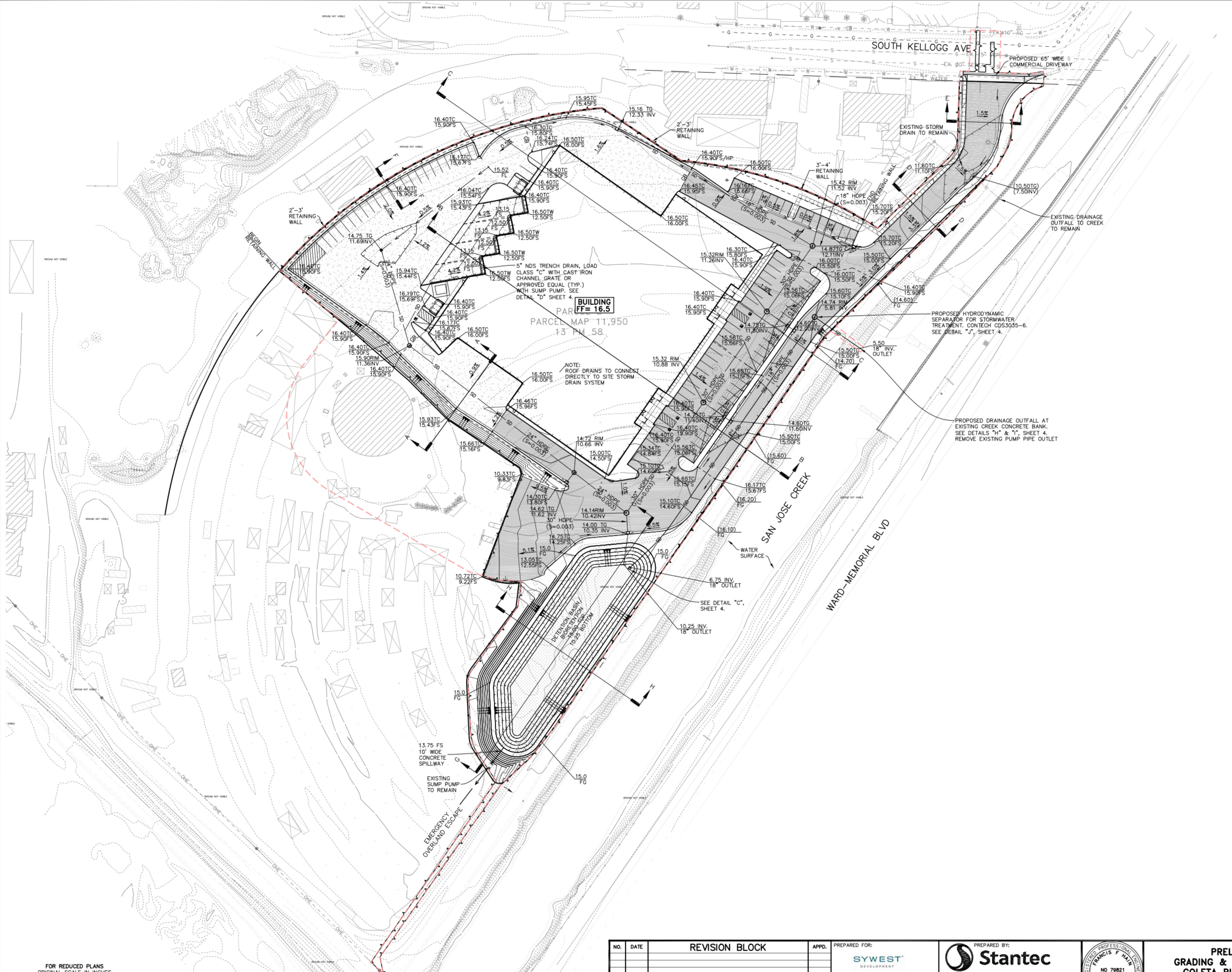
Appendix A

Preliminary Grading and Drainage Plan



HATCH LEGEND:

- ASPHALT PAVEMENT (SEE DETAIL "A", SHEET 4)
- CONCRETE PAVEMENT (SEE DETAIL "B", SHEET 4)
- BIO-RETENTION AREA (SEE DETAIL "C", SHEET 4)

LEGEND:

- RETAINING WALL
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING GAS MAIN
- MANHOLE
- CATCH BASIN
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED GRADING LIMITS
- PROPOSED LIMITS OF DISTURBANCE

NOTE: SELECT CONTOURS OMITTED FOR CLARITY

EARTHWORK:

RAW CUT: 600 CY

RAW FILL: 38,000 CY

REFERENCE EARTH SYSTEMS GEOTECHNICAL ENGINEERING REPORT DATED AUGUST 4, 2017 FOR SITE PREPARATION AND CORROSIVITY RECOMMENDATIONS.

THE ABOVE QUANTITIES ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISH GRADE OR SUBGRADE. EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE IS DEFINED AS THE DESIGN SURFACE ELEVATION OF EARTH TO BE CONSTRUCTED. PROPOSED SUBGRADE ELEVATION IS DEFINED AS THE DESIGN SURFACE ELEVATION OF EARTH TO BE CONSTRUCTED BENEATH PAVEMENTS OR STRUCTURES.

THE ABOVE QUANTITIES ARE FOR PERMIT PURPOSES ONLY AND HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVER EXCAVATION AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS AND CONSTRUCTION METHODS.

THE CONTRACTOR SHALL PERFORM AN EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING A LUMP SUM BID PRICE FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS EARTH MATERIALS.

SHEET INDEX

SHEET	DESCRIPTION
1	GRADING & DRAINAGE PLAN
2	GRADING & DRAINAGE PLAN SECTIONS
3	UTILITY & IFR APPROACH PLAN
4	DETAILS
5	TOPOGRAPHIC & EASEMENT MAP

FOR REDUCED PLANS
ORIGINAL SCALE IN INCHES
0 1 2 3

NO.	DATE	REVISION BLOCK	APPD.

PREPARED FOR:
SYWEST DEVELOPMENT
150 Pelican Way, San Rafael, CA 94901
Phone: (415) 448-8362

PREPARED BY:
Stantec
111 East Victoria Street, Santa Barbara, CA 93101
Phone: (805) 963-9532

FRANCIS F. HAIN — PROJECT ENGINEER — 79821 R.C.E. — 06/21/2024 DATE

REGISTERED PROFESSIONAL ENGINEER FRANCIS F HAIN NO 79821 CIVIL STATE OF CALIFORNIA

PRELIMINARY GRADING & DRAINAGE PLAN GOLETA BUSINESS PARK

GOLETA, CALIFORNIA

STANTEC PROJECT NO. 2064021500

SHEET 1 OF 5

PLAN DATE 6/21/2024

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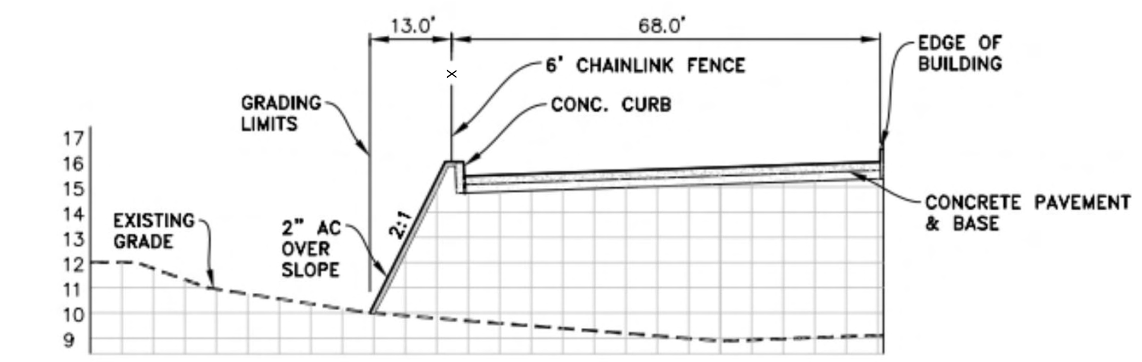

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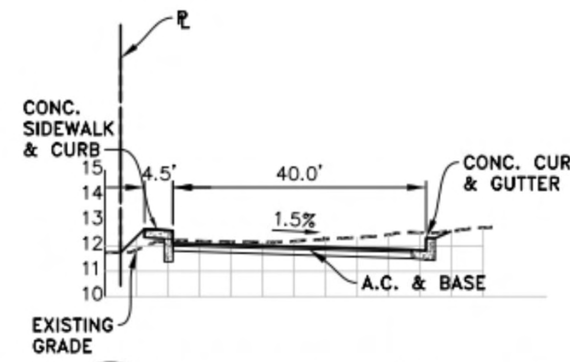

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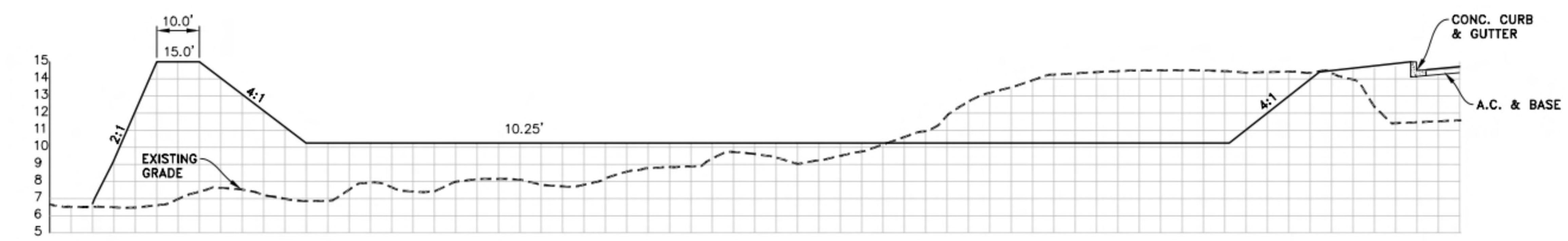

G 1 1 NORTH–SOUTH RETENTION BASIN SECTION
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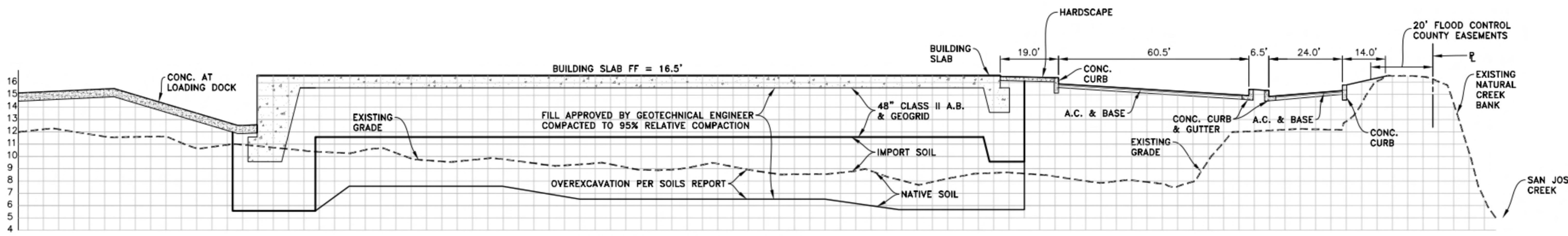

NOTE: OVEREXCAVATION AND CROSS–SCARIFICATION OUTSIDE OF BUILDING STRUCTURE NOT SHOWN.

