COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: June 13, 2022

TO: Agricultural Advisory Committee

FROM: Melissa Ross, Planning Services Manager, 650/599-1559

SUBJECT: Consideration of Local Coastal Program amendment to facilitate future construction of a replacement fire station (County Fire Station Number 59) and extension of CSA-11 to serve the fire station and Pescadero Middle/High School located at 350-360 Butano Cut Off. Both projects are located in the Pescadero area of the unincorporated San Mateo County.

County File Number: PLN 2021-00056 (County of San Mateo)

PROPOSAL

The County of San Mateo proposes to amend the San Mateo County Local Coastal Program (LCP) to facilitate construction of a replacement County Fire Station (Station No.59 in Pescadero), partial demolition and remodel of the existing fire station at 1200 Pescadero Creek Road for use during emergencies, and CSA-11 (County Service Area 11) water line extension to serve the replacement fire station and the existing Pescadero Middle/High School located at 350-360 Butano Cut Off. The project is limited in scope for these critical facilities to continue to serve the surrounding south coast area and are not otherwise growth inducing.

The County Board of Supervisors allocated Measure K funds to replace Fire Station No. 59 due to its current location at 1200 Pescadero Creek Road that is partially within a floodplain which has resulted in annual interior flooding, mold, and plumbing backups to the barracks building, among other issues. Seasonal flooding of the adjacent Butano Creek also impacts Pescadero Creek Road by restricting and sometimes prohibiting fire personnel from accessing the broader Pescadero Community.

Pescadero Middle/High School serves approximately 170 students in Grades 6 through 12 and has been cited by the State Water Resources Control Board Division of Drinking Water for nitrate maximum contaminant level exceedance of its well (nontransient-noncommunity water system) and currently relies on bottled water delivered to the school. Past attempts to drill new wells have failed due to insufficient water quality and quantity on the property which will be remedied by connecting the school to CSA-11. Funding for planning and construction of the CSA-11 water line extension to serve the school is provided by the State Water Resources Control Board Prop 1 Technical Assistance Funding Program.

Location of the replacement fire station and water line extension is a joint effort between the County, the La Honda-Pescadero Unified School District, County Fire, and the Pescadero Community through multiple community meetings and the efforts of the Pescadero Fire Station Steering Committee.

The San Mateo County Local Agency Formation Commission adopted a Municipal Service Review for CSA-11 in May 2022 and will complete a Sphere of Influence/Annexation for CSA-11.

Proposed Amendments

To facilitate construction of the fire station facilities and CSA-11 connect, amendments to the LCP include the following (refer to Attachment A for full text):

1. Amendment to Policy 2.37 *Monitoring*
2. Amendment to Policy 2.39 *Service Area Boundary*
3. New Policy 2.60 *Pescadero Fire Station*
4. Amendment to Table 2.16 *Estimate of Water Consumption Demand at Land Use Plan Buildout for the Town of Pescadero*
5. Amendment to LCP Land Use map and LCP Land Use South Coast map.

No other policies or regulations are proposed for amendment.

APPLICATION PROCESS AND OTHER CONSULTATIONS

The Planning Department is processing this project in two stages: LCP amendment and subsequent Coastal Development Permit(s). Planning staff is processing the first stage, however, since the LCP amendment will facilitate construction to which the County has completed due diligence, schematic drawings and associated reports/studies, a more comprehensive discussion on the project is provided in this report.

The proposed amendments require formal consideration and action by both the Planning Commission and Board of Supervisors. If approved, the amendments will be submitted to the California Coastal Commission for certification. If the amendments are certified by the Coastal Commission, staff will begin processing the Coastal Development Permit(s).

Prior to these formal hearings and following consultation by AAC, staff intends to present the project to the Pescadero Municipal Advisory Council (June 14, 2022) and San Mateo County Farm Bureau (June 15, 2022).

No construction is authorized under the LCP amendment. Future development will require California Environmental Quality Act (CEQA) compliance, Coastal Development permitting, Local Agency Formation Commission Annexation and Sphere of Influence approval, and subsequent multiple building permit issuance for construction.

DECISION MAKER

Board of Supervisors

QUESTIONS FOR THE AGRICULURAL ADVISORY COMMITTEE

1. Any feedback on the potential effects on impacted agricultural uses as a result of the proposed amendments? Any recommended conditions of approval or other questions to address?

2. What position do you recommend that the Planning Department staff take with respect to the project application?

BACKGROUND

Report Prepared By: Melissa Ross, Planning Services Manager, mross@smcgov.org

Applicant: County of San Mateo

Owners: County of San Mateo; La Honda Pescadero Unified School District

Locations: County Fire Station No.59 located at 1200 Pescadero Creek Road; replacement County Fire Station No.59 and La Honda Pescadero Middle/High School located at 330 Butano Cut Off.

APNs and Parcel Sizes: 086-150-050 (Existing Fire Station Site) 1.287 acres; 087-053-010 (Pescadero High School and New Fire Station site) 350-360 Butano Cut Off, 28.61 acres.

Existing Zoning: Existing Fire Station (086-160-050): PAD/CD (Planned Agricultural District/Coastal Development); New Fire Station site and School (087-053-010): RM-CZ/CD (Resource Management-Coastal Zone/Coastal Development); Pipeline: right-of-way in the Coastal Zone.

General Plan Designation: Institutional

Local Coastal Plan Designations: Institutional (Existing Fire Station and School); Agricultural (New Fire Station Site).

Williamson Act: Not contracted

Existing Land Uses: Existing Fire Station, Middle/High School, fallow field

Water Supply: Continued CSA-11 water service to the Existing Fire Station; new CSA-11 water service to the Middle/High School and New Fire Station.

Sewage Disposal: Septic systems.

Flood Zone: Existing Fire Station: Zone AE (floodplain) and Zone X (area of minimal flooding). Middle/High School: Zone X (area of minimum flooding), 0.2 pct Annual Chance Flood Hazard, Zone AE (floodplain), Zone AE with Floodway. New Fire Station: Zone X (area of minimal flooding).

Environmental Evaluation: Initial Study and Mitigated Negative Declaration posting anticipated June 8, 2022 to July 7, 2022.

Setting: The existing fire station is located at the intersection of Pescadero Creek Road and Bean Hollow Road. Much of the site is relatively flat with a steep hill located behind the facility buildings, which include an apparatus bay and barracks. Existing septic system for this site is located on the adjacent uphill County owned property. The property is subject to annual onsite flooding and flooding of the adjacent Butano Creek and Pescadero Creek Road. The school site is developed with the Pescadero Middle/High School buildings and school related facilities, an agricultural field at the north west portion of the property, and an open field in the area of the proposed fire station.

Will the project be visible from a public road?

Yes. The existing fire station is currently visible from Pescadero Creek (County Scenic Corridor) and Bean Hollow Roads. Removal of the barracks building will lessen the visual impact on this parcel. The new fire station will be visible from Cloverdale Road (County Scenic Corridor) and Butano Cut Off, but not visible from Pescadero Creek Road due to topography and vegetation. The pipeline will be under the roadways, thus not visible.

Will any habitat or vegetation need to be removed for the project?

No habitat or vegetation removal is proposed at the existing fire station site. Ground disturbance for the new fire station will remove ruderal vegetation in the field, but no tree removal is proposed. Sensitive habitats are potentially located in the area of new fire station. Mitigation measures require pre-construction surveys, buffer zones, and on-site biologist during ground disturbance will ensure sensitive habitats are not adversely impacted. The pipeline will be undergrounded within the road right-of-way, including at the intersection of Cloverdale Road and Butano Cut Off to minimize potential impacts to sensitive habitats.

Is there prime soil on the project site?

The existing fire station does not contain prime soils. The pipeline is within mapped prime soils but will be installed underground within the road right-of way where soils conversion has already occurred. The new fire station is located on Land Capability Classification Class 1 and Storie Index Grade 100 soils. Conversion of prime

agricultural lands will occur. The project includes mitigation for the loss of prime lands at a 2:1 ratio (at least 3.5 acres) with an off-site mitigation parcel of similar quality soils, located within reasonable proximity, and for the parcel to be encumbered with an agricultural easement in perpetuity.

DISCUSSION

A. KEY ISSUES

1. Fire Station Needs Assessment and School Water Quality

In 2014, the County completed a Site Assessment of the exiting fire station facility at 1200 Pescadero Creek Road. The three-year study investigated the overall incident response direction, hazards, and building structural assessment. The report identified an even number of calls east and west of the station, location of the property within a FEMA special flood hazard area (floodplain) worsened by sea level rise, location adjacent to a mapped Tsunami Inundation area, and subject to annual flooding of Pescadero Creek Road at the Butano Creek Bridge. The structural assessment noted that although minor structural upgrades could be completed, the facility could not comply with life safety and immediate occupancy performance levels due to location within a flood hazard rendering the building inoperable during a flood event.

The Pescadero Middle/High School is served by one on-site domestic well that has had four nitrate and coliform maximum contaminant exceedances between 2015 and 2017 resulting in a State Water Resources Control Board citation and reliance on bottled water as a potable water source. Non-potable uses continue to draw from the well. A well drilled in 2019 on the school property to determine water available to serve the replacement fire station resulted in insufficient yield.

Further, the County's recently adopted Multi-Jurisdictional Local Hazard Mitigation Plan created long- and short- term programs and policies to reduce injury and damage resulting from natural hazards. The existing Pescadero Fire Station was identified as a vulnerable facility with a short-term timeline and high social equity lens priority. Additionally, the school is an evacuation center and served residents as such during the CZU Lightning Complex Fire. These critical facilities are essential to the health and welfare of the population, serve as community lifelines, and enable continuous operation of government functions. Replacement of the fire station and connection of the school to CSA-11 water will ensure these facilities can continue to effectively serve visitors and the Pescadero community.

2. Consistency with the Coastal Act

Amendments to the County's LCP must be consistent with the requirements of the California Coastal Act (CCA) as discussed below.

a. California Coastal Act Definitions

CCA Section 30106: *"Development" means, on land…, the placement or erection of any solid material or structure; change in the intensity of use of water, or of access thereto"*

CCA Section 30114: *"Public works means the following: (a) All production, storage, transmission, and recovery facilities for water owned or operated by any public agency"*

The fire station and water line extension are defined as development that must be consistent with the CCA. The water line extension is further defined as a public works facility owned and operated by the County ("Special District" defined under CA Section 30118).

b. California Coastal Act: Core Values

CCA Section 30001(c): *That to promote the public safety, health, and welfare, and to protect public and private property, wildlife, marine fisheries, and other ocean resources, and the natural environment, it is necessary to protect the ecological balance of the coastal zone and prevent its deterioration and destruction.*

CCA Section 30001.5(d): *That existing developed uses, and future developments that are carefully planned and developed consistent with the policies of this division, are essential to the economic and social well-being of the people of this state and especially to working persons employed within the coastal zone.*

The three-year study to determine incident response direction for the existing fire station, completed by consulting firm Ratcliff as part of the Site Assessment Report: Pescadero Fire Station[1] (Ratcliff Report), identified nearly an equal number of incident responses east and west of the existing station (454 incidents west; 452 incidents east) over a three-year period. The Mission of County Fire, *to protect life, property, and natural resources of its citizens and visitors through effective emergency response, incident mitigation, preparedness, education, and prevention*, is hindered when flooding events at Butano Creek Bridge render Pescadero Creek Road unpassable. Retention of the apparatus bay at the existing fire station for emergency response west

[1] Ratcliff. (2014). *Site Assessment: Pescadero Fire Station Report*.

of Pescadero Marsh bridge and the eastward location of the replacement fire station ensures County Fire staff are effective and efficient in responding to medical emergencies, traffic collisions, and flooding and fires, among other incidents along Highway 1 and within the greater Pescadero community. Connection of CSA-11 to these critical facilities ensures clean drinking water for residents, visitors, and people employed in the coastal zone both during normal operations and emergencies.

A CSA-11 Water Supply Yield and Sustainability Study was prepared evaluating municipal water service. The report considered multiple tasks: audit of existing connections; analysis of short-term and long-term impact, potential water quality impacts; potential LCP buildout; climate change modeling; anticipated non-revenue water (leaks); and potential additional sources of supply. Estimates use the two highest months of water usage based on LCP Policy 1.8 (*Land Uses and Development Densities in Rural Areas)*. To summarize a few points[2]:

(1) Short-Term Effects on CSA-11 with Fire Station and School.

Based on pre-Covid water consumption, total new demand on CSA-11 from connection to the school for drinking water purposes, is estimated at an average of 835 gallons per day (gpd), an increase of 4.3%. Non-potable water uses (i.e., bus washing, storage tank cleaning) are currently served by the existing well and will remained served by the well with no anticipated adverse impacts.

Increase in potable water usage for the new and existing fire stations is minimal given the demolition of the barracks and use of the existing fire station site for emergency staffing. Potable water use is estimated at 326 gpd for the new station (similar to the existing station) with 8 gpd for 8 days for emergency staffing at the existing station, an overall 0.04% increase. Non-potable water uses at the existing fire station can continue to use the existing well and non-potable water uses at the new fire station location can utilize the school well, both with no anticipated adverse impacts.

(2) Project Effects of Connecting the Fire Station and School.

The aquifer serving CSA-11 continues to be in overdraft as it has since 1992. Well Nos. 1 and 2 serve as standby wells with Well No. 3 operating as the primary well. Under static conditions (no pumping), water levels are anticipated to drop below the top

[2] Todd Groundwater. *Town of Pescadero (CSA-11) Water Supply Yield and Sustainability (Draft)*, 2021.

of Well No. 1 well screen around year 2039 and Well No. 3 around year 2105. Connection of the fire station and school to CSA-11 may result in water levels declining to the top of well screens in 2035 for Well No. 1 and 2074 for Well No. 3 under static conditions. Under non-static conditions (pumping) and the project implemented, Well No. 3 could be impacted in approximately 2057 at which point the pump could be lowered. Well No. 1 may also need to be lowered and upsized. The Todd Groundwater report did not indicate any adverse impacts to coastal resources resulting from CSA-11 service to these uses.

The LCP amendments are consistent with the core values and will facilitate development that continues to protect coastal resources and is essential to working persons employed within the coastal zone.

c. California Coastal Act: Public Access

CCA Section 30210: *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Though no public access is proposed with this project, these critical facilities support public recreation and coastal access by ensuring the public's safety when responding to incidents and other calls for service along the coast and through student and public education focusing on understanding and protection of coastal resources.

The LCP amendment is consistent with public access in that it does not lessen public access requirements. Future development facilitated by the amendment will continue to protect public access and recreation through public education and emergency response.

d. California Coastal Act: Land Resources

CCA Section 30240: *Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

CCA Section 30241: *The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection*

of the areas' agricultural economy, and conflicts shall be minimized between agricultural and urban land uses through all of the following:

(a) *By establishing stable boundaries separating urban and rural areas, including, where necessary, clearly defined buffer areas to minimize conflicts between agricultural and urban land uses.*

(b) *By permitting the conversion of agricultural land surrounded by urban uses where the conversion of the land would be consistent with Section 30250.*

(c) *By developing available lands not suited for agriculture prior to the conversion of agricultural lands.*

(d) *By assuring that public service and facility expansions and nonagricultural development do not impair agricultural viability, either through increased assessment costs or degraded air and water quality.*

A Biological Habitat Evaluation Report evaluating both fire station locations and pipeline was prepared and identified emergent wetlands in the drainage channel parallel to Cloverdale Road north of Butano Cut Off near the new fire station. Sensitive habitats were not identified on the existing fire station parcel or within the proposed pipeline area. No direct impacts to sensitive habitats were identified since the new fire station is setback from the emergent wetlands, however potential indirect impacts can occur without mitigation. As such, mitigation will include temporary exclusion fencing, timing of construction, and pre-construction surveys, among others, will ensure compliance with CCA 30240.

The entirety of the greater Pescadero area is rural, thus the use of the school is the nearest single urban use. As applicable, CCA Section 30250 outlines new development location to be *within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it would not have significant adverse effects, either individually or cumulatively, on coastal resources*. In considering Section 30250 and Section 30241(d), the County explored 14 parcels for location of the new fire station, both privately and publicly owned, within the Pescadero rural and rural service center areas for impacts to coastal resources. The Steering Committee and County selected the school parcel based on available parcels and constraints, impacts to coastal resources including agricultural lands, community input, and water needs of the school.

As identified by the United States Department of Agricultural Natural Resources Conservation Service and defined by LCP Policy 5.1, the new fire station will be located on mapped prime agricultural soils (Land Capability Classification Class 1 soils and Grade 1 Storie Index soils). Though the field has been fallow since 2013, construction of the fire station will convert prime agricultural soils. Loss of agricultural lands will be mitigated by an off-site agricultural mitigation parcel to be encumbered by an agricultural easement in perpetuity (2:1 ratio). Securing the off-site mitigation parcel and compliance with relevant LCP policies will occur during the Coastal Development Permit stage. The field north of the new fire station is and remains under agricultural production. An approximately 9- to 17-foot buffer from the proposed fence line and leach field, respectively, are proposed. The agricultural field is unaffected by CSA-11 pipeline construction, which will occur within the Cloverdale and Butano Cut Off road prism and the existing fire station is not located prime agricultural land.

The LCP amendment are consistent with the land resources in that the amendments do no lessen protections for sensitive habitats nor would the future development adversely impact sensitive habitats, as mitigated. The amendment also does not reduce overall agricultural protections. Future development resulting from the LCP amendment will impact agricultural lands on one site, however, this is mitigated through an off-site agricultural parcel.

e. California Coastal Act: Development

CCA Section 30251: *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

CCA Section 30253: *New development shall do all of the following:*

(a) *Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*

(b) *Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or*

destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

(c) *Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.*

(d) *Minimize energy consumption and vehicle miles traveled.*

(e) *Where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses.*

CCA Section 30254: *New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal-dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.*

Demolition of the existing fire station barracks will lessen the visual impact on the Pescadero Creek Road county scenic corridor and construction of the pipeline within and under the road right-of-way will not visually intrude into the scenic area. The new fire station is designed to minimize topographical alterations and be compatible architectural character of the surrounding rural community.

Minimizing hazards risks, erosion, and air quality are incorporated into the project in that removal of the barracks removes a building within a floodplain, no active faults were located in the area of the new fire station, stormwater and erosion control measures are part of the design and construction as required by the County's National Pollutant Discharge Elimination System Permit, and both construction and operation of the fire stations will require a permit from Bay Area Air Quality Management District. The new station will be more energy efficient compared with the existing station and the same number of

employees and relative distance to the existing station will not significantly increase vehicle miles travelled.

Retaining the existing apparatus bay and construction of the new fire station provides County fire staff a state-of-the-art station and two locations from which to plan and respond to calls and incidents during flood events across Pescadero Creek Road. CSA-11 service is expanding to serve the new fire station and school but other service connections along the pipeline are prohibited. Water flow between the new upstream connection and the fire station and school will be monitored for leaks and illegal connections. The LCP amendment does not lessen hazards protections and serves to facilitate fire station facilities, pipeline construction and school connection and is otherwise not growth inducing.

3. Compliance with Planned Agricultural District (PAD) Regulations:

The existing fire station and pipeline are zoned PAD; the new fire station location is zoned Resource Management-Coastal Zone (RM-CZ). If the LCP amendments are certified and subsequent Coastal Development Permit(s) approved, the barracks at the existing fire station can be demolished and the pipeline constructed (all subject to applicable building permit issuance). As discussed previously, the existing fire station is not located on prime agricultural lands and any prime agricultural lands in the area of the pipeline are already converted (PAD Sections 6355.D. and E. *Criteria for the Conversion of Prime Agricultural Lands* and *Criteria for the Conversion of Lands Suitable for Agriculture and Other Land*, respectively). Future construction at the existing fire station site includes demolition of the barracks and minor improvements to the apparatus bay and CSA-11 will continue to serve the apparatus bay as a potable water source (PAD Section 6355.B. *Water Supply Criteria*).

4. Compliance with Local Coastal Program (LCP) Policies:

Multiple policies are identified to be modified or added to facilitate the project. Additionally, two LCP maps are proposed to be updated designating the new fire station site as an “Institutional” land use. Below is a brief description of the modifications, refer to Attachment A for the full text amendments.

a. Policy 2.37 (*Monitoring)*

This policy requires monitoring of water systems for consumption by use. CSA-11 water consumption is currently monitored but given the addition of the fire station and school, this policy is being amended to ensure groundwater level trends and sustainability are also monitored.

Updates to buildout capacity limits may be explored in depth at a later date with additional data after project implementation and/or through exploration of a Pescadero community plan.

b. Policy 2.39 (*Service Area Boundary)*

This policy limits CSA-11 water connections to the fire protection facilities serving the rural service center on July 28, 1993 and is being amended to include service to the new fire station and school. The policy is specific to fire protection facilities and public schools serving the rural service center, thus no other connections along the pipeline will be allowed.

c. Policy 2.60 (*Pescadero Fire Station)*

This policy is being added to identify where LCP policy conflicts may occur regarding construction of the fire station at the Butano Cut Off location, specifically that construction of the fire station shall not effectively be prohibited provided maximum compliance with protection for agricultural lands is achieved. To this, the County will mitigate conversion of prime agricultural lands by acquiring an off-site mitigation parcel where an agricultural easement will encumber prime agricultural lands at a 2:1 ratio.

d. Table 2.16 *Estimate of Water Consumption Demand at Land Use Plan Buildout for the Town of Pescadero*

Based on the estimated water usage of the fire station facilities and school, Table 2.16 is amended to list the school and estimated water consumption for both uses. The estimated Total Demand GPD in the table is increasing by 225 gallons per day to account for the fire station and school connections. However, as noted in the Todd Groundwater Report when considering existing connections, LCP buildout, and the addition of the fire station and school facilities: *Estimated total water use with the additional connections plus the middle/high school (a demand that was not anticipated in the LCP) is 48,544 gpd, or 43-68 percent of the LCP estimate.* This is below the adjusted total gpd range of 72,275 – 113,745 and may be due to water efficient appliances and fixtures, and overall water conservation. As previously noted, buildout limits may be explored in depth at a later date with additional data after project implementation and/or through exploration of a Pescadero community plan.

e. LCP Map Amendments

For consistency with land use designations for public facilities, a land use designation change is included in the project to change the LCP Land Use Designation from “Agriculture” to “Institutional” for the portion for the parcel proposed for the replacement fire station. Two LCP maps are proposed for amendment: Land Use (Pescadero) and Land Use (South Coast). The existing fire station and portion of the parcel occupied by the school are already designated Institutional on the same maps. The land use designation change is consistent with the County’s General Plan which already identifies the existing fire station and entire school parcel as Institutional.

The LCP amendments are consistent with other components of the LCP and, if approved and certified, implementation of the project would be consistent with other LCP Policies relating to Locating and Planning New Development, Public Works, Agriculture, Sensitive Habitats, Visual Resources, and Hazards in that the project would be allowed subject to permitting, CSA-11 water can serve the community and the additional uses, agricultural impacts would be mitigated, potential sensitive habitats impacts are also mitigated, conceptual design is consistent with the surrounding community, and hazards are reduced.

ATTACHMENTS

A. Proposed Amendments and Maps
B. Fire Station Plans
C. CSA-11 Plans
D. Todd Groundwater Report
E. Ratcliff Report: Site Assessment
F. Wetland Delineation Report

SSB:cmc – SSBGG0190_WCU.DOCX

Proposed Amendments

The following LCP amendments are proposed to facilitate construction of the replacement fire station and water line extension. Deleted text is ~~strikethrough~~, added text in **bold**.

1. LCP PUBLIC WORKS COMPONENT (AMENDED POLICY)

   2.37 Monitoring

   Require the managing entity of the water system to monitor water consumption by use**, groundwater level trends and sustainability,** and revise the estimated buildout capacity limits and the reservations for the priority uses annually on the basis of this monitoring.

2. LCP PUBLIC WORKS COMPONENT (AMENDED POLICY)

   2.39 Service Area Boundary

   Limit water connections to uses within the boundary of the rural service center and to the fire protection facilit~~y~~**ies and public schools** serving the rural service center ~~on July 28, 1993~~.

3. LCP PUBLIC WORKS COMPONENT (NEW POLICY)

   2.60 Pescadero Fire Station

   No provision of this Local Coastal Program shall be interpreted in such a manner as to prohibit, or effectively prohibit, the construction and use of a fire protection facility and related uses at 350-360 Butano Cut Off in the Town of Pescadero, subject to conditions of a permit under Policy 5.6(b)(6) that achieves maximum compliance with Local Coastal Plan policies.

4. LCP PUBLIC WORKS COMPONENT (AMENDED TABLE)

   Table 2.16 *Estimate of Water Consumption Demand at Land Use Plan Buildout for the Town of Pescadero* is amended to reflect estimated water use of the replacement fire station, existing fire station as modified for use during emergencies, and addition of the school.

TABLE 2.16

ESTIMATE OF WATER CONSUMPTION DEMAND AT LAND USE PLAN BUILDOUT FOR THE TOWN OF PESCADERO

	Existing	Proposed	Total	Demand GPD[5]
Dwelling Units	125[1]	125[3]	250	61,250–97,000
Commercial Outlets	20[2]	20[4]	40	9,800–15,520
Fire Station[6]	1	1	1	~~1,000~~ **390**
Public School[7]	**1**	**1**	**1**	**835**
TOTAL				~~**72,050 –113,520**~~ **72,275 – 113,745**

NOTES:

1. In the special census done for Pescadero in 1977, there were 100 households and 143 dwelling units in the census area. For the purpose of projecting water connections, it is assumed that when safe water is available, approximately 25 of the abandoned dwellings will be rehabilitated or repaired.
2. Count of retail outlets.
3. All lots infilled, all residential areas fully developed at densities shown.
4. Assumes slightly higher ratio of acreage to commercial outlets than exists, since best sites are already developed.
5. Assumes average consumption per connection at 245 to 388 gpd.

   Basis: Per capita consumption of 70 gpd is low compared to Midcoast per capita consumption of 90 gpd; 70 gpd is considered sufficient in Pescadero providing water conservation is practiced and/or public domestic supply is supplemented by water from existing private wells for non-potable uses such as lawn watering or car washings. Household size at buildout is assumed to be 3.5 persons. (3.5) (70) = 245 gpd. It is also assumed that each commercial outlet will consume as much water as one residence, with stores and similar establishments with low water needs balancing restaurants with greater water needs.

6. **County Fire Station 59 average daily (CSA-11) potable water use is estimated at 326 gpd for the replacement station located at 350-360 Butano Cut Off (data based on actual use for the fire station facility at 1200 Pescadero Creek Road). Total GPD demand in this Table includes the fire station at Butano Cut Off and removal of the barracks and continued emergency staffing of the apparatus bay at 1200 Pescadero Creek Road of 8 days per year at 8 gpd. Source: Todd Groundwater, Town of Pescadero (CSA-11) Water Supply Yield and Sustainability Study, Final, March 31, 2021.**
7. **Pescadero Middle/High School located at 350-360 Butano Cut Off anticipated average daily potable water use is 835 gpd. Source: Todd Groundwater, Town of Pescadero (CSA-11) Water Supply Yield and Sustainability Study, Final, March 31, 2021.**

5. LCP LAND USE MAPS (AMENDMENTS)

For consistency with land use designations for public facilities, a land use designation change is included in the project to changing the LCP Land Use Designation from “Agriculture” to “Institutional” for the portion for the parcel proposed for the replacement fire station. Two LCP maps are proposed for amendment: Land Use (Pescadero) and Land Use (South Coast). The existing fire station and portion of the parcel occupied by the school are already designated Institutional on the same maps. The land use designation change is consistent with the County’s General Plan which already identifies the existing fire station and school parcel as Institutional.

SSB:cmc – SSBGG0190_WCU.DOCX

COUNTY OF SAN MATEO - PLANNING AND BUILDING DEPARTMENT

ATTACHMENT A

LAND USE

NORTH

0 400 800 1600 FEET

0 122 244 488 METERS

- LOW DENSITY RESIDENTIAL 0.3-2.0 DU/AC
- MEDIUM DENSITY RESIDENTIAL 6.1-9.0 DU/AC
- MEDIUM HIGH DENSITY RESIDENTIAL 9.1-16.0 DU/AC
- NEIGHBORHOOD COMMERCIAL
- INSTITUTIONAL
- PUBLIC RECREATION
- AGRICULTURE
- WATER

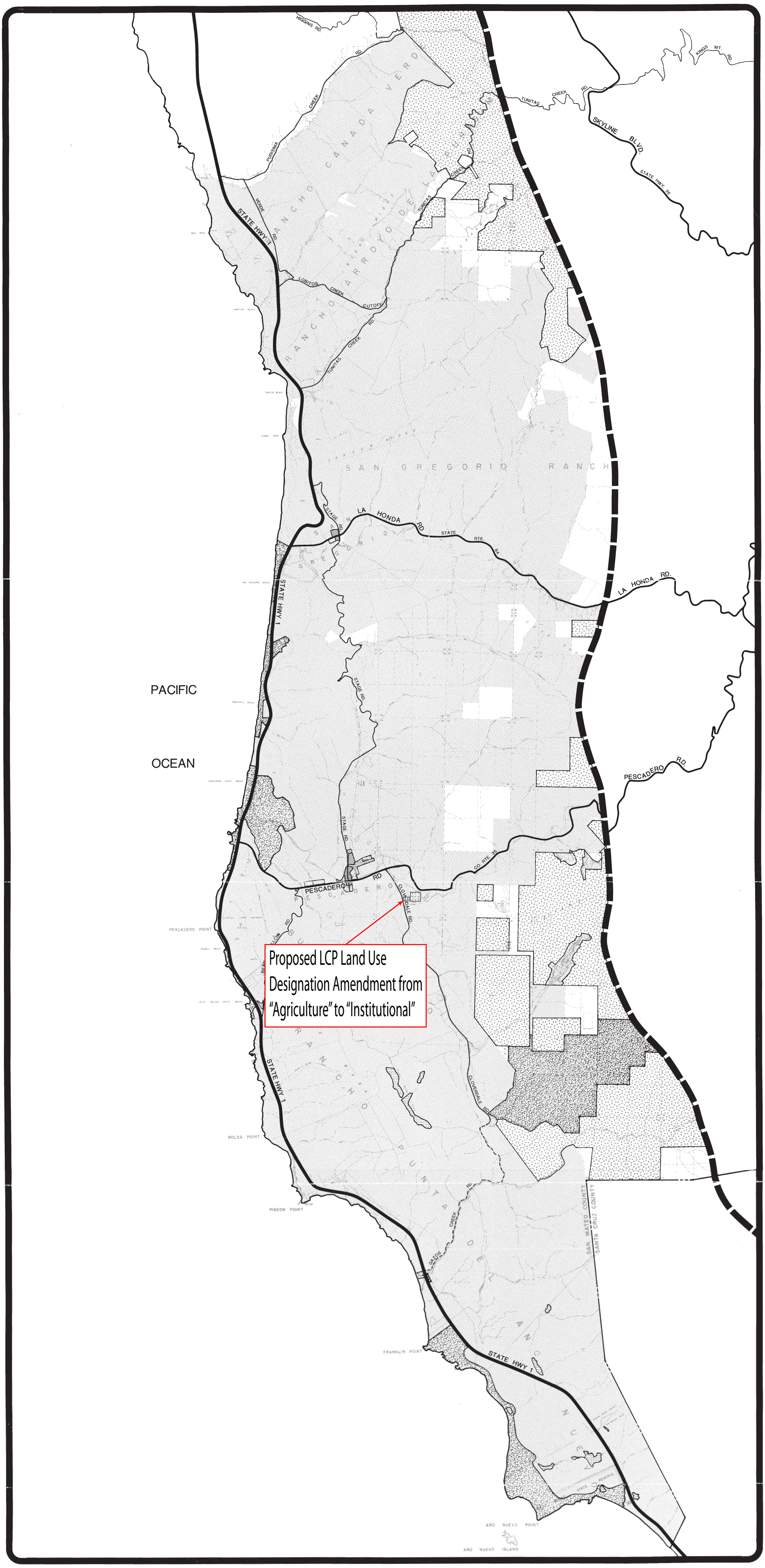
SOURCE: DATE:

PESCADERO

LOCAL COASTAL PROGRAM

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

PLANNING AND DEVELOPMENT DIVISION • SAN MATEO COUNTY, CALIFORNIA



SOUTH-COAST

LOCAL COASTAL PROGRAM

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PLANNING AND DEVELOPMENT DIVISION • SAN MATEO COUNTY, CALIFORNIA

LAND USE

NORTH

0 1 2 3 4 MILES
0 1.6 3.2 4.8 6.4 KILOMETERS

- LOW DENSITY RESIDENTIAL 0.3-2.0 DU/AC
- MEDIUM LOW DENSITY RESIDENTIAL 2.1-6.0 DU/AC
- MEDIUM HIGH DENSITY RESIDENTIAL 9.1-16.0 DU/AC
- NEIGHBORHOOD COMMERCIAL
- COMMERCIAL RECREATION
- INSTITUTIONAL
- PUBLIC RECREATION
- AGRICULTURE
- TIMBER PRESERVE
- GENERAL OPEN SPACE
- WATER

SOURCE:

DATE:

COUNTY OF SAN MATEO - PLANNING AND BUILDING DEPARTMENT

ATTACHMENT B

PESCADERO FIRE STATION 59 RELOCATION PROJECT

PROPOSED FIRE STATION 59 LOCATION: 350-360 BUTANO CUTOFF, PESCADERO, CA

EXISTING FIRE STATION 59 LOCATION: 1200 PESCADERO RD. PESCADERO, CA

ABBREVIATIONS

#	POUND/NUMBER	CPT.	CARPET	FLUOR.	FLUORESCENT	MTL.	METAL	SMS.	SHEET METAL SCREW
&	AND	CTSK.	COUNTERSINK	FRPF.	FIREPROOF	MUL.	MULLION	SPEC.	SPECIFICATION
(E)	EXISTING			FT.	FOOT/FEET			SQ.	SQUARE
(N)	NEW	D.F.	DRINKING FOUNTAIN	FTG.	FOOTING	N.	NORTH	STA.	STATION
<	ANGLE	D.O.	DOOR OPENING	FURR.	FURRING	N.I.C.	NOT IN CONTRACT	STD.	STANDARD
@	AT	D.S.P.	DRY STANDPIPE	FUT.	FUTURE	N.T.S.	NOT TO SCALE	STL.	STEEL
C/L	CENTERLINE	DBL.	DOUBLE			NO.	NUMBER	STOR.	STORAGE
P/L	PLATE/PROPERTY LINE	DEPT.	DEPARTMENT	G.B.	GRAB BAR/GRADE BREAK	NOM.	NOMINAL	STRUC.	STRUCTURAL
ø/DIA.	DIAMETER/ROUND	DET.	DETAIL	G.F.R.G.	GLASS FIBER REINFORCED GYPSUM			SUSP.	SUSPENDED
		DIA.	DIAMETER	G.I.	GALVANIZED IRON	O.A.	OVERALL	SYM.	SYMMETRICAL
A.B.	AGGREGATE BASE	DIM.	DIMENSION	GA.	GAUGE	O.C.	ON CENTER		
A.C.	ASHPHALT CONCRETE	DISP.	DISPENSER	GALV.	GALVANIZED	O.D.	OUTSIDE DIAMETER/DIMENSION	T.	TREAD
A.D.	AREA DRAIN	DN.	DOWN	GL.	GLASS	O.H.	OVERHEAD	T.&B.	TOP AND BOTTOM
A.F.F.	ABOVE FINISHED FLOOR	DR.	DOOR	GND.	GROUND	O/	OVER	T.&G.	TONGUE AND GROOVE
ACOUS.	ACOUSTICAL	DS.	DOWNSPOUT	GR.	GRADE	OFF.	OFFICE	T.C.	TOP OF CURB
ADJ.	ADJUSTABLE	DWG.	DRAWING	GYP.	GYPSUM	OPNG.	OPENING	T.O.	TOP OF
AHU.	AIR HANDLING UNIT	DWR.	DRAWER			OPP.	OPPOSITE	T.O.F.	TOP OF FRAMING
ALUM.	ALUMINUM			H.B.	HOSE BIBB			T.O.S.	TOP OF STEEL
APPROX.	APPROXIMATE	E.	EACH	H.C.	HOLLOW CORE/ACCESSIBLE CURB RAMP	P.C.	PRECAST	T.S.	TUBE STEEL
ARCH.	ARCHITECTURAL	E.J.	EXPANSION JOINT			P.I.V.	POST INDICATOR VALVE	T.V.	TELEVISION
ASB.	ASBESTOS	E.P.	ELECTRICAL PANELBOARD	H.G.	HARDWARE GROUP	P.M.	PRESSED METAL	T.W.	TOP OF WALL
AUTO.	AUTOMATIC	E.W.C.	ELECTRIC WATER COOLER	H.M.	HOLLOW METAL	P.O.C.	POINT OF CONNECTION	TEL.	TELEPHONE
		EA.	EACH	HDWD.	HARDWOOD	P.T.	PRESSURE TREATED	TER.	TERAZZO
B.D.F.	BUILDING DISTRIBUTION FACILITY	EL.	ELEVATION	HDWE.	HARDWARE	PL.	PLATE	THK.	THICK
B.F.P.	BACK FLOW PREVENTER	ELEC.	ELECTRICAL	HORIZ.	HORIZONTAL	PLAS.	PLASTER/PLASTIC	TYP.	TYPICAL
BD.	BOARD	ELEV.	ELEVATION	HR.	HOUR	PLYWD.	PLYWOOD		
BIT.	BITUMINOUS	EMER.	EMERGENCY	HSS.	HOLLOW STEEL SECTION	PR.	PAIR	U.O.N.	UNLESS OTHERWISE NOTED
BLDG.	BUILDING	ENCL.	ENCLOSURE	HT.	HEIGHT	PT.	POINT	UR.	URINAL
BLK.	BLOCK	EQ.	EQUAL			PTN.	PARTITION		
BLKG.	BLOCKING	EQUIP.	EQUIPMENT	I.D.	INSIDE DIAMETER/DIMENSION			VCT.	VINYL COMPOSITION TILE
BM.	BEAM	EXIST.	EXISTING	I.D.F.	INTERMEDIATE DISTRIBUTION FACILITY	Q.T.	QUARRY TILE	VERT.	VERTICAL
BTM.	BOTTOM	EXP.	EXPANSION					VEST.	VESTIBULE
BW.	BACK OF WALK	EXT.	EXTERIOR	INSUL.	INSULATION	R.	RISER/RADIUS		
				INT.	INTERIOR	R.D.	ROOF DRAIN	W.	WEST
C.B.	CATCH BASIN	F.A.	FIRE ALARM			R.O.	ROUGH OPENING	W.C.	WATER CLOSET
C.G.	CORNER GUARD	F.A.A.N.	FIRE ALARM REMOTE ANNUNCIATOR	JAN.	JANITOR	R.W.L.	RAIN WATER LEADER	W/	WITH
C.I.	CAST IRON	F.B.	FLAT BAR	JT.	JOINT	REF.	REFRIGERATOR	W/O	WITHOUT
C.I.D.	CLEAR INSIDE DIMENSION	F.D.	FLOOR DRAIN			REG.	REGISTER	WD.	WOOD
C.J.	CONTROL JOINT	F.D.C.	FIRE DEPARTMENT CONNECTION	KIT.	KITCHEN	REINF.	REINFORCED	WP.	WATERPROOF/WORK POINT
C.L.	CENTERLINE	F.E.	FIRE EXTINGUISHER			REQD.	REQUIRED	WSCT.	WAINSCOT
C.M.U.	CONCRETE MASONRY UNIT	F.E.C.	FIRE EXTINGUISHER CABINET	LAB.	LABORATORY	RESIL.	RESILIENT	WT.	WEIGHT
C.O.	CASED OPENING/CLEAN OUT	F.F.	FINISH FLOOR	LAM.	LAMINATE	RM.	ROOM		
C/L	CENTERLINE	F.F.E.	FINISH FLOOR ELEVATION	LAV.	LAVATORY	RWD.	REDWOOD	XFMR.	TRANSFORMER
CAB.	CABINET	F.H.	FIRE HYDRANT	LKR.	LOCKER				
CEM.	CEMENT	F.H.V.C.	FIRE HOSE VALVE CABINET	LT.	LIGHT	S.	SOUTH		
CER.	CERAMIC	F.O.	FACE OF			S.C.	SOLID CORE		
CLG.	CEILING	F.O.C.	FACE OF CONCRETE/CURB	M.C.	MEDICINE CABINET	S.S.	STAINLESS STEEL		
CLKG.	CAULKING	F.O.F.	FACE OF FINISH	M.O.	MASONRY OPENING	S.V.	SHEET VINYL		
CLO.	CLOSET	F.O.M.	FACE OF MASONRY	MAX.	MAXIMUM	SCHED.	SCHEDULE		
CLR.	CLEAR	F.O.S.	FACE OF STUDS	MDF.	MEDIUM DENSITY FIBERBOARD	SECT.	SECTION		
CNTR.	COUNTER	F.R.T.	FIRE RETARDANT TREATED	MECH.	MECHANICAL	SH.	SHELF		
COL.	COLUMN	F.S.	FULL SIZE	MEMB.	MEMBRANE	SHT.	SHEET		
CONC.	CONCRETE	FDN.	FOUNDATION	MFR.	MANUFACTURER	SHWR.	SHOWER		
CONN.	CONNECTION	FIN.	FINISH	MH.	MANHOLE	SIM.	SIMILAR		
CONSTR.	CONSTRUCTION	FL.	FLOW LINE	MIN.	MINIMUM	SMH.	SEWER MANHOLE		
CONT.	CONTINUOUS	FLASH.	FLASHING	MIRR.	MIRROR				
COORD.	COORDINATE	FLR.	FLOOR	MISC.	MISCELLANEOUS				
CORR.	CORRIDOR			MTD.	MOUNTED				

SYMBOLS

- 0 — GRID LINE TYPICAL
- WORK POINT, CONTROL POINT OR DATUM POINT
- ROOM NAME / 101 — ROOM NAME, ROOM NUMBER
- 03 10 01 — KEYNOTE TAG - CSI PREFIX, SEE NOTES ON SIDE OF SHEET
- D001 — DEMOLITION KEYNOTE TAG, SEE NOTES ON SIDE OF SHEET
- X101 — DOOR TAG, SEE DOOR SCHEDULE SHEET
- S1 — WINDOW TAG, SEE WINDOW SCHEDULE SHEET
- XXXX — EQUIPMENT DESIGNATION, SEE EQUIPMENT SCHEDULE SHEET
- 222 / XX XX XX — WI NUMBER, HEIGHT, DEPTH, WIDTH — MILLWORK TYPE TAG
- PT-1 — FINISH MATERIAL TAG
- PT-2 — FINISH MATERIAL TAG (CEILING)
- CPT1 — FINISH MATERIAL TAG (FLOOR)
- XX XX — SIGN NO., SIGN TYPE — SIGNAGE TYPE TAG
- A30A — WALL TYPE TAG, SEE DETAILS
- A — REVISION TAG
- 1 / A107 — REFERENCE NO., SHEET NO. — DETAIL TAG, SEE SHEET INDICATED
- 4 / A5.01 / 2 / 3 — REFERENCE NO., SHEET NO. — INTERIOR ELEVATION TAG, SEE SHEET INDICATED
- 1 / A5.01 — REFERENCE NO., SHEET NO. — SECTION CUT/EXTERIOR ELEVATION TAG, SEE SHEET INDICATED

PROJECT SUMMARY

OWNER: SMC - LA HONDA PESCADERO UNIFIED HIGH SCHOOL DISTRICT
CALFIRE - LEASEE OPERATOR

PROJECT LOCATION: 350-360 BUTANO CUTOFF
PESCADERO, CA.