B 1 1 SOUTHEAST PARKING LOT SOUTH SECTION
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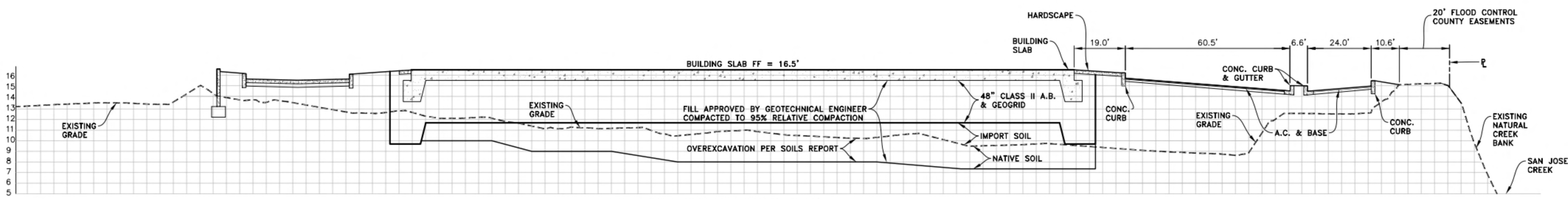

NOTE: OVEREXCAVATION AND CROSS–SCARIFICATION OUTSIDE OF BUILDING STRUCTURE NOT SHOWN.

C 1 1 SOUTH–EAST PARKING LOT NORTH SECTION
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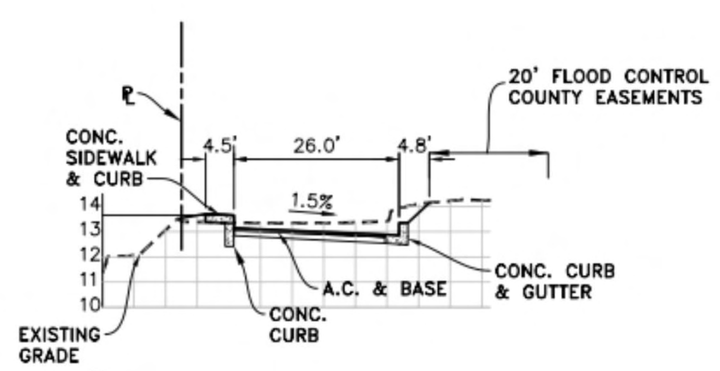
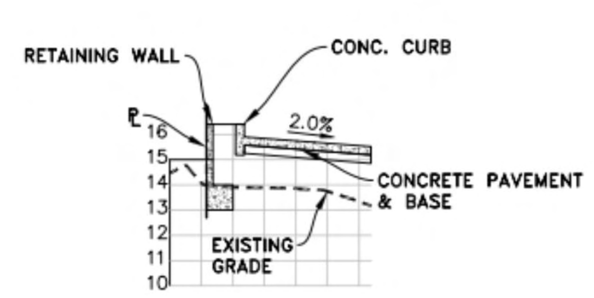


D 1 1 ENTRY WAY SOUTH SECTION



F 1 1 WEST PARKING LOT SECTION
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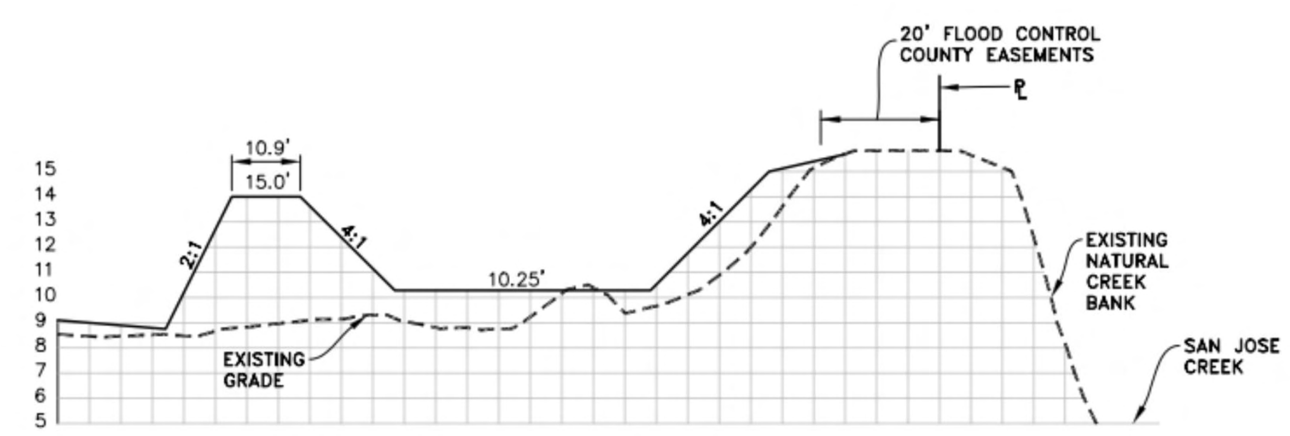

H 1 1 EAST–WEST RETENTION BASIN SECTION
SCALE: 1":20' HOR, 1":5' VERT

NO.	DATE	REVISION BLOCK	APPD.

PREPARED FOR:
SYWEST DEVELOPMENT
150 Pelican Way, San Rafael, CA 94901
Phone: (415) 448–8362

PREPARED BY:
Stantec
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FRANCIS F. HAIN	79821	06/21/2024
PROJECT ENGINEER	R.C.E.	DATE

REGISTERED PROFESSIONAL ENGINEER
FRANCIS F HAIN
NO 79821
CIVIL
STATE OF CALIFORNIA

PRELIMINARY
GRADING & DRAINAGE PLAN SECTIONS
GOLETA BUSINESS PARK

GOLETA, CALIFORNIA

STANTEC PROJECT NO. 2064021500
SHEET 2 OF 5
PLAN DATE 6/21/2024

DESIGN:______ CHECKED______
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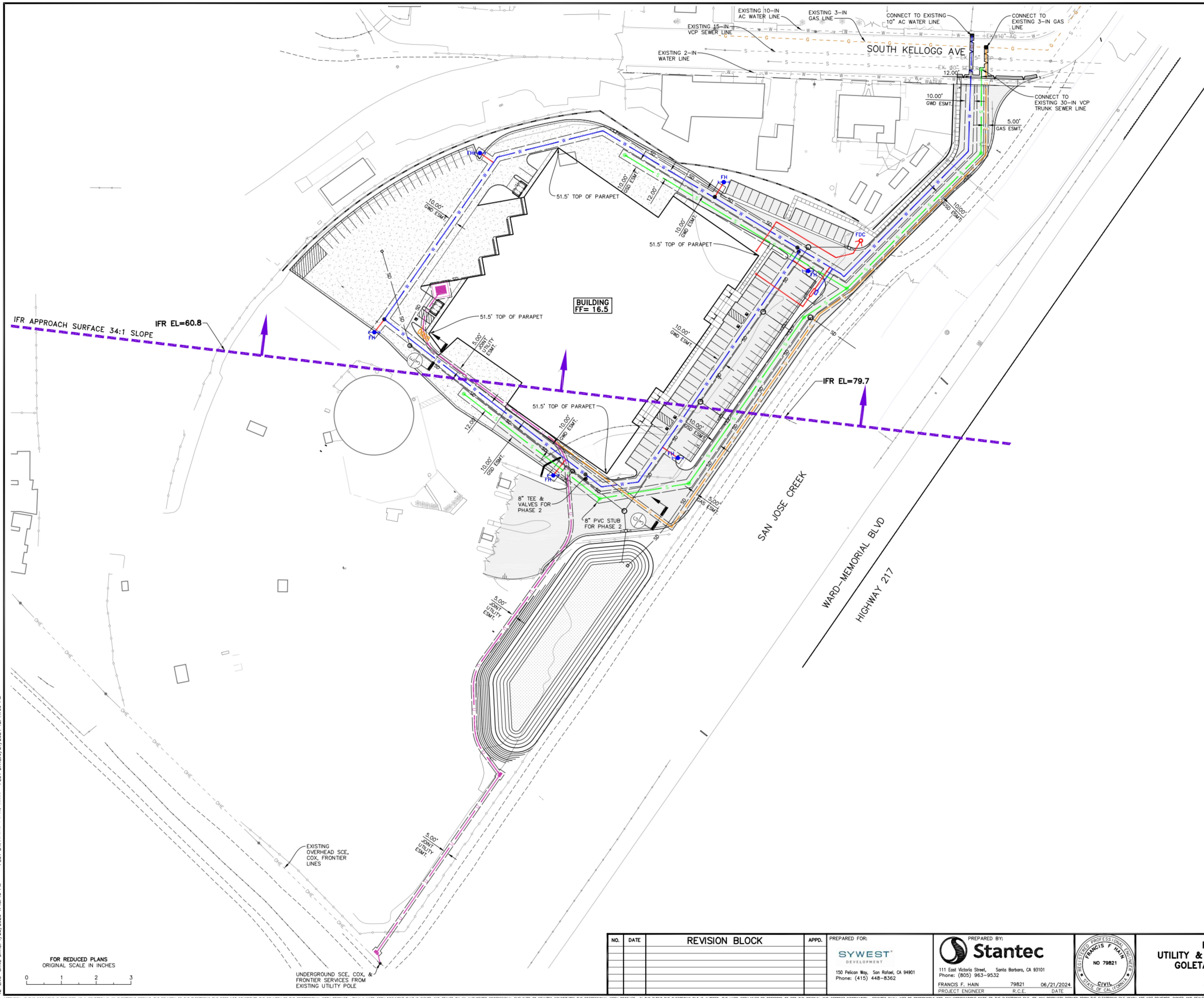