SITE AREA: 28.61 ACRES (1,246,251.6 SF)
PROJECT AREA: 1.744 ACRES (76,000 SF)

APN: 087-053-010

DESCRIPTION:

THE PROJECT CONSISTS OF:
1. CONSTRUCTION OF A REPLACEMENT PESCADERO FIRE STATION (STATION 59) TO BE LOCATED ON LA HONDA-PESCADERO UNIFIED SCHOOL DISTRICT PROPERTY CURRENTLY DEVELOPED WITH THE PESCADERO MIDDLE/HIGH SCHOOL AT 350-360 BUTANO CUT OFF, PESCADERO;
2. PARTIAL DEMOLITION OF EXISTING PESCADERO FIRE STATION; AND
3. CSA-11 WATER SERVICE EXTENSION TO SERVE THE FUTURE FIRE STATION AND EXISTING PESCADERO MIDDLE/HIGH SCHOOL, BOTH LOCATED AT 350-360 BUTANO CUT OFF.

ZONING: RM-CZ/CD
LCP LAND USE: INSTITUTIONAL & AGRICULTURAL
TSUNAMI ZONE - NO
FLOOD ZONE: MAJORITY ZONE X. REAR AGRICULTURE & PLAY FIELDS IN ZONE AE WITH FLOODWAY

FRONT YARD SETBACK: 50'-0"
SIDE YARD SETBACK: 20'-0"

SITE DATA: BUILDING LOT COVERAGE: 8.23 % (COMBINED FOOTPRINT; 9235 SF)
IMPERVIOUS SURFACES: 33,781 SF (44%)
LANDSCAPED AREAS: 42,781 SF (56%)
PARKING: REFER A1.01 SITE PLAN

BUILDING DATA: CONSTRUCTION TYPE: VB - FULLY SPRINKLERED
OCCUPANCY: B, R2, S2
BUILDING HIEGHT: ALLOWED: 36'-0" ACTUAL: 33'-9"
NUMBER OF STORIES: 2
BUILDING GROSS AREAS:

B OCCUPANCY: 3150 SF
R2 OCCUPANCY: 4862 SF
S2 OCCUPANCY: 4004 SF
S2 ACCESSORY: 545 SF

TOTAL AREA: 12, 561 SF

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES:

2019	CBC	CALIFORNIA BUILDING CODE
2019	CEC	CALIFORNIA ELECTRIC CODE
2019	CMC	CALIFORNIA MECHANICAL CODE
2019	CPC	CALIFORNIA PLUMBING CODE
2019		CALIFORNIA ENERGY CODE
2019	CHBC	CALIFORNIA HISTORICAL BUILDING CODE
2019	CFC	CALIFORNIA FIRE CODE
2019		CALIFORNIA GREEN BUILDING STANDARDS CODE

PROJECT TEAM

DEVELOPER
COUNTY OF SAN MATEO
PROJECT DEVELOPMENT UNIT
1402 MAPLE STREET
REDWOOD CITY, CA 94063

ARCHITECTURAL
DREYFUSS & BLACKFORD ARCHITECTS
3540 FOLSOM BOULEVARD
SACRAMENTO, CALIFORNIA 95816
TELEPHONE: 916 453-1234
FACSIMILE: 916 453-1236

CIVIL
BKF ENGINEERS
1730 N. FIRST STREET, SUITE 600
SAN JOSE, CA 95112

MECHANICAL & PLUMBING
GUTTMAN & BLAEVOET
2351 POWELL ST.
SAN FRANCISCO, CA 94133

ELECTRICAL
GUTTMAN & BLAEVOET
2351 POWELL ST.
SAN FRANCISCO, CA 94133

SHEET INDEX

PROJECT SITE, VICINITY MAP

Dreyfuss+ Blackford architecture
3540 Folsom Blvd
Sacramento, CA
95816-6699
T 916.453.1234
dreyfussblackford.com

PDU PROJECT DEVELOPMENT UNIT COUNTY OF SAN MATEO

REGISTERED ARCHITECT C25102 Scott Shannon REN. 01/31/21 STATE OF CALIFORNIA

THIS DRAWING IS NOT FINAL OR TO BE USED FOR CONSTRUCTION UNTIL IT IS SIGNED BY THE ARCHITECT/ENGINEER

SCHEMATIC DESIGN

REVISION	BY	DATE
NOT FOR CONSTRUCTION		

SAN MATEO COUNTY

PESCADERO FIRE STATION 59 RELOCATION PROJECT

LOCAL COASTAL PROGRAM AMENDMENT
Schematic Design Submission

COVER SHEET

NORTH

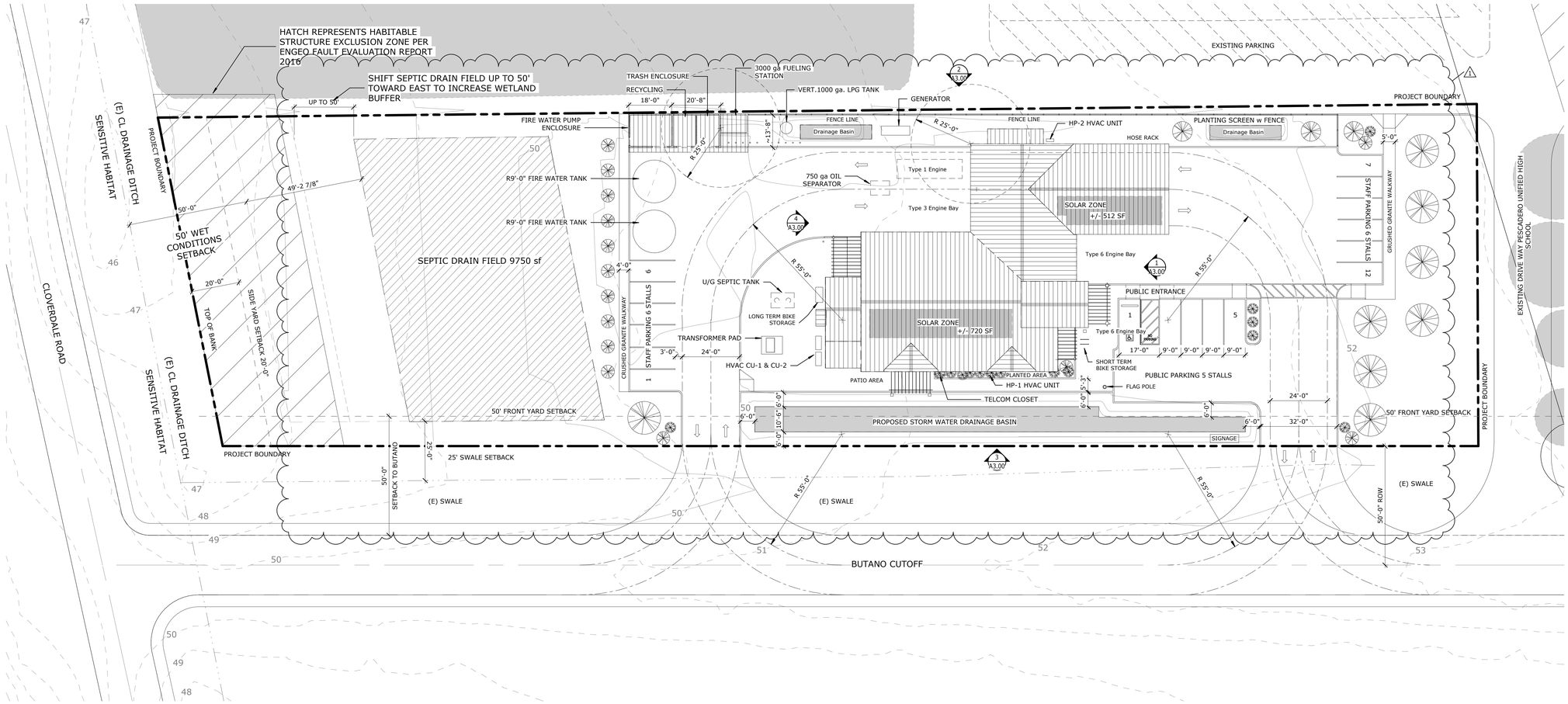
C0006.00

05/11/2020

G0.000

C:\BIM\2020\Projects\C0006.00-Pescadero_Fire_Station-A20_tremayne.rvt

6/1/2020 4:11:15 PM



PROPOSED SITE PLAN

1" = 20'-0"

Existing La Honda High School Site

PROJECT SUMMARY

OWNER: SMC - LA HONDA PESCADERO UNIFIED HIGH SCHOOL DISTRICT
CALFIRE - LEASEE OPERATOR

PROJECT LOCATION: 350-360 BUTANO CUTOFF
PESCADERO, CA.

SITE AREA: 28.61 ACRES (1,246,251.6 SF)
PROJECT AREA: 1.744 ACRES (76,000 SF)

APN: 087-053-010

DESCRIPTION:

THE PROJECT CONSISTS OF:

1. CONSTRUCTION OF A REPLACEMENT PESCADERO FIRE STATION (STATION 59) TO BE LOCATED ON LA HONDA-PESCADERO UNIFIED SCHOOL DISTRICT PROPERTY CURRENTLY DEVELOPED WITH THE PESCADERO MIDDLE/HIGH SCHOOL AT 350-360 BUTANO CUT OFF, PESCADERO;
2. PARTIAL DEMOLITION OF EXISTING PESCADERO FIRE STATION; AND
3. CSA-11 WATER SERVICE EXTENSION TO SERVE THE FUTURE FIRE STATION AND EXISTING PESCADERO MIDDLE/HIGH SCHOOL, BOTH LOCATED AT 350-360 BUTANO CUT OFF.

ZONING: RM-CZ/CD
LCP LAND USE: INSTITUTIONAL & AGRICULTURAL
TSUNAMI ZONE - NO
FLOOD ZONE: MAJORITY ZONE X. REAR AGRICULTURE & PLAY FIELDS IN ZONE AE WITH FLOODWAY

FRONT YARD SETBACK: 50'-0"
SIDE YARD SETBACK: 20'-0"

SITE DATA: BUILDING LOT COVERAGE: 8.23 % (COMBINED FOOTPRINT; 9235 SF)
IMPERVIOUS SURFACES: 33,781 SF (44%)
LANDSCAPED AREAS: 42,781 SF (56%)
PARKING: REFER A1.01 SITE PLAN

BUILDING DATA: CONSTRUCTION TYPE: VB - FULLY SPRINKLERED
OCCUPANCY: B, R2, S2
BUILDING HIEGHT: ALLOWED: 36'-0" ACTUAL: 33'-9"
NUMBER OF STORIES: 2
BUILDING GROSS AREAS:

B OCCUPANCY: 3150 SF
R2 OCCUPANCY: 4862 SF
S2 OCCUPANCY: 4004 SF
S2 ACCESSORY: 545 SF

TOTAL AREA: 12, 561 SF

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES:

2019	CBC	CALIFORNIA BUILDING CODE
2019	CEC	CALIFORNIA ELECTRIC CODE
2019	CMC	CALIFORNIA MECHANICAL CODE
2019	CPC	CALIFORNIA PLUMBING CODE
2019		CALIFORNIA ENERGY CODE
2019	CHBC	CALIFORNIA HISTORICAL BUILDING CODE
2019	CFC	CALIFORNIA FIRE CODE
2019		CALIFORNIA GREEN BUILDING STANDARDS CODE

PARKING REQUIREMENTS

	PUBLIC REQ'D	PUBLIC PROV'D	PRIVATE REQ'D	PRIVATE PROV'D
STANDARD 9'-0" X 19'-0" STALLS	-	5	13	13
OVERSIZED 10'-0" X 20'-0" STALLS	-	-	-	-
ACCESSIBLE PARKING CBC 11B §208.2				
STANDARD	-	-	-	-
VAN	1	1	-	-
ELECTRIC VEHICLE CHARGING SPACES CGCBC §5.106.5.3, CBC 11B §228.3.2.1				
STANDARD	1	1	-	-
ACCESSIBLE STANDARD	0	0	-	-
ACCESSIBLE VAN			-	-
CLEAN AIR/VANPOOL SPACES CGCBC §5.106.5.2	1	1	-	-
COMPACT SPACES SMC;25 % LOTS OVER 20 STD. STALLS	N/A	0	N/A	-

BICYCLE

SHORT TERM BICYCLE PARKING
CGCBC §5.106.4.1.1
REQUIRED: 1
PROVIDED: 2

LONG TERM BICYCLE PARKING
CGCBC §5.106.4.1.2
REQUIRED: 1 X DBL RACK
PROVIDED: 1 X DBL RACK

GENERAL NOTES

1. THE ACCESSIBLE ROUTE OF TRAVEL (OR PATH OF TRAVEL) IS A CONTINUOUS UNOBSTRUCTED WALKWAY (OR PATH) CONNECTING ALL ACCESSIBLE ELEMENTS AND SPACES AS INDICATED ON THIS SHEET. THE CONTRACTOR SHALL VERIFY THAT A PERSON CAN NEGOTIATE THE ACCESSIBLE ROUTE WITH A DISABILITY USING A WHEELCHAIR AND THAT THE ROUTE IS ALSO SAFE AND USABLE BY PERSONS WITH OTHER DISABILITIES.
2. ALL WALKS, SIDEWALKS AND LANDINGS THAT ARE PART OF THE ACCESSIBLE ROUTE OF TRAVEL SHALL HAVE A CONTINUOUS COMMON SURFACE, NOT INTERRUPTED BY STEPS OR BY ABRUPT CHANGES IN LEVEL EXCEEDING 1/2 INCH, AND SHALL HAVE A MINIMUM WIDTH OF 48 INCHES, UNLESS NOTED OTHERWISE. THE SLOPE IN THE DIRECTION OF TRAVEL SHALL BE LESS THAN 1:20 (5%) WITH A MAXIMUM CROSS SLOPE OF 1/4 INCH PER FOOT (2%), UNLESS OTHERWISE NOTED.
3. ALL DESIGNATED ACCESSIBLE RAMPS SHALL HAVE A MAXIMUM SLOPE OF 1:12 (8.33%) IN THE DIRECTION OF TRAVEL WITH A MAXIMUM CROSS SLOPE OF 1/4 INCH PER FOOT (2%), UNLESS OTHERWISE NOTED.
4. AT FLATWORK, PROVIDE CONTROL JOINTS AS INDICATED AND EXPANSION JOINTS AT 20'-0" O.C. MAXIMUM, SEE DETAIL X/XX.XX
5. SEE CIVIL DRAWINGS FOR FULL EXTENT OF SITE WORK IN THIS CONTRACT.

Dreyfuss+ Blackford architecture
3540 Folsom Blvd
Sacramento, CA
95816-6699
T 916.453.1234
dreyfussblackford.com

PDU PROJECT DEVELOPMENT UNIT
COUNTY OF SAN MATEO

THIS DRAWING IS NOT FINAL OR TO BE USED FOR CONSTRUCTION UNTIL IT IS SIGNED BY THE ARCHITECT/ENGINEER

SCHEMATIC DESIGN

	REVISION	BY	DATE
1	SMC PDU REQUESTED REVISION		01/28/22

SAN MATEO COUNTY

PESCADERO FIRE STATION 59 RELOCATION PROJECT

LOCAL COASTAL PROGRAM AMENDMENT
Schematic Design Submission

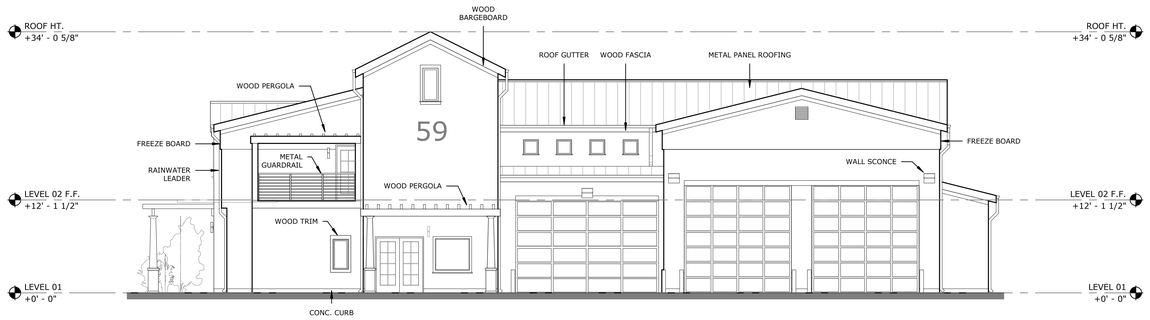
SCHEMATIC SITE PLAN

NORTH

C0006.00
As indicated
05/11/2020

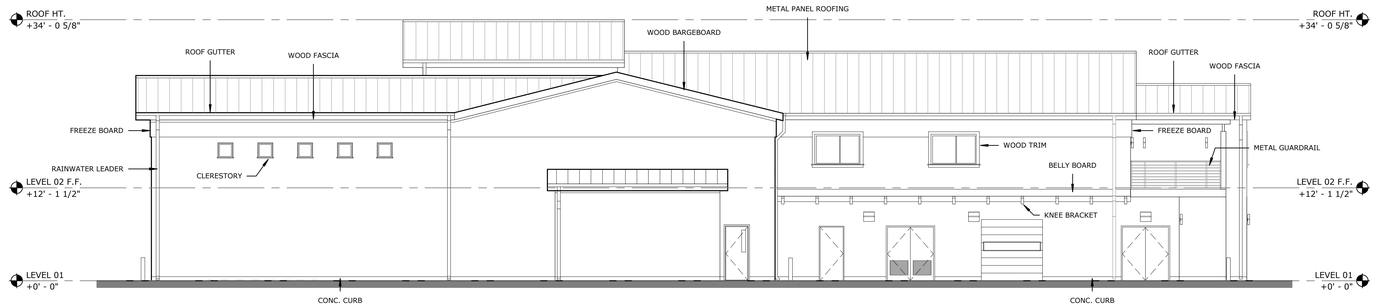
A1.01

3/7/2022 9:27:33 AM C:\BIM\2020\Projects\C0006.00-Pescadero_Fire_Station-A20_kiln_db.rvt



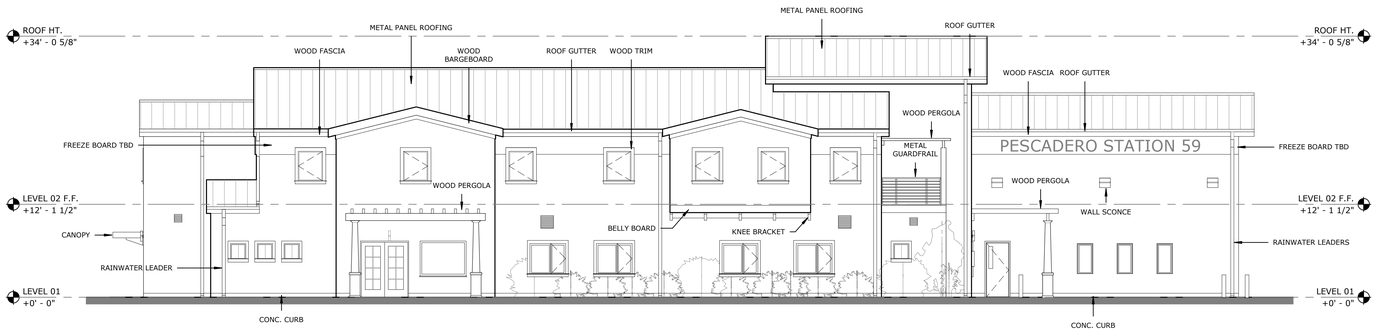
East Elevation

1/8" = 1'-0"



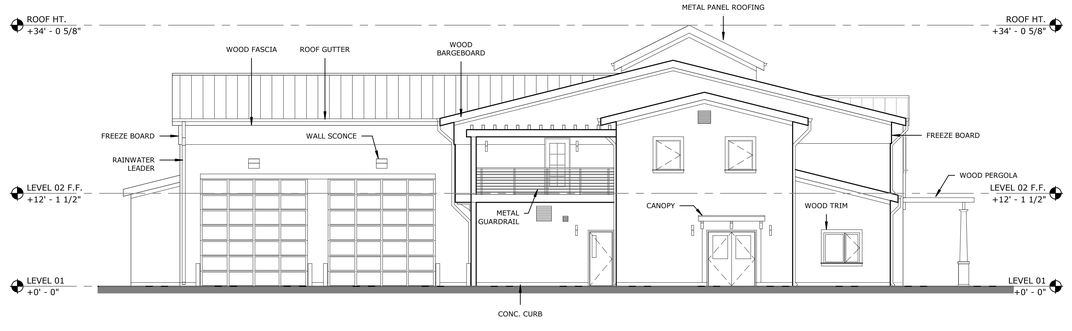
North Elevation

1/8" = 1'-0"



South Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"

Dreyfuss+ Blackford architecture
3540 Folsom Blvd
Sacramento, CA
95816-6699
T 916.453.1234
dreyfussblackford.com

PDU PROJECT
DEVELOPMENT UNIT
COUNTY OF SAN MATEO

GENERAL NOTES

1. EXTERIOR MATERIAL TBD
2. ISSUED IN SUPPORT OF SMC LCP AMENDMENT #

THIS DRAWING IS NOT FINAL OR TO BE USED FOR CONSTRUCTION UNTIL IT IS SIGNED BY THE ARCHITECT/ENGINEER

SCHEMATIC DESIGN

REVISION	BY	DATE

SAN MATEO COUNTY

PESCADERO FIRE STATION 59 RELOCATION PROJECT

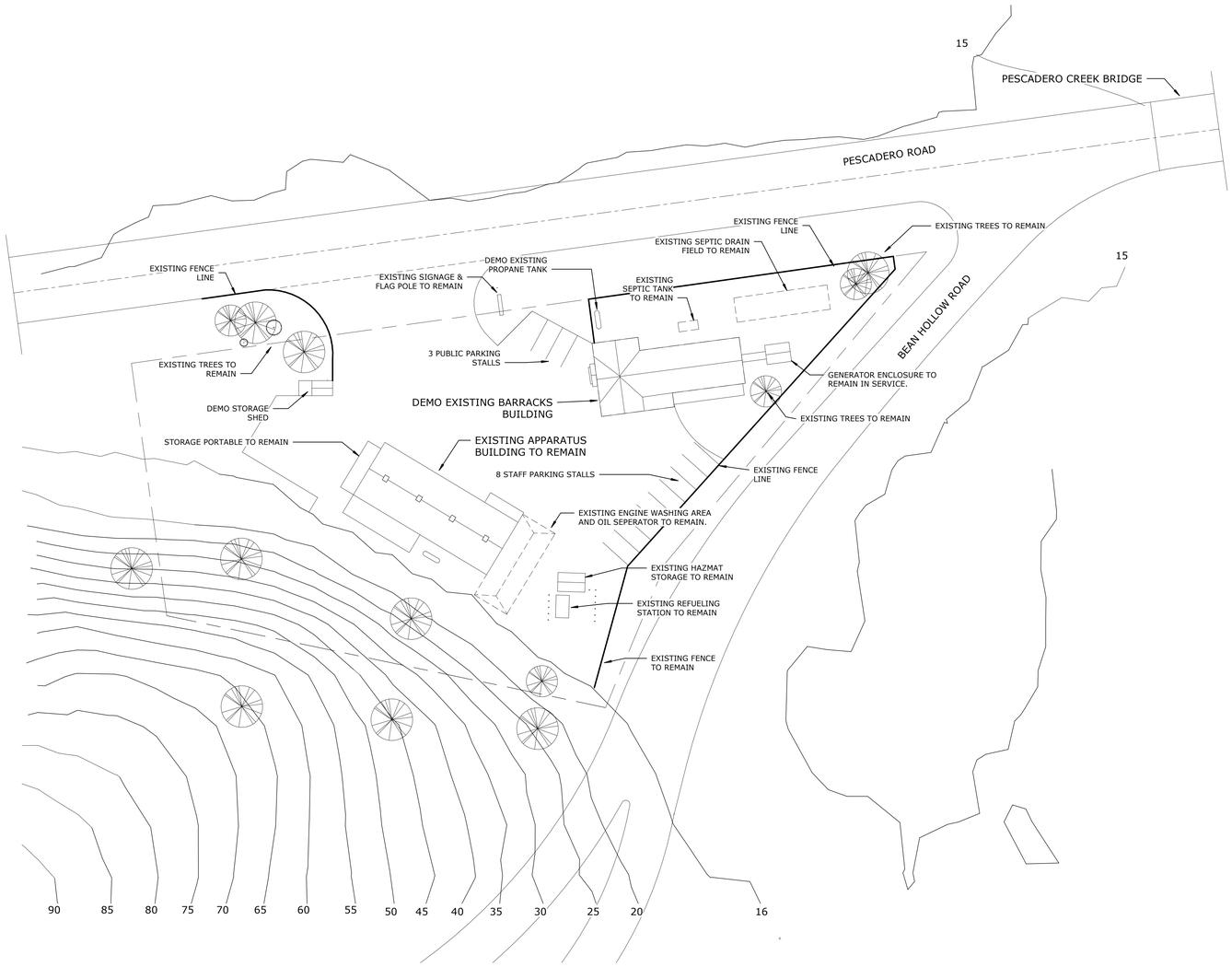
LOCAL COASTAL PROGRAM AMENDMENT
Schematic Design Submission

EXTERIOR ELEVATIONS

NORTH

C0006.00
1/8" = 1'-0"
05/11/2020

A3.00



1 EXISTING SITE PLAN
1" = 30'-0"

THIS SITE PLAN IS ISSUED FOR INFORMAITON ONLY. THE INFORMATION CONTAINED HEREIN IS A REPRESENTATION ONLY. WHEREVER APPLICABLE REFER COUNTY OF SAN MATEO RECORDS FOR ASSOCIATED LEGAL MAPS AND SURVEYS.

PROJECT SITE, VICINITY MAP

SITE DATA:

CALFIRE PESCADERO STATION 59
1200 PESCADERO RD, PESCADERO, CA.
OWNER: SAN MATEO COUNTY
APN: 086-160-050.
SITE AREA: 1.28 ACRES

ZONING: PAD/ CD
LCP LAND USE: INSTITUTIONAL
VEHICULAR PARKING:
3 VISITOR
8 STAFF
TSUNAMI ZONE- NO
FLOOD ZONE: FLAT AREAS WITHIN ZONE AE. HILLSIDE IN ZONE X.

APPARATUS BUILDING AREA: 3128 GSF (INCLUDING 105 NSF LOFT)
STORAGE SHED: 80 NSF
STORAGE CONTAINER: 160 NSF
HAZMAT SHED: 176 NSF
BARRACKS BUILDING; AREA: 2175 GSF
GENERATOR SHED: 85 SF

FIRE STATION 59 RELOCATION PROJECT DESCRIPTION:

PARTIAL DEMO OF EXISTING FIRE STATION 59 TO INCLUDE:

- DEMO BARRACKS BUILDING. PROVIDE GRAVEL PARKING SURFACE AT LOCATION.
- DEMO PROPANE TANK AND ALL CONNECTIONS.
- DEMO STORAGE SHED.

RETAIN AND KEEP IN SERVICE THE FOLLOWING SITE ELEMENTS:

- APPARATUS BUILDING.
- HAZMAT STORATE SHED.
- STORAGE CONTAINER.
- REFUELING STATION.
- GENERATOR SHED. RELOCATE PANELS ON BARRACKS BUILDING AND DISTRIBUTION WIRING AS REQUIRED TO MAINTAIN SERVICE TO ALL RETAINED BUILDINGS, SERVICES AND OUTDOOR EQUIPMENT. POTENTIAL RELOCATION TO INCLUDE EXISTING UTILITY POLE, OVER HEAD LINES AND ANY EXISTING OR PROPOSED UNDERGROUND SERVICE.
- CSA-11 WATER SERVICE FOR DOMESTIC WATER TO BE DISCONNECTED. PROVIDE POTABLE DOMESTIC WATER STORAGE AND TREATMENT SYSTEM TO SERVE APPARATUS BUILDING AND ALL ASSOCIATED FUNCTIONS.
- RETAIN EXISTING SEPTIC SYSTEM. MAKE GOOD ALL EXISTING CONNECTIONS TO APPARATUS BUILDING AND OIL SEPARATOR. SYSTEM VIABILITY TO BE DETERMINED. OPTION TO RELOCATE SEPTIC SYSTEM TO BE VERIFIED IN THE FIELD.

Dreyfuss+ Blackford architecture
3540 Folsom Blvd
Sacramento, CA
95816-6699
T 916.453.1234
dreyfussblackford.com

PDU PROJECT DEVELOPMENT UNIT COUNTY OF SAN MATEO

THIS DRAWING IS NOT FINAL OR TO BE USED FOR CONSTRUCTION UNTIL IT IS SIGNED BY THE ARCHITECT/ENGINEER

REVISION	BY	DATE

SAN MATEO COUNTY

PESCADERO FIRE STATION 59 RELOCATION PROJECT

LOCAL COASTAL PROGRAM AMENDMENT
Schematic Design Submission

EXISTING SITE PLAN - PARTIAL DEMO PLAN

NORTH

C0006.00
1" = 30'-0"
05/11/2020

A1.02

EARTHWORK

CUT:	
PAVEMENT SECTIONS	1,000 CU-YD
BIORETENTION BASINS	100 CU-YD
STRUCTURAL FOUNDATIONS	350 CU-YD
ROUGH GRADING	620 CU-YD
SANITARY SEWER DRAINFIELD	1,100 CU-YD
	3,170 CU-YD
FILL:	
ROUGH GRADING	570 CU-YD
	570 CU-YD
BALANCE:	
CUT	3,170 CU-YD
FILL	570 CU-YD
	2,600 CU-YD (CUT)

EARTHWORK QUALITIES ARE APPROXIMATELY QUANTITIES AND ARE FURNISHED FOR PLANNING SUPPOSES ONLY. THE ACTUAL AMOUNT OF EARTH MOVED WILL VARY DEPENDING ON THE PROPERTIES OF THE SOILS ENCOUNTERED, THE CONTRACTOR'S METHOD OF OPERATION, ETC. BIDDERS ARE RESPONSIBLE FOR DOING THEIR OWN QUANTITY TAKEOFF. ALL CUT/FILL CALCULATIONS DO NOT INCLUDE ANY SWELLING OR SHRINK FACTORS. QUANTITIES DO NOT INCLUDE OVER-EXCAVATION, TRENCHING, STRUCTURAL FOUNDATION OR PIERS (IF ANY).

NOTES

1. STORMWATER HAS BEEN SCHEMATICALLY SHOWN TO ADHERE TO THE SAN MATEO COUNTY DRAINAGE REQUIREMENTS. THIS PROJECT WILL BE SUBJECT TO THE BASIC DRAINAGE REVIEW FOR THE COUNTY PLANNING OR BUILDING PERMIT. THE CURRENT SITE SHOWS 33,781 SF OF IMPERVIOUS AREA, AND THE PROJECT WILL UTILIZE BIORETENTION RAIN GARDENS WITH INFILTRATION TO ADHERE TO TREATMENT REQUIREMENTS, AND THE PEAK FLOW AND VOLUME CONTROL DESIGN CRITERIA. THE SITE HAS BEEN SHOWN TO INFILTRATE AT A RATE OF 7.44 IN/HR.
2. THE SANITARY SEWER DRAIN FIELD HAS BEEN SCHEMATICALLY SHOWN TO ACCOMMODATE 1,000 GAL/DAY, 77 GAL/DAY FOR 13 HABITANTS. THE DRAIN FIELD WILL A BE SHALLOW SEPTIC DRAIN FIELD.
3. A CSA-11 WATER MAIN EXTENSION IS PLANNED TO PROVIDE SERVICE TO THE SITE AT BUTANO ROAD.
4. POWER POLE LOCATIONS ARE APPROXIMATE. A GROUND TOPOGRAPHIC SURVEY IS REQUIRED TO VERIFY EXACT LOCATIONS.

ABBREVIATIONS

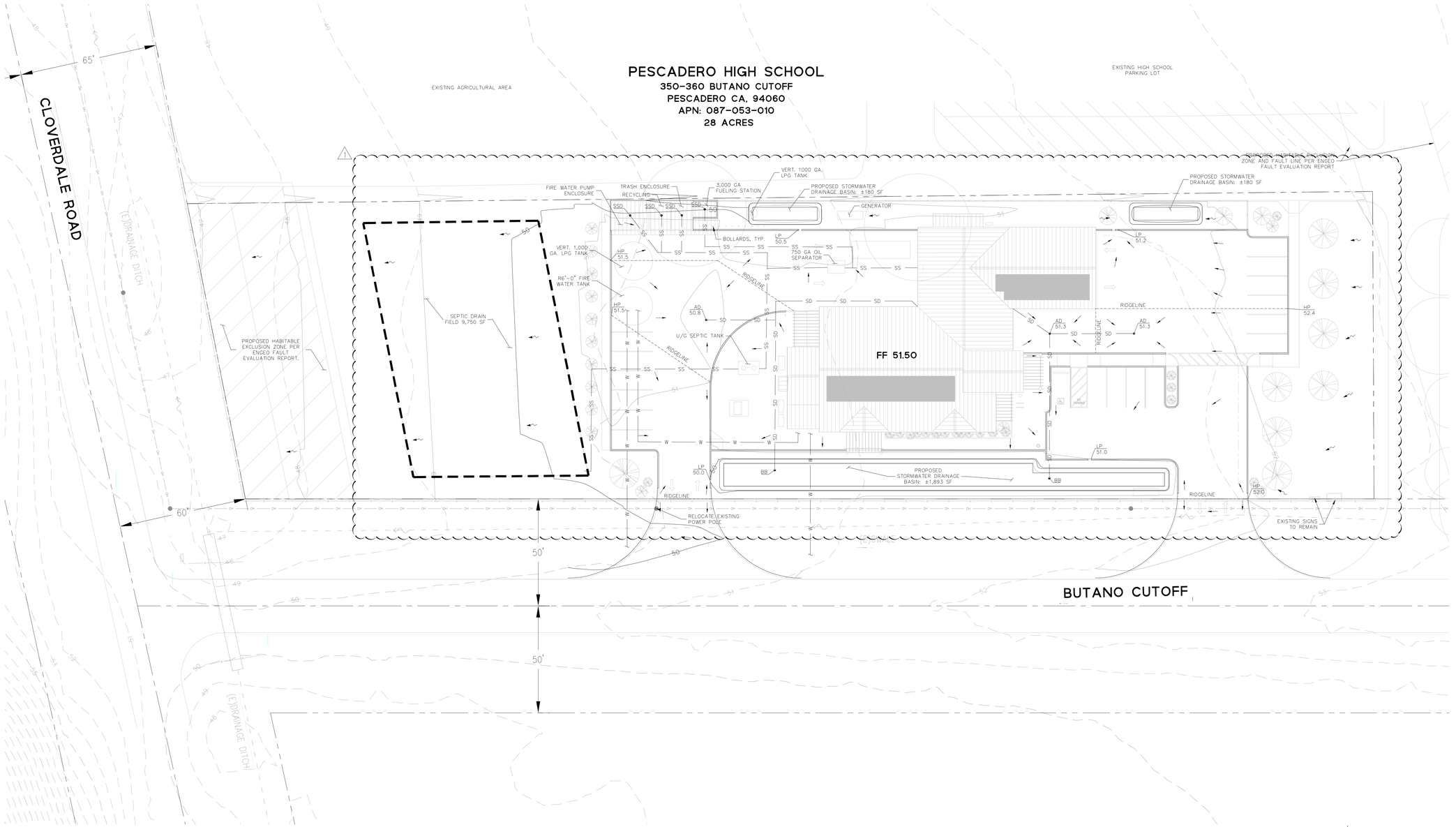
AD	AREA DRAIN
BB	BUBBLER BOX
HP	HIGH POINT
LP	LOW POINT
SD	STORM DRAIN
SS	SANITARY SEWER
W	WATER

LEGEND

- PROPERTY LINE
- ADJACENT LOT LINE
- EASEMENT LINE
- PODIUM WALL
- SD — STORM DRAIN LINE
- SS — SANITARY SEWER LINE
- W — DOMESTIC WATER LINE
- OH — OVERHANG LINE
- STORM DRAIN AREA DRAIN (AD)
- STORM DRAIN BUBBLER BOX (BB)
- SANITARY SEWER DRAIN (SSD)
- TREATMENT BASIN
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR

PESCADERO HIGH SCHOOL

350-360 BUTANO CUTOFF
PESCADERO CA, 94060
APN: 087-053-010
28 ACRES



GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

1"=20'

NORTH

Dreyfuss+ Blackford architecture
3540 Folsom Blvd
Sacramento, CA
95816-6699
T 916.453.1234
dreyfussblackford.com

PDU PROJECT DEVELOPMENT UNIT
COUNTY OF SAN MATEO

NO.	REVISION	DATE
1	SMC PDU REQUESTED REVISION	01/28/2022

SAN MATEO COUNTY

PESCADERO FIRE STATION 59 RELOCATION PROJECT

PESCADERO FIRE STATION 59 RELOCATION PROJECT

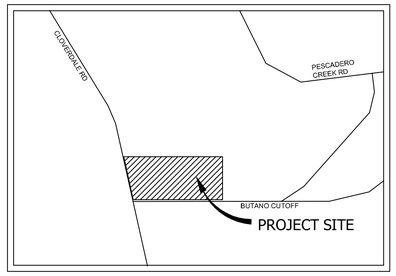
PRELIMINARY GRADING, DRAINAGE, AND UTLITY PLAN

20192026
1:20
01/26/2022

C2.0

NOTES

1. THE BOUNDARY SHOWN IS DRAWN FROM RECORD INFORMATION, A FIELD SURVEY SHALL BE COMPLETED TO VERIFY THE SITE BOUNDARY.
2. 1 FT CONTOURS ARE SHOWN BASED ON USGS DATA.
3. EXISTING UTILITY INFORMATION IS SHOWN BASED ON VISIBLE FACILITIES ON AERIAL IMAGERY.



VICINITY MAP
NOT TO SCALE

LEGEND

- PROPERTY LINE
- ADJACENT LOT LINE
- ROAD RIGHT-OF-WAY
- ROAD CENTER LINE
- STORM DRAIN LINE
- SANITARY SEWER LINE
- DOMESTIC WATER LINE
- FLOW LINE/SWALE
- OVERHEAD LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR

1"=20'

GRAPHIC SCALE
20 0 10 20 40 60
(IN FEET)
1 inch = 20 ft.