HATCH LEGEND:

- ASPHALT PAVEMENT (SEE DETAIL "A", SHEET 3)
- CONCRETE PAVEMENT (SEE DETAIL "B", SHEET 3)
- BIO-RETENTION AREA (SEE DETAIL "C", SHEET 3)

LEGEND:

- RETAINING WALL
- SD — PROPOSED STORM DRAIN
- SD — EXISTING STORM DRAIN
- S — PROPOSED SEWER MAIN (8" SDR35 PVC)
- S — EXISTING SEWER MAIN
- W — PROPOSED WATER MAIN (8" C900 CLASS 305 PVC) TO BE DEDICATED - GWD
- FW — PROPOSED FIRE WATER LINE (6" C900 CLASS 305 PVC)
- W — EXISTING WATER MAIN
- G — PROPOSED GAS MAIN
- G — EXISTING GAS MAIN
- U — PROPOSED JOINT UTILITY TRENCH
- FH — PROPOSED FIRE HYDRANT
- FDC — PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED GWD FIRE LINE WITH DCDA (ABOVEGROUND)
- PROPOSED GWD WATER METER
- PROPOSED GAS METER
- PROPOSED GATE VALVE
- PROPOSED GAS VALVE
- PROPOSED SEWER MANHOLE
- PROPOSED SCE 10'X12' TRANSFORMER PAD
- PROPOSED SCE 3'X5' FLUSH MOUNTED SPLICE BOX
- ESMT. — EASEMENT
- PROPOSED EASEMENT LINE

NOTES:

1. PUBLIC WATER TO BE PROVIDED BY GOLETA WATER DISTRICT (GWD).
2. PROPOSED GWD EASEMENTS TO BE 20' WIDE.
3. FIRE, POTABLE, AND IRRIGATION WATER TO BE PROVIDED BY GWD.
4. ONE (1) PROPOSED NEW WATER METER IS TO BE PROVIDED FOR THE NEW BUILDING.

FOR REDUCED PLANS
ORIGINAL SCALE IN INCHES
0 1 2 3

NO.	DATE	REVISION BLOCK	APPD.

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PRELIMINARY UTILITY & IFR APPROACH PLAN GOLETA BUSINESS PARK

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SHEET 3 OF 5
PLAN DATE 6/21/2024

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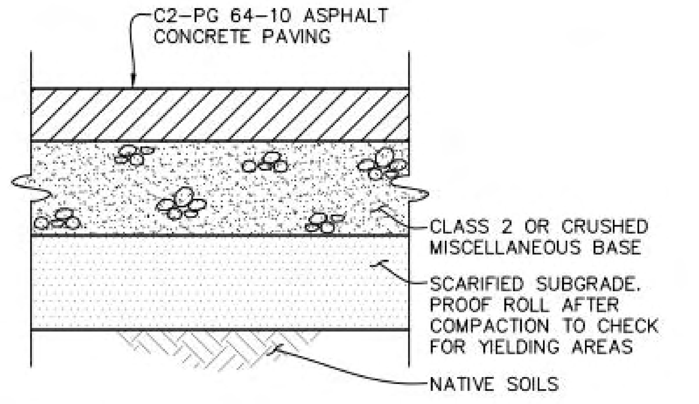


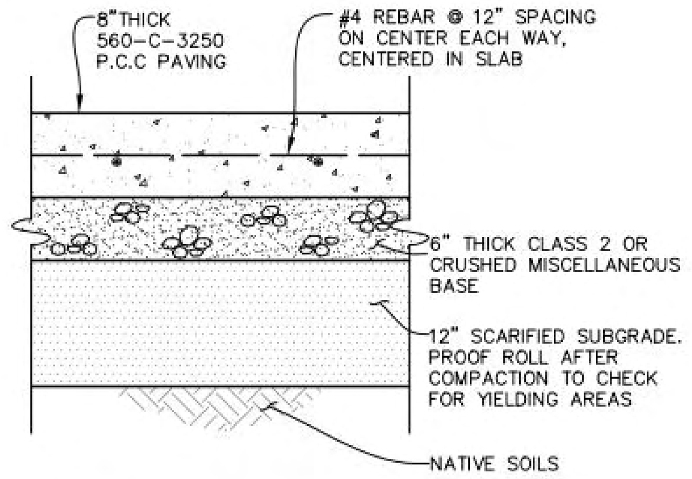
STRUCTURAL SECTION TABLE			
	PARKING STALLS	DRIVE AISLES	TRUCK LOOP
TRAFFIC INDEX	5.0	5.5	7.0
AC	3.0"	3.0"	4.0"
BASE	7.0"	8.0"	10.5"
SUBGRADE	12"	12"	12"

BASED ON PRELIMINARY R-VALUE OF 25

NOTES:

1. INSTALL EMULSIFIED ASPHALT "FOG SEAL" TYPE SS-1h.
2. ASPHALT CONCRETE SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY OBTAINED USING CALIFORNIA TEST 304.
3. AGGREGATE BASE AND SUBGRADE SOILS SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557.
4. STRUCTURAL SECTIONS SHOWN ARE PRELIMINARY. R-VALUE TESTS SHALL BE PERFORMED AT THE COMPLETION OF GRADING TO DETERMINE FINAL STRUCTURAL SECTION.

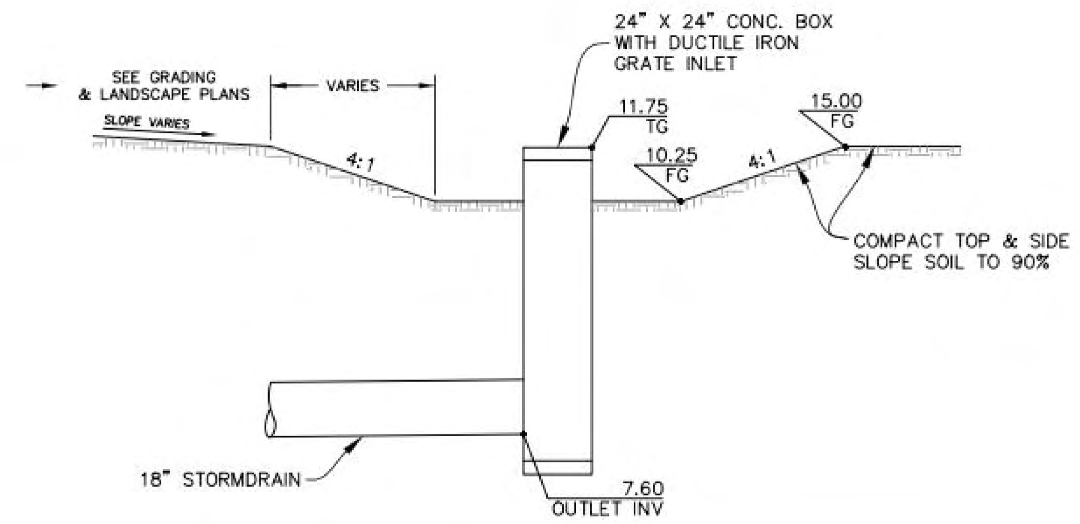
A 3 1 TYPICAL SECTION AC PAVEMENT
SCALE: N.T.S.



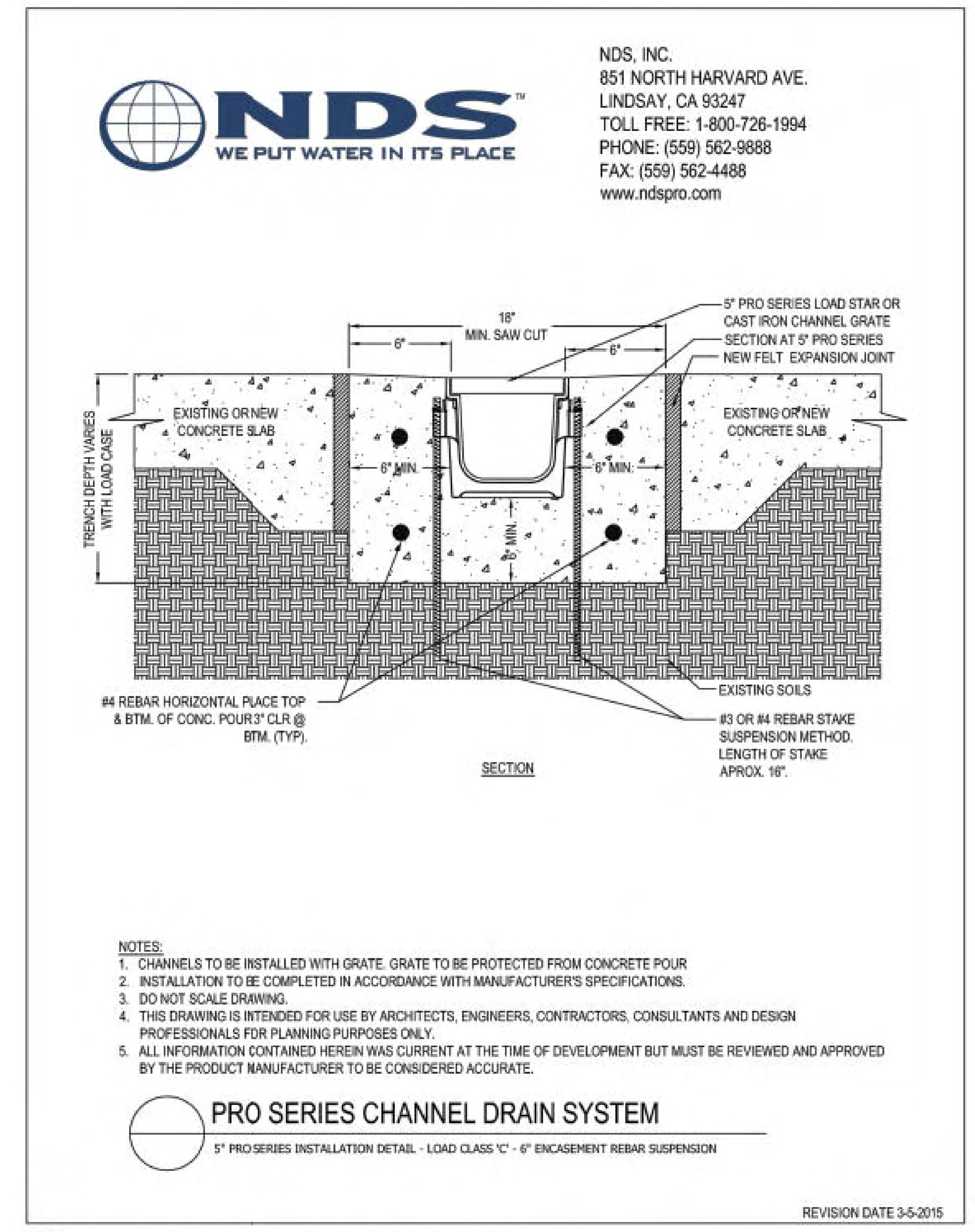
NOTES:

1. AGGREGATE BASE AND SUBGRADE SOILS SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557.
2. INSTALL WEAKENED PLANE JOINTS AT 5' AND EXPANSION JOINTS AT 15' MAX.

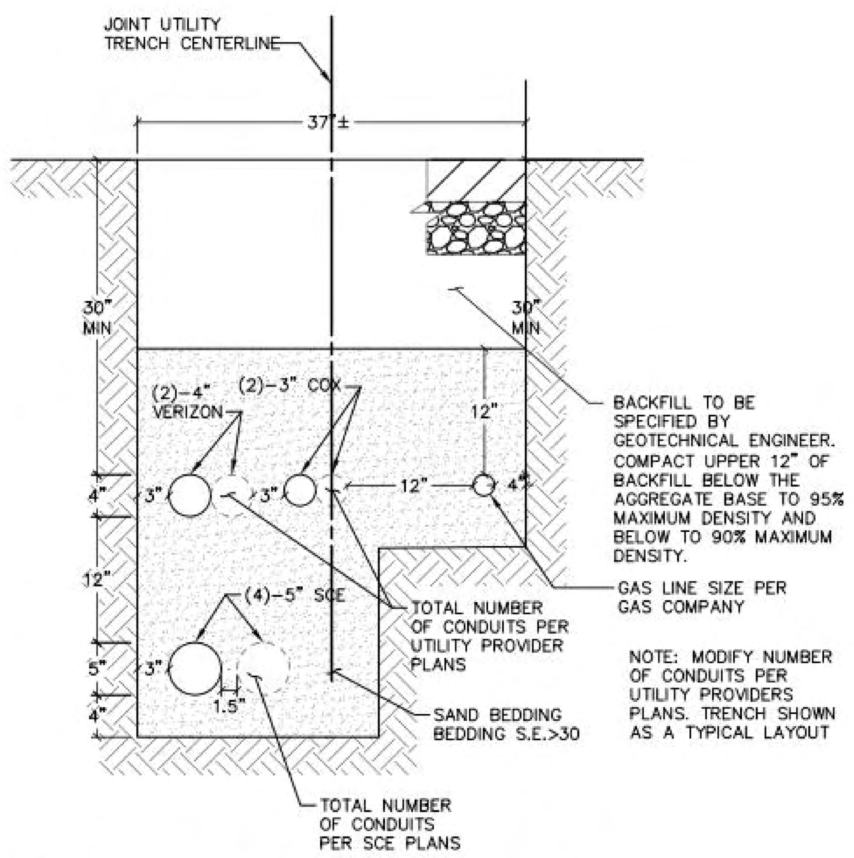
B 3 1 TYPICAL SECTION P.C.C. PAVEMENT FOR TRUCK LOOP
SCALE: N.T.S.



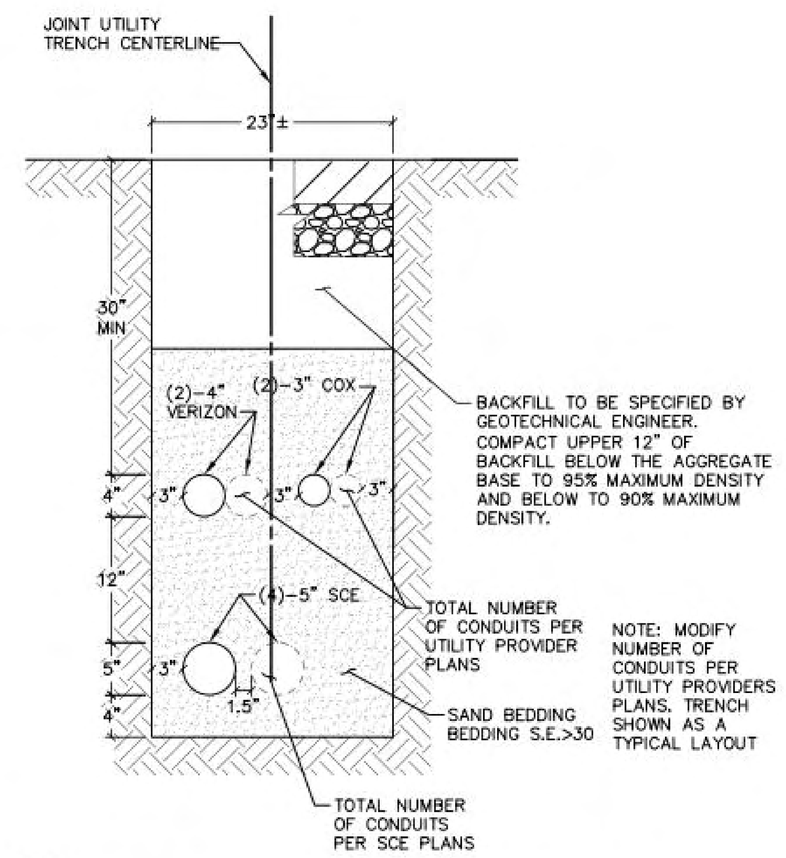
C 3 1 BIORETENTION BASIN
SCALE: N.T.S.



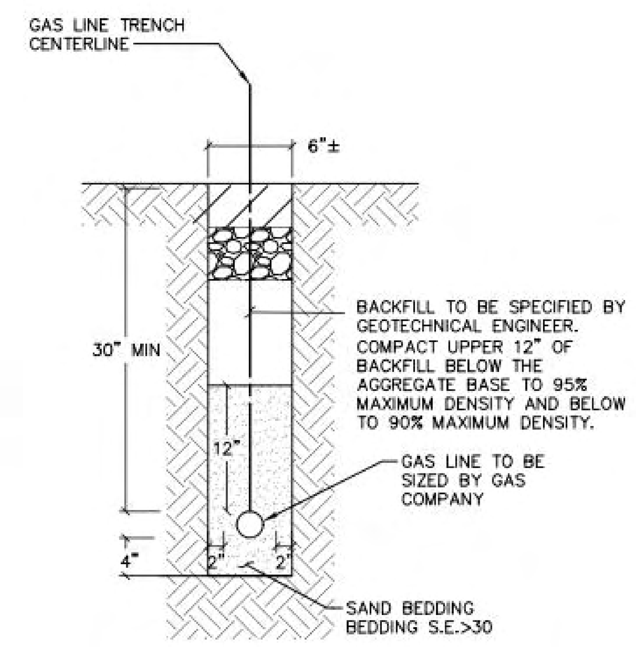
D 3 1 CLASS "C" TRENCH DRAIN
SCALE: N.T.S.



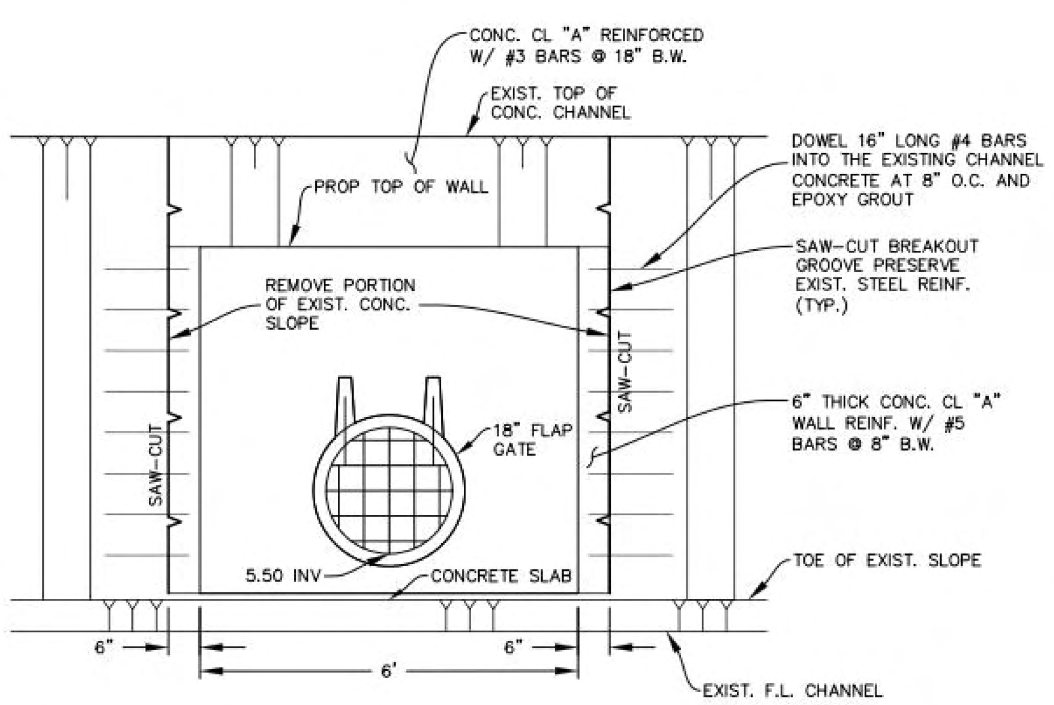
E 3 2 DRY UTILITY TRENCH DETAIL 1
SCALE: NTS