NORTH

Dreyfuss+ Blackford architecture
3540 Folsom Blvd
Sacramento, CA
95816-6699
T 916.453.1234
dreyfussblackford.com

PDU PROJECT DEVELOPMENT UNIT
COUNTY OF SAN MATEO

THIS DRAWING IS NOT FINAL OR TO BE USED FOR CONSTRUCTION UNTIL IT IS SIGNED BY THE ARCHITECT/ENGINEER

REVISION	BY	DATE

SAN MATEO COUNTY

PESCADERO FIRE STATION 59 RELOCATION PROJECT

PESCADERO FIRE STATION 59 RELOCATION PROJECT

EXISTING CONDITIONS

20192026
1:20
06/02/2020

C1.0

C:\BIM\2020Projects\C0006.00-Pescadero_Fire_Station-A20_tromayne.rvt
4/22/2020 2:37:58 PM

COUNTY OF SAN MATEO - PLANNING AND BUILDING DEPARTMENT

ATTACHMENT C

COUNTY OF SAN MATEO
CALIFORNIA

PESCADERO HIGH SCHOOL
CSA 11 WATER LINE EXTENSION
TOTAL PROJECT LENGTH APPROXIMATELY 1.27 MILES

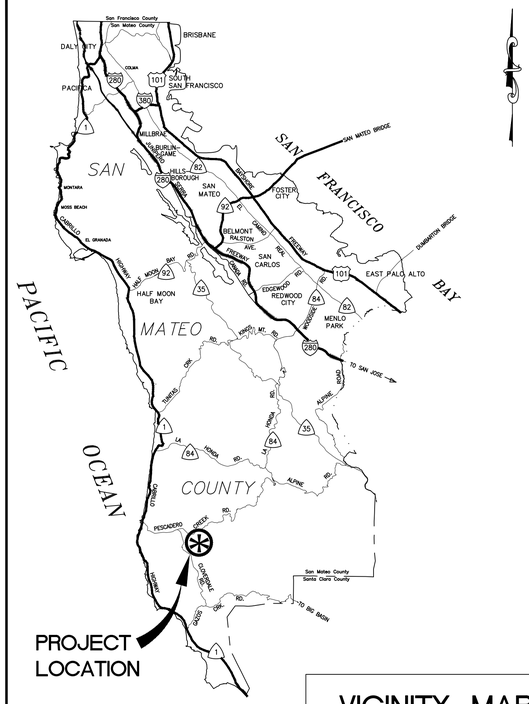
TO BE SUPPLEMENTED BY STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED MAY 2018 AND ADOPTED BY SAN MATEO COUNTY, FEBRUARY 11, 2020, BY RESOLUTION NO. 077277

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/21 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019



VICINITY MAP
NO SCALE

LOCATION MAP
NO SCALE

ABBREVIATIONS:

AB (CL.2)	AGGREGATE BASE (CLASS 2)
Abn	ABANDON
AC	ASPHALT CONCRETE
AC (TYPE B)	ASPHALT CONCRETE (TYPE B)
ACP	ASBESTOS CONCRETE PIPE
AGG	AGGREGATE
AV	AVENUE
BC	BACK OF CURB
BLB BOX	BUBBLE-UP BOX
BW	BACK OF WALK
CATV	CABLE TV
CONC	CONCRETE
C & G	CURB AND GUTTER
CL	CENTERLINE
CTN	CEMENT TREATED NATIVE
D	AVERAGE WIDTH OF DRIVEWAY RAMP
DI	DRAINAGE INLET, DROP INLET
DIP	DUCTILE IRON PIPE
D/W	DRIVEWAY
ELE	ELEVATION
ETW	EDGE OF TRAVEL WAY
EP	EDGE OF PAVEMENT
EX, EXIST	EXISTING
FD	FOUND
FG	FINISHED GROUND
FH	FIRE HYDRANT
FL	FLOW LINE
G	GAS LINE
GB	GRADE BREAK
GV	GAS VALVE
ID	INSIDE DIAMETER
INV	INVERT
JP	JOINT UTILITY POLE
LG, LIP	LIP OF GUTTER
LT, L	LEFT
LH	SANITARY SEWER LAMPHOLE
MAX	MAXIMUM
MB	MAILBOX
MB (#)	MAILBOXES (QUANTITY)
MIN	MINIMUM
MPH	MILES PER HOUR
N\S	NAIL & SHINER
O.G.	ORIGINAL GROUND, ON GRADE
PBMH	SBC/PAC BELL MANHOLE
PCC	PORTLAND CONCRETE CEMENT
PK	PARKER-KALON NAIL
PNT	POINT
PR	PROPOSED
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INFLECTION
RCP	REINFORCED CONCRETE PIPE
RT, R	RIGHT
R/W, ROW	RIGHT OF WAY
S	SLOPE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SHT	SHEET
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSFI	SANITARY SEWER FLUSHING INLET
SSMH	SANITARY SEWER MANHOLE
ST	STREET
STA	STATION
T	TELEPHONE
TB	TOP OF BANK
TC	TOP OF CURB
TD	TOP OF DIKE
TG	TOP OF GRATE
TS	TOP OF SIDEWALK
TYP	TYPICAL
UD	UNDER DRAIN
UND	UNDERGROUND
UNK	UNKNOWN
VCP	VITRIFIED CLAY PIPE
VG	VALLEY GUTTER
WM	WATER METER
WM (#)	WATER METERS (QUANTITY)
WV	WATER VALVE
WV (#)	WATER VALVES (QUANTITY)
WW	WALKWAY
ø	DIAMETER

LEGEND:

- SD — STORM DRAIN LINE (EX) — SD
- STORM DRAIN LINE (EX) PROFILE
- SS — SANITARY SEWER LINE "ACTIVE" — SS
- SANITARY SEWER LINE "ACTIVE" PROFILE
- W — WATER LINE "ACTIVE" — W
- WATER LINE "ACTIVE" PROFILE
- W — ACP WATER LINE (Abn) — W
- ACP WATER LINE (Abn) PROFILE
- G — GAS LINE (Abn) — G
- GAS LINE (Abn) PROFILE
- G — GAS LINE "ACTIVE" — G
- GAS LINE "ACTIVE" PROFILE
- JT — JOINT COMMUNICATION LINE (EX) — JT
- JOINT COMMUNICATION LINE (EX) PROFILE
- OHE — JOINT COMMUNICATION LINE (EX) — OHE
- RIGHT OF WAY
- CONTRACTOR STAGING AREA
- PROPOSED PIPE
- NATIVE BACKFILL
- CLASS 2 AGGREGATE BASE – AB (CL. 2) (GRAVEL)
- CLASS 3 CONCRETE
- MISCELLANEOUS ASPHALT CONCRETE
- DEEP LIFT AREAS (0.50' DEEP ASPHALT CONCRETE)
- ROCK SWALE AND FRENCH DRAIN

LEGEND:

- FH — FIRE HYDRANT
- FH — FIRE HYDRANT MARKERS
- MB — MAILBOX
- SIGN
- MONUMENT
- BM — BENCHMARK
- 101 — SURVEY CONTROL POINT
- 1 — DRIVEWAY NUMBER
- 000 — HOUSE NUMBER ADDRESS
- A/D — DETAIL NUMBER AND SHEET
- EXISTING TREE
- x — x — FENCE / WALL
- N/W — NAIL AND WASHER
- (XXX.XX) = EXISTING ELEVATION
- XXX.XX = PROPOSED ELEVATION
- +0.00 / (00.00) 00.00 = STATION / (EXIST ELE) PR ELE AT LIP OF GUTTER
- WM — WATER METER
- WV — WATER VALVE
- (N) BLOWOFF VALVE
- GV — GAS VALVE
- JOINT UTILITY POLE
- TELEPHONE POLE
- GUY WIRE ANCHOR
- SSMH — SANITARY SEWER MANHOLE
- SSCO — SANITARY SEWER CLEANOUT
- SSFI — SANITARY SEWER FLUSHING INLET
- SDMH — STORM DRAIN MANHOLE
- UD — UNDERDRAIN
- BBLBX — BUBBLE-UP BOX
- MH — UNKNOWN MANHOLE

NOTES:

1. CONTRACTOR SHALL CONFINE HIS OPERATIONS AND ACTIVITIES WITHIN THE PROJECT LIMITS, CONSISTING OF ROAD RIGHT-OF-WAY, RIGHTS OF ENTRY AND/OR PROJECT CONFORMS, AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.
2. CONTINUOUS DUST CONTROL SHALL BE PROVIDED AS REQUIRED BY SECTION 17 OF THE SPECIAL PROVISIONS AND AS DIRECTED BY THE ENGINEER.
3. LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE UTILITIES TO DETERMINE EXACT LOCATIONS AND DEPTHS. CONTRACTOR SHALL CALL USA NORTH 811 (USA) UNDERGROUND SERVICE ALERT A MINIMUM OF FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY EXCAVATION OR TRENCHING WORK. USA MAY BE CONTACTED EITHER ON-LINE AT USANORTH811.ORG OR BY PHONE BY DIALING (800) 227-2600 OR 811. WHEN CALLING, BE PREPARED TO GIVE LOCATION AND NATURE OF WORK, START DATE, COMPANY NAME, ADDRESS AND TELEPHONE NUMBER.
4. PLANS MAY NOT SHOW ALL EXISTING WATER, GAS OR SANITARY SEWER LATERALS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION AND PRESERVATION OF ALL SUCH FACILITIES WHICH ARE NOT TO BE RELOCATED.
5. CONTRACTOR IS ADVISED THAT EXCAVATION MAY CONFLICT WITH SANITARY SEWER LATERALS, GAS LINES, WATER LINES AND OTHER UNDERGROUND UTILITIES. ANY DAMAGE TO EXISTING FACILITIES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
6. DRIVEWAY OPENINGS AND CONFORM LOCATIONS SHOWN ARE APPROXIMATE ONLY. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER. SURFACED SHOULDER CONFORM LIMITS ARE AS INDICATED AT 3 FEET FROM OUTSIDE EDGE OF THE GUTTER, UNLESS DIRECTED OTHERWISE BY THE ENGINEER OR OTHERWISE NOTED ON THE PLANS.
7. NO TREES, VEGETATION OR IMPROVEMENTS (INCLUDING FENCES) SHALL BE REMOVED WITHOUT THE PRIOR WRITTEN CONSENT AND APPROVAL OF THE ENGINEER. VEGETATION AND IMPROVEMENTS WHICH ARE DESIGNATED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. REFER TO PROJECT SPECIAL PROVISIONS SECTION 16 REGARDING REQUIREMENTS FOR ADVANCE NOTIFICATION OF PROPERTY OWNERS.
8. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 5-1.07 OF THE STANDARD SPECIFICATIONS. THE SURVEY AND ASSOCIATED STAKING SHALL BE IN CONFORMANCE WITH SECTION 100, CONSTRUCTION STAKING AND LAYOUT OF THE SPECIAL PROVISIONS.
9. WHEN DIRECTED BY THE ENGINEER, CUT AND FILL SLOPE RATIOS SHALL BE VARIED TO AVOID TREES OR OTHER EXISTING IMPROVEMENTS.
10. CONTRACTOR SHALL EXERCISE CARE WHEN EXCAVATING NEAR TREES AND ROOTS OF TREES TO REMAIN. SEE SECTION 19 OF THE SPECIAL PROVISIONS.
11. ANY DAMAGE, AS A RESULT OF THE CONTRACTOR'S OPERATION, TO PAVEMENT AND BASE MATERIAL THAT IS TO REMAIN SHALL BE REPAIRED, OR REMOVED AND REPLACED WITH SAME TYPE OF MATERIAL OR APPROVED EQUAL, AS DIRECTED BY THE ENGINEER, AND AT THE SOLE EXPENSE OF THE CONTRACTOR. THE ENGINEER SHALL BE THE SOLE JUDGE OF THE ADEQUACY OF THE COMPLETED REMEDIAL WORK.

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-G001.DWG (G-001)

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER DILLON J. MORRA No. C 79186 Exp. 3-31-21 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL TITLE SHEET, VICINITY MAP AND LOCATION MAP
		CHECKED BY: DM	
		DRAWN BY: CB	
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

G-001
SHEET 1 OF 23

LIST OF DRAWINGS

#	DRAWING	FILE	TITLE	30%	90%
GENERAL					
1	G–001	1/49##	TITLE SHEET, VICINITY MAP, AND LOCATION MAP	X	X
2	G–002	1/49##	LIST OF DRAWINGS	X	X
3	G–003	1/49##	CONSTRUCTION BEST MANAGEMENT PRACTICES	X	X
4	G–101	1/49##	KEY MAP & SURVEY CONTROL DIAGRAM	X	X
5	G–102	1/49##	POTHOLE SCHEDULE & GEOTECHNICAL BORINGS		X
CIVIL & PIPELINE					
6	C–101	1/49##	PESCADERO CREEK ROAD – PLAN AND PROFILE 1	X	X
7	C–102	1/49##	PESCADERO CREEK ROAD – PLAN AND PROFILE 2	X	X
8	C–103	1/49##	PESCADERO CREEK ROAD – PLAN AND PROFILE 3	X	X
9	C–104	1/49##	PESCADERO CREEK ROAD – PLAN AND PROFILE 4	X	X
10	C–105	1/49##	PESCADERO CREEK ROAD – PLAN AND PROFILE 5	X	X
11	C–106	1/49##	CLOVERDALE ROAD – PLAN AND PROFILE 6	X	X
12	C–107	1/49##	CLOVERDALE ROAD – PLAN AND PROFILE 7	X	X
13	C–108	1/49##	CLOVERDALE ROAD – PLAN AND PROFILE 8	X	X
14	C–109	1/49##	CLOVERDALE ROAD – PLAN AND PROFILE 9	X	X
15	C–110	1/49##	CLOVERDALE ROAD – PLAN AND PROFILE 10	X	X
16	C–111	1/49##	CLOVERDALE ROAD – PLAN AND PROFILE 11	X	X
17	C–112	1/49##	BUTANO CUTOFF – PLAN AND PROFILE 12	X	X
18	C–113	1/49##	BUTANO CUTOFF – PLAN AND PROFILE 13	X	X
19	C–114	1/49##	BUTANO CUTOFF – PLAN AND PROFILE 14	X	X
20	C–115	1/49##	HS SERVICE CONNECTION PLAN	X	X
21	C–501	1/49##	CIVIL DETAILS 1		X
22	C–502	1/49##	CIVIL DETAILS 2		X
23	C–503	1/49##	SAN MATEO COUNTY STANDARD DRAWINGS		

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12–31–2019

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964–G002.DWG (G–002)

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03–31–2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
Civil
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL **LIST OF DRAWINGS**
		CHECKED BY: DM	
		DRAWN BY: CB	
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12–17–2020
FILE NO.: 1/49##

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

G-002
SHEET 2 OF 23

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/21 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: _____

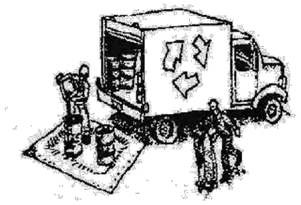
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

Construction Best Management Practices (BMPs)

Construction projects are required to implement the stormwater best management practices (BMP) on this page, as they apply to your project, all year long.

Materials & Waste Management



Non-Hazardous Materials

- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

Construction Entrances and Perimeter

- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control

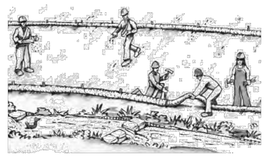
Maintenance and Parking

- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment.

Spill Prevention and Control

- ❑ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthmoving



- ❑ Schedule grading and excavation work during dry weather.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Remove existing vegetation only when absolutely necessary, and seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.
- ❑ Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.
- ❑ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells
  - Buried barrels, debris, or trash.

Paving/Asphalt Work

- ❑ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal

- ❑ Protect nearby storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, abosorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

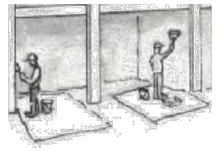
Concrete, Grout & Mortar Application

- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that will prevent leaching into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ When washing exposed aggregate, prevent washwater from entering storm drains. Block any inlets and vacuum gutters, hose washwater onto dirt areas, or drain onto a bermed surface to be pumped and disposed of properly.

Landscaping

- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

Painting & Paint Removal



Painting Cleanup and Removal

- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ❑ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state-certified contractor.

Dewatering

- ❑ Discharges of groundwater or captured runoff from dewatering operations must be properly managed and disposed. When possible send dewatering discharge to landscaped area or sanitary sewer. If discharging to the sanitary sewer call your local wastewater treatment plant.
- ❑ Divert run-on water from offsite away from all disturbed areas.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known or suspected contamination, call your local agency to determine whether the ground water must be tested. Pumped groundwater may need to be collected and hauled off-site for treatment and proper disposal.

Storm drain polluters may be liable for fines of up to $10,000 per day!

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-G003.DWG (G-003)

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER DILLON J. MORRA No. C 79186 Exp. 3-31-21 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL **CONSTRUCTION BEST MANAGEMENT PRACTICES**
		CHECKED BY: DM	
		DRAWN BY: CB	
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

G-003
SHEET 3 OF 23

APPROVED:

DATE: _____

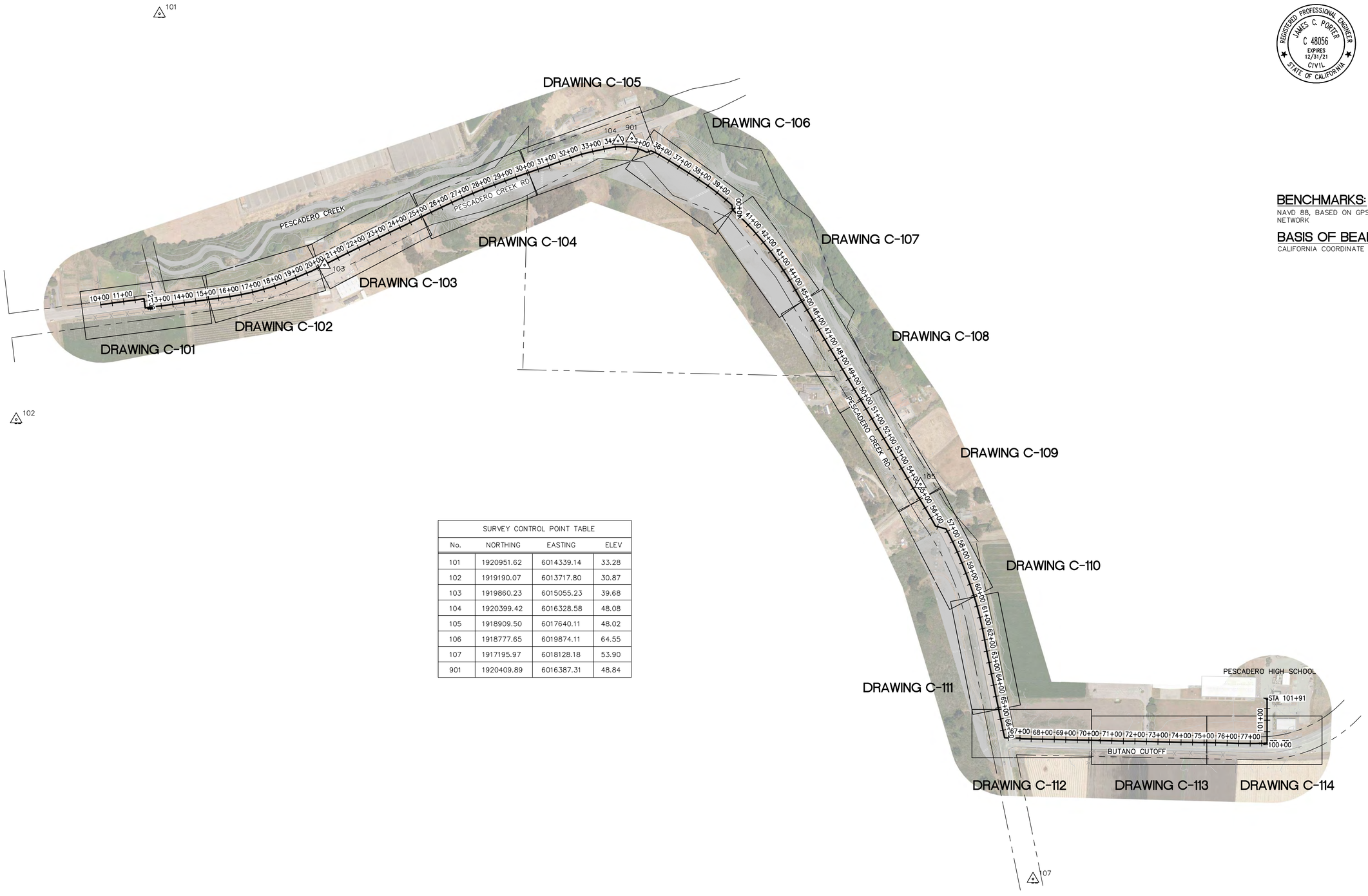
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

BENCHMARKS:

NAVD 88, BASED ON GPS OBSERVATIONS USING THE CSDS VSN NETWORK

BASIS OF BEARINGS:

CALIFORNIA COORDINATE SYSTEM NAD83, ZONE 3



SURVEY CONTROL POINT TABLE			
No.	NORTHING	EASTING	ELEV
101	1920951.62	6014339.14	33.28
102	1919190.07	6013717.80	30.87
103	1919860.23	6015055.23	39.68
104	1920399.42	6016328.58	48.08
105	1918909.50	6017640.11	48.02
106	1918777.65	6019874.11	64.55
107	1917195.97	6018128.18	53.90
901	1920409.89	6016387.31	48.84

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER — DILLON J. MORRA — No. C 79186 Exp. 3-31-21 — CIVIL — STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: DM
CHECKED BY: DM
DRAWN BY: CB

COUNTY OF SAN MATEO
PESCADERO HIGH SCHOOL
KEY MAP AND SURVEY CONTROL DIAGRAM

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

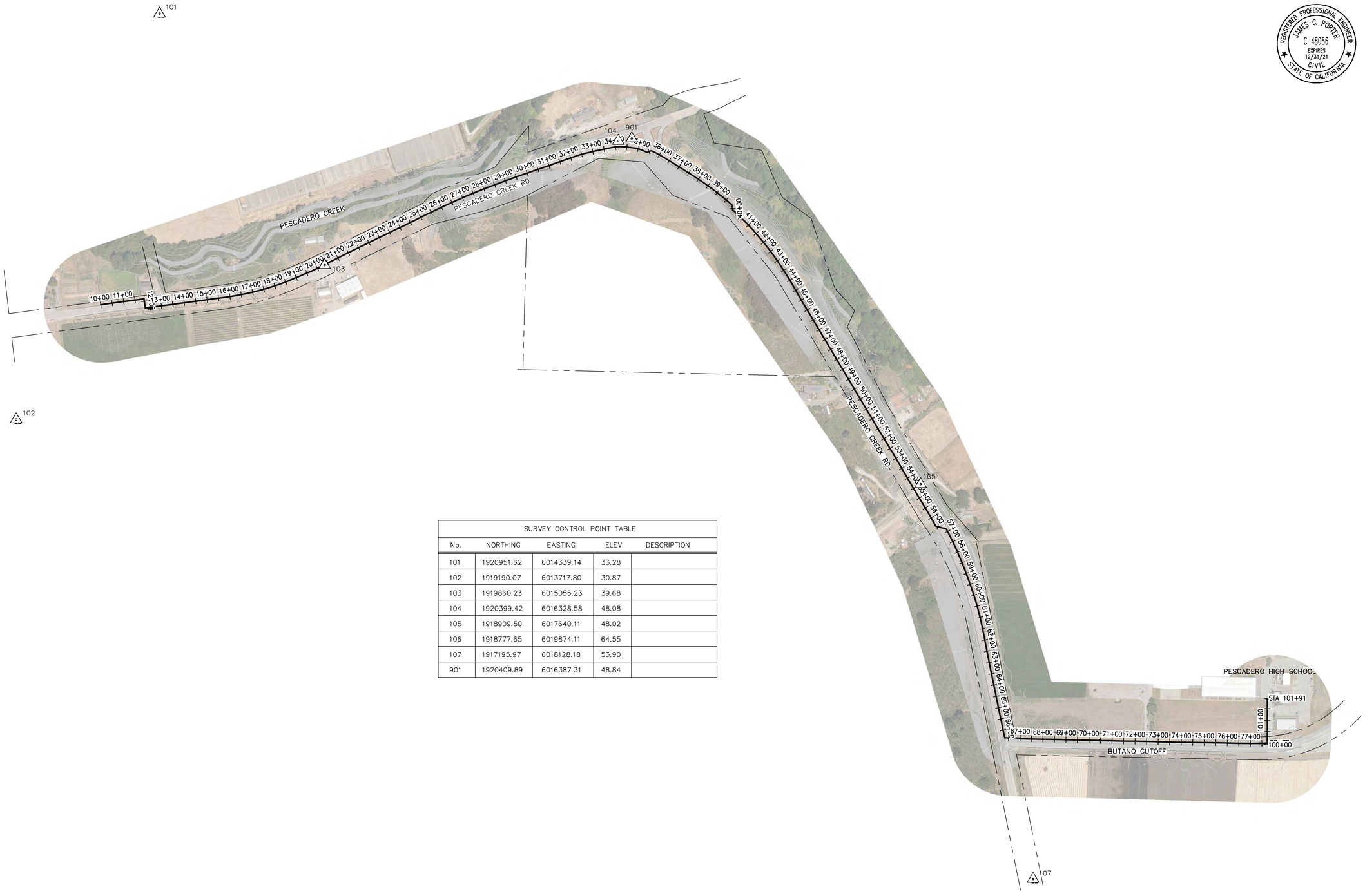
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

G-101
SHEET 4 OF 23

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-G101.DWG (G-101)



SURVEY CONTROL POINT TABLE				
No.	NORTHING	EASTING	ELEV	DESCRIPTION
101	1920951.62	6014339.14	33.28	
102	1919190.07	6013717.80	30.87	
103	1919860.23	6015055.23	39.68	
104	1920399.42	6016328.58	48.08	
105	1918909.50	6017640.11	48.02	
106	1918777.65	6019874.11	64.55	
107	1917195.97	6018128.18	53.90	
901	1920409.89	6016387.31	48.84	

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: DM
CHECKED BY: DM
DRAWN BY: CB

COUNTY OF SAN MATEO
PESCADERO HIGH SCHOOL
POTHOLE SCHEDULE AND GEOTECHNICAL BORINGS

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

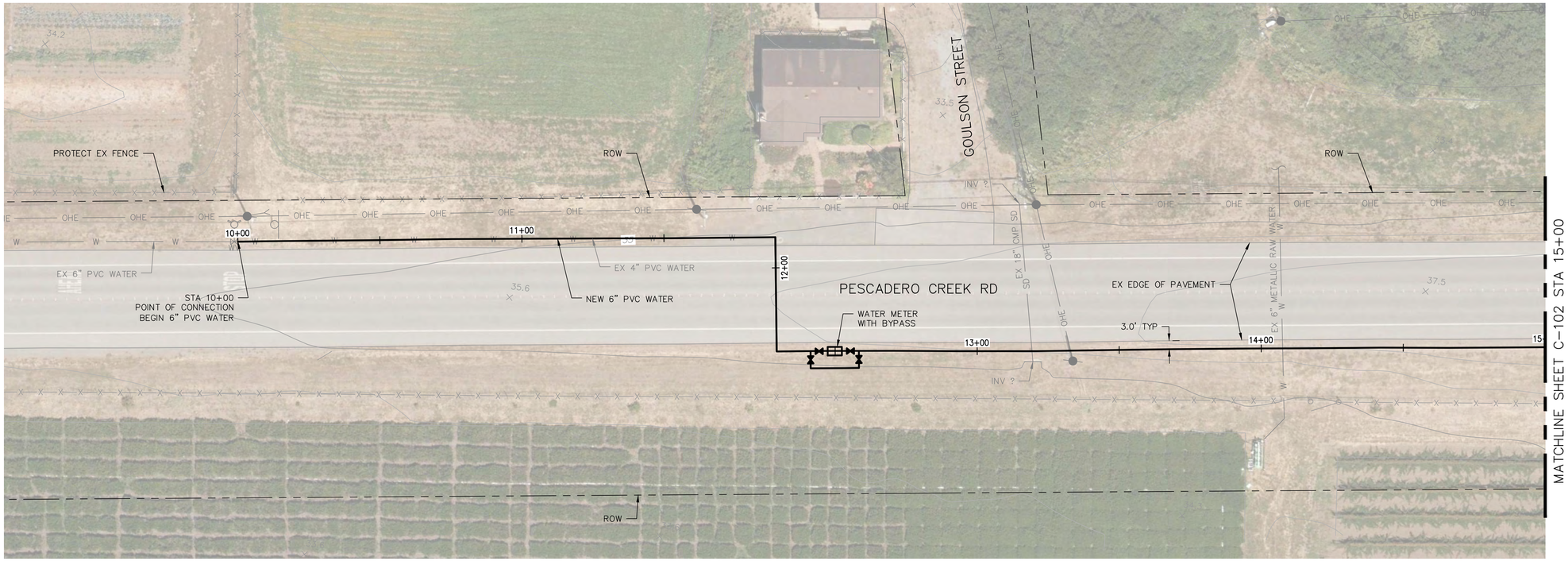
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

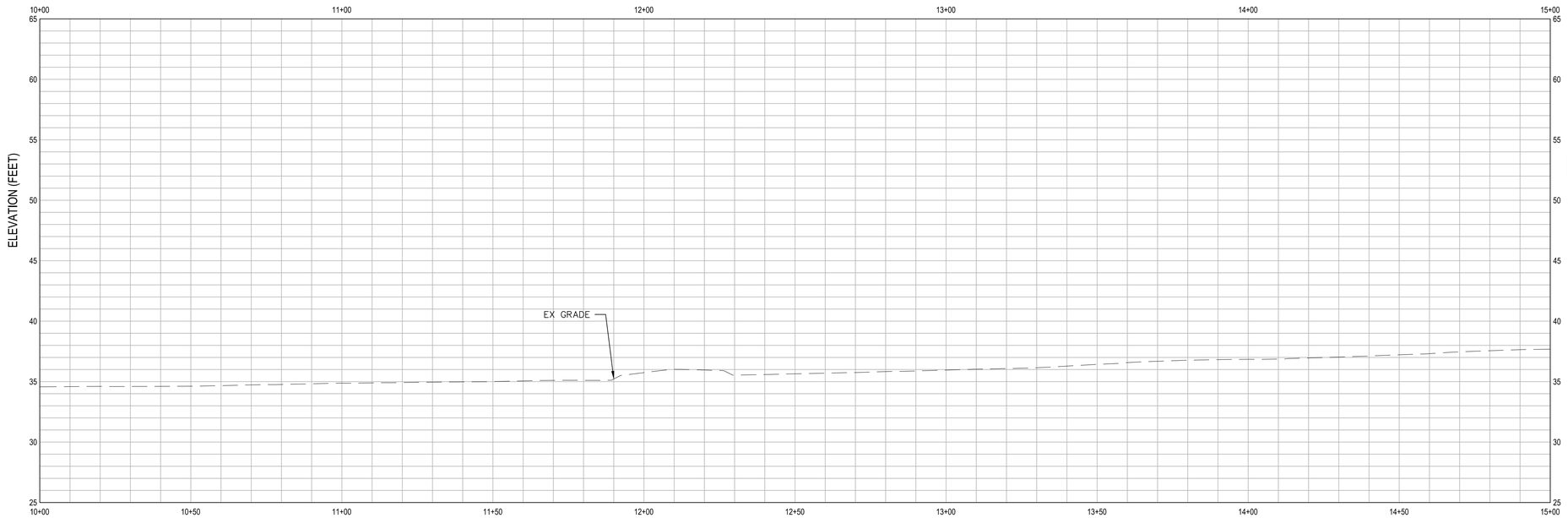
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

G-102
SHEET 5 OF 23

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\56\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-G102.DWG (G-102)



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

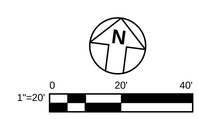
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.



FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C101.DWG (C-101)

NOT FOR CONSTRUCTION

APPROVED DATE:

Dillon J. Morra
GHD, Inc.
R.C.E. # 79186 / EXPIRES 03-31-2021

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: DM
CHECKED BY: DM
DRAWN BY: CB

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

COUNTY OF SAN MATEO
PESCADERO HIGH SCHOOL

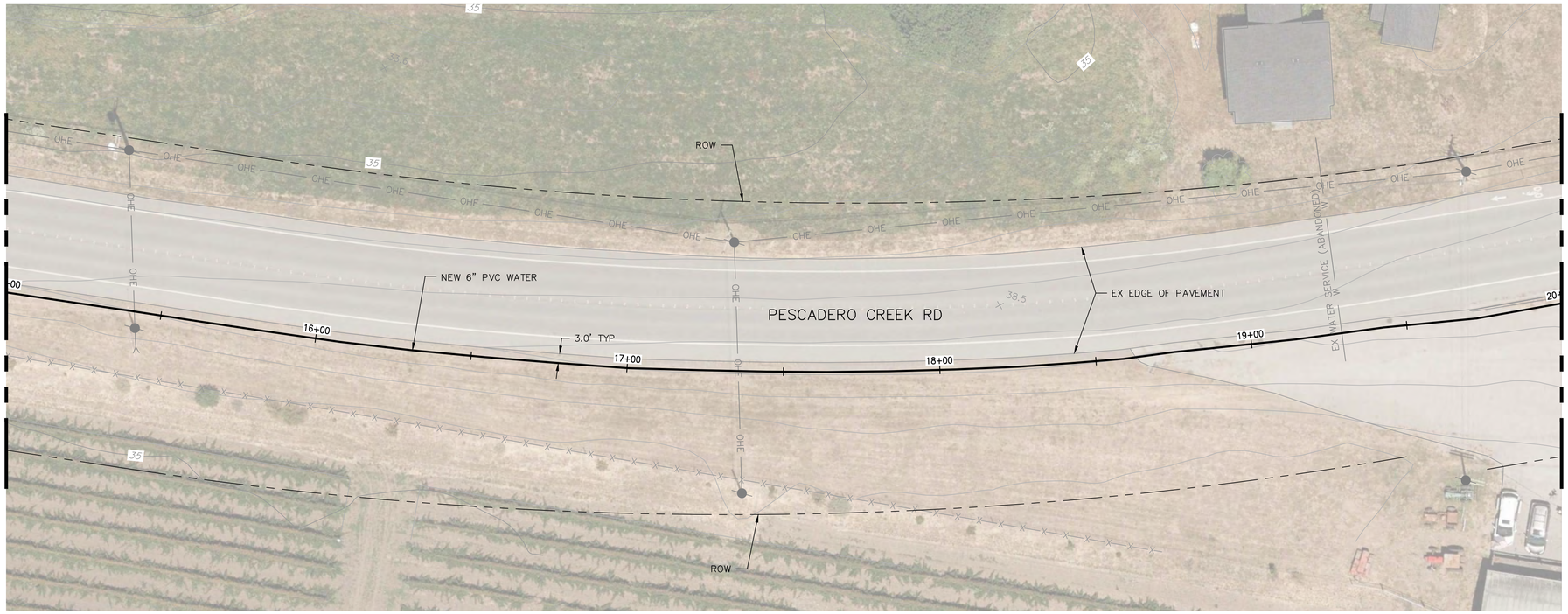
PESCADERO CREEK RD - PLAN AND PROFILE 1

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

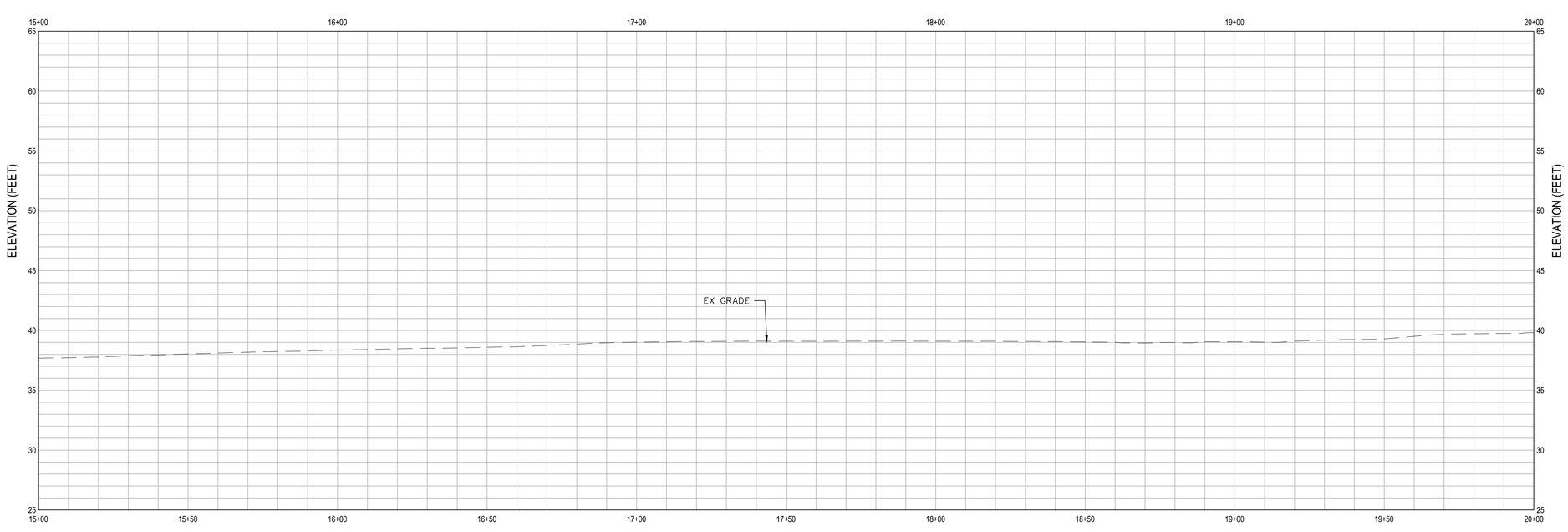
SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

C-101
SHEET 6 OF 23



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

N

1"=20' 0 20' 40'

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C102.DWG (C-102)

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

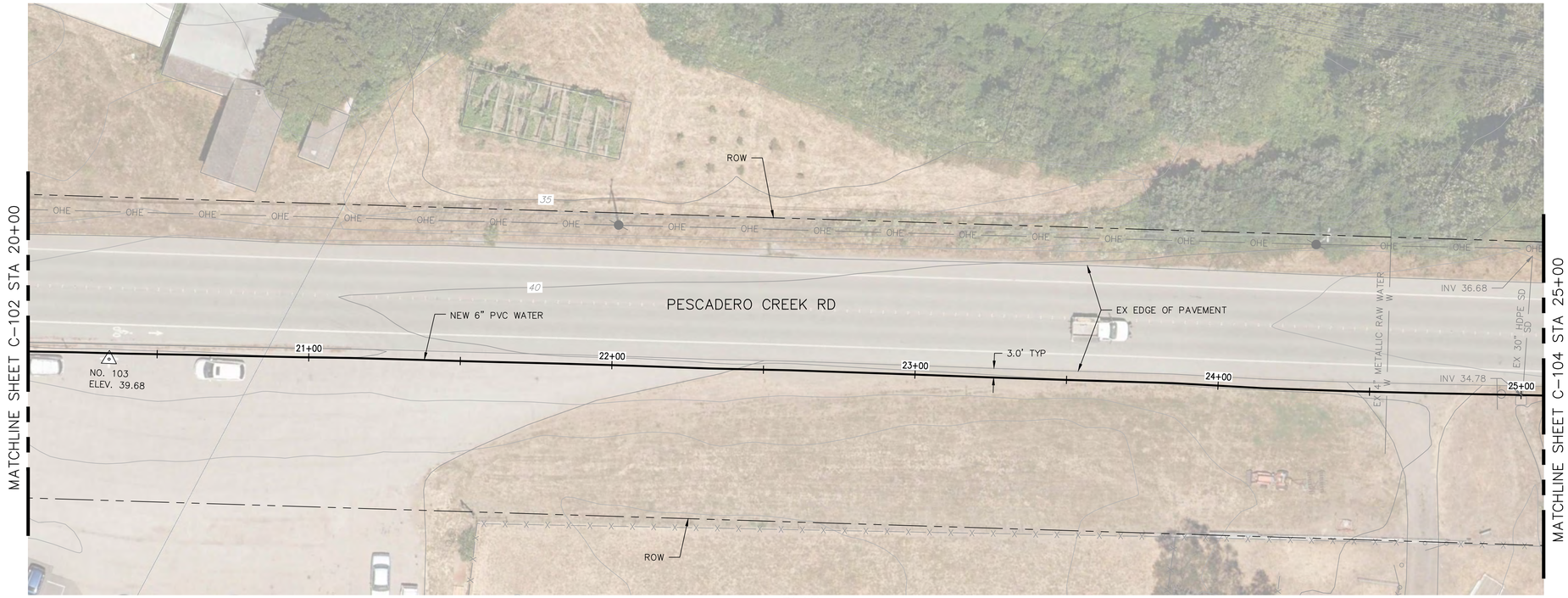
COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL
		CHECKED BY: DM	
		DRAWN BY: CB	**PESCADERO CREEK RD - PLAN AND PROFILE 2**
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

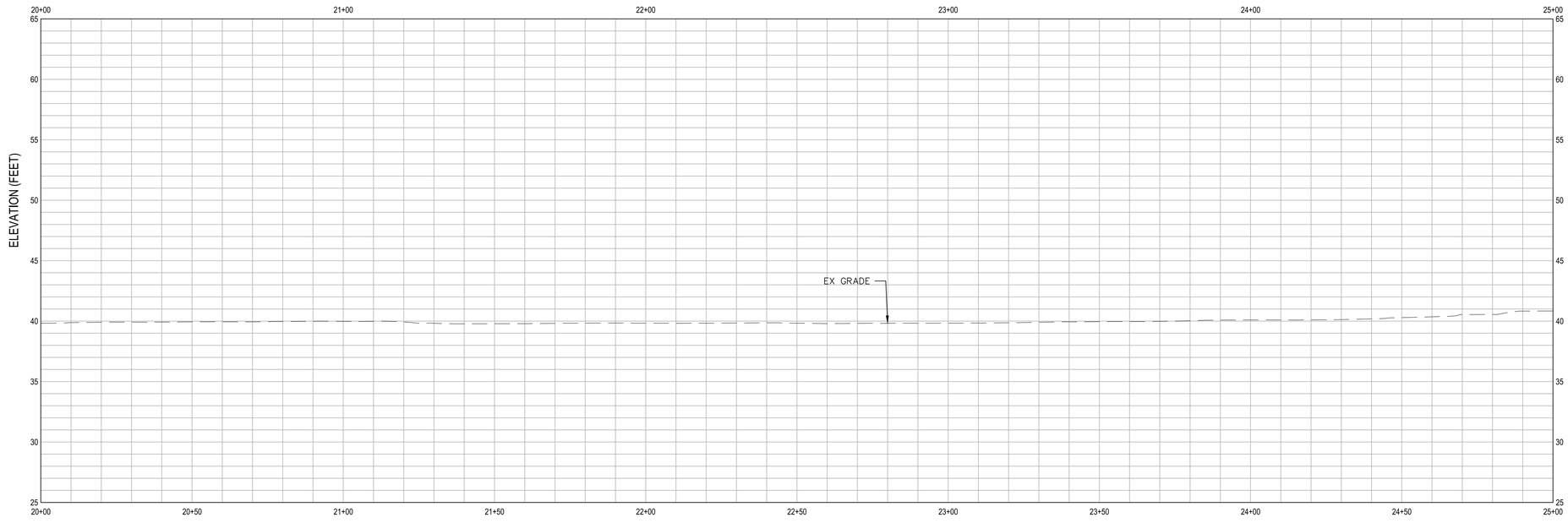
SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-102
SHEET 7 OF 23



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/21 CIVIL STATE OF CALIFORNIA

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

N

1"=20' 0 20' 40'

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER DILLON J. MORRA No. C 79186 Exp. 3-31-21 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: DM
CHECKED BY: DM
DRAWN BY: CB

COUNTY OF SAN MATEO
PESCADERO HIGH SCHOOL
PESCADERO CREEK RD - PLAN AND PROFILE 3

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

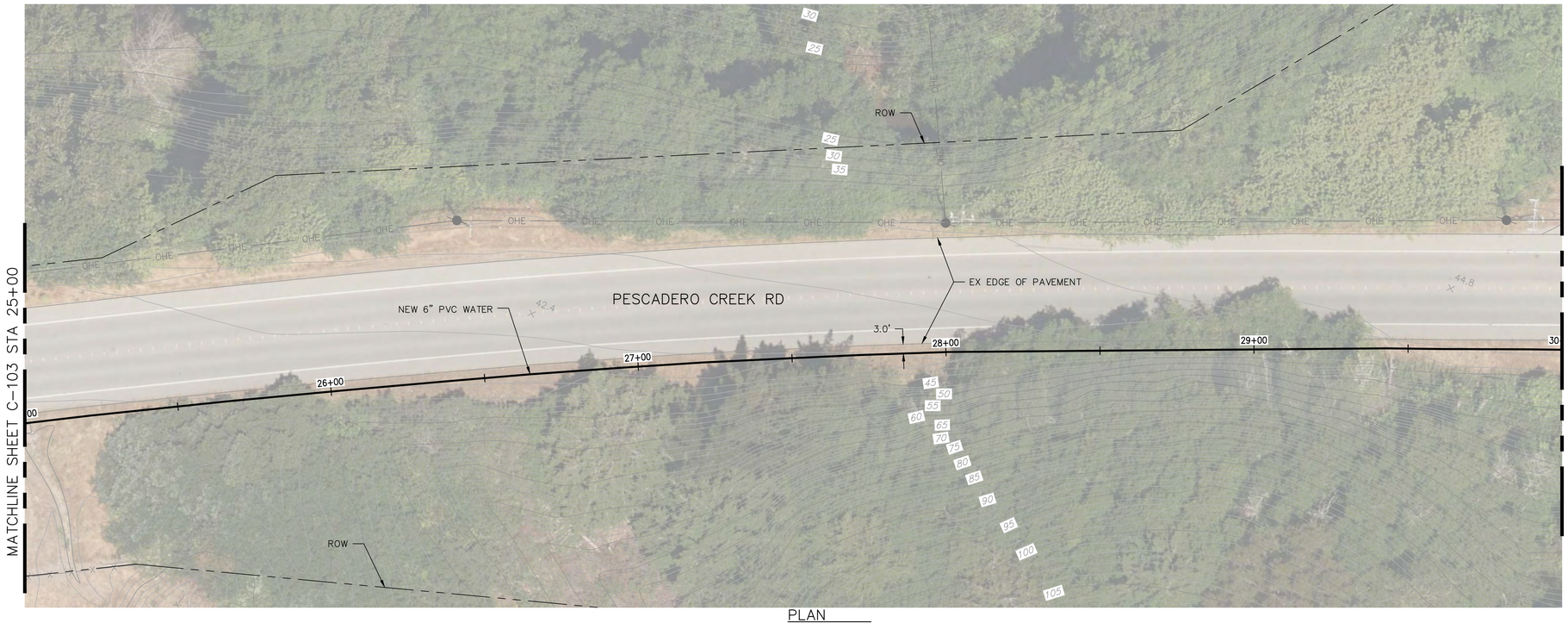
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

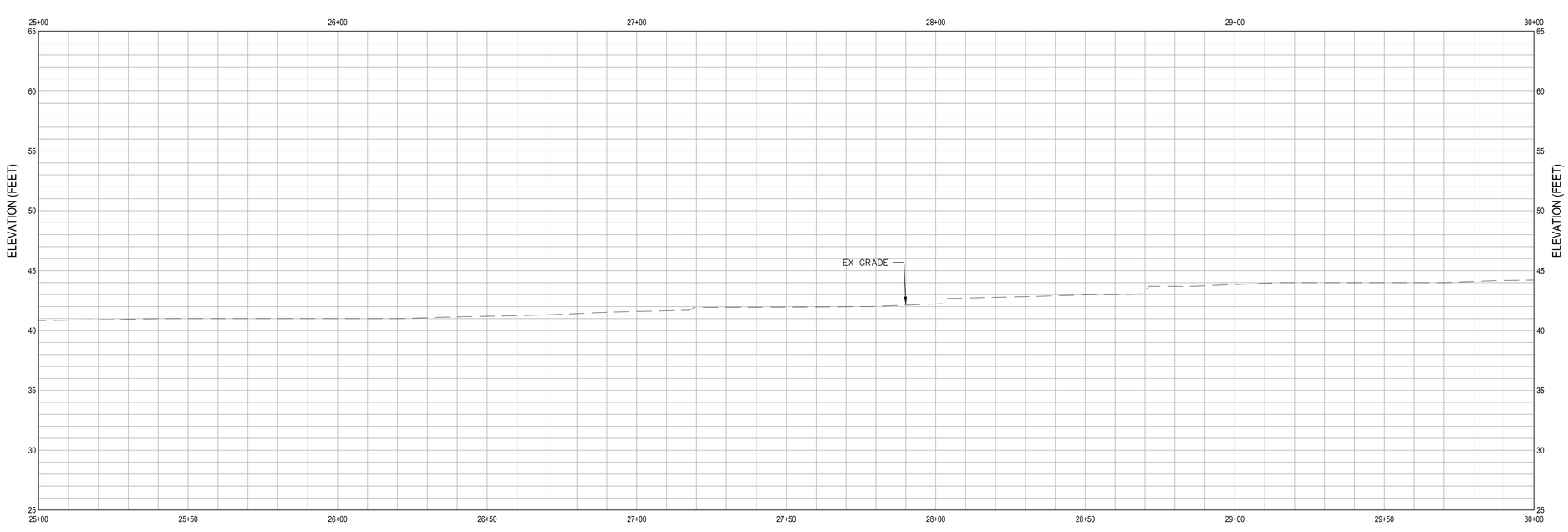
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-103
SHEET 8 OF 23

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C103.DWG (C-103)



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

1"=20' 0 20' 40'

NOT FOR CONSTRUCTION

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C104.DWG (C-104)

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

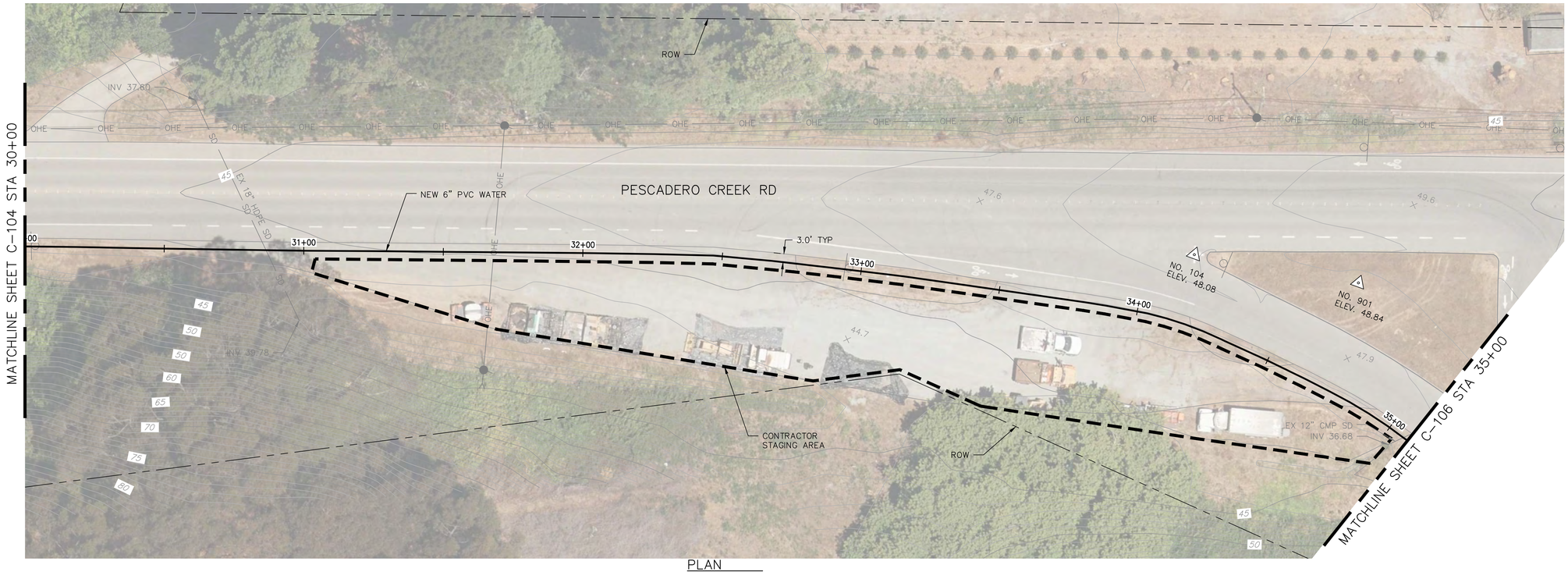
COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL
		CHECKED BY: DM	
		DRAWN BY: CB	**PESCADERO CREEK RD - PLAN AND PROFILE 4**
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

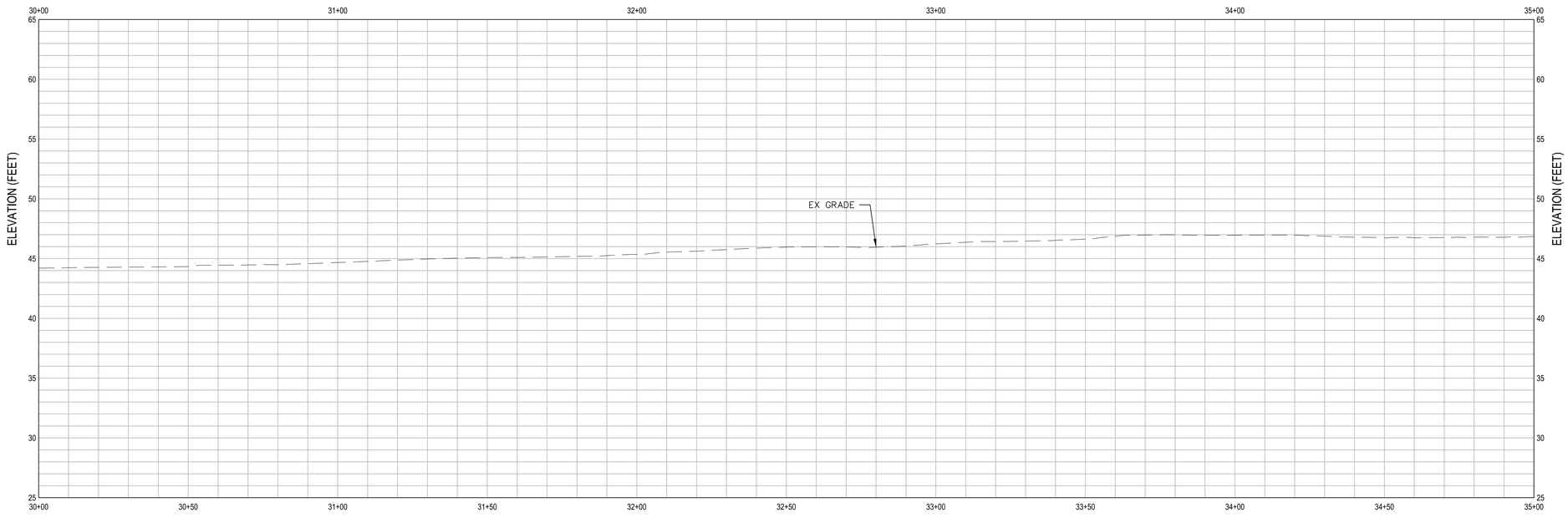
SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-104
SHEET 9 OF 23



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

N

1"=20' 0 20' 40'

NOT FOR CONSTRUCTION

APPROVED DATE:

Dillon J. Morra
GHD, Inc.
R.C.E. # 79186 / EXPIRES 03-31-2021

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: DM
CHECKED BY: DM
DRAWN BY: CB

COUNTY OF SAN MATEO
PESCADERO HIGH SCHOOL
PESCADERO CREEK RD - PLAN AND PROFILE 5

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

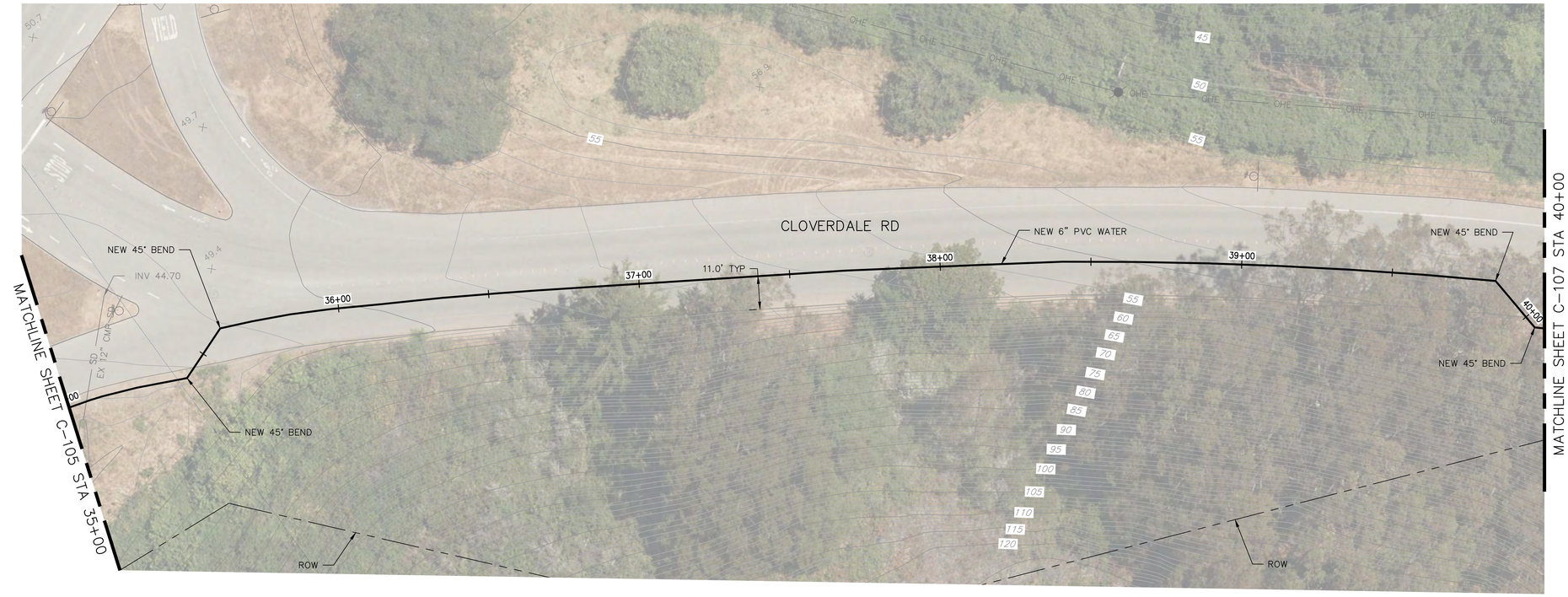
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

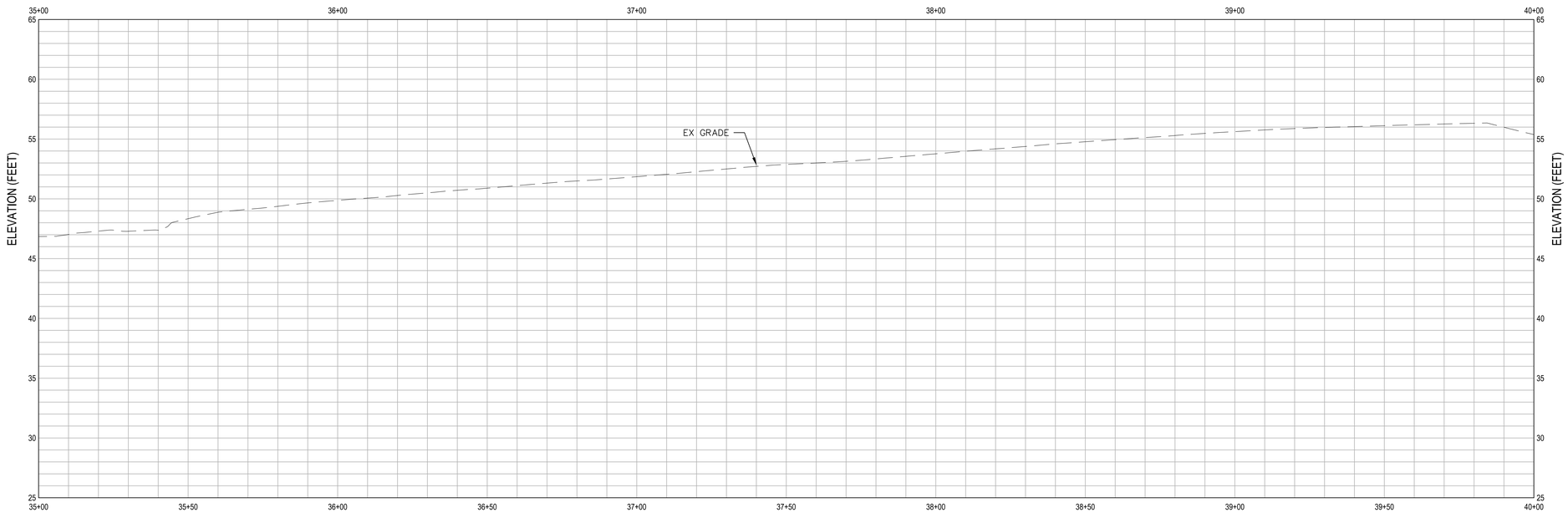
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-105
SHEET 10 OF 23

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C105.DWG (C-105)



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

N

1"=20' 0 20' 40'

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C106.DWG (C-106)

NOT FOR CONSTRUCTION

APPROVED DATE:

Dillon J. Morra
GHD, Inc.
R.C.E. # 79186 / EXPIRES 03-31-2021

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: DM
CHECKED BY: DM
DRAWN BY: CB

COUNTY OF SAN MATEO
PESCADERO HIGH SCHOOL
CLOVERDALE RD - PLAN AND PROFILE 6

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

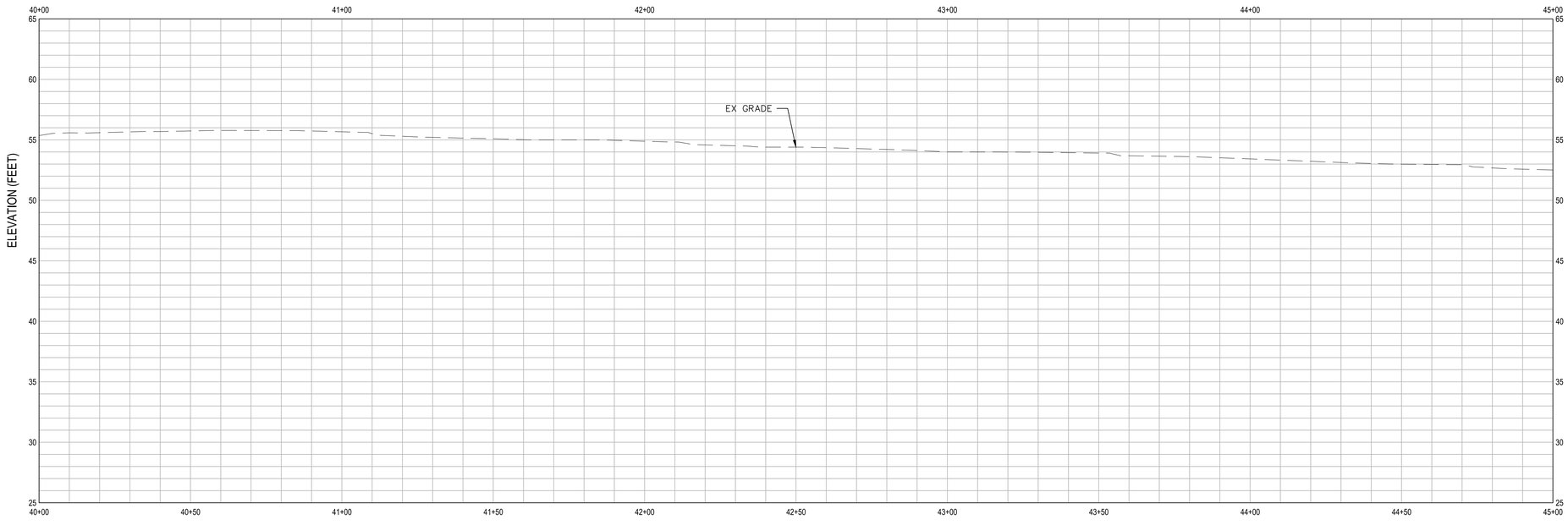
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-106
SHEET 11 OF 23

PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

1"=20' 0 20' 40'

NOT FOR CONSTRUCTION

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C107.DWG (C-107)

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

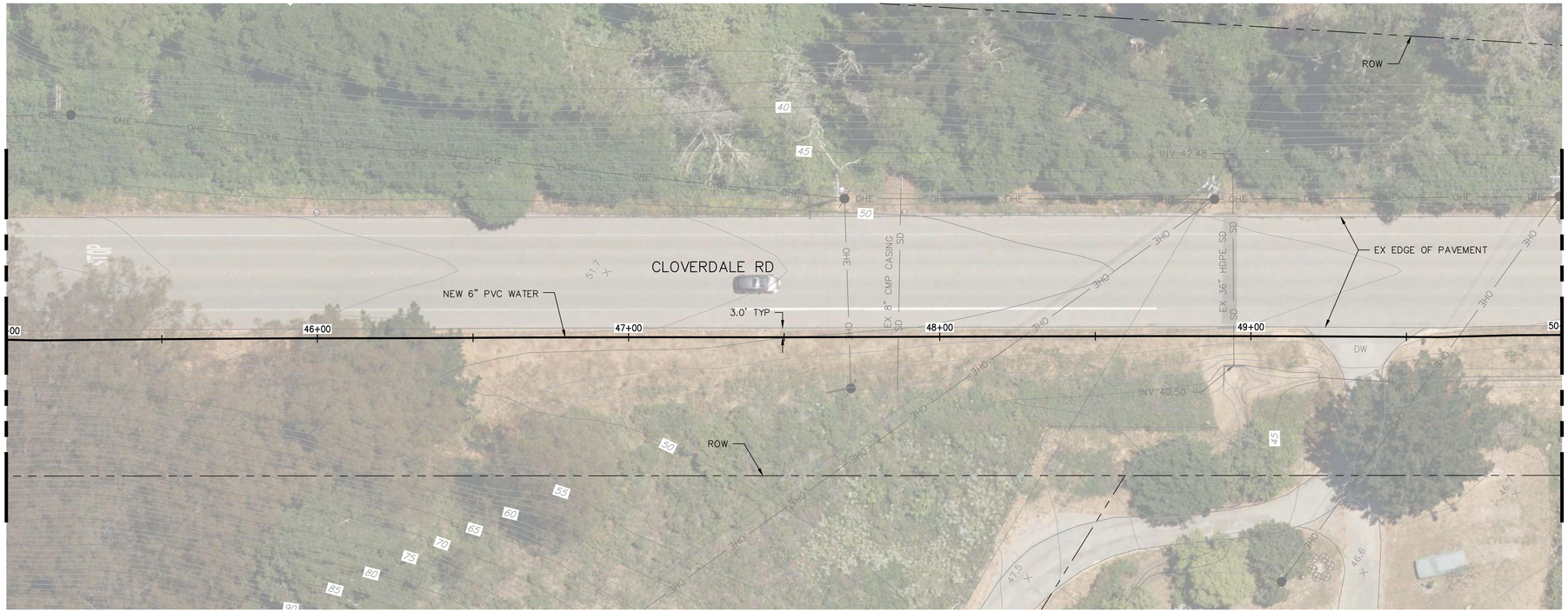
COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL **CLOVERDALE RD - PLAN AND PROFILE 7**
		CHECKED BY: DM	
		DRAWN BY: CB	
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

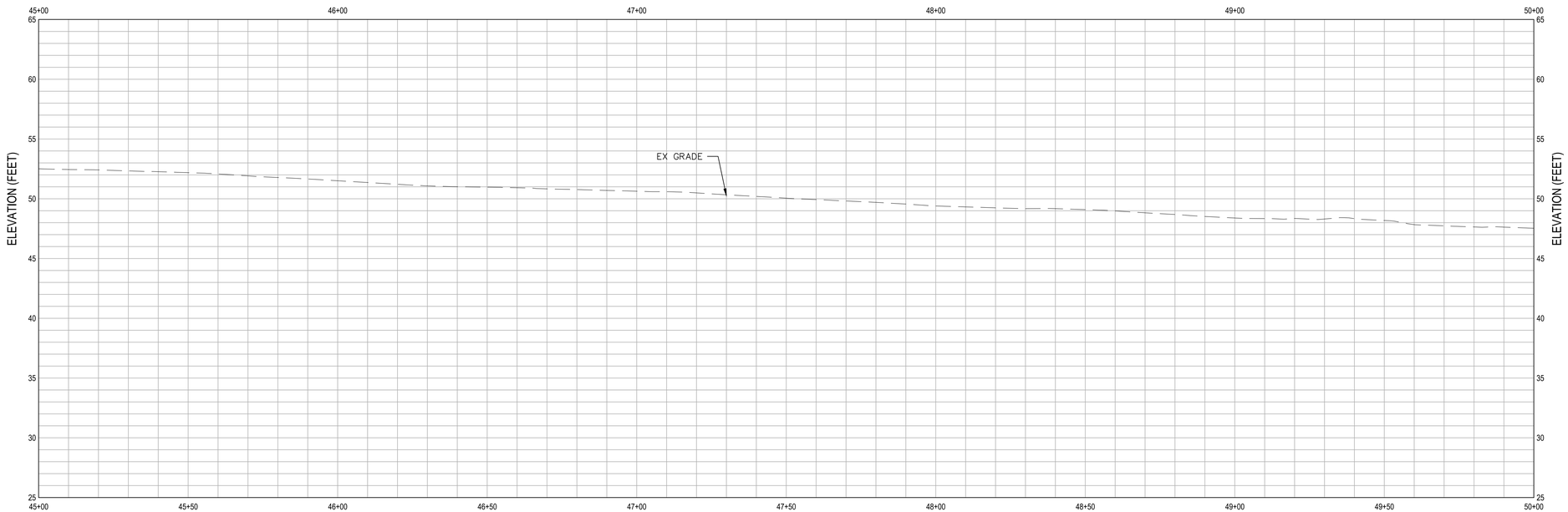
SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-107
SHEET 12 OF 23



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

0 20' 40'
1"=20'

NOT FOR CONSTRUCTION

APPROVED DATE:

Dillon J. Morra
GHD, Inc.
R.C.E. # 79186 / EXPIRES 03-31-2021

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: DM
CHECKED BY: DM
DRAWN BY: CB

COUNTY OF SAN MATEO
PESCADERO HIGH SCHOOL
CLOVERDALE RD - PLAN AND PROFILE 8

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

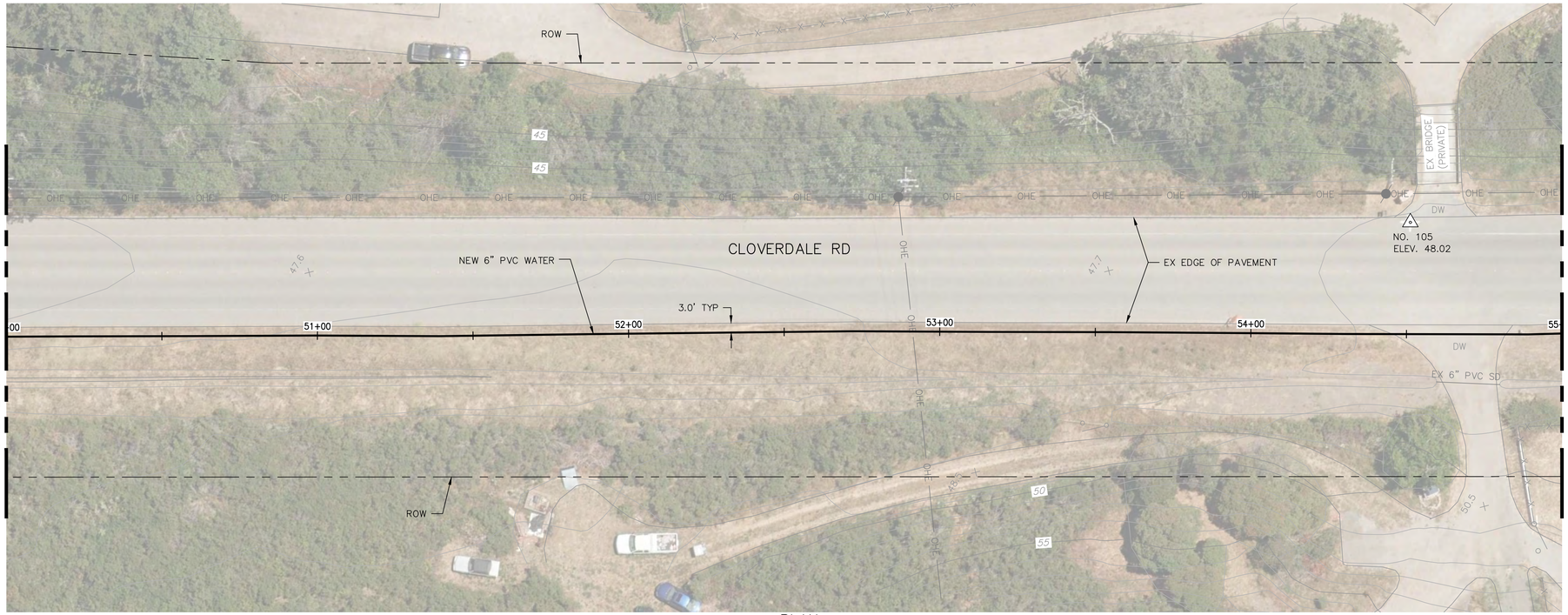
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

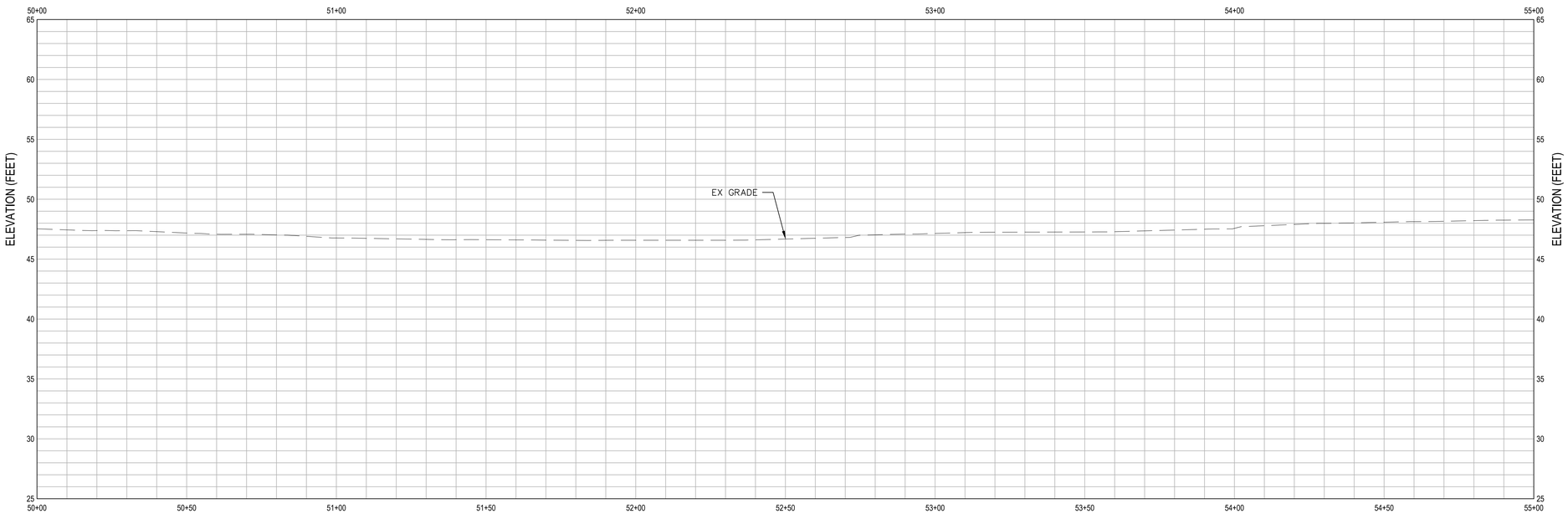
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

C-108
SHEET 13 OF 23

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C108.DWG (C-108)



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C109.DWG (C-109)

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: DM
CHECKED BY: DM
DRAWN BY: CB

COUNTY OF SAN MATEO
PESCADERO HIGH SCHOOL
CLOVERDALE RD - PLAN AND PROFILE 9

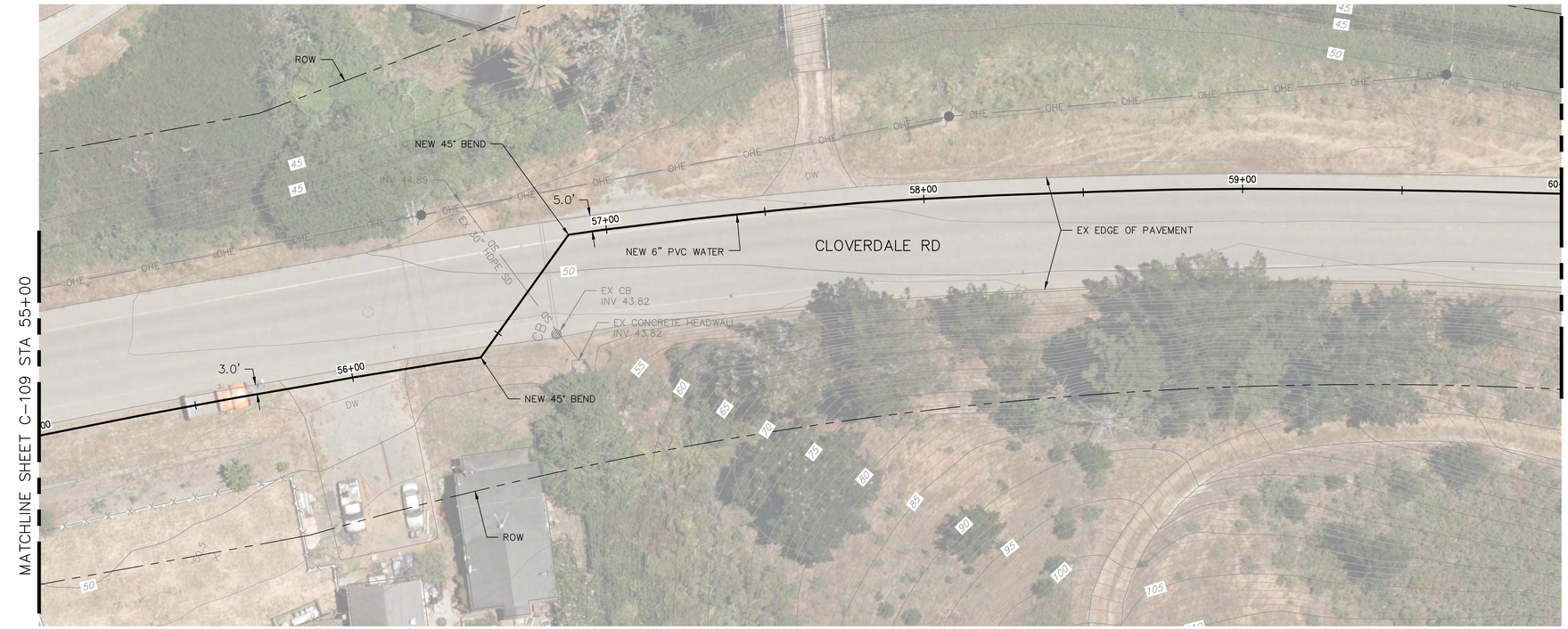
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

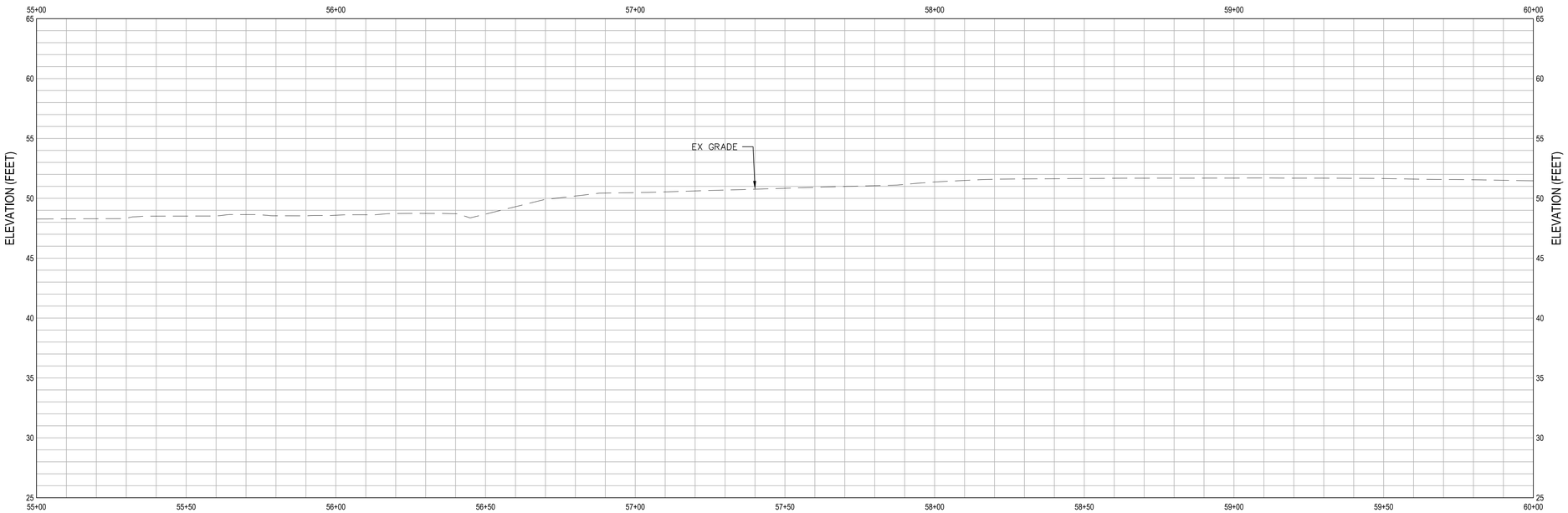
SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

C-109
SHEET 14 OF 23



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

0 20' 40'
1"=20'

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: DM
CHECKED BY: DM
DRAWN BY: CB

COUNTY OF SAN MATEO
PESCADERO HIGH SCHOOL
CLOVERDALE RD - PLAN AND PROFILE 10

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

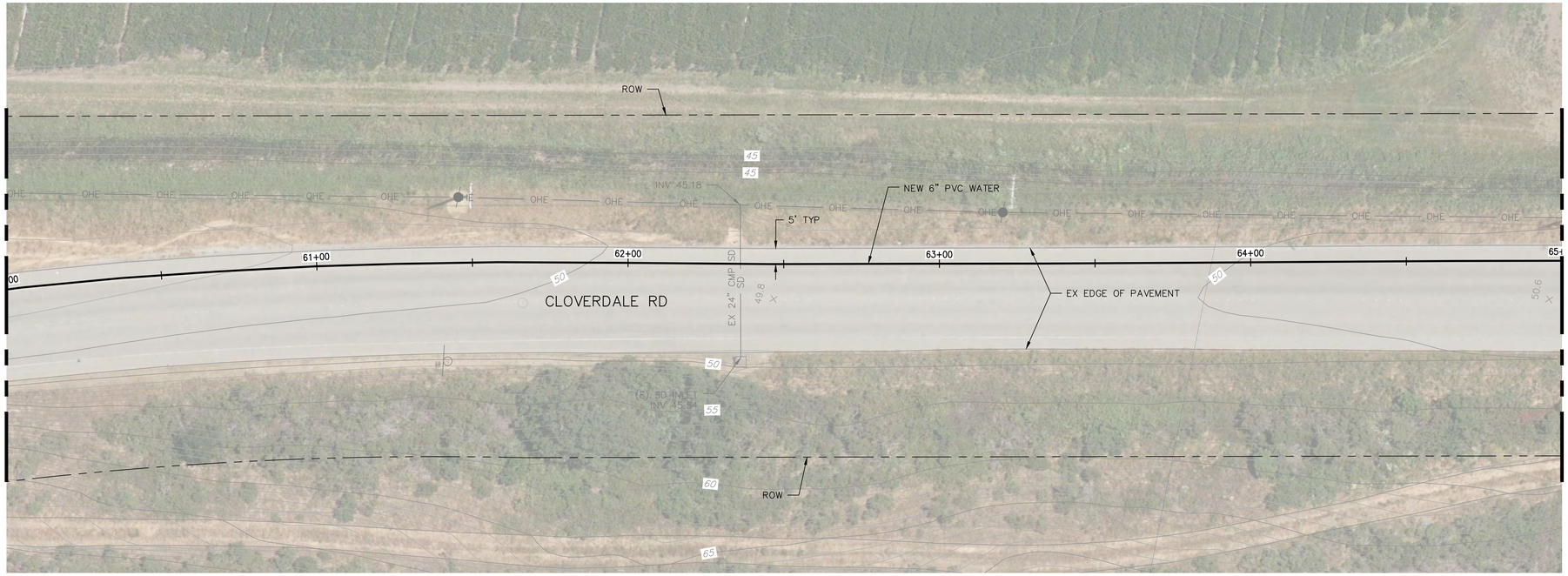
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