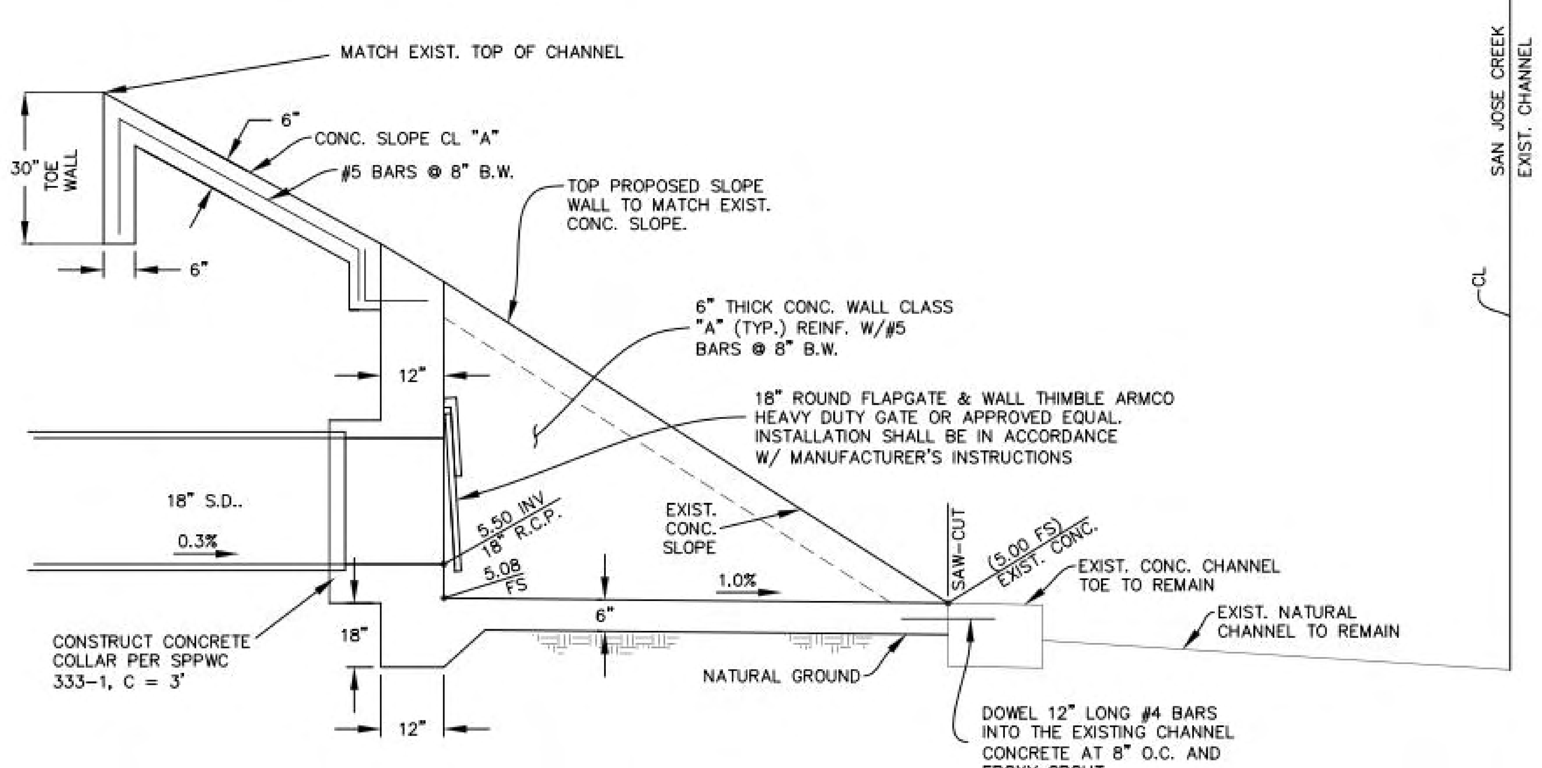
F 3 2 DRY UTILITY TRENCH DETAIL 2
SCALE: NTS



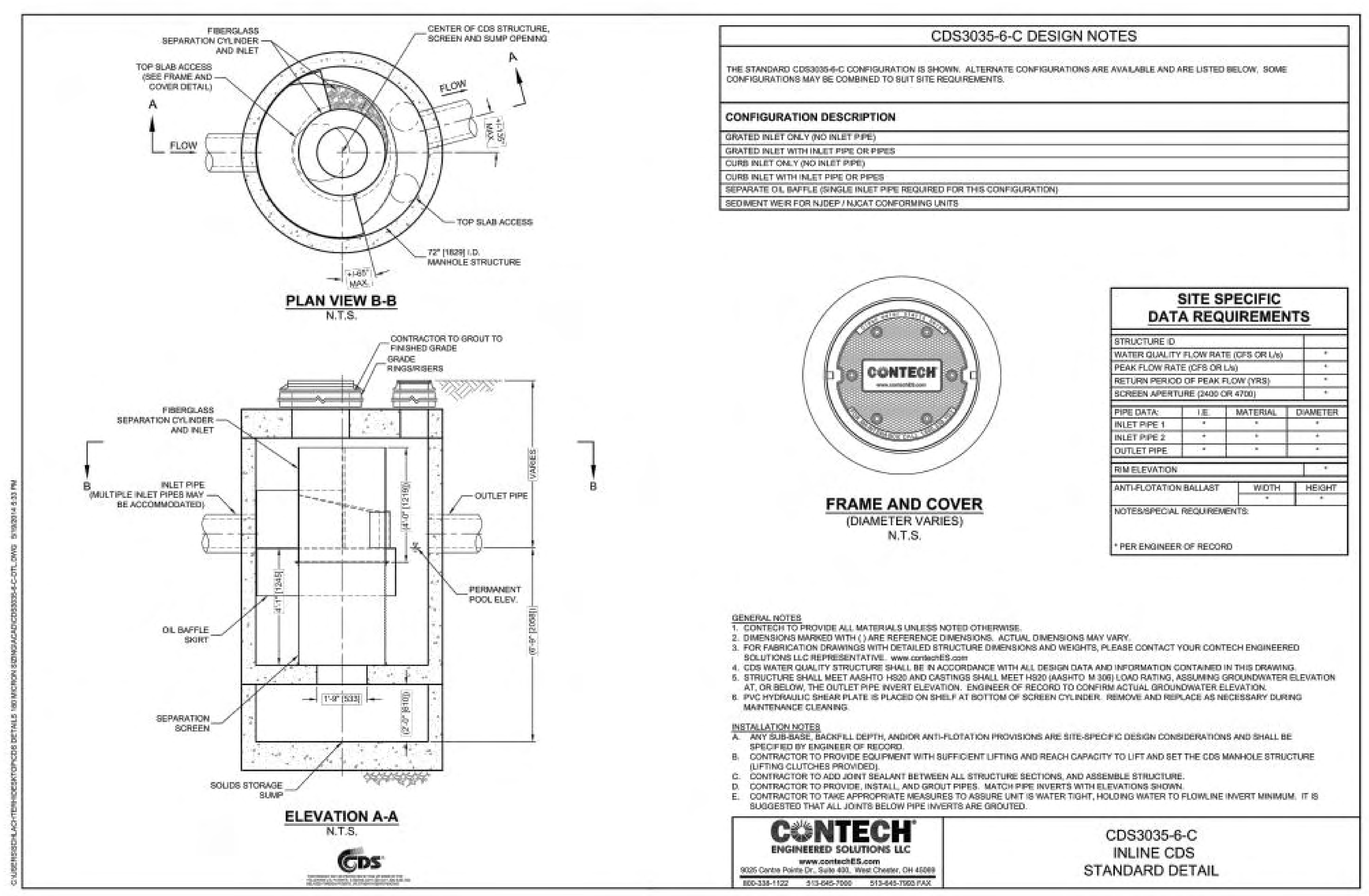
G 3 2 GAS LINE TRENCH DETAIL
SCALE: NTS



H 3 1 DRAINAGE OUTFALL ELEVATION
SCALE: NTS



I 1 2 CROSS-SECTION OF CREEK CHANNEL
SCALE: NTS



J 3 1 CROSS-SECTION OF CREEK CHANNEL
SCALE: NTS

NO.	DATE	REVISION BLOCK	APPD.

PREPARED FOR:
SYWEST DEVELOPMENT
150 Pelican Way, San Rafael, CA 94901
Phone: (415) 448-8362

PREPARED BY:
Stantec
111 East Victoria Street, Santa Barbara, CA 93101
Phone: (805) 963-9532

FRANCIS F. HAIN — PROJECT ENGINEER — 79821 R.C.E. — 6/21/2024 DATE

REGISTERED PROFESSIONAL ENGINEER FRANCIS F. HAIN NO 79821 CIVIL STATE OF CALIFORNIA

PRELIMINARY DETAILS
GOLETA BUSINESS PARK
GOLETA, CALIFORNIA

STANTEC PROJECT NO. 2064021500
SHEET 4 OF 5
PLAN DATE 6/24/2024

DESIGN ___ CHECKED ___
42-ENG SAVE DATE: 1/30/2023 12:29:04 PM PLOT BY: Corona-Perez, Jesus PLOT DATE: 6/21/2024 12:54:23 PM

EXCEPTION NOTES

(1) CORRESPONDS TO ITEM NUMBER IN PRELIMINARY TITLE REPORT WITH A LOCATABLE LEGAL DESCRIPTION (EASEMENT, LEASE, AGREEMENT, ETC.)

(2) CORRESPONDS TO ITEM NUMBER IN PRELIMINARY TITLE REPORT WITHOUT A LOCATABLE LEGAL DESCRIPTION (cOVENANTS, CONDITIONS, AGREEMENTS, NOTCIES, ETC.)

ITEM NUMBERS BELOW CORRESPOND TO ITEM NUMBER LISTED IN TITLE REPORT, NOT ALL EXCEPTIONS ARE LISTED. SURVEYOR'S NOTES REGARDING EXCEPTIONS ARE SHOWN IN PARENTHESIS.

(5) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS GRANTED IN A DOCUMENT.