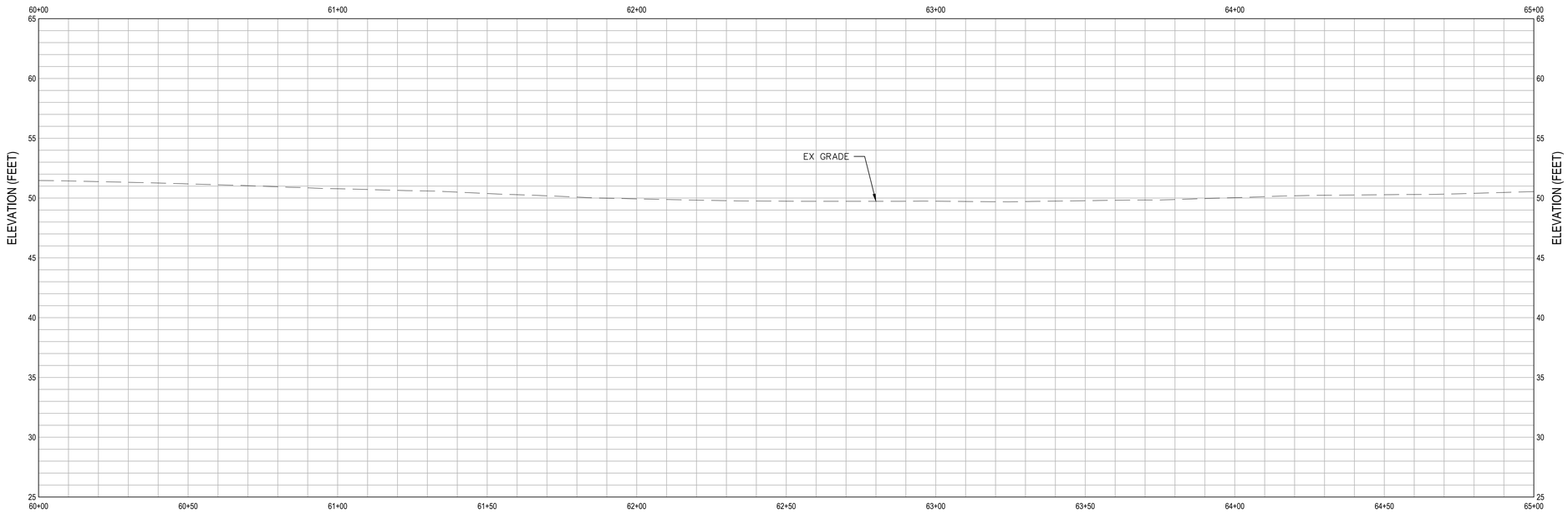
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

C-110
SHEET 15 OF 23

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\61\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C110.DWG (C-110)



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

N

1"=20' 0 20' 40'

NOT FOR CONSTRUCTION

APPROVED DATE:

Dillon J. Morra
GHD, Inc.
R.C.E. # 79186 / EXPIRES 03-31-2021

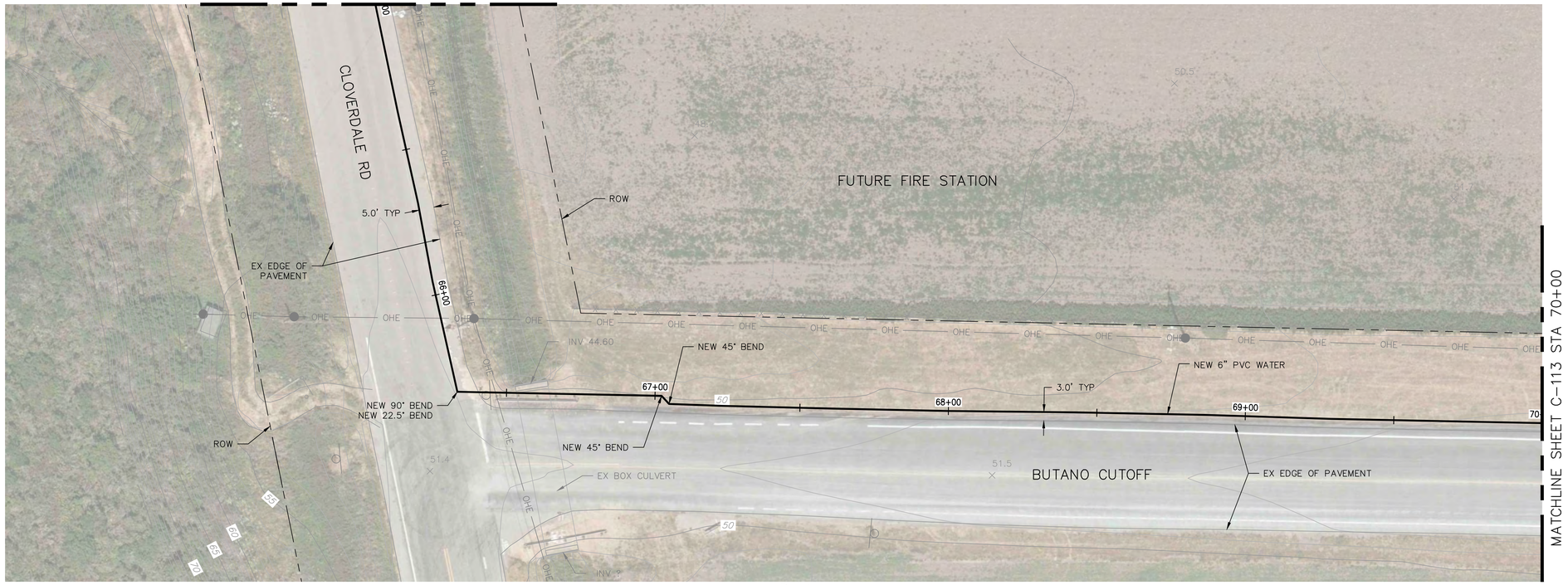
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL **CLOVERDALE RD - PLAN AND PROFILE 11**
		CHECKED BY: DM	
		DRAWN BY: CB	
REVISION	DATE	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

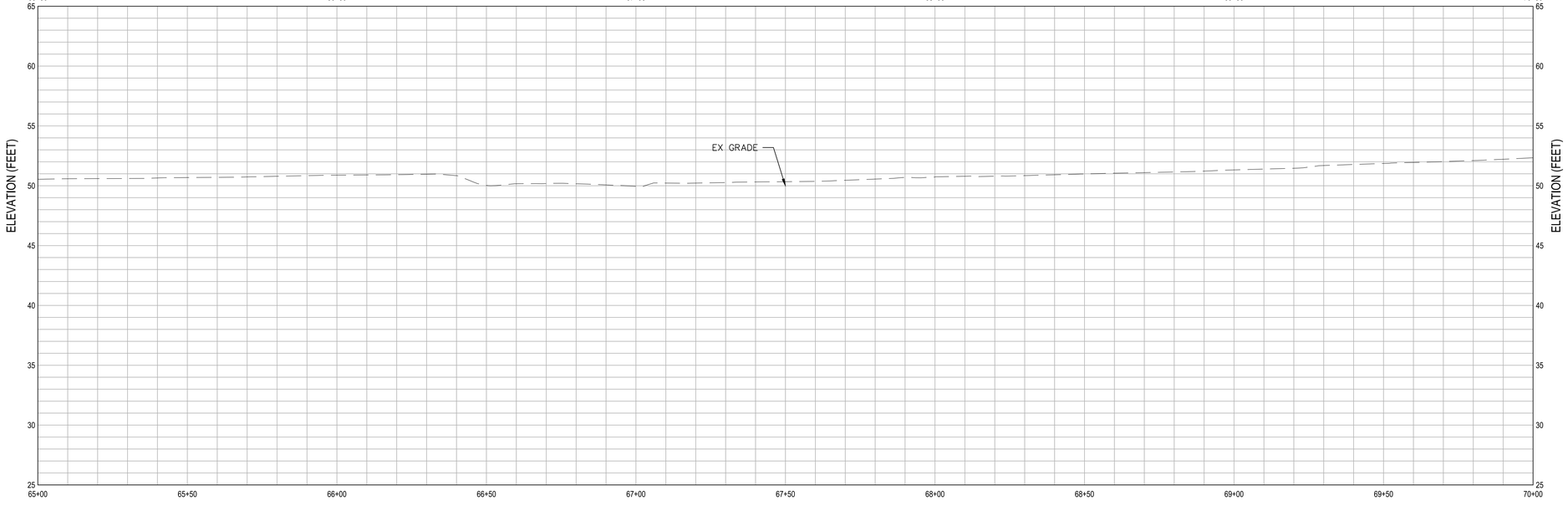
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-111
SHEET 16 OF 23

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C111.DWG (C-111)



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/21 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

N

1"=20' 0 20' 40'

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER DILLON J. MORRA No. C 79186 Exp. 3-31-21 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: DM
CHECKED BY: DM
DRAWN BY: CB

COUNTY OF SAN MATEO
PESCADERO HIGH SCHOOL
BUTANO CUTOFF - PLAN AND PROFILE 12

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

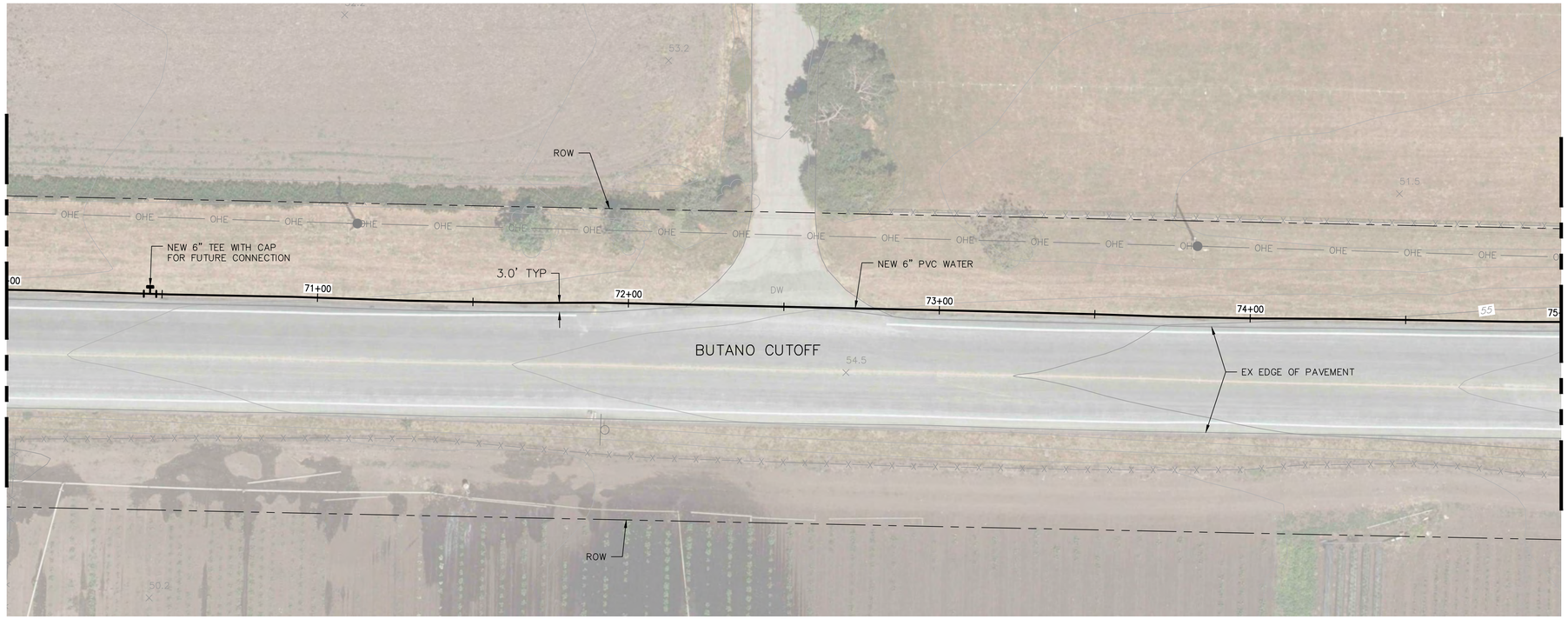
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

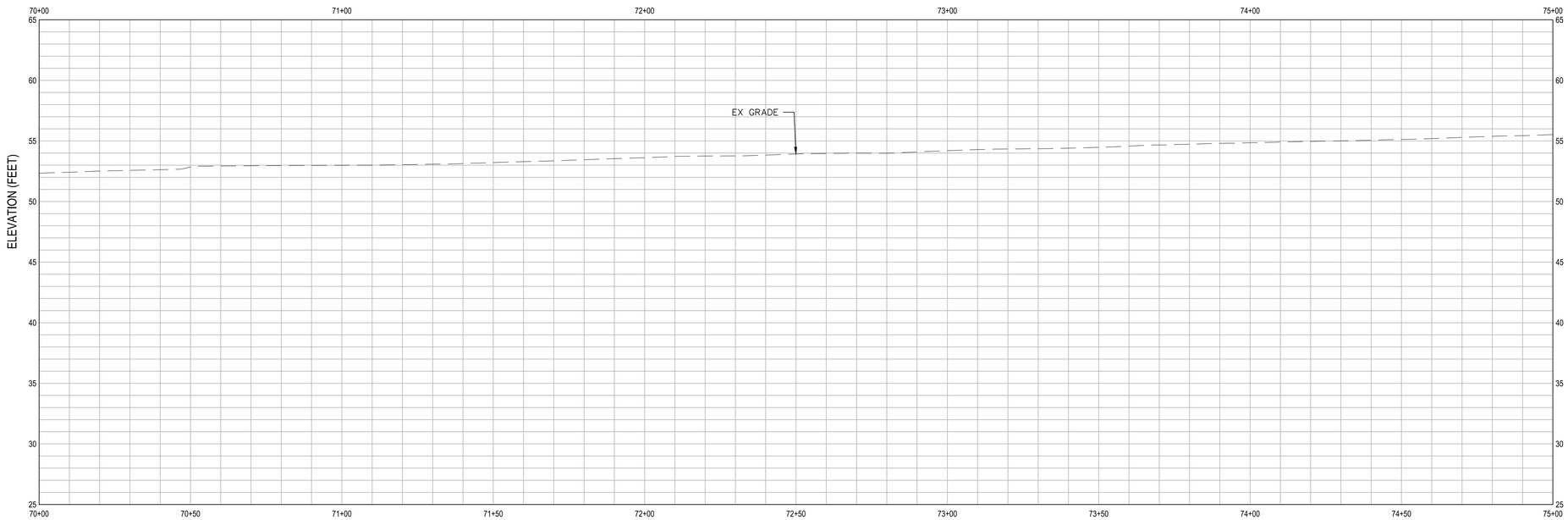
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-112
SHEET 17 OF 23

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C112.DWG (C-112)



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

N

1"=20' 0 20' 40'

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C113.DWG (C-113)

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

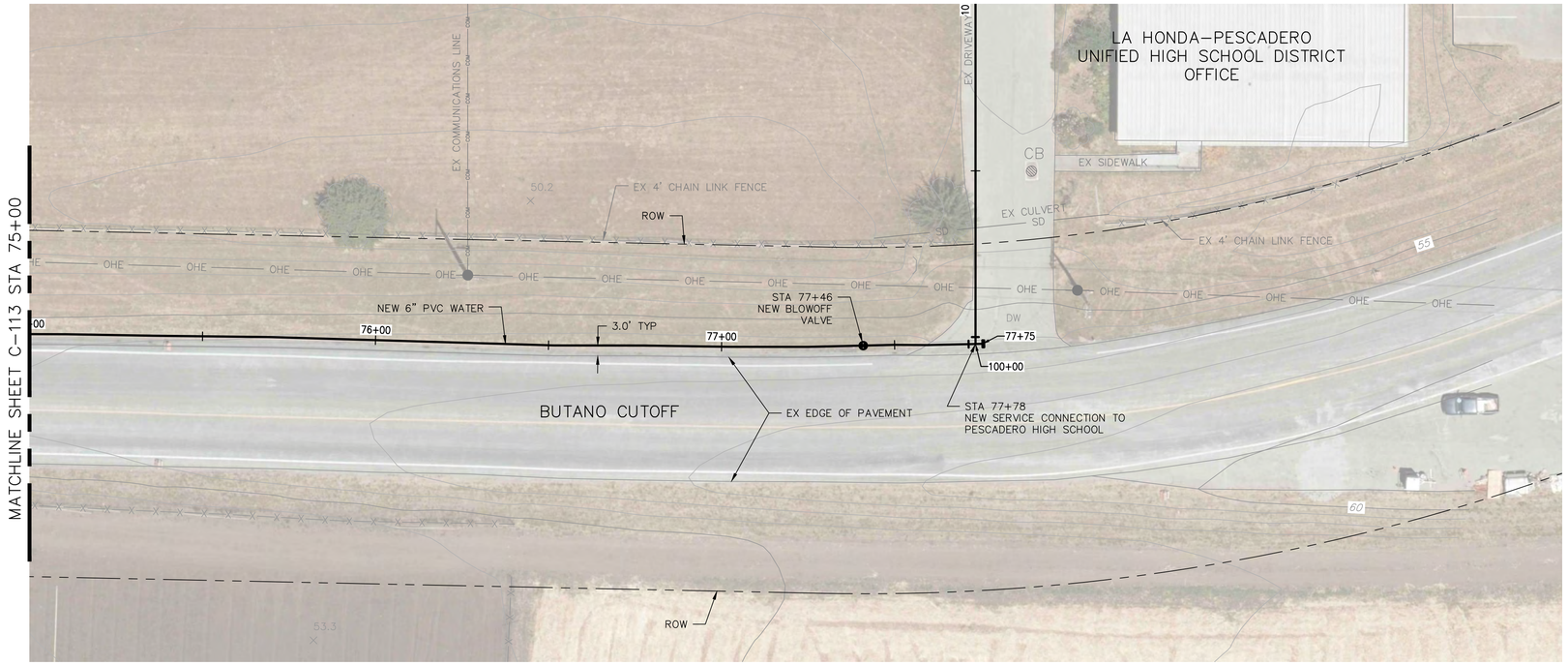
COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL **BUTANO CUTOFF - PLAN AND PROFILE 13**
		CHECKED BY: DM	
		DRAWN BY: CB	
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

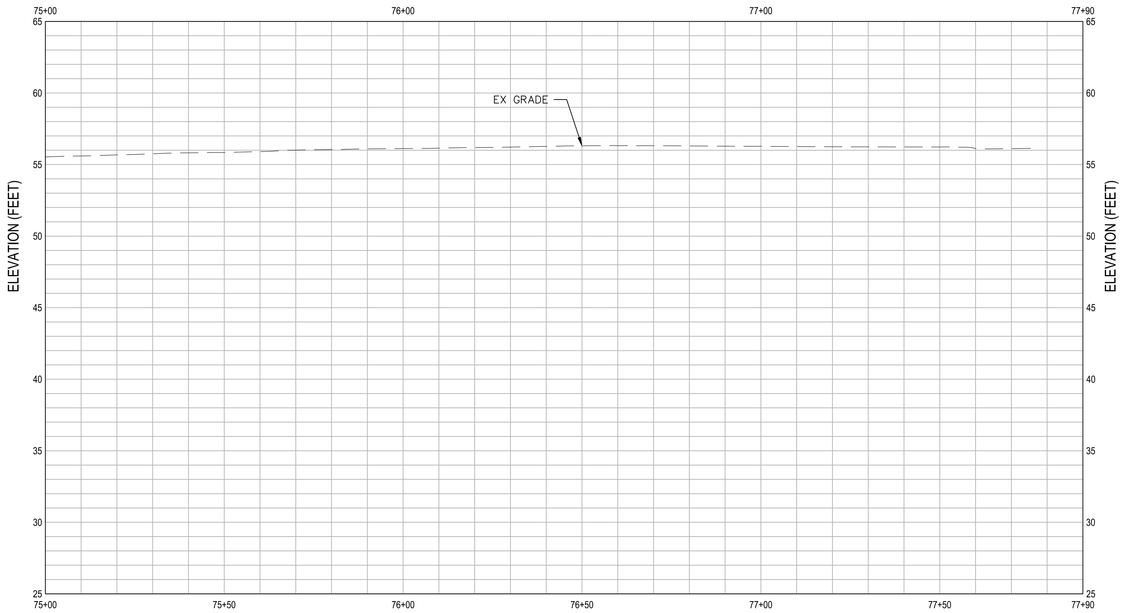
SCALE:	AS SHOWN
DATE:	12-17-2020
FILE NO.:	1/49##

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-113
SHEET 18 OF 23



PLAN
SCALE 1"=20'



PROFILE
SCALE 1"=20' HZ, 1"=5' VT

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

SHEET GENERAL NOTES

1.

SHEET KEYNOTES

1.

N

1"=20' 0 20' 40'

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

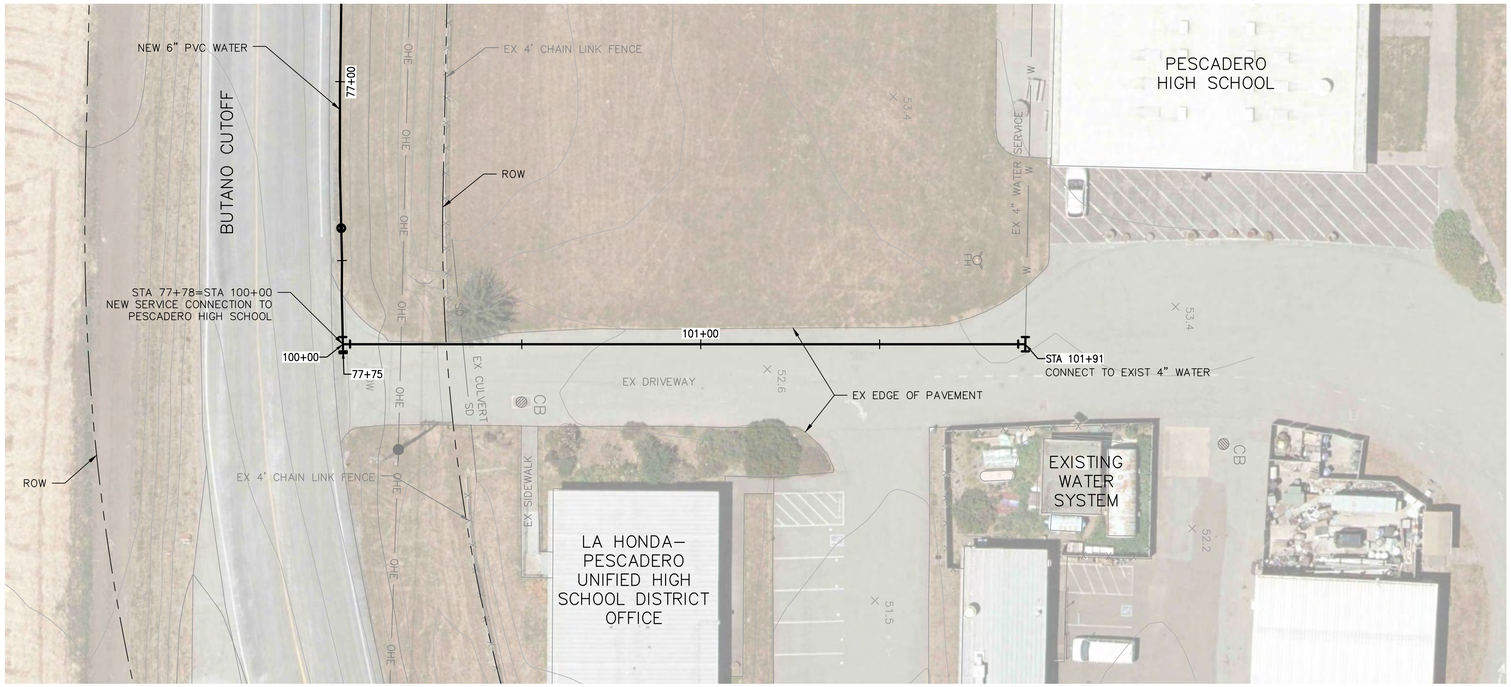
REVISION	DATE		
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL **BUTANO CUTOFF - PLAN AND PROFILE 14**
		CHECKED BY: DM	
		DRAWN BY: CB	
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

SCALE:	AS SHOWN
DATE:	12-17-2020
FILE NO.:	1/49##

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-114
SHEET 19 OF 23

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\61\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C114.DWG (C-114)



PLAN
SCALE 1"=20'

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12–31–2019

SHEET GENERAL NOTES

1. POINT OF CONNECTION TO SCHOOL TO BE CONFIRMED BY POTHOLING DURING FINAL DESIGN.

SHEET KEYNOTES

1.

N

0 20' 40'
1"=20'

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\61\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C115.DWG (C-115)

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03–31–2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL **HS SERVICE CONNECTION PLAN**
		CHECKED BY: DM	
		DRAWN BY: CB	
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 12–17–2020
FILE NO.: 1/49##

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

C-115
SHEET 20 OF 23

APPROVED:

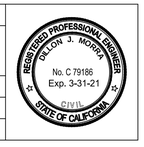
DATE: _____

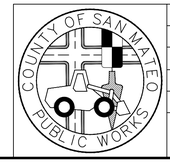
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C501.DWG (C-501)

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	





		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL **CIVIL DETAILS**	SCALE: AS SHOWN
		CHECKED BY: DM		DATE: 12-17-2020
		DRAWN BY: CB		FILE NO.: 1/49##
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY		555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063
REVISION	DATE			

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-501
SHEET 21 OF 23

APPROVED:

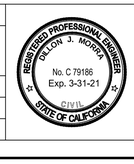
DATE: _____

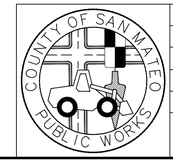
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-C502.DWG (C-502)

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	





		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL **CIVIL DETAILS**	SCALE: AS SHOWN
		CHECKED BY: DM		DATE: 12-17-2020
		DRAWN BY: CB		FILE NO.: 1/49##
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY		555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063
REVISION	DATE			

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C-502
SHEET 22 OF 23

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/21
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019

FILENAME: \\GHDNET\GHD\US\EMERYVILLE\PROJECTS\561\11213964\DIGITAL_DESIGN\ACAD 2018\SHEETS\11213964-CS03.DWG (C-503)

NOT FOR CONSTRUCTION

APPROVED DATE:	
Dillon J. Morra	
GHD, Inc.	
R.C.E. # 79186 / EXPIRES 03-31-2021	

REGISTERED PROFESSIONAL ENGINEER
DILLON J. MORRA
No. C 79186
Exp. 3-31-21
Civil
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: DM	COUNTY OF SAN MATEO PESCADERO HIGH SCHOOL **SAN MATEO COUNTY STANDARD DRAWINGS**
		CHECKED BY: DM	
		DRAWN BY: CB	
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

SCALE: AS SHOWN
DATE: 12-17-2020
FILE NO.: 1/49##

C-503
SHEET 23 OF 23

COUNTY OF SAN MATEO - PLANNING AND BUILDING DEPARTMENT

ATTACHMENT D

TOWN OF PESCADERO (CSA-11) WATER SUPPLY YIELD AND SUSTAINABILITY

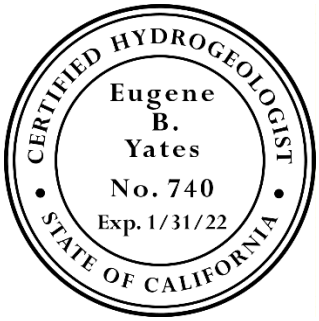
DRAFT

January 22, 2021

TODD GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920
ww.toddgroundwater.com

SIGNATURE PAGE



Eugene Gates, PG, CHG

Senior Hydrogeologist

Daniel Craig, PG, CHG

Senior Hydrogeologist

Table of Contents

List of Tables

List of Figures

1. INTRODUCTION

San Mateo County Service Area 11 (CSA-11) provides municipal water service to the community of Pescadero and has had capacity issues for many years. Pescadero is a small town (population 643 in 2010) on the San Mateo County (County) coast, 14 miles south of Half Moon Bay (**Figure 1**). Since 1992, the municipal water supply has been from wells located on Butano Ridge, a fault-bounded hill between the town and the Pacific Ocean. Water levels in the two original supply wells (Well No. 1 and Well No. 2) steadily declined from 1992 to the present. In 2018, a third well screened at greater depth (Well No. 3) was constructed, which will extend the useful life of the well field but not change the local water balance of the groundwater system.

The County is considering several changes in water demand served by the CSA-11 system. One is connecting a new fire station that will be built to replace the existing station located at the intersection of Pescadero Road and Bean Hollow Road (Figure 1). After the new station is built, the existing station would be used only during fire emergencies. A second potential new demand on the system would be to connect Pescadero Middle/High School. An extension of the water distribution system would need to be built to serve the school, which is located a little over 1 mile east of town (Figure 1). Finally, the County's Local Coastal Program (LCP) updated in 2013 included projected water demands for future development in Pescadero that would effectively double existing demand. Under an LCP buildout scenario, current water supply system may be unsustainable and additional water sources would need to be developed.

The purpose of this study is to: 1) audit existing water use to identify potential unauthorized uses or leaks in the distribution system, and 2) evaluate the adequacy of the current CSA-11 water system under existing and potential additional water demand conditions. A third objective of this study is to evaluate potential alternative water sources in the Pescadero area; the scope and results of this third task will be documented in a separate technical memorandum submitted to the county later this year.

1.1. Water System Characteristics

Previous studies of the local hydrogeology, well and water supply system characteristics, and sustainability of the CSA-11 water system were performed in 2002 and 2018 by Todd Engineers and Todd Groundwater (herein Todd). CSA-11 Well Nos. 1, 2 and 3 are located within a few tens of feet of each other near the top of Butano Ridge. The ground surface elevation of the wells is approximately 270 feet above mean sea level (ft amsl). Wells Nos. 1 and 2 are 260 and 247 feet deep, respectively, with screened intervals of 210 to 250 and 207 to 247 feet below ground surface (ft bgs), respectively. Static depth to groundwater in Well No. 1 during 2020 was approximately 200 ft bgs, or near the top of the well screen. From 1992 to 2020, Well No. 1 was the primary supply well, with a pumping rate of 60-70 gallons per minute (gpm). Well No. 2 has always served as a standby well for use in case Well No. 1 is out of service. New Well No. 3 was installed during summer 2018 and is completed to a total depth of 360 ft bgs, with a screened interval of 250 to 350 ft bgs. During test pumping ,

Well No. 3 appeared capable of pumping at a rate of 100 gpm or more on a sustained basis (Todd Groundwater, 2019). It was put into service as the primary supply well in fall 2020.

The wells pump into two storage tanks located partway down the ridge. The two tanks have a combined storage capacity of approximately 298,000 gallons. The tanks are connected by a pipe that is normally kept open, so the water level is the same in both tanks. A float switch in one of the tanks maintains water levels within a 2-foot range, activating the well to replenish storage whenever the water level drops to 2 feet below its normal high level. The normal high level corresponds to approximately 191,000 gallons (Todd Groundwater, 2019).

Flow is metered at the wells, but outflow from the tanks into the water distribution system is not metered. Water flows through a pipeline that runs from the tanks down to Pescadero Road and continues east with branches to serve customers on several streets. There currently are 101 active customers, and water use at each customer turnout is metered. Metered customer water use during 2015-2019 averaged 19,442 gallons per day.

Groundwater levels in Well Nos. 1 and 2 have declined continuously since 1992. During 2015-2019 the rate of decline was steady at about 0.5 foot per year. The long-term decline indicates that groundwater pumping consistently exceeds the sustainable yield of the groundwater system beneath Butano Ridge.

1.2. Scope of Work

This study evaluates current water usage patterns and options for achieving a sustainable water supply under three demand conditions:

- Current water demand served by the CSA-11 distribution system,
- Current demand plus demand from the new fire station and middle/high school if those facilities are connected to the distribution system, and
- Future demand if growth projected in the Local Coastal Plan occurs.

This report is organized around eight specific tasks defined by the County in the original scope of work, as follows:

Task 1. Audit existing water connections to CSA-11 to identify non-allowable current uses and system water leaks.

Task 2. Analyze the short-term yield (based on last 5 years) of the CSA-11 wells with the addition of the fire station and school to the system and partial demolition of existing fire station: how does short-term yield compare to both average and peak daily demand on the system? Analysis will incorporate water usage by the "average daily water use during the two months of the highest water use in the year" as a metric.

Task 3. Analyze the long-term impact (including drought and non-drought years) to CSA-11 groundwater supply of the addition of fire station and school: What is the estimated longevity of the wells with the addition of the two new facilities? How much would the two

new facilities accelerate aquifer drawdown compared to findings of June 2019 Todd Groundwater report?

Task 4. Identify any potential water quality impacts associated with CSA-11 extension to the fire station and school.

Task 5. Evaluate potential effects of Local Coastal Program (LCP) residential and commercial buildout and increased water demand as shown in LCP Table 2.16 Estimate of Water Consumption Demand at Land Use Plan Buildout for the Town of Pescadero.

Task 6. Account for anticipated water usage associated with retention of the apparatus bay and any other facilities at the existing fire station site.

Task 7. Update any climate change modeling/assumptions and any known increases in private groundwater uses that would impact CSA-11's supply longevity.

Task 8. Identify existing and anticipated non-revenue water as the lines age over the approximate 1-mile CSA-11 extension to ensure that loss would not be a significant factor. (Non-revenue water is water that is "lost" from source before it reaches the customer, e.g. leaks.) Identify existing technology that could be implemented with the CSA-11 extension to mitigate impact of non-revenue water to current customers (e.g. automatic shutoff feature to the main extension to prevent leaks from depressurizing the larger system).

Additional Task 9 – Evaluate potential additional sources of supply. This task is currently in-progress, and will be documented in a separate memorandum prepared later this year.

2. ANALYSIS AND RESULTS BY TASK

2.1. Task 1. Audit Existing Water Connections

The objective of this task is to determine whether various conservation strategies might be capable of decreasing water demand to below the sustainable yield of the groundwater system. This involved estimating irrigation use, quantifying unmetered uses, and measuring leakage from the distribution system.

2.1.1. Non-Allowable Uses – Metering Uncertainty

Water production and delivery are both metered in CSA-11. Production is metered at each well for Well Nos. 1 through 3. Water use is also metered at the turnout to each customer. Meters are currently read on a bimonthly schedule. **Figure 2** shows A. metered water use for 2004-2019 and B. semiannual well production and metered customer consumption for 2012-2019. As shown in the lower graph, well production was consistently less than the sum of the customer meter readings until 2016, when the meter on Well No. 1 was replaced. Since then, the two data sets have matched more closely. The sum of the customer meters has generally been about 20 percent lower than the metered well production since then. Water meters tend to under-record as they age, which could be causing some of the recent

discrepancy. Leaks or unmetered uses in the distribution system could also contribute to the discrepancy. In any case, the obvious effect of changing the well meter in 2016 underscores the fact that even metered water use data are subject to uncertainty.

Review of the upper graph indicates that total system-wide water use during calendar years 2015-2019 averaged 19,442 gallons per day (gpd)[1], as measured by customer meters at the 101 active connections.

2.1.2. Non-Allowable Uses

Customer water use records were examined for indications of irrigation use, some of which might not be allowed. The current water supply and distribution system was authorized by Coastal Development Permit 90-62. One of the conditions of approval was that delivered water be used only for specified uses including "limited landscape irrigation". Irrigation use can often be detected by regular seasonal variations in water use, as illustrated in the sample customer account usage record shown in **Figure 3**. Water use by this customer is highest in summer, corresponding with seasonal irrigation demand. Tourism also peaks in summer, and customer accounts of tourist-serving businesses were not counted as irrigated where they could be identified.

Of the 101 active customer accounts, 36 had average usage exceeding 180 gallons per day (gpd). Usage at those accounts was reviewed individually, and 11 of them were found to have an irrigation pattern. The presence of irrigated landscaping was confirmed at most of those accounts during a site visit on September 18, 2020. The amount of irrigation use was estimated using the curve separation technique, which assumes that water use during the minimum-use month of the year is all indoor use and that additional use in other months is for irrigation. By interpolating between these seasonal low points over the entire hydrograph period, indoor use (below the green line in **Figure 3**) was separated from irrigation use (above the line). By this method, average annual irrigation use during 2015-2019 by the 11 accounts with an irrigation pattern amounted to 1,516 gpd, or 8 percent of total water use by all accounts.

These results indicate that a strict prohibition on landscape irrigation probably would not be sufficient by itself to eliminate the long-term water-level declines, as discussed below. Accounts with smaller amounts of usage might also include some irrigation use, but that usage is probably small relative to the amounts detected in the high-use accounts.

[1] To facilitate comparison, flow rates in this report are mostly expressed as gallons per day. To convert to other units, divide by 1,440 to obtain gallons per minute, multiply by 30.4 to obtain gallons per month, multiply by 365.25 to obtain gallons per year, and multiply by 0.00112 to obtain acre-feet per year. Conversions from daily or annual data to monthly data assume 30.4 days per month.

2.1.3. Leaks from the Distribution System

Customer meters and inflow from the storage tanks to the distribution system were both investigated for signs of leakage from the water distribution system. The customer meters are equipped each with a highly sensitive spinner dial capable of detecting small flows, typically down to approximately 0.1 gallon per minute (Pietrosanto and others, 2020). Slow rotation of the spinner dial indicates a possible leak. During the September 18, 2020 site visit, thirty meters were read around the middle of the day. The spinner dial on all of them came to a complete stop while being observed, even ones that initially had some movement. Therefore, none of those accounts appeared to have a plumbing leak downstream of the meter.

The contractor that reads the meters (Bracewell Engineering) looks for spinner dial movement, high water usage or a sudden increase in water usage during each bimonthly meter reading event and notifies the landowner of the possibility of a leak. This is a standard water conservation best management practice and provides additional assurance that leaks on the customer sides of meters are not large or common.

Leaks below the detection level of the spinner dials can be cumulatively large. For example, if all of the 101 customers had leaks at 0.05 gpm (half of the flow meter detection limit), the leaks would amount to 7,272 gpd, or about 37 percent of average daily system-wide water use.

Total leakage from the distribution system—including leaks from water mains and from pipes beyond the customer meters—was investigated by measuring overnight flow out of the storage tanks. This was accomplished by placing a Hobo brand pressure transducer/data logger with 0.005 ft accuracy and barometric correction into one of the two storage tanks for a week (November 24-December 2, 2020). Steady water-level declines late at night are an indication of possible leaks from the distribution system because other water uses are low at that time.

The tank levels, recorded at 10-minute intervals, are shown in the upper plot in **Figure 4**. Float switches control the operation of the well pump. When water levels drop about 2 ft below the high level, the pump is activated and runs until the water level is returned to the high level. Refilling events happened three times during the week, or about every two days. The red circles indicate the late-night periods (1:00 a.m. to 4:00 a.m.) that were used in the leak analysis.

The lower plot in **Figure 4** shows an expanded view of water-level declines during 1:00-4:00 a.m. on seven days during the monitoring period, normalized to a level of zero at 1:00 a.m. The lines are not perfectly straight, which may be due to accuracy limitations of the pressure transducer and/or potential non-uniform late night water use. The slopes are also not identical for the seven days. Pipe leaks are a function of pressure in the pipe and are normally constant. There might be variable leakage due to faucets left dripping, toilet flap valves that occasionally do not seat properly, or daily differences in other late-night water uses such as toilet flushing and irrigation. The minimum decline over the 3-hour period was

about 0.010 foot (upper three curves), and the average was 0.021 foot (all curves). The water-level decline was converted to a volume by multiplying by the area of the storage tanks. The tanks are connected by an open pipe and have the same level. The tank diameters are 38 and 41 ft, corresponding to a combined area of 2,454 square feet. The minimum and average 3-hour volume declines were 184 and 386 gallons, respectively.

The late-night storage decline might not all be due to leakage. Possible non-leakage water uses include toilet flushing and drip irrigation systems operated by a timer. An approximate but plausible estimate of systemwide toilet flushing volume between 1:00 and 4:00 a.m. is 258 gallons, which assumes one 2.5 gallon flush during that period for each of the 101 active connections. Drip irrigation use is more speculative. If on any given night five customers have drip systems with thirty 1-gph emitters that operate throughout the 1:00-4:00 a.m. period, the 3-hour irrigation volume would be 450 gallons. Thus, potentially all of the late-night water use indicated by the storage tank levels might be attributable to toilet flushing and/or irrigation.

Extrapolating to 24 hours, the minimum and average late-night water use corresponds to flow rates of 1,470 and 3,080 gpd. These flows equal 8 percent and 16 percent of average daily systemwide water use. This represents a high range of estimated leakage. To the extent that some or all of the late-night water use is for toilet flushing or irrigation, the leakage flow is correspondingly lower. Unfortunately, available data do not support a breakdown of total late-night water use into its component parts, and there is no straightforward way to obtain that information.

A leakage rate equal to 7 percent of total water use is not unusual for municipal water supply systems (Lahlou, 2005). In a supply-constrained system such as this one, however, loss of 8-16 percent of the supply to leaks is significant. The locations of leaks in water mains (upstream of the customer meters) can usually be found by acoustical methods. Specialty contractors that provide leak detection services are available in the Bay Area. Leaks on the customer side of the meters are most commonly from plumbing fixtures and are addressed through customer awareness programs.