GRANTED TO: SANTA BARBARA AND GOLETA WATER COMPANY
PURPOSE: WATER PIPELINES
RECORDED: FEBRUARY 4, 1888, BOOK 19, PAGE 420, OF DEEDS
AFFECTS: THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD

(6) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS GRANTED IN A DOCUMENT.

GRANTED TO: SOUTHERN COUNTIES GAS COMPANY OF CALIFORNIA
PURPOSE: PUBLIC UTILITIES
RECORDED: JANUARY 24, 1938, INSTRUMENT NO. 703, BOOK 422, PAGE 299, OF OFFICIAL RECORDS
AFFECTS: THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD
(NOT LOCATABLE FROM RECORD)

(7) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS GRANTED IN A DOCUMENT.
GRANTED TO: HARRY PINE DRAKE, ET UX.
PURPOSE: DRAINAGE PIPE LINES
RECORDED: SEPTEMBER 29, 1938, BOOK 433, PAGE 361, OF OFFICIAL RECORDS
AFFECTS: THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD
(DOES NOT AFFECT PARCEL)

(8) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS GRANTED IN A DOCUMENT.
GRANTED TO: THOMAS J. PLEMAN, A MARRIED MAN AS HIS SOLE AND SEPARATE PROPERTY
PURPOSE: DRAINAGE PIPE LINES
RECORDED: MARCH 17, 1959, INSTRUMENT NO. 8331, BOOK 1606, PAGE 252, OF OFFICIAL RECORDS
AFFECTS: A STRIP OF LAND 10 FEET IN WIDTH OVER A PORTION OF SAID LAND

REFERENCE IS HEREBY MADE TO SAID DOCUMENT FOR FULL PARTICULARS.

(9) THE FACT THAT THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE STREET, HIGHWAY, OR FREEWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED BY THE DOCUMENT,
RECORDED: MAY 12, 1960, INSTRUMENT NO. 15179, BOOK 1742, PAGE 248, OF OFFICIAL RECORDS
AFFECTS: THE SOUTHEASTERLY SIDE OF SAID LAND

(10) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS GRANTED IN A DOCUMENT.
GRANTED TO: THE COUNTY OF SANTA BARBARA AND SANTA BARBARA FLOOD CONTROL AND WATER
PURPOSE: ROADWAY
RECORDED: JULY 24, 1961, INSTRUMENT NO. 25744, BOOK 1860, PAGE 759, OF OFFICIAL RECORDS
AFFECTS: THE SOUTHEASTERLY 15 FEET

AND RECORDED: JULY 24, 1961, INSTRUMENT NO. 25745, BOOK 1860, PAGE 762, OF OFFICIAL RECORDS

(11) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS GRANTED IN A DOCUMENT.
GRANTED TO: THE CITY OF SANTA BARBARA
PURPOSE: AIRPORT CLEAR ZONE
RECORDED: MARCH 18, 1965, INSTRUMENT NO. 9635, BOOK 2096, PAGE 320, OF OFFICIAL RECORDS
AFFECTS: SAID LAND

(12) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: JUNE 17, 1966
RECORDING NO.: INSTRUMENT NO. 19878, BOOK 2155, PAGE 240 OF OFFICIAL RECORDS
AFFECTS: A STRIP OF LAND 10 FEET IN WIDTH OVER THE SOUTHWESTERLY PORTION

(13) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS GRANTED IN A DOCUMENT.
GRANTED TO: THE COUNTY OF SANTA BARBARA AND THE SANTA BARBARA COUNTY FLOOD CONTROL
PURPOSE: FLOOD CONTROL MAINTENANCE ROAD
RECORDED: JULY 7, 1967, INSTRUMENT NO. 19110, BOOK 2196, PAGE 507, OF OFFICIAL RECORDS
AFFECTS: THE NORTHWESTERLY 5 FEET OF THE SOUTHEASTERLY 20 FEET

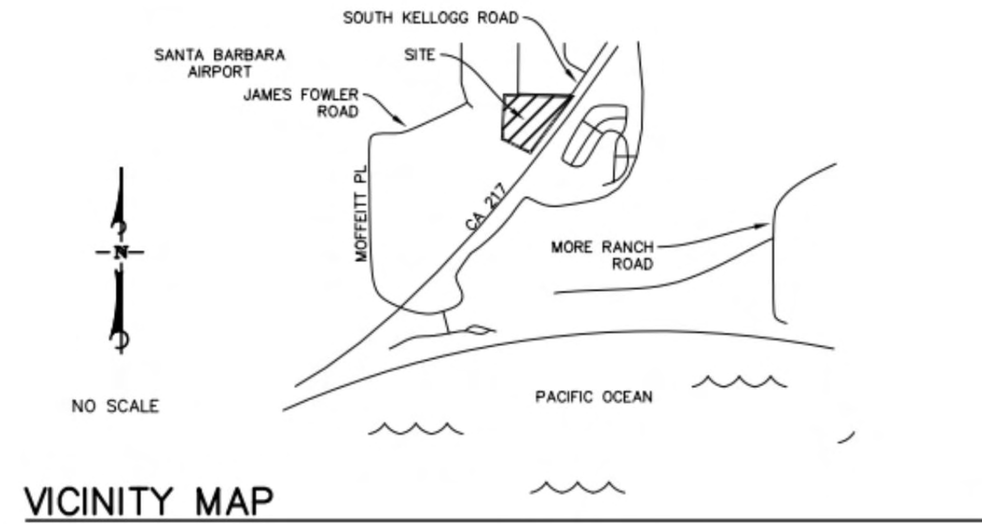
(14) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS GRANTED IN A DOCUMENT.
GRANTED TO: THE COUNTY OF SANTA BARBARA
PURPOSE: PUBLIC ROAD
RECORDED: AUGUST 16, 1974, INSTRUMENT NO. 30207, BOOK 2530, PAGE 158, OF OFFICIAL RECORDS
AFFECTS: A STRIP OF LAND 2 FEET IN WIDTH OVER THE NORTHEASTERLY PORTION WITHIN KELLOGG AVENUE

(15) MATTERS CONTAINED IN THAT CERTAIN DOCUMENT ENTITLED "AGREEMENT", BY AND BETWEEN R.H. POLLARD AND JOHN A. LANGFORD AND GOLETA LAND COMPANY, INC RECORDED SEPTEMBER 13, 1974, INSTRUMENT NO. 33565, BOOK 2533, PAGE 819, OF OFFICIAL RECORDS.

REFERENCE IS HEREBY MADE TO SAID DOCUMENT FOR FULL PARTICULARS. (LIGHT RESTRICTIONS ON NEIGHBORING PARCEL A OF PARCEL MAP No. 11,950)

(16) THE FACT THAT SAID LAND IS INCLUDED WITHIN A PROJECT AREA OF THE REDEVELOPMENT AGENCY SHOWN BELOW, AND THAT PROCEEDINGS FOR THE REDEVELOPMENT OF SAID PROJECT HAVE BEEN INSTITUTED UNDER THE REDEVELOPMENT LAW (SUCH REDEVELOPMENT TO PROCEED ONLY AFTER THE ADOPTION OF THE REDEVELOPMENT PLAN) AS DISCLOSED BY A DOCUMENT.

REDEVELOPMENT AGENCY: GOLETA OLD TOWN REDEVELOPMENT PROJECT
RECORDED: AUGUST 10, 1998, INSTRUMENT NO. 98-060552, OF OFFICIAL RECORDS



VICINITY MAP

SURVEYOR'S NOTES

1. MAPPING

TOPOGRAPHIC MAPPING WAS COMPILED AT A SCALE OF 1"=20'(GRAPHICALLY SHOWN HEREON AT 1"=60'), WITH A ONE FOOT CONTOUR INTERVAL, USING STANDARD PHOTOGRAMMETRIC METHODS AND PROCEDURES BY VERTICAL MAPPING RESOURCES FROM AERIAL PHOTOGRAPHY TAKEN AUGUST 12, 2015.

2. BOUNDARY

THE BOUNDARY AND EASEMENT INFORMATION SHOWN HEREON WAS COMPILED FROM PARCEL MAP No. 11,950 FILED IN BOOK 13, PAGE 58 OF PARCEL MAPS AND IS FOR TENTATIVE MAPPING PURPOSES ONLY. THIS SURVEY TIED TO SEVERAL MONUMENTS OF RECORD IN ORDER TO ORIENT THE TOPOGRAPHIC AND PLANIMETRIC MAPPING TO THE COMPILED BOUNDARY. THIS MAP DOES NOT REPRESENT A BOUNDARY ESTABLISHMENT SURVEY.

3. TITLE REPORT

THIS MAP WAS PREPARED IN CONJUNCTION WITH A PRELIMINARY TITLE REPORT ISSUED BY CHICAGO TITLE COMPANY AS ORDER NO.FWVE-775150061-KJ, DATED JULY 31, 2015. SAID REPORT IS PRESUMED TO BE COMPLETE AND ACCURATE. STANTEC DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF SAID PRELIMINARY REPORT.

4. BASIS OF BEARINGS AND COORDINATES

BEARINGS SHOWN ON THIS MAP ARE REFERENCED TO THE CALIFORNIA COORDINATE SYSTEM, NAD 83, ZONE 5 GRID (EPOCH 1991.35).

5. ELEVATIONS

ELEVATIONS SHOWN HEREON ARE EXPRESSED IN U.S. SURVEY FEET AND ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

6. AVIATION RESTRICTION LINEWORK

PLEASE REFER TO EXHIBIT PREPARED BY STANTEC FOR SYWEST DEVELOPMENT.