2.1.4. Water Main and Fire Hydrant Flushing

In many municipal water supply systems, unmetered water uses include exercising of fire hydrants and flushing of water mains. According to fire department staff, hydrants are not currently tested to ensure functionality (“exercised”), primarily due to community sensitivity to apparent water waste. Five dead-end water mains in the water distribution system are flushed of accumulated sediment by opening a valve at the end of the stub line for about 30 seconds. The flow rate is on the order of 200 gpm. This was formerly done quarterly, but the frequency has been reduced to annual due to community concerns over water waste (Brennan, 2020). The amount of water used for this purpose is approximately 500 gallons per year. Averaged over a year, it is equivalent to a flow of 1.4 gpd or 0.007 percent of average annual system-wide water use.

2.2. Task 2. Analyze the Short-Term Effects on CSA-11 Yield with the Addition of the Fire Station and Middle/High School to the System

Two community facilities are proposed for connection to the CSA-11 water distribution system: Pescadero Middle/High School and a new fire station that would largely replace the existing fire station at the intersection of Pescadero Road and Bean Hollow Road (**Figure 1**). The impact of these new demands on system supplies was investigated by comparing the new uses with total existing use and well pumping capacity on an average annual, maximum-month and maximum-day basis.

2.2.1. **Water Use at Pescadero Middle/High Schoo**l

Non-potable water use at Pescadero Middle/High School is presently supplied by an on-site well, and its production is metered. During 2014-2016, the amount of water produced averaged 736 gpd, as shown in **Figure 5**. This is the period of record readily available from the California Division of Drinking Water on-line database. School staff confirmed that in 2019 water use was "about 25,000 gallons per month", or 822 gpd (Lagow, 2020). This rate is within 12 percent of the 2014-2016 average. The maximum monthly use during 2014-2016 was 35,500 gal/mo (1,168 gpd), or 1.42 times greater than average use during 2014-2016. This reflects recent but pre-Covid-19 use, which is the appropriate basis for long-term planning.

Groundwater produced by the school well reportedly has elevated nitrate concentrations that excel State Maximum Contaminant Limits (MCLs) for drinking water. About three years ago, the school began purchasing bottled water for drinking. Detailed records for a 6-month period in 2017-2018 indicated a fairly steady consumption averaging 13.1 gpd (over all days of the month during the school year) (Lagow, 2020). This represents less than 0.07 percent of total water use by existing CSA-11 customers.

Non-potable uses at the school could continue to be supplied by the school's well after potable uses have been switched to the CSA-11 system. These include infrequent water use for storage tank cleaning, pressure tank maintenance, bus washing, initial irrigation for establishing turf, and filling fire trucks. During 2012-2016 those uses corresponded to an average daily use of 123 gpd (Lagow, 2017). Landscaping on the front side of the school is not irrigated. The playing field behind the school building is flood irrigated once in spring by pumping out of Pescadero Creek. The baseball infield was formerly irrigated but is no longer (Lagow, 2020). Although toilet flushing is a non-potable use, it could be expensive to separate the toilet supply from the rest of the building supply. That use is conservatively included in the demand that would be switched to the CSA-11 supply. In 2019 there were about 165 students and 33 staff. Men's bathroom urinals are flushless.

The total new demand placed on the CSA-11 system by connecting the school would average about 835 gpd, which corresponds to an increase of 4.3 percent. This estimate is conservatively high because it uses the higher of the two estimates of average monthly use and includes some infrequent non-potable uses that in the future likely could continue to be supplied by the well (historically on the order of 120 gpd).

2.2.2. Water Use at Current and New Fire Stations

The current fire station is served by a well and by the CSA-11 distribution system. The well supplies the "apparatus bay" building, which houses an office, toilet, sink, clothes washer and three fire trucks. Water use for the toilet, sink, and clothes washer is 20-25 gallons per day according to the station captain (Cunningham, 2020). The barracks building is already connected to the CSA-11 distribution system (since at least 2012), and water use is metered. This use includes washing of fire trucks. During non-emergency periods, fire trucks are filled with water from the CSA-11 system, but typically from an off-site hydrant. That use is not metered but is estimated to be less than 5,000 gallons per year (equivalent to less than 14 gpd). However, a single major fire event can use more than 10,000 gallons (Gregg, 2020). Average annual use of CSA-11 water at the fire station has been fairly steady at 326 gpd since 2012. The maximum bimonthly use recorded during that period was 836 gpd, or 2.56 times greater than average annual use.

One of the leading sites under consideration for the new station is next to Pescadero Middle/High School. Potable uses would be served by the municipal distribution system extension to the school (same as potable uses at the existing station). The number of staff at the new facility is expected to be the same as at the existing fire station. Some non-potable water uses such as filling of fire trucks and truck washing could be supplied by the existing fire station well. Those uses are supplied by the CSA-11 system at present. Thus, CSA-11 water use at the new station is expected to be the same or slightly less than current CSA-11 water use at the existing station.

After the move, the existing fire station would be staffed only during emergencies, or an estimated 5-8 days per year (Mintier, 2020). A conservatively high estimate of average monthly use in the future would be the current daily use at the barracks (326 gpd) multiplied by 8 days per year and divided by 365 days, which is 8.0 gpd. This assumes future emergency staffing would have as many people on-site as current routine staffing. If the emergency staff are in addition to the normal staff at the new fire station, this use would be an increase of 0.04 percent in total annual system demand.

2.2.3. Peak Demand and Yield of Water System

The maximum measured water use over a bimonthly measurement period for the entire system during 2015-2019 was 24,164 gpd during June-July 2016. This is 1.24 times the average use during 2015-2019 (19,442 gpd). The average and maximum water use amounts are equivalent to flows of 13.5 gallons per minute (gpm) and 16.8 gpm, respectively. Well No. 1 pumps at a rate of 60-70 gpm. To keep up with average demand, Well No. 1 pumps approximately 5.0 hours/day into the storage tanks. During the maximum month, it needed to pump approximately 6.2 hours/day. To supply the additional maximum-month demands from the middle/high school (1,168 gpd), the well would need to operate an additional 17 minutes per day. To supply the future water demand at the existing fire station when it is staffed during an emergency (326 gpd), the well would need to operate an additional 5 minutes per day. New CSA-11 Well No. 3 has a sustainable pumping rate greater than 100

gpm. Therefore, the daily operating times required to meet the aforementioned demands will be less than the operating times for Well No. 1.

Well No. 1 or Well No. 3 could easily supply the average and maximum demands associated with the middle/high school and fire station simply by operating a few additional minutes per day. Total well operating time for either well would remain less than 7 hours per day (even less for Well No. 3), which is comfortably sustainable. Under peak demand periods, wells can operate up to 24 hours per day without adverse effect, although 12 hours per day is often used as a target long-term duty cycle.

The storage tanks provide sufficient buffer to accommodate maximum day and peak hour demands. Tank No. 1 has a capacity of 140,000 gallons, which could supply average demand for 7 days. Tank No. 2 is slightly larger and could supply average demand for 8.5 days, although its contents are designated for emergency use only (Todd Groundwater, 2019). Maximum day demand for municipal water systems in California is commonly on the order of 2.0 times average day demand (West Yost & Associates, 2014; Black & Veatch, 2018). The maximum day demand factor is probably smaller in Pescadero because the factor correlates with the amount of irrigation, which is a small percentage of total use in Pescadero. Conservatively assuming a maximum day demand factor of 2.0, the additional water needed on the maximum day could be obtained by temporarily using one-seventh of the storage capacity of Tank No. 1 or by running the supply well by an additional 3-4 hours. Peak hour demands involve smaller volumes of water that are easily absorbed by tank storage. Thus, between the storage capacity of the tanks and the additional operating time available for the wells, the system can easily supply maximum day and peak hour demands.

2.2.4. Current Condition of Existing Fire Station Well

The fire station well is located on the hillside behind the station, about halfway between the station and the CSA-11 storage tanks. The output of the well has reportedly been declining in recent years (Cunningham, 2020). A well completion report (driller's log) is not available for the well. A field inspection of the well was made on November 24, 2020. According to labeling on the pump control box, the well is 160 feet deep and the pump is set at a depth of 150 feet. The pump is a Franklin Electric FPS4400 Tri-Seal series pump, Model No. 7FA05S4-PE that was installed on August 11, 2018. The power supply/pump controller was installed in 2013 and delivers 230V single-phase AC current. According to the pump performance curve on the manufacturer's website the pump should be capable of pumping 10.5 gpm against a total head of 100 feet, decreasing to 7 gpm at 200 feet. The static depth to water was 91.1 ft. The well pumps into a covered, concrete above-ground cistern about 25 ft away. The cistern is approximately 10 feet in diameter and 6 feet high (above-ground height). A float switch in the tank turns the well pump on when the water level is about 3 ft below the top of the cistern and turns it off when the water level is about 2 ft below the top.

A short-duration pumping test of the well was performed during the site visit, and the pumping rate, water level, and specific capacity were measured over a 30-minute period. Flow was measured by bucket and stopwatch from a ball-valve spigot on a 1-inch tee at the well head. Water levels were measured by a steel tape through a small opening in the well

top plate. The discharge decreased from 4.58 gpm at the start of the test to 4.46 gpm after 10 minutes, then declined to 1.67 gpm after 30 minutes. Meanwhile, the water level dropped to 106.3 ft after 10 minutes and to 117.7 ft after 30 minutes. Specific capacity is obtained by dividing the pumping rate by the amount of drawdown. It decreased during the test, from 0.29 gpm/ft after 10 minutes of pumping to 0.06 gpm/ft after 30 minutes.

The notable results from this test are that the pump was not producing flow at anywhere near the pump performance curve and that the specific capacity of the well is small. The well has a 6-inch diameter steel casing, and approximately 37 percent of the cumulative discharge during the 30-minute test was from storage in the casing. This probably explains some of the decrease in flow rate during the test. Even without pumping at its full rated capacity, the pump is powerful relative to the yield of the well. If pumping had continued another hour, the water level might have dropped to near the level of the pump intake. The relative capacities of the pump and well explain why the pump is set near the bottom of the well and why the discharge pipe into the cistern has a cap with a small orifice about 0.5 inch in diameter. The small orifice produces back pressure on the pump and lowers its flow rate.

The average discharge rate during the test was about 3.53 gpm. However, water level recovery was not measured and might have taken much longer than 30 minutes. If recovery takes three times longer than drawdown, then the effective time-averaged pumping rate would be about 0.88 gpm. This would mean the well could produce about 1,270 gallons over a 24-hour period. This is roughly 50 times more than the current water use for the sink, toilet and clothes washer in the apparatus bay. If the “full” water depth in the cistern is 4 feet, the corresponding storage is 2,350 gallons, and the amount of storage fluctuation between the high and low positions of the float switch is roughly 590 gallons. Thus, the well capacity and storage tank volume are both much larger than current daily demand.

In summary, the fire station well appears to be in good working order. The limitation on yield appears to be the well itself. The storage tank provides sufficient capacity to supply one-time demands of up to 2,350 gallons, but the well might need to operate for two days to replenish that volume. It is not known whether the pump has a low-level cut-off switch, which would turn the pump off for 30 minutes or more if the water level in the well dropped to the level of the pump. Allowing the water level to reach the pump intake would damage the pump. A low-level cut-off switch would protect the pump from damage under conditions of sustained pumping to replenish high water use events.

2.3. Task 3. Evaluate Long-Term Demand and Supply Effects of Connecting Middle/High School and Fire Station to CSA-11 System

The effect of connecting Pescadero Middle/High School and the proposed replacement fire station to the CSA-11 water distribution system depends on how much they would increase existing overdraft. The steady long-term decline in water levels at the CSA-11 wells since 1992 shows that pumping has consistently exceeded recharge. Some of the pumping is supplied by recharge, and the remainder is overdraft. There are no nearby head-dependent boundaries to the Butano Ridge groundwater system, so any increase in pumping would

cause an equal increase in overdraft. The first step in evaluating the effect of the new connections is to separate existing pumping into sustainable yield and overdraft.

2.3.1. Current Sustainable Yield

Water levels at CSA-11 Well No. 1 continue to decline, as they have since 1992 when the first CSA-11 well began operating. Measured water levels since 2002 are shown in **Figure 6**. The hydrograph includes three intervals of relatively steady rates of decline: -0.74 feet per year (ft/yr) during 2002-2011, -0.10 ft/yr during 2012-2014, and -0.5 ft/yr during 2015-2019. The smaller rate of decline during 2012-2014 drought could have been caused by drought-related water conservation efforts and decreased pumping.

It is less likely that the change in rate of decline was caused by changes in recharge. Recharge on Butano Ridge is from rainfall and irrigation return flow. The latter does not vary much from year to year, whereas rainfall recharge is highly variable. The cumulative departure of annual precipitation in Half Moon Bay during 1940-2020—which is shown in **Figure 7**—indicates that 2015-2019 was slightly drier overall than 2002-2011: 94 percent versus 105 percent of the long-term average. The 2012-2014 period was much drier than the other two periods (58 percent of long-term average precipitation). Based on rainfall, recharge was probably lowest during 2012-2014 and greatest during 2002-2011. If water levels reflected current recharge, one would expect the rate of water-level decline to be greatest during 2012-2014 and lowest during 2002-2011, but that was opposite of the observed pattern. The reason is probably that water levels do not respond rapidly to variations in recharge at the ground surface. Annual variations in recharge are attenuated by flow through the thick unsaturated zone (approximately 200 feet in the area of the CSA-11 wells) and through fractures between the water table and the well screen depth. As a result, recharge arrives at the screened interval at a relatively steady rate, consistent with the steady rate of decline in measured water levels.

The relationship between annual pumping and annual change in water level can theoretically be used to estimate the sustainable yield, which is the amount of pumping associated with zero change in water level. Three methods were tested to apply this concept, none with accurate results. The first method was to create a scatterplot of annual net water-level change versus annual pumping. When tested with the Pescadero data set, the points were too scattered to infer a linear relationship between the variables and thereby calculate the sustainable yield. A variation of this approach was tried in which the data were averaged over longer time periods. This reduced the data to two points: average water use and water-level decline during 2004-2011 and average water use and water-level decline during 2015-2019. These represent the initial and final slopes of the hydrograph for Well No. 1 (Figure 6). The results are shown in **Figure 8**. Extrapolating the line connecting the two data points up to where it crosses the X axis (zero annual water-level change) produces an estimate of sustainable yield. By this method, the estimated sustainable yield is 7,457 AFY, or only 38 percent of average annual pumping. This method is not very accurate because of the long projection distance from the data points to the X axis. A small change in the plotting position of either of the two data points results in a large change in the estimate of sustainable yield. If this yield estimate is correct, then two-thirds of current pumping

(about 12,000 gpd) is supplied by storage depletion, which is not indefinitely sustainable. It is also implausible with respect to specific yield and the area over which water levels might be declining, as described below.

The second method of estimating sustainable yield applied a well drawdown function to see how much storage depletion would match the observed water-level decline. Using the average 2015-2019 storage depletion rate from the first yield estimating method (9 gpm), it was not possible to obtain the observed drawdown of 2 feet after 4 years using the range of hydraulic conductivity calculated from tests of Well No. 3 in 2018. A smaller conductivity was required. Also, the drawdown equation results in drawdown that occurs almost entirely during the first year, whereas the observed decline in water level was steady over the four years. This method failed to produce a reliable estimate of sustainable yield and casts doubt on the large amount of storage depletion estimated by the first method.

The third method of estimating sustainable yield assumed that the observed water-level declines resulted from steady dewatering of a finite block of aquifer. It is unlikely that the dewatered region would extend more than 1,500 feet to the east (the eastern escarpment of Butano Ridge) although a larger distance is plausible to the west. Assuming the dewatered area extends an average distance of 2,000 feet from Well No. 1 and that the specific yield of the aquifer is 0.02 (dimensionless)—which is reasonable for a productive fractured-rock aquifer—a water-level decline of 0.5 ft/yr would produce 2.9 acre-feet per year of water, equivalent to a constant rate of 2,570 gpd. This equals 13 percent of total pumping. The remaining 87 percent of the pumped water was therefore sustainably derived from recharge, or 16,872 gpd. Although this estimate of sustainable yield also involves uncertain assumptions, it is probably the best of the three attempted yield estimates.

2.3.2. Projected Effects of Connecting School and Fire Station

Figure 9 shows static (non-pumping) water levels in Well No. 1 projected to 2100 under various scenarios. If the current 0.5 ft/yr rate of water level decline continues, the water level will drop below the top of the Well No. 1 well screen around 2039 (solid blue line). It would not reach the pump intake in Well No. 3 until approximately 2105. Adding the demand from the school and fire station would shorten those time frames to about 2035 and 2074, respectively (dashed orange line). These results are sensitive to the estimate of sustainable yield because a small percent change in the yield estimate creates a much larger percent change in the overdraft estimate. For example, if the current estimate of yield is increased or decreased by 10 percent, the projected water-level trends for current demand (without the school and fire station) are shown as the blue dot-dashed line and dashed magenta line, respectively. This range of uncertainty is larger than the effect of adding the school and fire station.

The above analysis is for static water levels. Based on the measured specific capacity and likely pumping rate (100 gpm) of Well No. 3, pumping water levels are 24 feet lower than static water levels. This means that the pump in Well No. 3 could break suction 48 years sooner than shown on the figure, or in approximately 2057.

At that point, the pump could be lowered. It is presently 10 feet above the top of the screen, and the screen extends for another 100 feet. With some modification to the pump to ensure adequate cooling of the pump motor, the pump can be set within the screened interval. If that option is pursued, the limiting factor for water level decline could be the risk of sea water intrusion or depletion of flow in Butano Creek if water levels declined 70 feet from their current elevation. At that point, however, static and pumping levels would be below the top of the screen, which could decrease well output and cause air entrainment in the well water that would potentially damage the pump.

All of this analysis assumes that aquifer specific yield and hydraulic conductivity do not vary with depth in the aquifer. If ongoing overdraft is considered acceptable, water supply problems are not imminent. Well No. 3 could supply current demand plus the school and fire station demand for at least 20-30 years. To serve as a fully capable standby well, the pump in Well No. 1 likely will need to be lowered again, and possible upsized to accommodate the higher lifts, and possibly additional hours of operation each day.

2.4. Task 4. Identify any potential water quality impacts associated with CSA-11 extension to the fire station and school

There has been no historical correlation between groundwater levels and water quality at the CSA-11 well field. Todd Engineers (2002) found no relationship between water levels and water quality in Wells 1 and 2. Water quality data for the CSA-11 wells since 2004 were obtained from the California Division of Drinking Water and plotted as time series to look for trends correlated with the declining trend in groundwater levels. Plots for 23 physical parameters and chemical constituents are shown in **Figure 10**. Although a few of the variables such as turbidity and barium have occasional high values, none of the parameters exhibit an increasing or decreasing trend over time. Nitrate might be an exception, with a possible decreasing trend since 2004. Overall, water quality does not appear to be dependent on groundwater levels. Therefore, connecting the middle/high school and fire station to the CSA-11 system is not expected to affect the quality of water delivered to customers.

The water quality of Well No. 1 meets all drinking water standards. Of the constituents shown in the figure, sixteen are regulated under primary (health-based) drinking water standards and three under secondary (aesthetic) drinking water standards. All but one of the measured concentrations were less than half of the primary or secondary maximum contaminant level (MCL), including nitrate at 5-26 percent of the primary MCL. Total dissolved solids was the exception at 63-72 percent of the long-term secondary MCL (500 mg/L).

2.5. Task 5. Incorporate anticipated Local Coastal Program (LCP) residential and commercial growth as shown in LCP Table 2.16 Estimate of Water Consumption Demand at Land Use Plan Buildout for the Town of Pescadero

Table 2.16 of the 2013 Local Coastal Program (LCP) lists estimated annual water demands for existing and proposed land development categories in Pescadero. Those estimates are listed in the left half of **Table 1**. Buildout demand equals the sum of the existing and proposed water demands. The right side of the table shows revisions made for this study based on actual water use during 2015-2019. The LCP estimates for existing conditions were high in terms of number of connections and water use per connection. For example, the LCP estimated that there are 125 residential connections each with 3.5 residents using 70-110 gallons per capita per day (gpcd). The actual number of residential connections is 90. If there are 3.5 residents per household, per-capita use is 48 gpcd. Commercial use is similarly smaller than the LCP estimate with respect to number of connections and water use per connection. For the third category, the LCP recognized that there is one fire station, but metered use of CSA-11 water at the station has been only one-third the LCP estimate. Overall actual water use during 2015-2019 has averaged 19,442 gpd, or only 34-53 percent of the LCP estimate.

In the lower-right part of **Table 1**, actual water usage per connection during 2015-2019 is applied to the LCP estimate of the number of additional future connections to obtain a revised estimate of future total water use. Estimated total water use with the additional connections plus the middle/high school (a demand that was not anticipated in the LCP) is 48,544 gpd, or 43-68 percent of the LCP estimate. It is 29,102 gpd greater than existing total water demand.

If the additional future water demand were supplied by the existing CSA-11 wells, water level declines would accelerate rapidly, as indicated by the downward-curving dashed green line in Figure 9. That curve reflects an assumption of a linear increase from existing demand to buildout demand over a 50-year period. Water levels would decline to the Well No. 3 pump intake by 2044 and to the top of the screen by 2047. Clearly, new water supplies would be needed to support the growth envisioned in the LCP.

2.6. Task 6. Account for anticipated water usage associated with retention of the apparatus bay and any other facilities at the existing fire station site

This topic was addressed in Section 2.2 “Water Use at Current and New Fire Stations”. To reiterate, the existing fire station well could supply all non-potable uses at the apparatus bay, which are currently negligible but could include equipment washing during future emergency periods. The existing fire station would be staffed only during emergencies, or an estimated 5-8 days per year (Mintier, 2020), which corresponds to a conservatively high estimate of average daily use over the year of 8 gpd. This assumes future emergency staffing would have as many people on-site as current routine staffing and that those workers would be in addition to the staff at the new fire station.

2.7. Task 7. Update any climate change modeling/assumptions and any known increases in private groundwater uses that would impact CSA-11's supply longevity

The California Department of Water Resources has developed statewide grids of climate change factors representing anticipated precipitation and reference evapotranspiration (ETo) conditions in 2030 and 2070. The factors are sets of 1,164 monthly multipliers to be applied to historical rainfall and ETo data for 1915-2011 to estimate the amounts that would have occurred under 2030 or 2070 global climatic conditions. Pescadero is located at the boundary between grid cells 5658 and 5746. The monthly multipliers for 2070 conditions were obtained for both cells, and average values for each month of the year were calculated. The results are shown in **Figure 11**. The ETo multipliers are greater than 1.0 in all months of the year, which means that plant ET and irrigation demand would both be greater under 2070 climate conditions. Precipitation multipliers have two seasonal peaks, one of which is in summer. However, precipitation is negligible in that season, so that peak has negligible effects on recharge and demand. Of primary importance are the multipliers for the peak in the wet season months of December-March, all of which are greater than 1.0. This means that rainfall and hence groundwater recharge are expected to be greater under 2070 climate conditions, which at least partly offsets the effect of increased ET on water supply. Thus, the warmer but wetter climate expected by 2070 would not likely cause a large net increase or decrease in net water consumption.

Land use on Butano Ridge has been stable over the past 28 years, based on Google Earth aerial imagery. There are approximately 520 acres of cropland, and the most common crop at present is flowers. Of critical importance to CSA-11 sustainable yield is that the agricultural fields are not irrigated by local groundwater but rather by surface water pumped from Lucerne Lake and Bean Hollow Lakes on Arroyo de los Frijoles, south of Butano Ridge (see **Figure 1**). The use of imported water for irrigation was deduced from the small specific capacities of other wells on Butano Ridge (Todd Groundwater, 2019) and confirmed by local growers (Cevasco, 2020). The median specific capacity of 20 wells on Butano Ridge (other than CSA-11 wells) is 0.10 gpm/ft. Even if 100 ft of drawdown is tolerated, a well of that specific capacity would produce only 10 gpm, which could apply 1 inch of water in 24 hours to only 0.53 acres. Clearly, such a well is too small to be of practical use for commercial irrigated agriculture. Lucerne Lake and Bean Hollow Lakes are supplied in part by diversions from Little Butano Creek located east of the coastal ridge and are used to irrigate all agricultural lands on Butano Ridge and along Highway 1 for about 5 miles south of Pescadero Creek (Cevasco, 2020). Residences along Bean Hollow Road are supplied by domestic wells, but the total use is small and there is no sign of new development. The greatest risk to CSA-11 yield would be if cropland on Butano Ridge went out of production, because that would eliminate groundwater recharge from deep percolation of irrigation water, which is probably a significant source of recharge. However, land use on Butano Ridge has been stable for many years, and there are no indications of any imminent change.

2.8. Task 8. Identify existing and anticipated non-revenue water as the lines age over the approximate 1-mile CSA-11 extension. Identify existing technology that could be implemented with the CSA-11 extension to mitigate impact of non-revenue water to current customers (e.g. automatic shutoff feature to the main extension to prevent leaks from depressurizing the larger system)

Nationwide research has found that water main leaks are a function of pipeline material and age (Folkman, 2018). Based on data for 198,000 miles of water mains operated by 308 water utilities in North America, PVC pipes experience 2.3 detectable breaks per 100-mile-years of pipe, compared to 10.4 for asbestos cement and 34.8 for cast iron. If the 1.3-mile water main extension to the middle/high school will be constructed with PVC pipe, the above factor indicates that the probability of a break occurring in any year would be less than 3 percent, or on average once in more than 33 years. It is more likely that future breaks would be in existing water mains, which are older and probably not constructed of PVC.

The most economical approach to detecting large, new water main leaks would probably be to monitor nighttime water-level trends in the CSA-11 storage tanks with pressure transducers connected to the existing SCADA system monitoring equipment housed at the tank site. Because the distribution system is pressurized, water main leaks occur at a continuous steady rate. A persistent increase in nighttime water use would indicate that a leak has probably developed.

3. CONCLUSIONS AND RECOMMENDATIONS

- Average annual water use during 2015-2019 was 19,442 gpd.
- Irrigation use was estimated based on seasonality of water use exhibited in individual customer account records. Average annual irrigation use estimated for 11 customer accounts with suspected irrigation was 8 percent of total use by all accounts.
- Overall leakage from the CSA-11 distribution system may be as much as 8-16 percent of annual production, based on measured system-wide water usage during late-night hours. To the extent that some late-night use is for toilet flushing or drip irrigation systems, leakage losses are less than 8-16 percent.
- Customer water meters are capable of detecting leaks as small as about 0.1 gpm. Leaks less than that rate are individually small but collectively can be much larger.
- Water levels in CSA-11 Well No. 1 declined an average of 0.50 feet per year during 2015-2019. This is slightly less than the trend prior to 2012, which was 0.74 feet per year.
- The chronic water-level declines indicate that the aquifer is in overdraft and that CSA-11 pumping exceeds the sustainable yield. The sustainable yield is difficult to estimate from available data. Two estimation methods failed to produce reliable results. A third method—based on assumptions about the aquifer area and specific yield where water levels are declining—produced an estimate of 16,872 gpd, or 87

percent of current pumping. The declining water levels are caused by the remaining 13 percent of pumping (2,570 gpd).

- Connecting Pescadero Middle/High School to the CSA-11 water system would increase annual water use by an estimated 835 gpd (4.3 percent of existing use). Almost all water use at the existing fire station is already supplied by CSA-11. Connecting the new fire station to the CSA-11 system would only increase water use by the amount used for staffing the old station during emergencies, which is estimated to average 8 gpd over the course of a year (0.04 percent of existing use).
- If existing water-level declines continue, static (non-pumping) water levels would drop below the top of the Well No. 1 screen around 2039. Static water levels would not reach the Well No. 3 pump intake until around 2105, but pumping water levels could reach that elevation 48 years sooner (2057). Adding the demands from the middle/high school and fire station would advance that date to around 2048.
- The existing school well could continue to supply some non-potable uses at the facility. Ones that are easily separable from a plumbing standpoint (outdoor uses) have historically amounted to around 120 gpd.
- The fire station well is in reasonable condition and could probably supply uses of up to 1,270 gallons over a 24-hour period, or about fifty times the amount of water presently used. If use of the well were increased substantially, a low-level cutoff switch could be installed that would insert intermittent breaks in a prolonged pumping cycle to prevent drawdown in the well from reaching the pump intake and damaging the pump. It is not known whether the well is already equipped with such a switch.
- Water use estimates for Pescadero in the 2013 Local Coastal Program are higher than recent actual use in terms of both number of connections and water use per connection. Updating Table 2.16 in the LCP to reflect actual numbers of connections and per-connection water use, and applying the per-connection use factors to the LCP-projected future number of connections produces an estimate of total future "buildout" water use that is 43-68 percent of the LCP estimate.
- Water demand for future growth would accelerate the rate of water-level declines at the CSA-11 wells. Assuming the LCP-projected growth is implemented gradually over the next 50 years, pumping water water levels would reach the Well No. 3 pump intake around 2034 and the top of the Well No. 3 screen four years later.
- Future climate is expected to be warmer and wetter, with increased rainfall recharge at least partially offsetting increased evapotranspiration and irrigation demand. Irrigation of cropland on Butano Ridge near the CSA-11 wells is supplied by off-site surface water reservoirs. Therefore, an increase in irrigation demand would not adversely affect the sustainable groundwater yield available to CSA-11. Conversely, a decrease in irrigation on Butano Ridge would reduce the sustainable yield due to a decrease in irrigation return flow.
- The water main extension to the middle/high school is not as likely to be a source of system leakage as the existing water mains, particularly if the extension is constructed with PVC pipe. A detectable leak in the extension might be expected on the order of once in 33 years.

4. REFERENCES CITED

Beal, C.D. and R.A. Stewart. July 2014. Identifying residential water end uses underpinning peak day and peak hour demand. Journal of Water Resources Planning and Management, American Society of Civil Engineers. 140 (7).

Black & Veatch. October 4, 2018. 2018 water, wastewater and recycled water master plan, final. Prepared for Vallecitos Water District, San Marcos, CA.

R. Cevasco Nursery foreman. November 24, 2020. Conversation with Gus Yates, Senior Hydrologist, Todd Groundwater.

Cunningham, Chris. Station Captain, Pescadero Fire Station. October 27, 2020. Telephone conversation with Gus Yates, Senior Hydrologist, Todd Groundwater.

Folkman, S. March 2018. Water main break rates in the UYSA and Canada: a comprehensive study. Utah State University, Buried Structures Laboratory. Logan, UT.

Gregg, Dennis. Fire fighter, Pescadero Fire Station. December 30, 2020. Telephone conversation with Gus Yates, Senior Hydrologist, Todd Groundwater.

Lagow, Andy. Director of Facilities, La Honda-Pescadero Unified School District. 2017. E-mail to Sophie Mintier, Management Analyst, San Mateo County.

Lagow, Andy. Director of Facilities, La Honda-Pescadero Unified School District. November 12, 2020. Telephone conversation with Gus Yates, Senior Hydrologist, Todd Groundwater.

Lahlou, Z.M. 2005. Leak detection and water loss control. Tech Brief. National Drinking Water Clearinghouse, West Virginia University, Morgantown, WV.

Mintier, Sophie. Lead Management Analyst. San Mateo County Office of Budget, Policy and Performance. June 3, 2020. E-mail to Dan Craig, Senior Hydrogeologist, Todd Groundwater.

Pietrosanto, A., M. Carratu, and C. Liguori. 2020. Sensitivity of water meters to small leakage. Elsevier. Measurement 168 (2021): 108479.

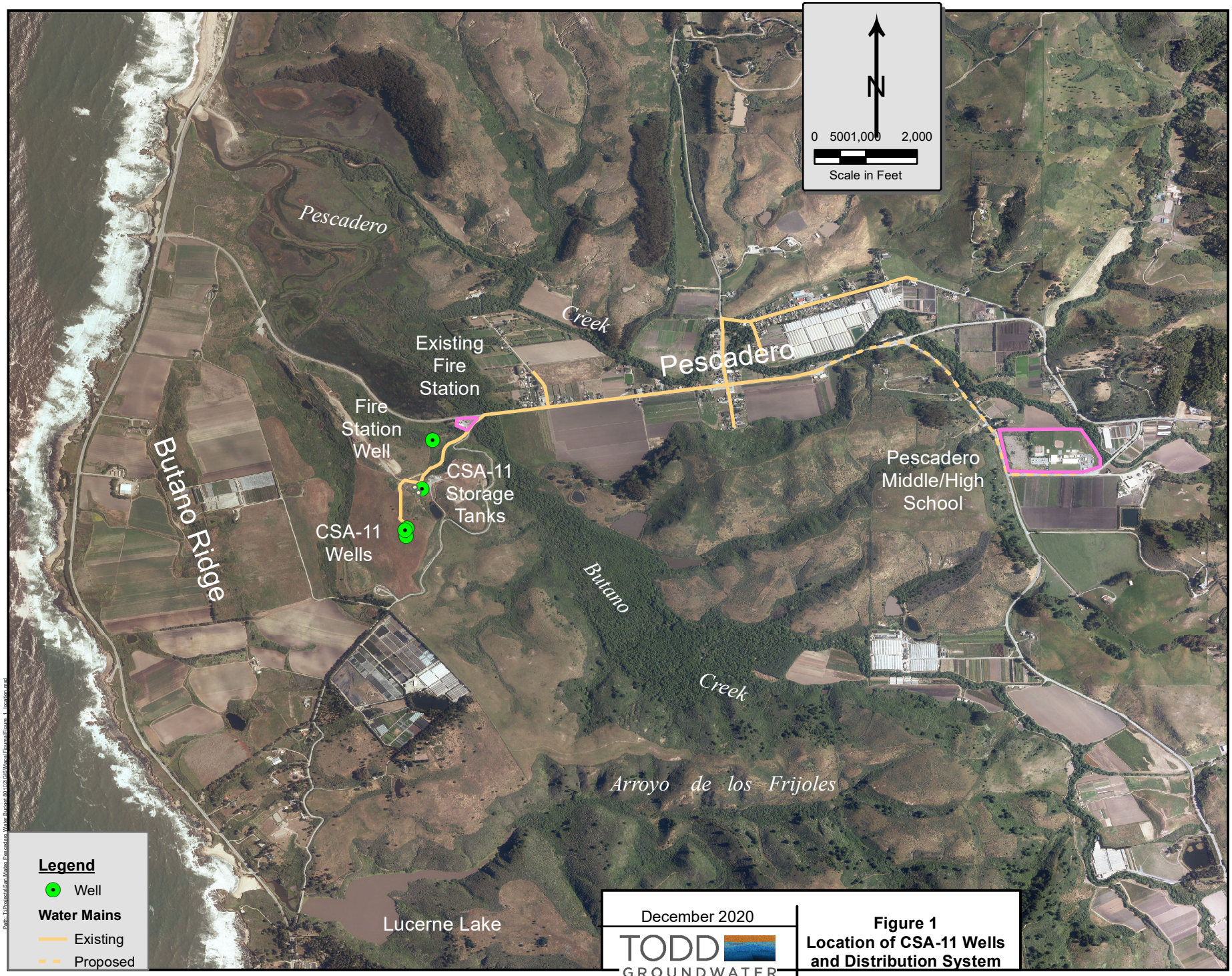
State Water Resources Control Board, Division of Drinking Water. July 12, 2017. Letter from Eric Lacy, District Engineer, to Ann Stillman, San Mateo County Department of Public Works.

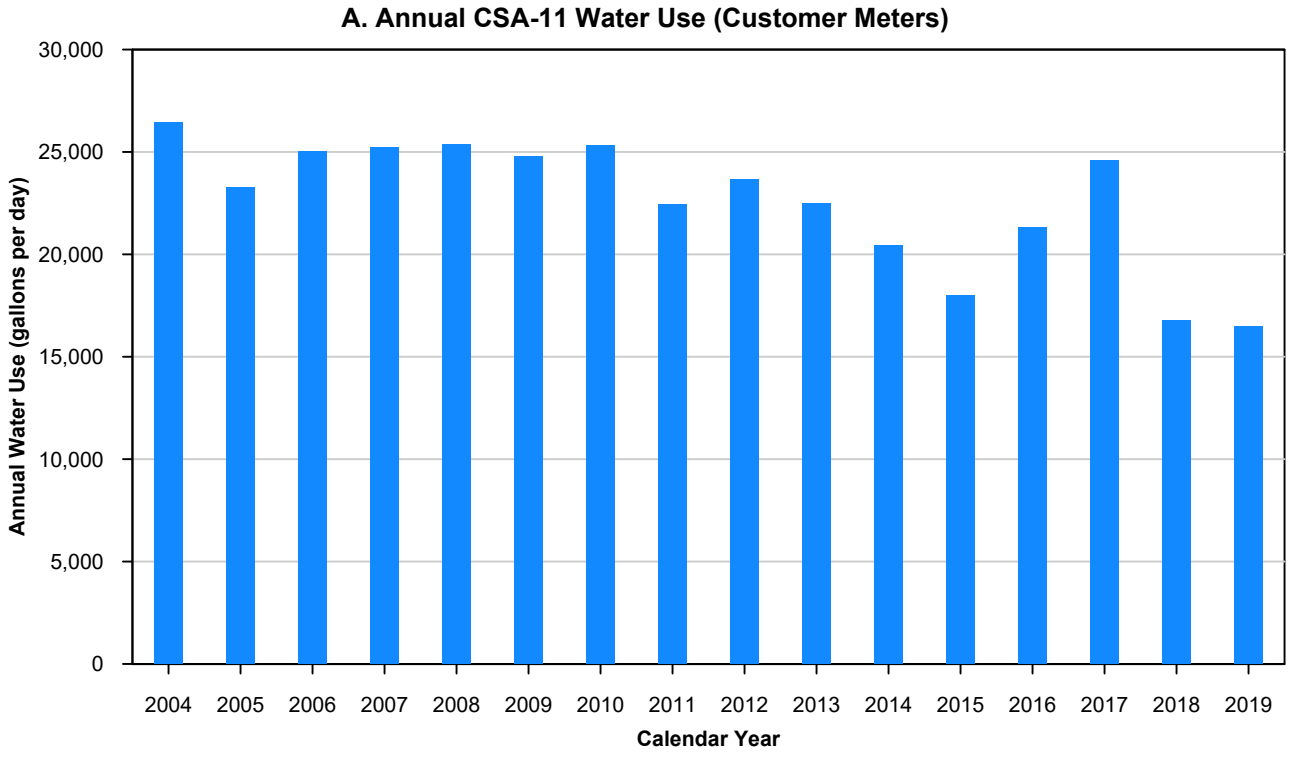
SRT Consultants. July 2017. 2017 water system master plan update. Prepared for Montara Water & Sanitary District, Montara, CA. Accessed on-line at http://mwsd.montara.org/assets/uploads/documents/MWSD_2017%20Master%20Plan%20Update_Rev17_082417_Full.pdf on 11/11/2020

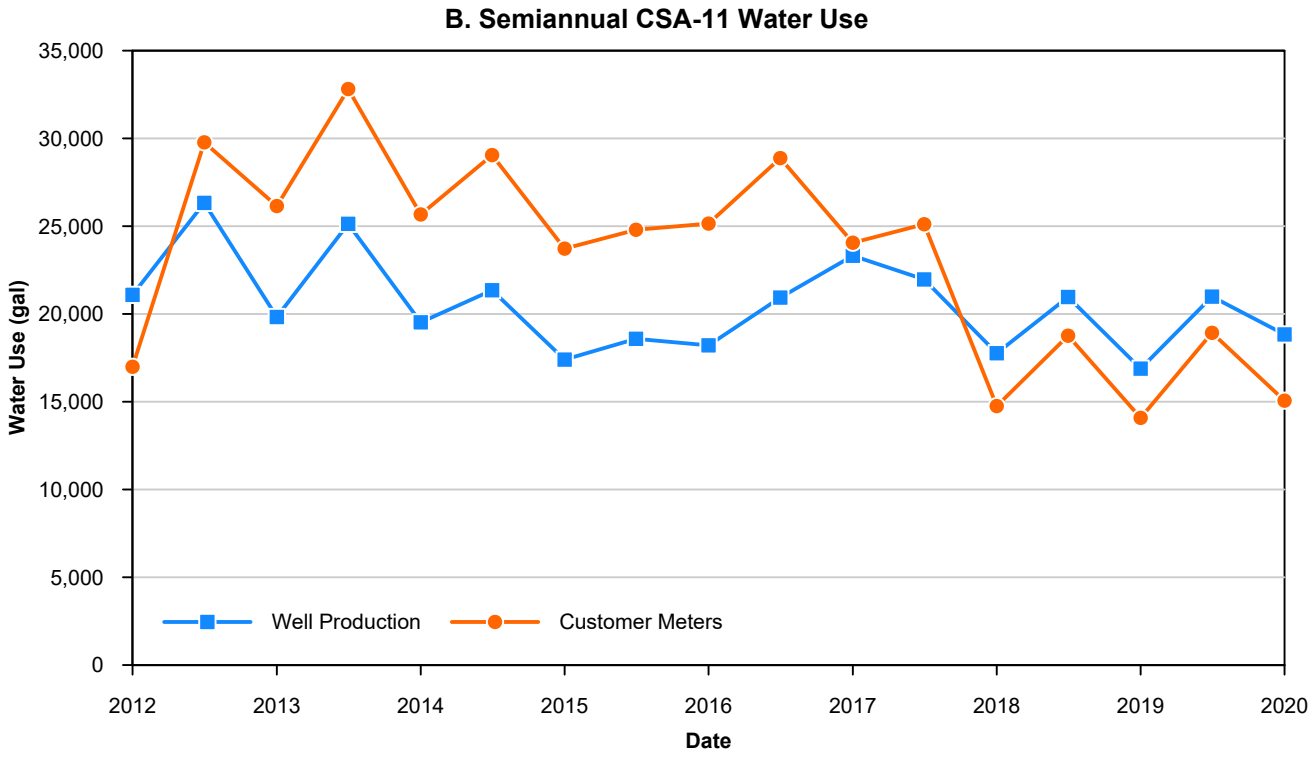
Todd Engineers. 2002. Assessment of Source Water for the Pescadero Water System CSA-11. Prepared for San Mateo County Department of Public Works. March.

Todd Groundwater. June 12, 2019. Source water capacity assessment, CSA-11 Pescadero water supply system, San Mateo County. Prepared for San Mateo County Department of Public Works, Redwood City, CA.

West, Yost & Associates. August 2014. City of Santa Rosa Water Master Plan Update. Prepared for City of Santa Rosa, CA.


N
0 5001,000 2,000
Scale in Feet
Pescadero
Creek
Pescadero
Existing
Fire
Station
Fire
Station
Well
CSA-11
Storage
Tanks
CSA-11
Wells
Butano Ridge
Pescadero
Middle/High
School
Butano
Creek
Arroyo de los Frijoles
Lucerne Lake
Legend
Well
Water Mains
Existing
Proposed
December 2020
TODD GROUNDWATER
Figure 1
Location of CSA-11 Wells
and Distribution System



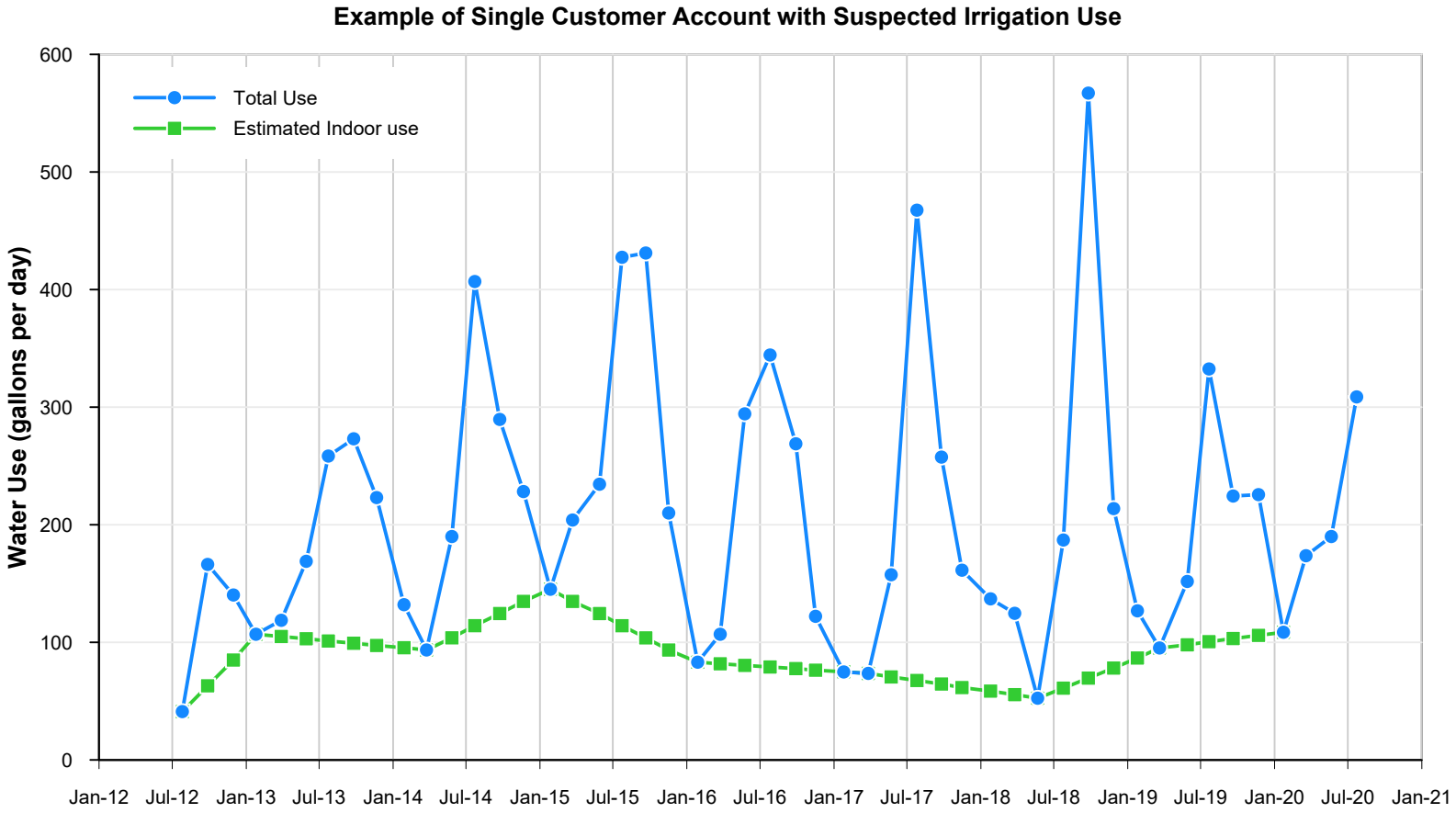


Data:
T:\Projects\San Mateo Pescadero Water Budget 80102\Data\
Monthly Reports and CCRs 2017-2020\WaterUse2012-2020.xlsx

January 2021

TODD GROUNDWATER

Figure 2
Well Production and Metered Customer Use

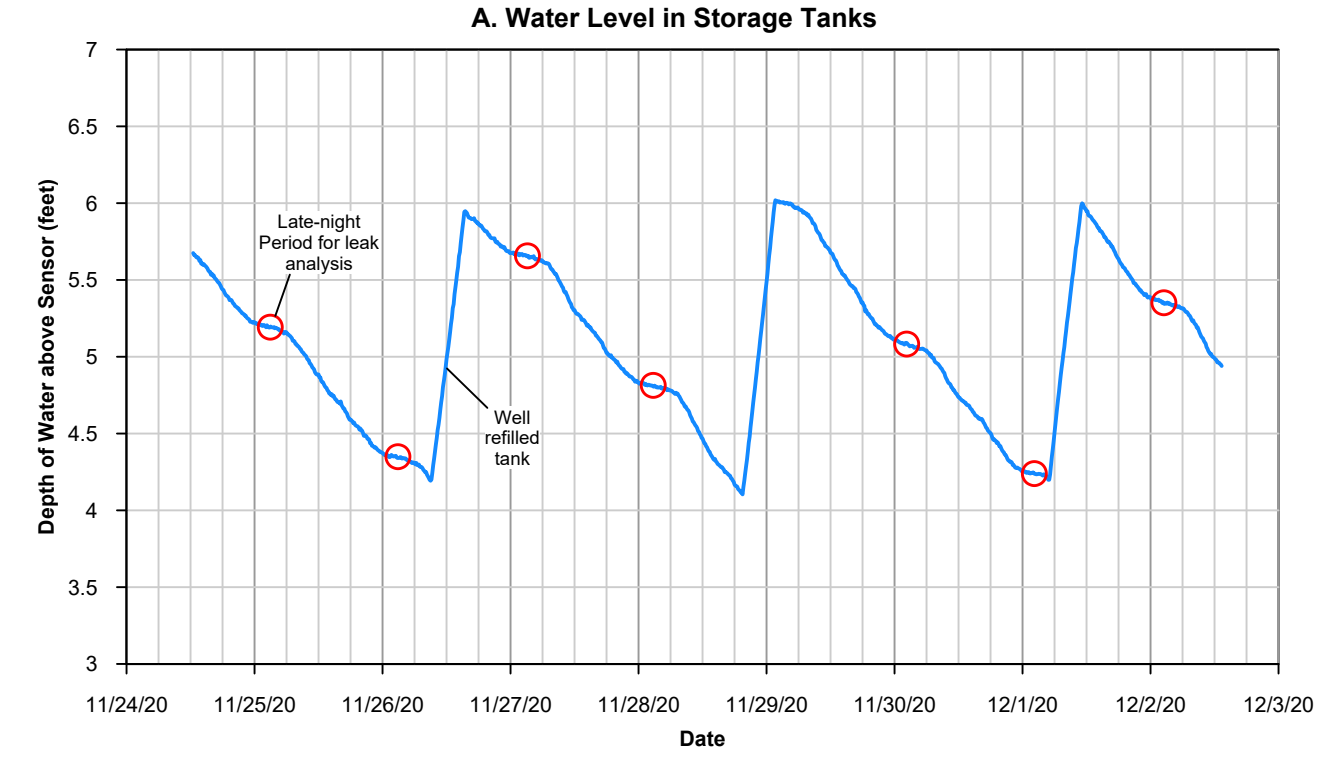


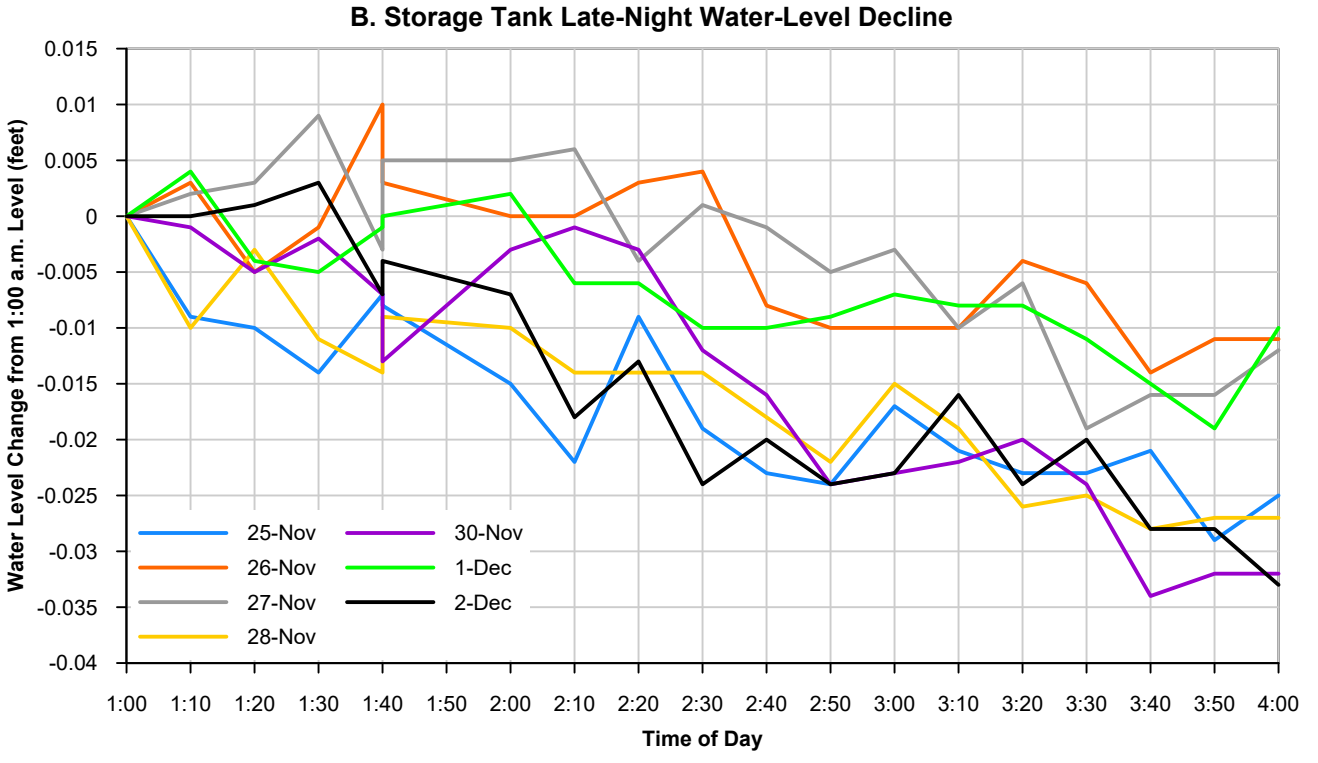
Data:
T:\Projects\San Mateo Pescadero Water Budget 80102\Data\Water Customer Meter Reads\CSA 11 Water Usage 2012-2017 AW Update.xlsx

January 2021

TODD GROUNDWATER

Figure 3
Customer Account with Suspected Irrigation Use



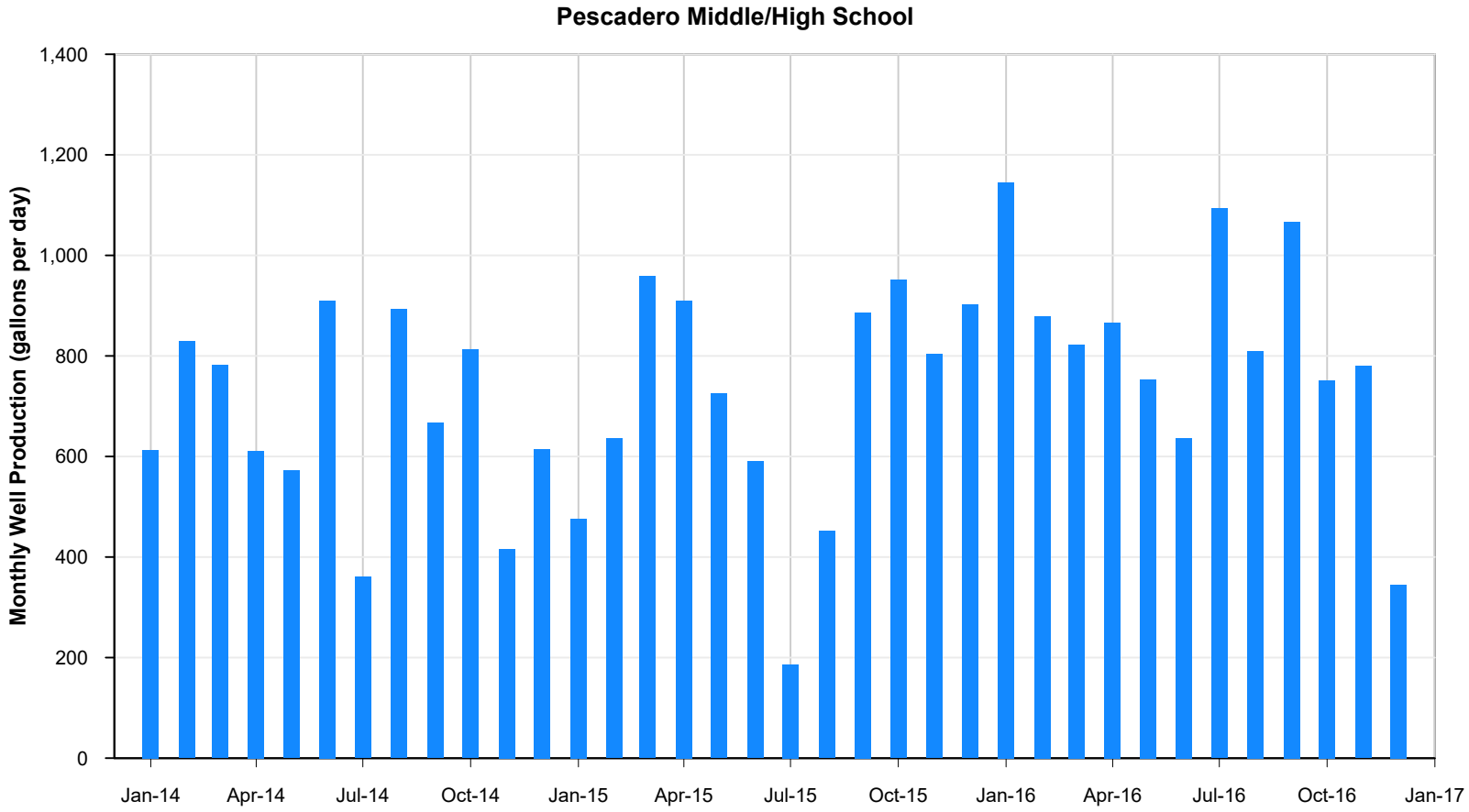


Data:
T:\Projects\San Mateo Pescadero Water Budget 80102\Data\
Storage Tank Water Levels\WL-1_North_Tank.xlsx

January 2021

TODD GROUNDWATER

Figure 4
Storage Tank Water Levels

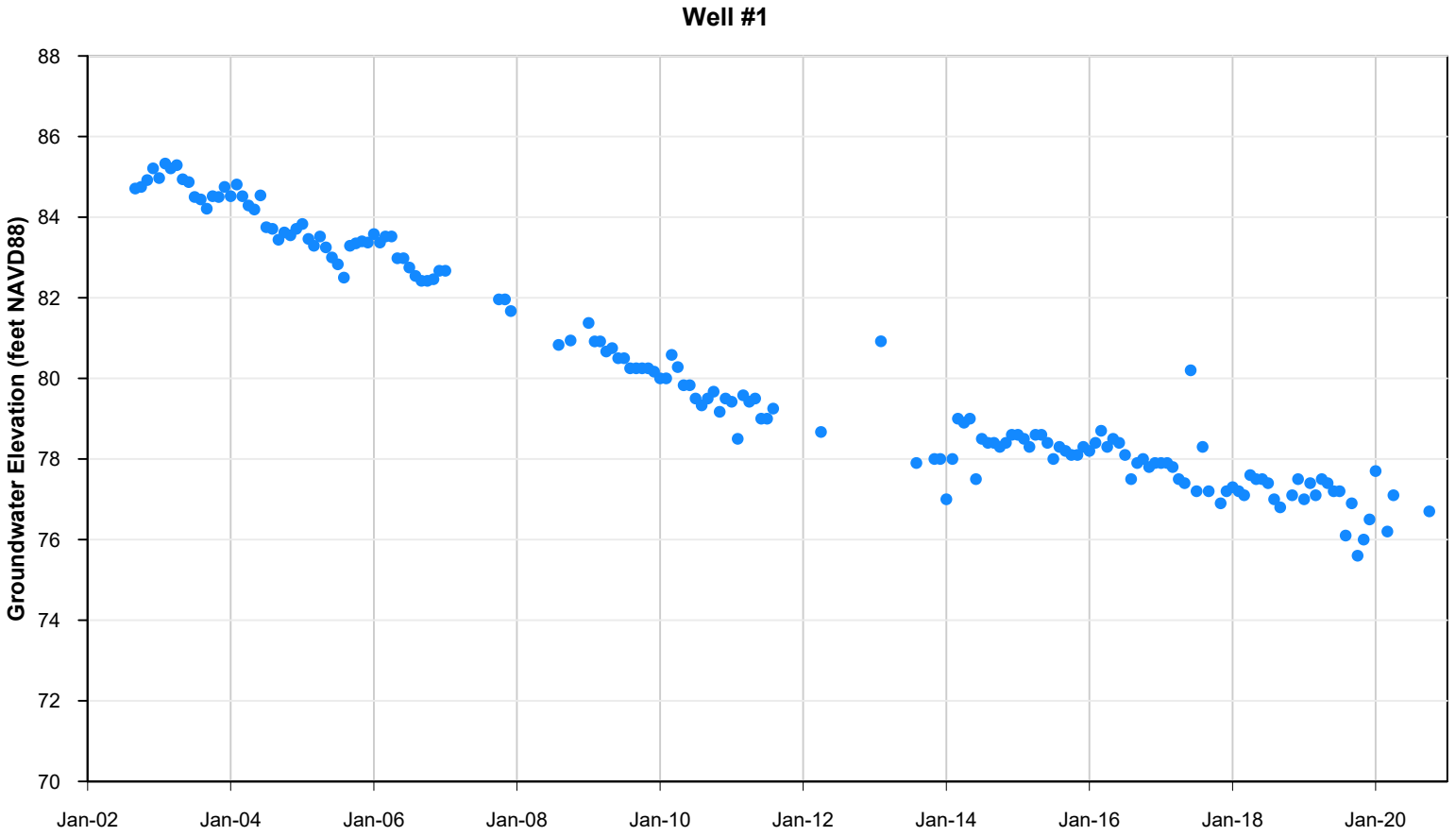


Data:
T:\Projects\San Mateo Pescadero Water Budget 80102\Data\High School\Well_production_monthly_2014-2016.xlsx

January 2021

TODD GROUNDWATER

Figure 5
Monthly Water Use at Pescadero Middle/High School

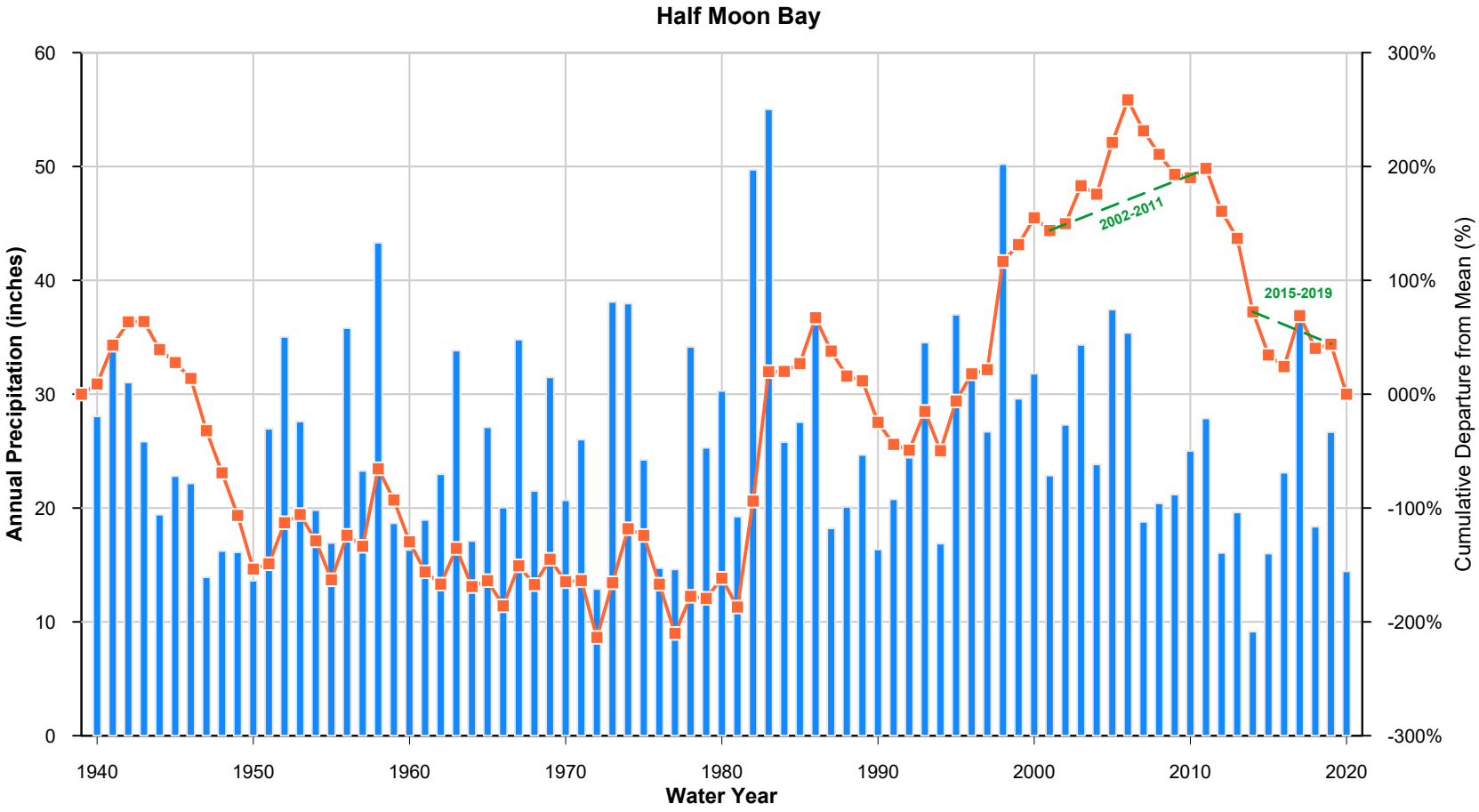


Data:
T:\Projects\San Mateo Pescadero Water Budget 80102\Data\Monthly Reports and CCRs 2017-2020\WaterUse2012-2020.xlsx

January 2021

TODD GROUNDWATER

Figure 6
Well No.1
Water Levels
2002-2020

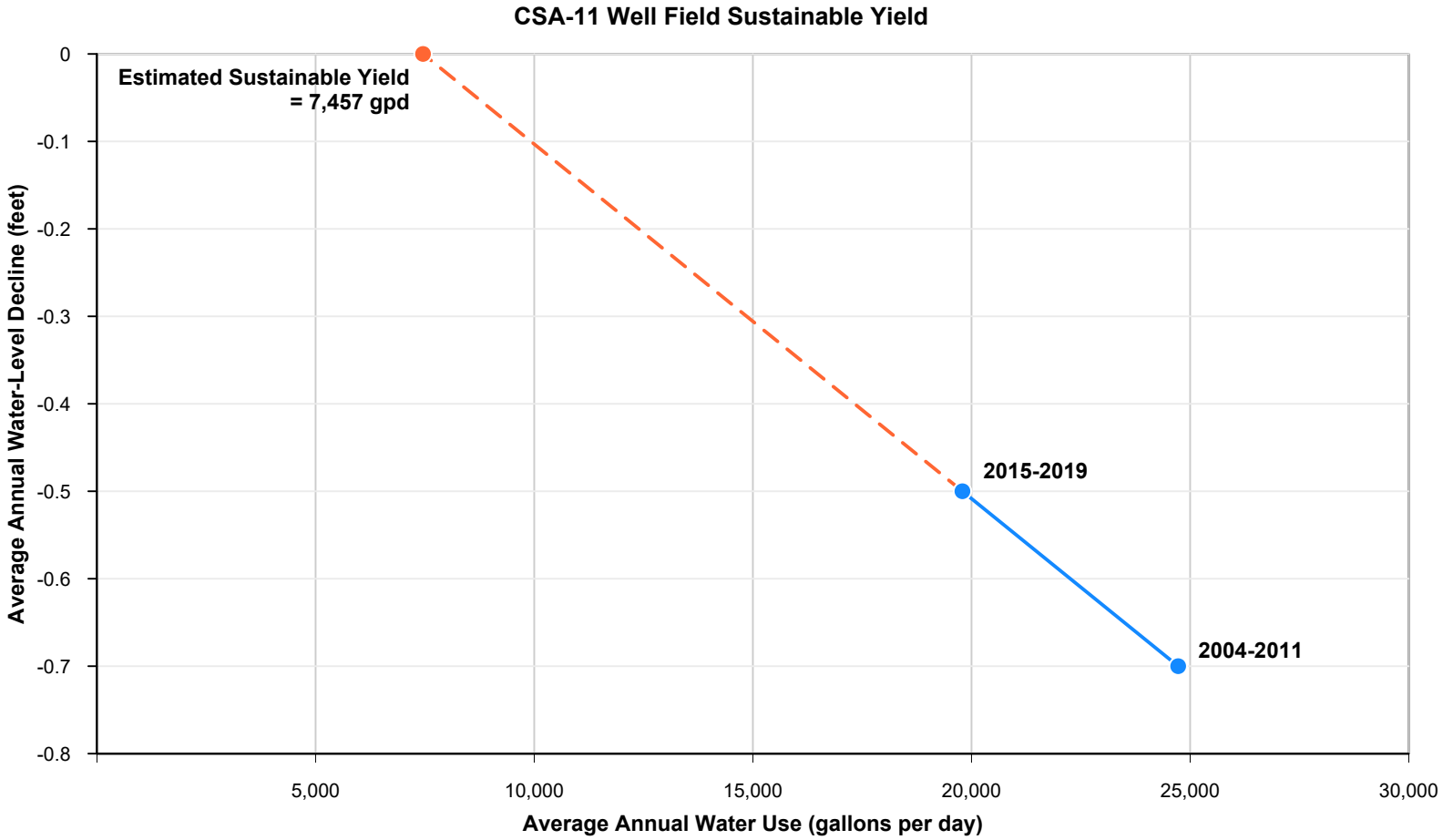


Data:
T:\Projects\San Mateo Pescadero Water Budget 80102\Data\Climate Change\CumDep_Half_Moon_Bay.xlsx

January 2021

TODD GROUNDWATER

Figure 7
Cumulative Departure of Annual Precipitation

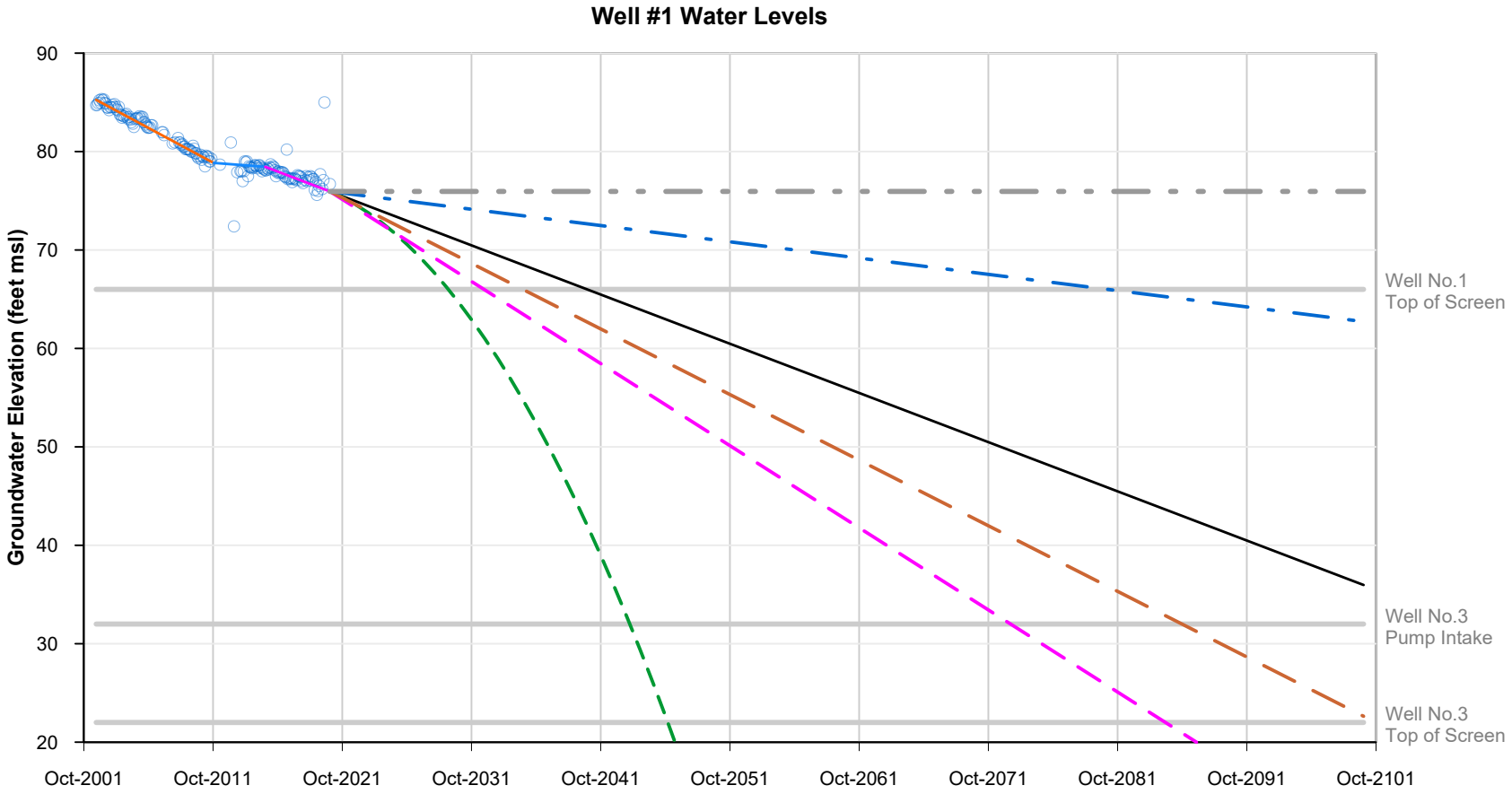


Data:
T:\Projects\San Mateo Pescadero Water Budget 80102\Data\Monthly Reports and CCRs 2017-2020\WaterUse2012-2020.xlsx

January 2021

TODD GROUNDWATER

Figure 8
First Estimate of Sustainable Yield



Well No.1 Top of Screen
Well No.3 Pump Intake
Well No.3 Top of Screen
Historical
Trend 2002-2011
Trend 2012-2014
Trend 2015-2019
Existing Trend
Growth to Buildout
Existing Pumping 90% Yield
Existing + School + Fire
Existing Pumping
Pumping = Sustainable Yield

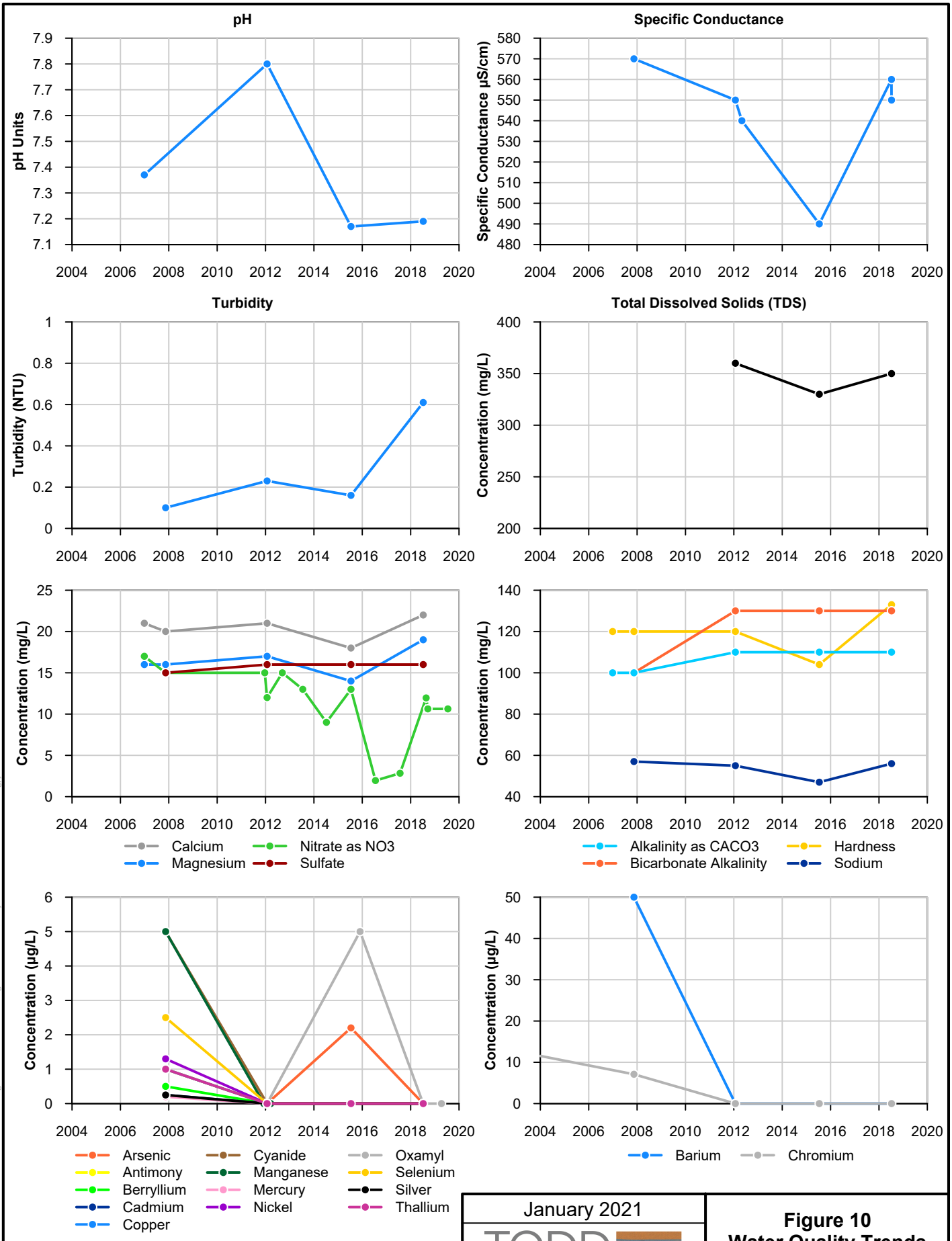
Data:
T:\Projects\San Mateo Pescadero Water Budget 80102\Data\Water Levels\Well Water Elevation.xlsx

January 2021

TODD GROUNDWATER

Figure 9
Projected Future Water Levels

Path: T:\Projects\San Mateo Pescadero Water Budget 80102\GRAPHICS\Figure 9 Projected Future Water Levels.gpj



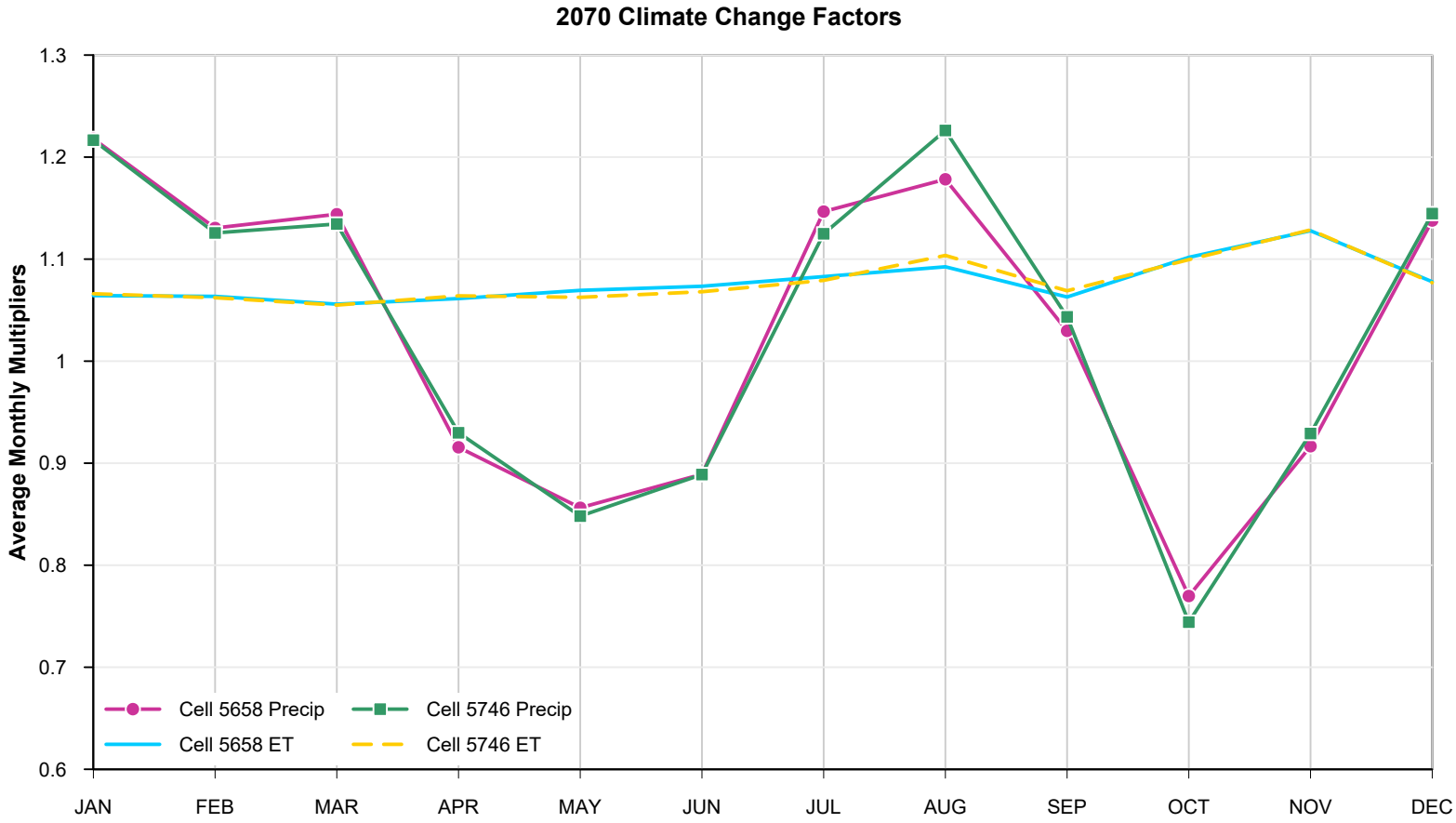
Data:
T:\Projects\San Mateo Pescadero Water Budget 80102\Data\
Water Quality\WQ_from_DDW_2000-2020.xlsx

January 2021

TODD GROUNDWATER

Figure 10
Water Quality Trends in CSA-11 Well No.1

Path: T:\Projects\San Mateo Pescadero Water Budget 80102\GRAPHICS\Figure 10 Water Quality Trends in CSA-11 Well No1.gpj



Data:
T:\Projects\San Mateo Pescadero Water Budget 80102\Data\Climate Change\VIC_grid_factor_comparison.xlsx

January 2021

TODD GROUNDWATER

Figure 11
Precipitation and ETo Multipliers for 2070 Climate Conditions

Table 1. Estimates of Existing and Future CSA-11 Water Demand

Water Use Category	Local Coastal Program Table 2.16		Revised Based on Actual 2015-2019	
	Number of Connections	Gallons/Day	Number of Connections	Gallons/Day
Existing Uses				
Dwelling units	125	30,625-48,500	90	15,128
Commercial outlets	20	4,600-7,760	11	3,988
Pescadero fire station	1	1,000	1	326
Subtotal	146	36,500-57,260	102	19,442
Additional Proposed Uses				
Dwelling units	125	30,625-48,500	125	21,011
Commercial outlets	20	4,600-7,760	20	7,251
Pescadero fire station[1]	1	1,000	1	8
Middle/high school	n.a.	n.a.	1	832
Subtotal	146	36,500-57,260	147	29,102
Total Buildout Use		**72,050-113,520**		**48,544**

Notes:

[1] The existing fire station use is expected to transfer to a new station that will also be connected to the CSA-11 system. The existing station will generate new use when occupied by additional firefighters during emergency operations.