LEGAL DESCRIPTION

PARCEL "B" OF PARCEL MAP NO. 11950, IN THE CITY OF GOLETA, COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, IN BOOK 13, PAGE 58 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

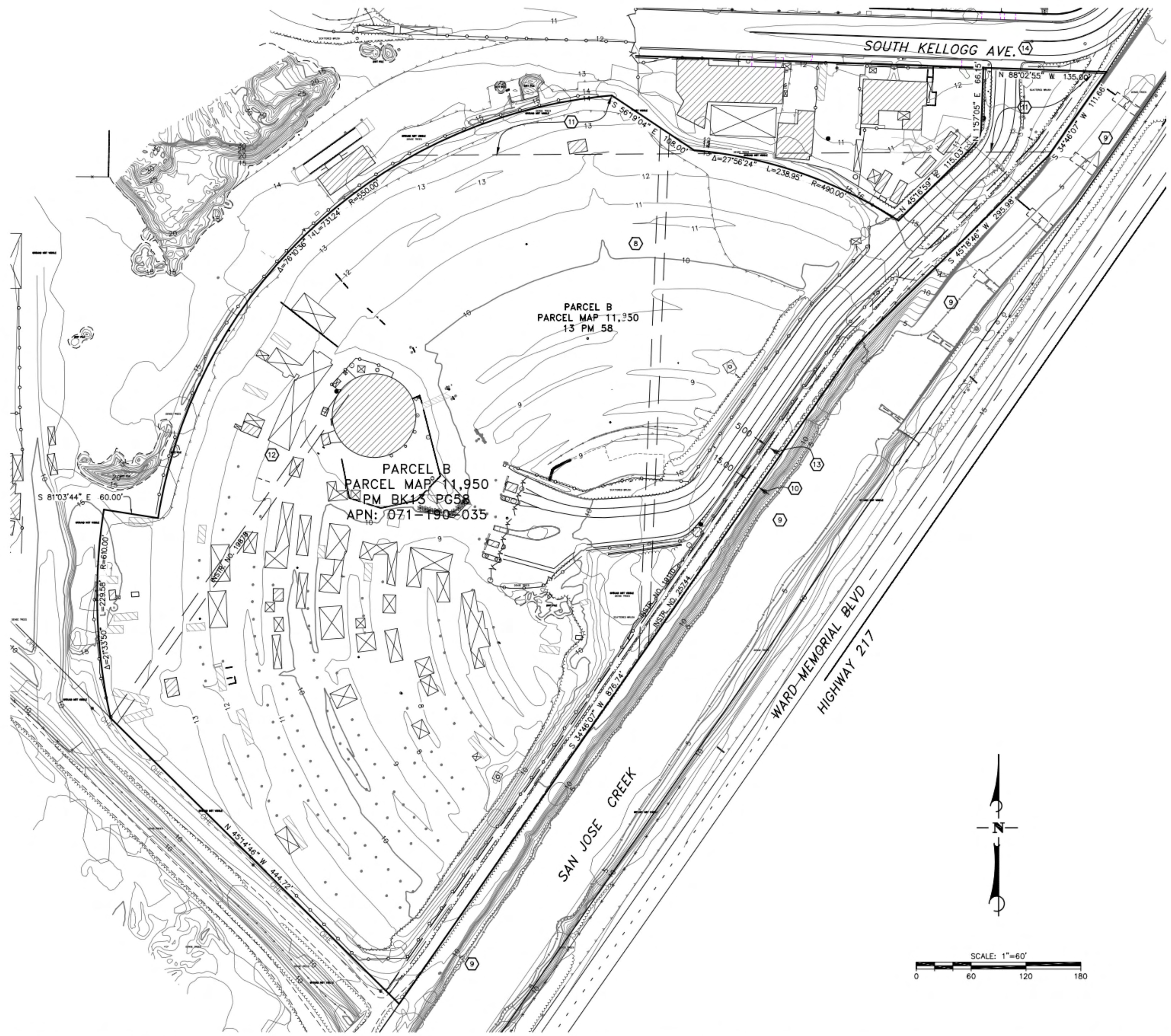
LEGEND

LINETYPES

- BOUNDARY LINE
- CHAINLINK/BARBWIRE FENCE
- GURARDRAIL
- DIRT ROAD
- 2527 — CONTOUR LINE (MAJOR)
- CONTOUR LINE (MINOR)
- DRIP/BRUSH LINE
- VFR APPROACH SURFACE
- IFR APPROACH SURFACE
- IFR DEPARTURE SURFACE
- 1993 ALUP AREA BOUNDARY
- ALUP DRAFT SAFETY ZONE 1
- 1993 ALUP & ALUP DRAFT COMMON BOUNDARY

SYMBOLS

- UTILITY MAN HOLE
- POLE – UTILITY
- VALVE (UNSPECIFIED)
- PALM TREE
- ×382.2 SPOT ELEVATIONS



SURVEYOR'S STATEMENT

THIS MAP, AND THE SURVEY IT REPRESENTS, WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.
AND CLOSURE REQUIREMENTS FOR SURVEY MEASUREMENTS WHICH CONTROL LAND BOUNDARIES FOR ALTA/ACSM LAND TITLE SURVEYS."

DATE: 2-8-2016

MARK A. CASTELLANOS
PLS 8369
LICENSE EXPIRES 12-31-2017

NO.	DATE	REVISION BLOCK	APPD.

PREPARED FOR:
SYWEST DEVELOPMENT
150 Pelican Way, San Rafael, CA 94901
Phone: (415) 448-8362

PREPARED BY:
Stantec
111 East Victoria Street, Santa Barbara, CA 93101
Phone: (805) 963-9532

DON E. DONALDSON	36364	06/30/2018
PROJECT ENGINEER	R.C.E.	DATE

PROFESSIONAL LAND SURVEYOR MARK A. CASTELLANOS NO. 8369 STATE OF CALIFORNIA

TOPOGRAPHIC & EXISTING EASEMENT MAP
GOLETA BUSINESS PARK

GOLETA, CALIFORNIA

STANTEC PROJECT NO. 2064021500
SHEET 5 OF 5
PLAN DATE 1/8/2018

DESIGN____ CHECKED____ 42-ENG SAVE DATE: 1/8/2018 4:06:40 PM PLOT BY: Hendren, Matthew PLOT DATE: 1/8/2018 4:06:56 PM

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Appendix B

Engineering Draws from Stormwater Control Plan specifying the structural FFE of 16.5 feet (NAVD88)

HATCH LEGEND:

- ASPHALT PAVEMENT (SEE DETAIL "A", SHEET 3)
- CONCRETE PAVEMENT (SEE DETAIL "B", SHEET 3)
- BIO-RETENTION AREA (SEE DETAIL "C", SHEET 3)

LEGEND:

- RETAINING WALL
- SD — PROPOSED STORM DRAIN
- SD — EXISTING STORM DRAIN
- S — EXISTING SEWER MAIN
- W — EXISTING WATER MAIN
- G — EXISTING GAS MAIN
- MANHOLE
- CATCH BASIN
- 50 — EXISTING MAJOR CONTOUR
- 49 — EXISTING MINOR CONTOUR
- 50 — PROPOSED MAJOR CONTOUR
- 49 — PROPOSED MINOR CONTOUR
- PROPOSED GRADING LIMITS
- PROJECT DRAINAGE BOUNDARY

FOR REDUCED PLANS
ORIGINAL SCALE IN INCHES
0 1 2 3

NO.	DATE	REVISION BLOCK	APPD.

PREPARED FOR:

PREPARED BY:
Stantec
111 East Victoria Street, Santa Barbara, CA 93101
Phone: (805) 963-9532

FRANCIS F. HAIN	79821	06/21/2024
PROJECT ENGINEER	R.C.E.	DATE

REGISTERED PROFESSIONAL ENGINEER FRANCIS F HAIN NO 79821 CIVIL STATE OF CALIFORNIA

PRELIMINARY STORMWATER CONTROL PLAN GOLETA BUSINESS PARK DEVELOPMENT ENVELOPE

GOLETA, CALIFORNIA

STANTEC PROJECT NO. 2064021500
SHEET 1 OF 3
PLAN DATE 06/21/2024

DESIGN_____ CHECKED_____
42-ENG SAVE DATE: 6/21/2024 11:49:49 AM PLOT DATE: 6/21/2024 1:27:26 PM PLOT BY: Corona-Perez, Jesus

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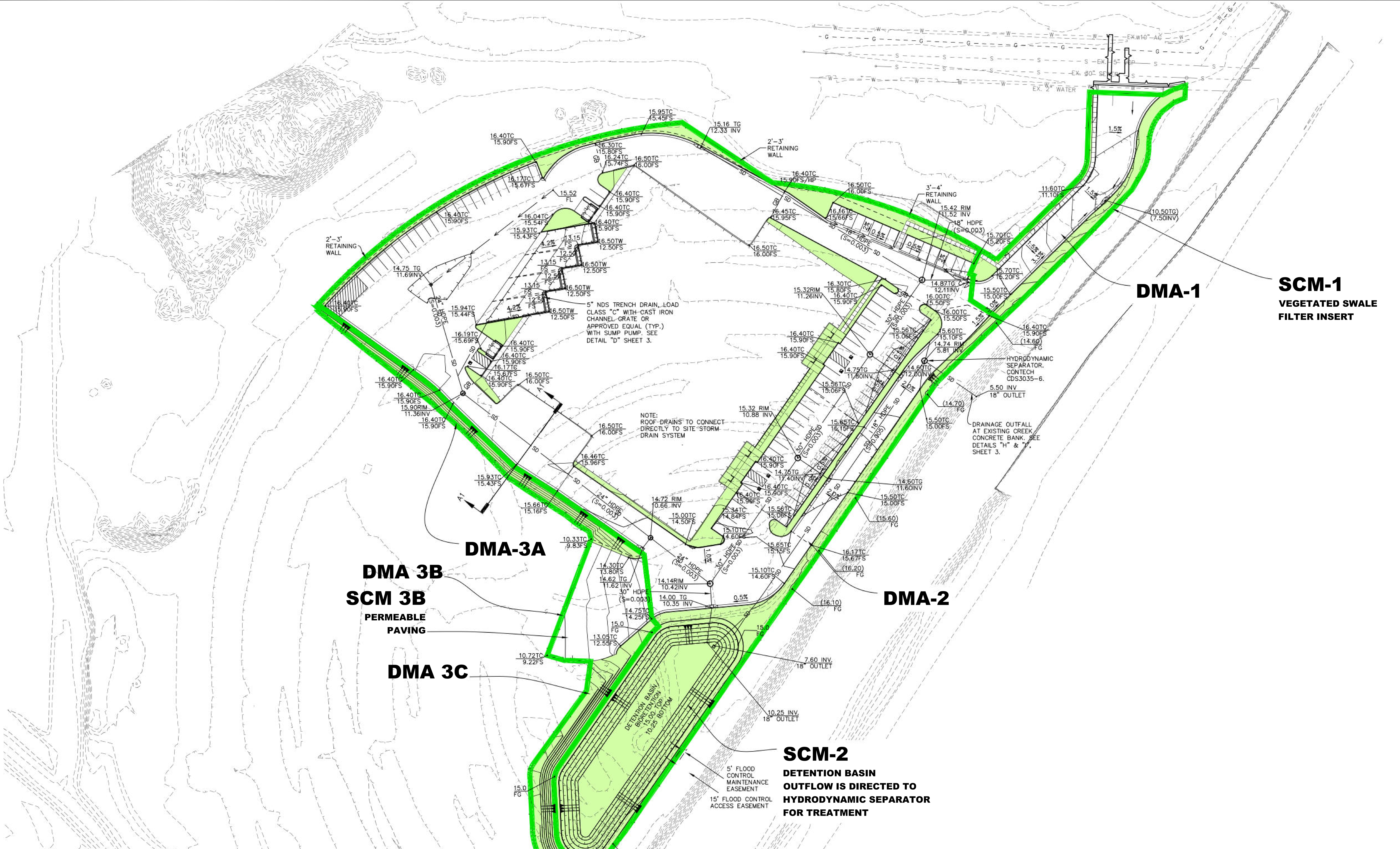
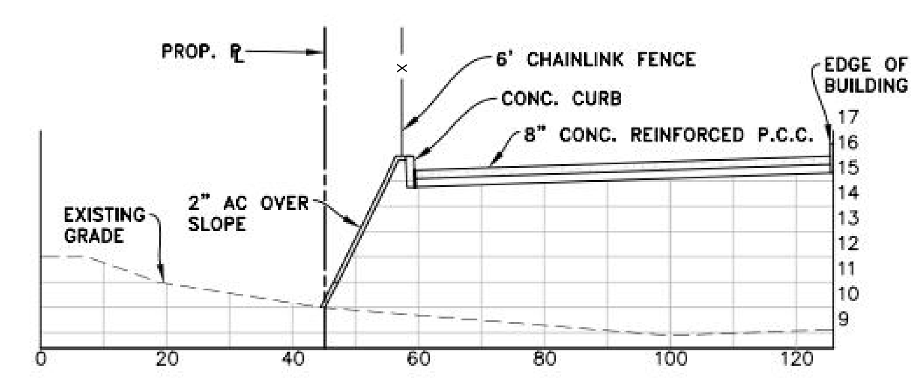


LEGEND:

- RETAINING WALL
- SD — PROPOSED STORM DRAIN
- SD — EXISTING STORM DRAIN
- S — EXISTING SEWER MAIN
- W — EXISTING WATER MAIN
- G — EXISTING GAS MAIN
- MANHOLE
- CATCH BASIN
- 50 — EXISTING MAJOR CONTOUR
- 49 — EXISTING MINOR CONTOUR
- 50 — PROPOSED MAJOR CONTOUR
- 49 — PROPOSED MINOR CONTOUR
- PROPOSED GRADING LIMITS
- PROPOSED VEGETATED AREAS



A1 GRADING LIMITS SECTION

SCALE: 1"=20' HOR, 1"=5' VERT

FOR REDUCED PLANS
ORIGINAL SCALE IN INCHES
0 1 2 3

NO.	DATE	REVISION BLOCK	APPD.

PREPARED FOR:

PREPARED BY:
Stantec
111 East Victoria Street, Santa Barbara, CA 93101
Phone: (805) 963-9532

FRANCIS F. HAIN — 79821 — 06/21/2024
PROJECT ENGINEER — R.C.E. — DATE

REGISTERED PROFESSIONAL ENGINEER
FRANCIS F. HAIN
NO 79821
CIVIL
STATE OF CALIFORNIA

**PRELIMINARY
STORMWATER CONTROL PLAN
GOLETA BUSINESS PARK
SCM LOCATIONS**
GOLETA, CALIFORNIA

STANTEC PROJECT NO.
2064021500

SHEET
2 OF 3

PLAN DATE
06/21/2024

DESIGN ____ CHECKED ____ 42-ENG SAVE DATE: 6/21/2024 11:49:49 AM PLOT BY: Corona-Perez, Jesus PLOT DATE: 6/21/2024 1:30:16 PM

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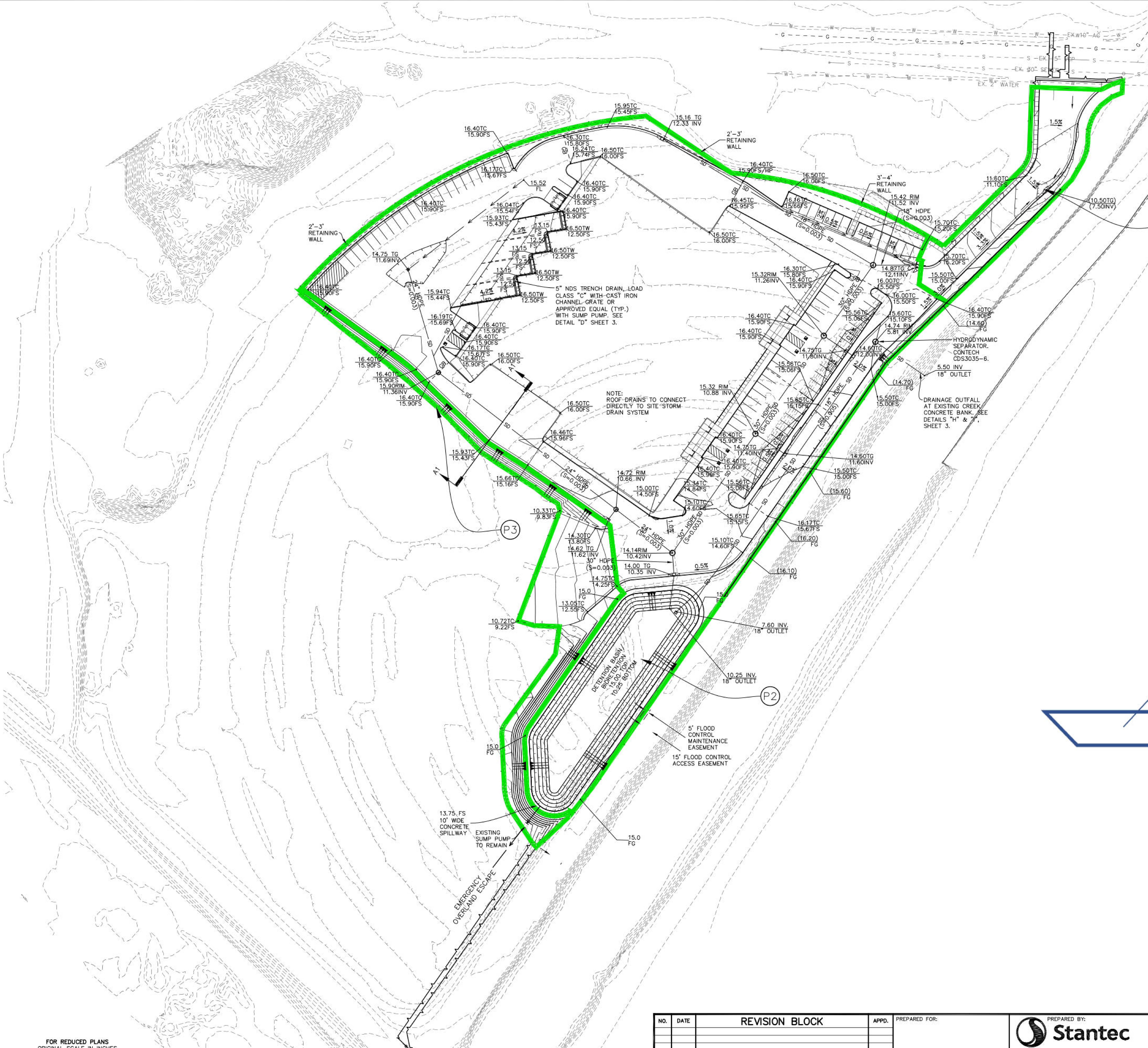

HATCH LEGEND:

- ASPHALT PAVEMENT (SEE DETAIL "A", SHEET 3)
- CONCRETE PAVEMENT (SEE DETAIL "B", SHEET 3)
- BIO-RETENTION AREA (SEE DETAIL "C", SHEET 3)

LEGEND:

- RETAINING WALL
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING GAS MAIN
- MANHOLE
- CATCH BASIN
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED GRADING LIMITS
- WATERSHED DESIGNATION FOR HYDROCAD

Return Period year	Pre-Project cfs	Post-Project cfs	Difference cfs
2x85th%	11.55	4.01	-7.54
2	14.32	5.11	-9.21
5	20.80	7.12	-13.68
10	25.11	8.27	-16.84
25	30.42	9.88	-20.54
50	34.30	12.43	-21.87
100	38.05	13.49	-24.56

N

SCALE: 1"=40'

0 40 80 120

FOR REDUCED PLANS ORIGINAL SCALE IN INCHES

0 1 2 3

NO.	DATE	REVISION BLOCK	APPD.

PREPARED FOR:

PREPARED BY: Stantec
111 East Victoria Street, Santa Barbara, CA 93101
Phone: (805) 963-9532

FRANCIS F. HAIN 79821 06/21/2024
PROJECT ENGINEER R.C.E. DATE

REGISTERED PROFESSIONAL ENGINEER FRANCIS F. HAIN NO 79821 CIVIL STATE OF CALIFORNIA

PRELIMINARY STORMWATER CONTROL PLAN GOLETA BUSINESS PARK STORM DRAINS AND WATERSHEDS

GOLETA, CALIFORNIA

STANTEC PROJECT NO. 2064021500

SHEET 3 OF 3

PLAN DATE 06/21/2024

DESIGN_____ CHECKED_____

42-ENG SAVE DATE: 6/21/2024 11:49:49 AM PLOT BY: Corona-Perez, Jesus PLOT DATE: 6/21/2024 1:22:26 PM

DRAWING: \\us0377-ppfss01\workgroup\2064\active\2064021500\ccad\drainage\sept2017 stormwater quality plan.dwg