COUNTY OF SAN MATEO - PLANNING AND BUILDING DEPARTMENT

ATTACHMENT E

San Mateo County

Department of Public Works

Pescadero Fire Station

1200 Pescadero Creek Road
Pescadero, California 94060

Site Assessment

January 13, 2014

RATCLIFF

Table of Contents

Cover image credits: (top) Herb Lingl/aerialarchives.com, (middle) Lake|Flato Architects, (bottom) Trailstompers.com, http://www.trailstompers.com/long-ridge-to-portola-redwoods-trail-run.html

1. Team

San Mateo County Public Works

Cal Fire

Design Team

Architectural

Ratcliff

Structural

Degenkolb Engineers

Civil

CSW/Stuber-Stroeh Engineering Group, Inc.

Mechanical/Electrical/Plumbing

NBA Engineering, Inc.

Cost Analysis

Tbd Consultants

2. Project Description – Service Area

INCIDENT RESPONSE DIRECTION – EXAMINED

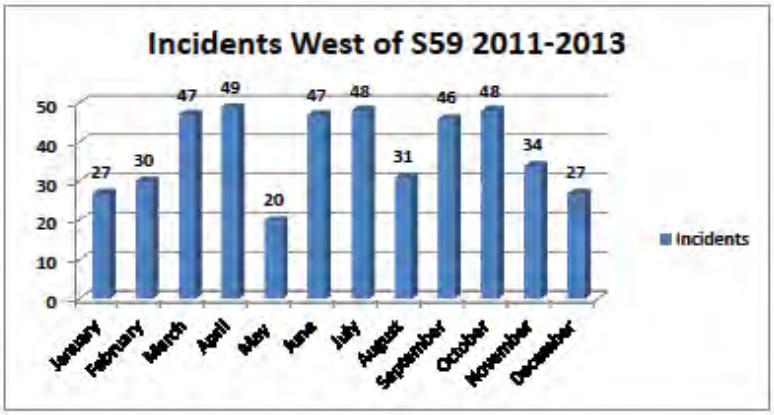
A three-year study investigated the direction to which Station 59 responded most often. The result of the study indicated an essentially equal number of responses in both directions. Consequently, the location of a new station in relationship to either the town or the coast was not informed by this study.

By choosing a position to the east of the flood-prone area, on Pescadero Creek Road, at the creek bridge and closer to Town would allow Community Room access to a greater number of area residents, if such a room were included in the New Fire Station program.

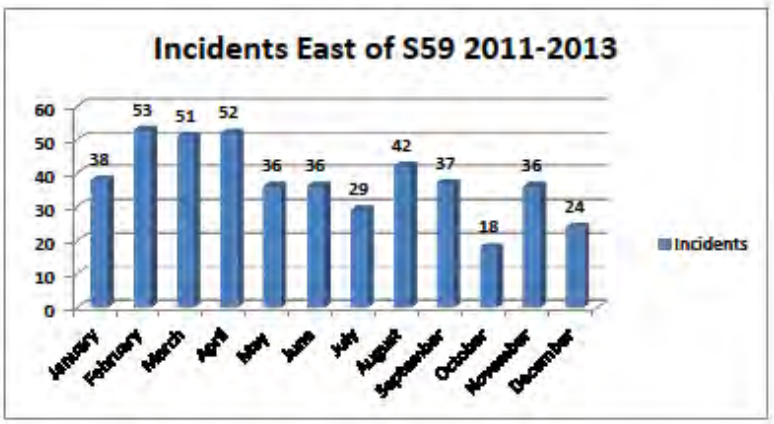
Business and commercial access between the town and the coast makes adopting the flooding resolution as critical to the Town's livelyhood as the other routes out of town.Stage Road to the north and Cloverdale Road to the south—both of which are long and circuitous-- impede tourism and commerce as well as firefighting response time.

one area on Pescadero Creek Rd at the Creek bridge and closer to Town would allow a better use of the Community Room if it were included in the program to develop a New Fire Station.

January	27
February	30
March	47
April	49
May	20
June	47
July	48
August	31
September	46
October	48
November	34
December	27
TOTAL	454



January	38
February	53
March	51
April	52
May	36
June	36
July	29
August	42
September	37
October	18
November	36
December	24
TOTAL	452



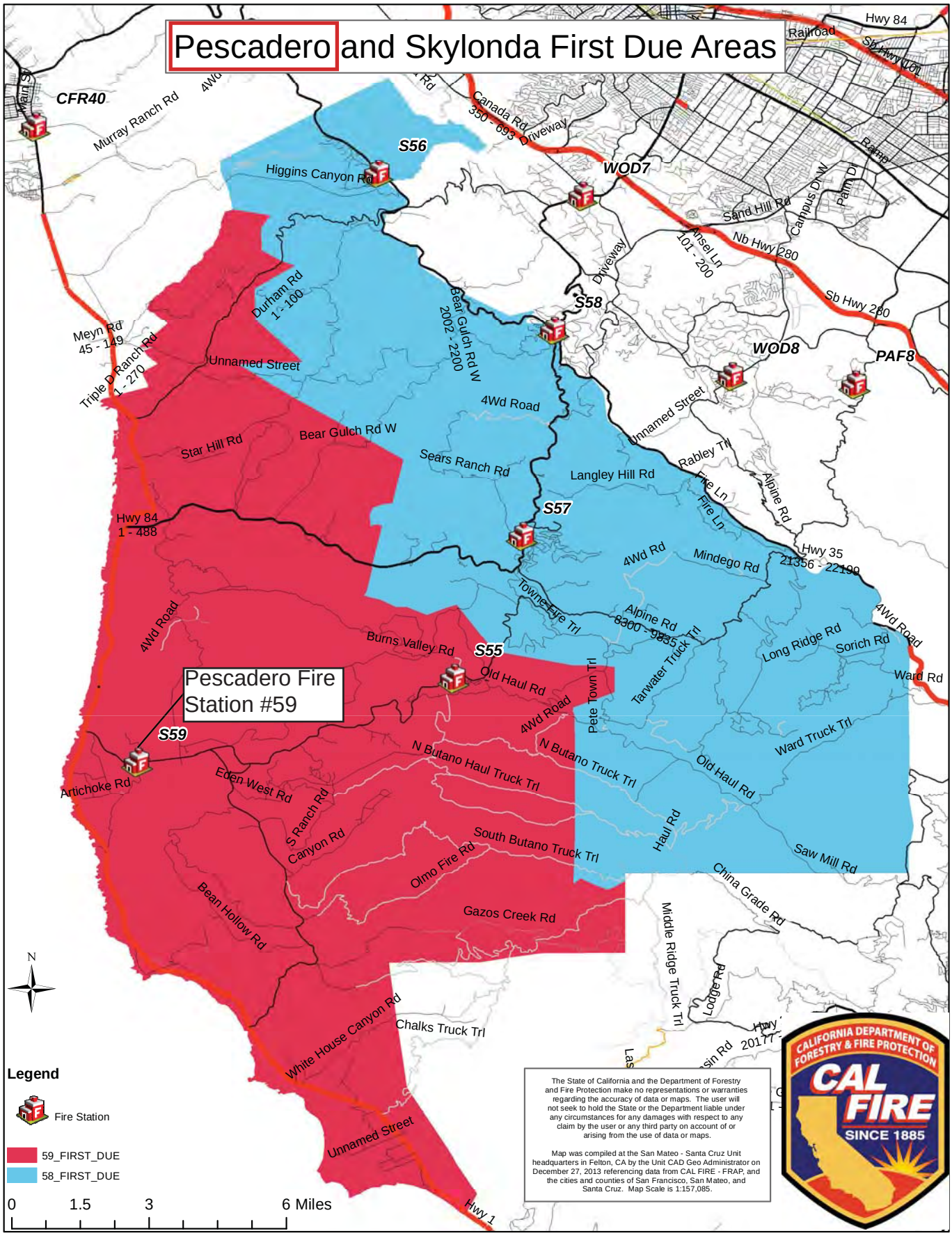


EXHIBIT A. PESCADERO SERVICE AREA

3. Executive Summary and Recommendations

The Team has interviewed the staff at the Fire Station and reviewed the conditions of the existing Pescadero Fire Station to gain an understanding of the current conditions of the facility, its mission and the Service Area.

The service area is indicated in Exhibit A.

There are three full-time firefighters on staff, increasing to 8 or 9 during fire season.

The team has explored several options to mitigate the known water risks at the existing site and bring the facility up to current requirements for its mission.

The options that were considered range from:

Option A: Provides for a new fire station to meet all current criteria by locating an acceptable site near the Town of Pescadero and rebuilding a new, code-compliant, and efficiently operated facility. This site should not be located in the flood plain or in the Tsunami Inundation Zone, as well as outside the limits of 50 year predicted sea level rise (and ideally beyond this limit) in order to protect the investment in the improved facility and properly uphold the public safety mission of the station (see Section 3.1).

Option B: Provides for a new Living Quarter and Command Office area adjacent to a remodeled Apparatus Building, while working within the existing site as it remains open and occupied as a fire station. This appears to provide the most cost effective way to improve the facility's ability to support its mission, but with the understanding that all water risks cannot be mitigated (see Section 3.2).

Option C: Provides for a new Living Quarter and Command Office area adjacent to a remodeled Apparatus Building after temporarily relocating the firefighting services and staff to a location at Pescadero High School Working within the existing site, site provides the most easily constructed improvements project, Again, we emphasize that all water risks cannot be mitigated. This option appears to be more expensive than Option B and was not developed.

Variations of this Option B to save the current site were considered, but it appears that a two phased approach to improvements can be made while allowing staff and equipment to remain on-site. This is the lowest cost approach for this theme. This concept should be verified with a qualified, licensed general contractor to consider all implications of a phased construction sequence that meets all safety requirements for the station, the staff, and the mission should this option be selected to pursue further. It appears that a site access plan for firefighters and the contractor—as well as appropriate construction staging areas—could be developed.

3.1 Option A: New Site.

After completion of Improvements Planning and Cost Analysis for Option B (work with the existing site) and its variations, the team developed the ideas for a new site (location TBD) with the right sized and code compliant station best suited for an efficient operation.

The Team arrived at an optimal space and equipment program after an intensive daylong programming session at the fire station which involved senior firefighter and County Public Works staff. Minor growth in staffing was concluded on, with slow growth in structures predicted for this service area. No apparatus growth was assumed to be necessary at this time, though the placement of the water tender at this site may increase the need for a 4th vehicle bay. This possibility was considered in the conceptual cost estimating and planning by moving the physical training area into a space that had been set aside for a Community Room option that is not present in the current station. This community space was considered a strong asset of consideration if a new station development is to be undertaken. If the water tender is to be kept at this site AND the Community Room option is to be pursued, the programmed area should be increased and reflected in an increased construction budget. This topic needs further discussion.

The station allows for a second floor Living Quarters housed over Command Center, staff offices and the Community Room, both located on the ground level. All spaces are contiguous for an efficient operation. The attached (2) deep apparatus high bays have dual sided access through bi-folding doors and house (3) vehicles and space for physical training and a work shop, convertible to (4) vehicles. The site can park up to (12) staff autos, and (12) public autos. The site can turn around a firefighting vehicle with a 55-foot turning radius, though the maximum radius needed is probably less.

The project consists of a new two-story 8,900 SF fire station with living quarters over offices adjacent to apparatus bays. Sitework includes vehicular and pedestrian paving, landscaping, site lighting and drainage, new emergency generator and fuel storage tanks. Utilities include incoming City water, storm drain and electrical service. Sewer is provided by an onsite septic system, gas is provided by propane tanks.

The projected New Station criteria:
Minimum Site Area: 39,775 SF
Minimum Building Area: 8,100 GSF
Massing: Two-story Living Quarters over Command Center and Offices
Emergency Operations design criteria met.
Programmed area includes room for indoors housing of up to:

- 12 firefighters
- 3 firefighting vehicles
- Community Room (doubles as area needed to meet EOC criteria).
- Design Character (see Zoning requirements in Section 6.1 Architectural)
- Patterned after a Rural Agricultural Structure.
- Clean simple lines
- Steep pitched roof
- Symmetrical opening where possible
- Metal Siding and Roofing or other durable material.

Projected Construction Cost: $5,139,058 (without land cost)

See Section 6. Diagrams:
Site Plan: SK A1
Floor Plans: SK A2

3.2 Option B: Existing Site, with Programmatic Improvements.

The Team arrived at an appropriate space and equipment program after an intensive daylong programming session at the fire station which involved senior firefighter and County Public Works staff. Minor growth in staffing was concluded on, with only slow growth in structures predicted in this service area. Apparatus growth was assumed unnecessary at this time, though the placement of the water tender at this site may increase the need for a 4th vehicle bay. See additional notes in Option A.

The station allows for a second floor Living Quarters to be housed over the command center, staff offices and the community room on the ground level. All spaces are contiguous for an efficient operation.

The original apparatus building steel frame and concrete pad remains. All other aspects of the facility are demolished as they are not code compliant or are at the end of useful life, For details, see Section 5. Site Assessment Reports and Section 8. Appendices.

The existing detached apparatus high bays [would]have single sided access through new bi-folding doors and house (3) vehicles, with space for physical training and a work shop. It is convertible to (4) vehicles. The site can park up to (12) staff autos, and (9) public autos. The site cannot turn around a firefighting vehicle with a 55’ turning radius though the maximum radius needed is probably less.

Project consists of replacing existing living quarters building with a new two-story 5,508 SF Living Quarters building, complete interior/exterior renovation to the existing 2,400 SF apparatus building, including a new 1,100 SF addition. Sitework includes vehicular and pedestrian paving, landscaping, site lighting, drainage, and replacement of the existing emergency generator and fuel storage tanks. Utilities include septic system replacement and connecting existing utilities to new buildings.

The projected Station Programmatic Improvements criteria:
Current Site Area: 56,062 SF
Minimum Building Area: 8,900 GSF
Massing: 2 story Living Quarters over Command Center and Offices,
Adjacent to existing 1 story Apparatus Building with rear addition.
Emergency Operations design criteria met.
Programmed area includes room for indoors housing of up to:

- 12 firefighters
- 3 firefighting vehicles
- Community Room (doubles as area needed to meet EOC criteria).

Design Character (see Zoning requirements in Section 6.1 Architectural)

- Patterned after a Rural Agricultural Structure.
- Clean simple lines

- Steep pitched roof
- Symmetrical openings where possible
- Metal Siding and Roofing or other durable material.

Projected Construction Cost: $5,728,568

Option B - Site Phasing:

Firefighting Operations remain active on site during construction.

Phase 1: build New 2 Story Addition:
- Demo or relocate temporarily storage containers and sheds on west side
- Demo AC driveway and, possibly, (2) Monterey Pine trees
- Relocate utilities as needed
- Build (2) story New Addition, with Living Quarters over the Offices
- Build New Patio 12'x20' with cover roof to west and outdoor BBQ.

Phase 2A: Move staff into New Addition:
- Relocate new command center from Apparatus Building into New Addition offices on first level
- Move into Living Quarters and Offices
- Demo existing Living Quarters.

Phase 2B: Renovate Apparatus Building.
- Relocate vehicles to paved yard, possibly under tent structures
- Relocate turnout gear and supplies to storage mods or into first floor of New Addition
- Demo all interior construction in eastern most bay of Apparatus Building
- Demo rear wood frame addition of Apparatus Building
- Demo Apparatus Building exterior siding and roof
- Build Apparatus Building New Addition: 10' wide, full length of the rear of existing steel prefab bldg. Metal stud on-slab, on-grade construction, same skin and roof as below. 10' min height, 3/12 pitch
- Verify site drainage to hillside cut on south side. Provide additional cut and hillside stabilization, with a keystone wall if required.
- Apply new exterior walls to Apparatus Building (sheet metal siding over sheathing, membrane, new metal studs, interior gyp board)
- Rebuild Apparatus Building roof (sheet metal siding over sheathing, membrane, new plywood, verify existing framing)
- Provide (4) new bi-fold vehicle garage doors on auto operators
- Provide new floor seal for all Apparatus Building. areas, "gym flooring" at west bay, and new, 1-hour rated gyp board on metal stud partition walls to separate new physical training area from new shop and apparatus bays. Include rated doors.
- Provide all new MEP for the Apparatus Building. New Heat/Vent/Vehicle exhaust snorkels/no AC. All new lighting, power, and AV.

3.2 Option B: Existing Site, with Programmatic Improvements – VARIATIONS

The current site could possibly be isolated from Hwy 1 and the coastal areas it serves if a Tsunami

or flooding occurs during an incident requiring emergency response. A separate study for the consideration of a mobile command center of this site should be undertaken.

For the variety of situations that could be faced in this remote fire station, this type of vehicle may be more useful than additional real estate, which would need to be maintained. New real estate would become a fixed asset in a large service area with multiple potential risk types. A custom command vehicle that can house up to 3-4 firefighters, rescue equipment, and wireless communications should be programmed and priced for further consideration before a remote mini-station project is under taken.

4. Process and Participants

San Mateo County

Guido Misculin, Head of Facilities Planning

Theresa Yee, Senior Capital Projects Manager

Cal Fire

Scott Ernest, Cal Fire

Robert Pierson, Cal Fire

Andy Cope, Cal Fire

Scott Jalbert, Cal Fire, Santa Cruz Unit Chief

Ratcliff Architects

Bill Blessing, Principal Architect

Nina Pakanant, Designer

Dan Johnson, Designer

TBD Consultants

Gary Holland, Senior Estimator

CSW/Stuber-Stroeh Engineering Group, Inc.

Kerry Ettinger, PE Civil

NBA Engineering, Inc.

Natalie Alavi, PE

5. Existing Site Analysis

5.0 Water risks Assessment

The Pescadero Fire Station Assessment Study is driven by the known water risks associated with its location on the Pescaedro and Butano Creek drainage plains and its proximity to the Pacific Ocean Coast. These risks include: seasonal flooding caused by proximity to the Creeks, which could be worsened by rising sea levels due to climate change (see Appendix 8.0), and/or a tsunami event (see Appendix 8.0) due to the potential of earthquake events.

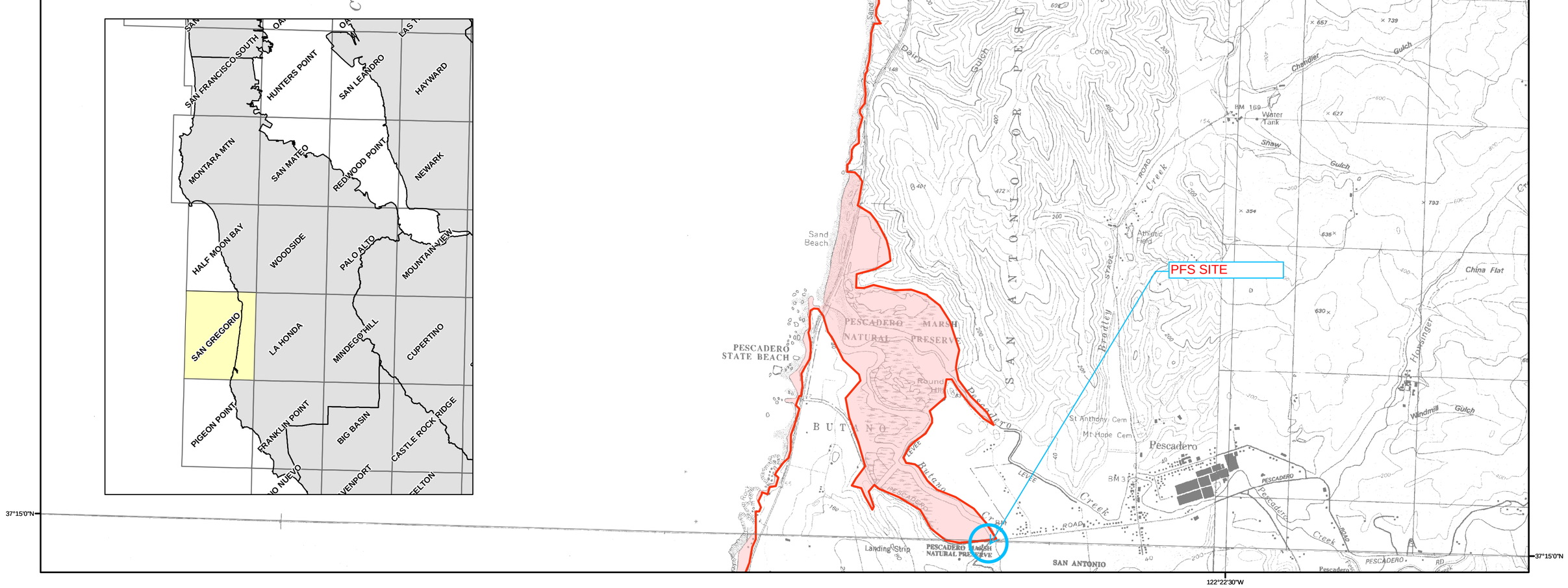
The latter two pose risk categories unto themselves and both have ongoing research with still-indeterminate predictions, but remain as known risks to this site.

The working area of this site (developed for buildings and emergency vehicles) is currently between elevation +13 and +16 ft above mean Sea level. A portion of the site on the SW corner rises up a hill and is not useable for general re-development of the fire station.

After reviewing current studies on the three types of water risks (see Appendices), it appears that the seasonal flooding of the site is most the controllable of the three and yet is mired in determining the final mitigation solution and permitting process (see Appendices). A solution could entail an extensive first Phase of study of the civil engineering within the drainage plain systems and with possible adjacent road work. This study needs to be completed before an additional study as to what affect this first Phase will have on the correct direction for the Fire Station site on Pescadero Creek Road.

In lieu of these studies, the current Assessment Report has taken the approach that the site cannot be easily raised, without a companion work scope that also raises the adjacent roads or other solution in the creek drainage plain. This variable has been set aside and our Team has completed a standalone review of the existing facilities for appropriateness to their firefighting/emergency response mission in terms of operations and their physical condition. The results have then been used to predict what would be needed to bring them into compliance for their intended mission, pending a solution to the seasonal flooding risk which is believed to be achievable. What is missing then is: at what elevation will the new work at the site be set? While this question remains unanswered, within the context of the entire Assessment Report, we still can recommend not continuing to develop this site due to all the water risks associated with this site.

If the seasonal flooding risk is mitigated at this site, it still does not diminish the other two important water risks: rising seal levels and tsunami events, which make vulnerable this site serving its mission.



METHOD OF PREPARATION

Initial tsunami modeling was performed by the University of Southern California (USC) Tsunami Research Center funded through the California Emergency Management Agency (CalEMA) by the National Tsunami Hazard Mitigation Program. The tsunami modeling process utilized the MOST (Method of Splitting Tsunamis) computational program (Version 0), which allows for wave evolution over a variable bathymetry and topography used for the inundation mapping (Titov and Gonzalez, 1997; Titov and Synolakis, 1998).

The bathymetric/topographic data that were used in the tsunami models consist of a series of nested grids. Near-shore grids with a 3 arc-second (75- to 90-meters) resolution or higher, were adjusted to "Mean High Water" sea-level conditions, representing a conservative sea level for the intended use of the tsunami modeling and mapping.

A suite of tsunami source events was selected for modeling, representing realistic local and distant earthquakes and hypothetical extreme undersea, near-shore landslides (Table 1). Local tsunami sources that were considered include offshore reverse-thrust faults, restraining bends on strike-slip fault zones and large submarine landslides capable of significant seafloor displacement and tsunami generation. Distant tsunami sources that were considered include great subduction zone events that are known to have occurred historically (1960 Chile and 1964 Alaska earthquakes) and others which can occur around the Pacific Ocean "Ring of Fire."

In order to enhance the result from the 75- to 90-meter inundation grid data, a method was developed utilizing higher-resolution digital topographic data (3- to 10-meters resolution) that better defines the location of the maximum inundation line (U.S. Geological Survey, 1993; Intermap, 2003; NOAA, 2004). The location of the enhanced inundation line was determined by using digital imagery and terrain data on a GIS platform with consideration given to historic inundation information (Lander, et al., 1993). This information was verified, where possible, by field work coordinated with local county personnel.

The accuracy of the inundation line shown on these maps is subject to limitations in the accuracy and completeness of available terrain and tsunami source information, and the current understanding of tsunami generation and propagation phenomena as expressed in the models. Thus, although an attempt has been made to identify a credible upper bound to inundation at any location along the coastline, it remains possible that actual inundation could be greater in a major tsunami event.

This map does not represent inundation from a single scenario event. It was created by combining inundation results for an ensemble of source events affecting a given region (Table 1). For this reason, all of the inundation region in a particular area will not likely be inundated during a single tsunami event.

References:

Intermap Technologies, Inc., 2003, Intermap product handbook and quick start guide: Intermap NEXTmap document on 5-meter resolution data, 112 p.

Lander, J.F., Lockridge, P.A., and Kozuch, M.J., 1993, Tsunamis Affecting the West Coast of the United States 1806-1992: National Geophysical Data Center Key to Geophysical Record Documentation No. 29, NOAA, NESDIS, NGDC, 242 p.

National Atmospheric and Oceanic Administration (NOAA), 2004, Interferometric Synthetic Aperture Radar (IfSAR) Digital Elevation Models from GeoSAR platform (EarthData): 3-meter resolution data.

Titov, V.V., and Gonzalez, F.I., 1997, Implementation and Testing of the Method of Tsunami Splitting (MOST): NOAA Technical Memorandum ERL PMEL – 112, 11 p.

Titov, V.V., and Synolakis, C.E., 1998, Numerical modeling of tidal wave runup: Journal of Waterways, Port, Coastal and Ocean Engineering, ASCE, 124 (4), pp 157-171.

U.S. Geological Survey, 1993, Digital Elevation Models: National Mapping Program, Technical Instructions, Data Users Guide 5, 48 p.

TSUNAMI INUNDATION MAP FOR EMERGENCY PLANNING

State of California ~ County of San Mateo

SAN GREGORIO QUADRANGLE

June 15, 2009

SCALE 1:24,000

0.5 0.25 0 0.5 1 Miles

1,000 500 0 1,000 2,000 3,000 4,000 5,000 Feet

0.5 0.25 0 0.5 1 Kilometers

Table 1: Tsunami sources modeled for the San Mateo County coastline.

Sources (M = moment magnitude used in modeled event)		Areas of Inundation Map Coverage and Sources Used	
		San Francisco Bay	Pescadero
Local Sources	Point Reyes Thrust Fault	X	
	Rodgers Creek-Hayward Faults	X	
	San Gregorio Fault	X	
Distant Sources	Cascadia Subduction Zone-full rupture (M9.0)	X	
	Central Aleutians Subduction Zone #1 (M8.9)	X	X
	Central Aleutians Subduction Zone #2 (M8.9)	X	
	Central Aleutians Subduction Zone #3 (M9.2)	X	X
	Chile North Subduction Zone (M9.4)	X	
	1960 Chile Earthquake (M9.3)	X	
	1964 Alaska Earthquake (M9.2)	X	X
	Japan Subduction Zone #2 (M8.8)	X	
	Kuril Islands Subduction Zone #2 (M8.8)	X	
	Kuril Islands Subduction Zone #3 (M8.8)	X	
	Kuril Islands Subduction Zone #4 (M8.8)	X	
	Marianas Subduction Zone (M8.6)	X	X

Cal EMA CALIFORNIA EMERGENCY MANAGEMENT AGENCY

CGS CALIFORNIA GEOLOGICAL SURVEY

USC UNIVERSITY OF SOUTHERN CALIFORNIA

MAP EXPLANATION

Tsunami Inundation Line

Tsunami Inundation Area

PURPOSE OF THIS MAP

This tsunami inundation map was prepared to assist cities and counties in identifying their tsunami hazard. It is intended for local jurisdictional, coastal evacuation planning uses only. This map, and the information presented herein, is not a legal document and does not meet disclosure requirements for real estate transactions nor for any other regulatory purpose.

The inundation map has been compiled with best currently available scientific information. The inundation line represents the maximum considered tsunami runup from a number of extreme, yet realistic, tsunami sources. Tsunamis are rare events; due to a lack of known occurrences in the historical record, this map includes no information about the probability of any tsunami affecting any area within a specific period of time.

Please refer to the following websites for additional information on the construction and/or intended use of the tsunami inundation map:

State of California Emergency Management Agency, Earthquake and Tsunami Program: http://www.oes.ca.gov/WebPage/oeswebsite.nsf/Content/B1EC51BA215931768825741F005E8D80?OpenDocument

University of Southern California – Tsunami Research Center: http://www.usc.edu/dept/tsunamis/2005/index.php

State of California Geological Survey Tsunami Information: http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/index.htm

National Oceanic and Atmospheric Agency Center for Tsunami Research (MOST model): http://nctr.pmel.noaa.gov/time/background/models.html

MAP BASE

Topographic base maps prepared by U.S. Geological Survey as part of the 7.5-minute Quadrangle Map Series (originally 1:24,000 scale). Tsunami inundation line boundaries may reflect updated digital orthophotographic and topographic data that can differ significantly from contours shown on the base map.

DISCLAIMER

The California Emergency Management Agency (CalEMA), the University of Southern California (USC), and the California Geological Survey (CGS) make no representation or warranties regarding the accuracy of this inundation map nor the data from which the map was derived. Neither the State of California nor USC shall be liable under any circumstances for any direct, indirect, special, incidental or consequential damages with respect to any claim by any user or any third party on account of or arising from the use of this map.

5.1 Architectural Assessment

SITE:
CALFIRE / Pescadero Fire Station, San Mateo County Fire Department
1200 Pescadero Creek Road, Pescadero, Ca 94060
(corner of Pescadero Creek Road and Bean Hollow Rd.)

SITE FACTS:

APN: 086160050

SITE AREA: 56,062 sqft.

ASSESSOR LEGAL DESCRIPTION:
1.287 AC MOL ON SLY LN OF PESCADERO RD BEING PTN OF LOT 13 & PTN OF RESERVED PARCEL PENINSULA FARMS CO SUB NO 1 RSM 11/18

GENERAL PLAN (1986)
http://planning.smcgov.org/documents/local-coastal-program-lcp

Local Coastal Program Area (1980), Rural Service Centers
DESIGNATION: Institutional Land Use
Bounded by General Open Space (OS), Public Recreation (marsh), Private lands

Local Coastal Program (LCP)
All development in the Coastal Zone requires either a Coastal Development Permit or an exemption from Coastal Development Permit requirements. For a permit to be issued, the development must comply with the policies of the Local Coastal Program (LCP) and those ordinances adopted to implement the LCP. The project must also comply with other provisions of the County Ordinance Code, such as zoning, building and health regulations.

LOCAL COASTAL PROGRAM POLICIES (verify):
http://planning.smcgov.org/sites/planning.smcgov.org/files/documents/files/SMC_Midcoast_LCP_2013.pdf

> *LOCATING AND PLANNING NEW DEVELOPMENT COMPONENT*
> *DEVELOPMENT REVIEW*
> *1.1 Coastal Development Permits*
> *After certification of the Local Coastal Program (LCP), require a Coastal Development Permit for all development in the Coastal Zone subject to certain exemptions.*
>
> *1.2 Definition of Development*
> *As stated in Section 30106 of the Coastal Act, define development to mean:*
> *On land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not*

limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).

As used in this section, "structure" includes, but is not limited to, any buildings, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.

ITEMS to be verified include:

Appendix 1.A
Minimum Stormwater Pollution Prevention Requirements
Pages 1.27 thru 1.30

Items Apply to PFS: 3.c; 3.e, 3.f, 3.j
Verify that current septic field location would not be allowed by this standard: Items 3.i and 3.j.

3. Developments of Special Concern
j. On-site sewage treatment systems (septic systems) shall be sited away from areas that have poorly or excessively drained soils, shallow water tables or high seasonal water tables that are within floodplains or where effluent cannot be adequately treated before it reaches streams or the ocean. New development with conventional or alternative on-site sewage treatment systems shall include protective setbacks from surface waters, wetlands and floodplains, as well as appropriate separation distances between on-site sewage treatment system components, building components, property lines, and groundwater as required by the Regional Board. Under no conditions shall the bottom of the effluent dispersal system be within five (5) feet of groundwater.

SENSITIVE HABITATS
WETLANDS:
Page 7.5
Site is adjacent to protected Wetland.

7.15 Designation of Wetlands
a. Designate the following as wetlands requiring protection: Pescadero Marsh,…

Page 7.6
Verify if current site and proposed development in Option B are outside of required

Buffer Zone.

7.18 Establishment of Buffer Zones
Buffer zones shall extend a minimum of 100 feet landward from the outermost line of wetland vegetation. This setback may be reduced to no less than 50 feet only where: (1) no alternative development site or design is possible; and (2) adequacy of the alternative setback to protect wetland resources is conclusively demonstrated by a professional biologist to the satisfaction of the County and the State Department of Fish and Game. A larger setback shall be required as necessary to maintain the functional capacity of the wetland ecosystem.)

Page 7.7
7.21 Management of Pescadero Marsh

Other items may apply.

VISUAL RESOURCES:

Verify if these Design Guidelines apply to institutional buildings constructed after April 29, 1998 at this site for proposed development in Option B:

Provisional Appendix - In-Progress Development Proposals Not Affected
by the LCP Amendments Certified by the
Coastal Commission on April 29, 1998 .....PA.1-PA.13

8.13 Special Design Guidelines for Coastal Communities Pages PA.9 thru PA.13
d. Pescadero
Encourage new buildings to incorporate architectural design features found in the historic buildings of the community (see inventory listing), i.e., clean and simple lines, precise detailing, steep roof slopes, symmetrical relationship of windows and doors, wood construction, white paint, etc.
Require remodeling of existing buildings to retain and respect their traditional architectural features, if any.

Note:
Other items may apply if the Option A - New Site approach is determined and defined.

ZONING INFORMATION, Unincorporated Areas
http://planning.smcgov.org/sites/planning.smcgov.org/files/2012_ZoneRegs%5BFINAL%5D_0.pdf

ZONING MAP
https://planning.smcgov.org/sites/planning.smcgov.org/files/documents/files/smc_zoning.pdf

DESIGNATION: PAD/CD (combined districts)
Planned Agricultural Districts/Coastal Development Districts

Items Apply:

CHAPTER 20A.2. DEVELOPMENT REVIEW CRITERIA

(applicable sections, partial list)

- SECTION 6325.2. PRIMARY FISH AND WILDLIFE HABITAT AREAS CRITERIA.
- SECTION 6325.7. PRIMARY NATURAL VEGETATIVE AREAS CRITERIA.
- SECTION 6326. SUPPLEMENTARY REVIEW CRITERIA FOR SPECIAL HAZARD
- SECTION 6326.1. FLOOD PLAIN AREA CRITERIA.

Verify that Option B development is permitted per:

- SECTION 6326.2. TSUNAMI INUNDATION AREA CRITERIA. The following criteria shall apply within all areas defined as Tsunami Inundation Hazard Areas. (a) The following uses, structures, and development shall not be permitted: publicly owned buildings intended for human occupancy other than park and recreational facilities; schools, hospitals, nursing homes, or other buildings or development used primarily by children or physically or mentally infirm persons.
- SECTION 6326.3. SEISMIC FAULT/FRACTURE AREA CRITERIA.

CHAPTER 20B. "CD" DISTRICT

(COASTAL DEVELOPMENT DISTRICT)

SECTION 6328.4. REQUIREMENT FOR COASTAL DEVELOPMENT PERMIT.

Except as provided by Section 6328.5, any person, partnership, corporation or state or local government agency wishing to undertake any project, as defined in Section 6328.3(r), in the "CD" District, shall obtain a Coastal Development Permit in accordance with the provisions of this Chapter, in addition to any other permit required by law. Development undertaken pursuant to a Coastal Development Permit shall conform to the plans, specifications, terms and conditions approved or imposed in granting the permit.

SECTION 6328.5. EXEMPTIONS.

The projects listed below shall be exempt from the requirement for a Coastal Development Permit. Requirements for any other permit are unaffected by this section.

(b) The maintenance, alteration, or addition to existing structures other than single family dwellings and public works facilities; however, the following classes of development shall require a permit because they involve a risk of adverse environmental impact:

(3) The expansion or construction of water wells or septic systems.

(4) On property located between the sea and the first public road paralleling the sea or within 300 feet of the inland intent of any beach or of the mean high tide of the sea where there is no beach, whichever is the greater distance, or in scenic road corridors, an improvement that would result in an increase of 10% or more of external floor area of the existing structure, and/or the construction of an additional story (including lofts) in

an existing structure.

CHAPTER 21A. "PAD" DISTRICT
(PLANNED AGRICULTURAL DISTRICT)
This chapter has sections that may apply to Option A - New Site development location.

SECTION 6353. USES PERMITTED SUBJECT TO THE ISSUANCE OF A PLANNED AGRICULTURAL PERMIT.

The following uses are permitted in the PAD subject to the issuance of a Planned Agricultural Permit, which shall be issued in accordance with the criteria set forth in Section 6355 of this ordinance. Applications for Planned Agricultural Permits shall be made to the County Planning Commission and shall be considered in accordance with the procedures prescribed by the San Mateo County Zoning Ordinance for the issuance of use permits and shall be subject to the same fees prescribed therefore.

B. On Lands Suitable for Agriculture and Other Lands

6. Fire stations.

Site Visit

The Architectural Team worked on October 28, 2012 and the entire A+E Consultant Team worked on November 20, 2013 to complete assessments on the PFS site at 1200 Pescadero Creek Road.

This included a brief tour of potential replacement or remote sites in and around the Town of Pescadero.

Existing site features

- The site is partially surrounded by a 6 foot high wood fence for visual screening.
- No security fence or gates are present.
- The site has a steep hill in the southwest corner.
- Site pavement generally consists of asphalt, depth and section is unknown.
- Concrete pavement is found at the vehicle wash area, fuel station and certain pedestrian building access points; sections are unknown.
- No recent site survey was performed or is currently available through the SM County
- GIS system.

Relative topo information was located here:

- smc-400 Scale Contour-grid-22D.pdf (SM Cty GIS system).

Additional relative topo information was taken from Google Earth Pro:

- Pescadero Cr_els at 1200 & 5631.pdf

The site has Monterey Pine trees – see Google Earth map.

Existing structures

- Living Quarters (barracks), dated: 1/7/1957

    - 2175 GSF
    - 1789 ASF
    - Wood frame, Type 5 construction
    - Composition Shingle roof
    - Interiors are well-maintained but worn in the restrooms, kitchen and dining areas.
    - This building has been flooded more than 3 times in recent memory and has been repaired each time. Standing water and contaminated soil were visible in the crawl space the day of our inspection.
    - An addition was built by the station staff in the early 1980's to enclose the original porch to create additional space in the Dayroom ("recreation room" per original drawings).
    - ADA non-compliant.
    - Operationally, the ideal set up is to have the Living Quarters adjacent to the Command Office and Apparatus Building to improve response time and not across the service yard as is currently.
    - This building has no provision for Community space or interface - and is inadequate for training or as an Emergency Operations Center (EOC) by current standards.
    - Finish Floor elevation is approximately 15'.
- Apparatus Building (barracks), dated: 1/7/1957
    - 3128 GSF
    - 1789 ASF
    - Steel frame superstructure – non protected, wood frame infill, Type 5 construction, and not fire-sprinklered.
    - Sheet metal roof and stained wood siding appear well maintained.
    - Interiors are worn in all areas but Command Offices are well maintained.
    - The interior loft space above the Command Office is used for supplies storage and is only accessible by site built wooden wall ladder. This arrangement is unsafe and not per Code.
    - A rear wood frame addition was built in the early 1980's to create space for a physical training area. It is damp and cramped and not isolated from the apparatus bays and has shared air quality. It is not ideally sized and is without daylight, proper height and MEP systems appropriate to its function.
    - ADA non-compliant
    - Operationally, the ideal set up is to have the Apparatus Building adjacent to the Command Office/ Living Quarters to improve response time and not across the service yard as is currently.
    - This building has no provision for Community space or interface - and is inadequate for training or as an Emergency Operations Center (EOC) by current standards.
    - Finish Floor elevation is approximately 16'.

- Equipment Sheds – to create additional covered and secure storage capacity.
    - 335 GSF
    - 325 ASF
    - Steel shipping container (190 GSF) (age ?)
    - Wood frame, prefab – non protected, Type 5 construction (80 GSF), w/a rear, wood-frame addition – non protected, Type 5 construction (64 G)

        - [appears to have been built in the 1990's (verify date)]
        - Composition Shingle roof (age : 20 yrs + ?)
    - ADA non-compliant
    - These structures are inadequate as part of an Emergency Operations Center (EOC) by current standards.
    - The wood siding and metal enclosure siding is worn and damaged by earth contact in places. These have no permanent foundations, lighting or HVAC systems.
    - Finish Floor elevations is approximately 16'.

- Hazardous Materials Shed
    - 113 GSF
    - 85 ASF
    - CMU walls, wood frame roof – non protected, Type 5 construction
    - Composition Shingle roof (age : 20 yrs + ?)
    - ADA non-compliant
    - Condition appears acceptable but should be re-sealed at exterior wall surfaces.
    - Finish Floor elevations is approximately 16'.

- Emergency Generator Shed
    - 102 GSF
    - 89 ASF
    - Wood frame – non protected, Type 5 construction
    - Appears to have been built in the early 1980's (verify date)
    - Composition Shingle roof (age : 20 yrs + ?)
    - Composition Shingle roof (age : 20 yrs + ?)
    - ADA non-compliant
    - Finish Floor elevations is approximately 14'.

Note:
For all structures, see Engineer Reports below for status of building systems.

5.2 Structural Assessment

Refer to Appendix 8.2 for complete consultant's report.

A building structural assessment per *ASCE 41: Seismic Rehabilitation of Existing Buildings* was conducted. Aspects of building performance that are considered include structural, nonstructural, and foundation/geologic hazard issues. Lifelines such as water, electrical, gas and waste, etc., beyond the perimeter of the building are not considered.

5.2.1 Barracks Building

An ASCE 41-13 Life Safety basic checklist evaluation identifies the structure as being predominately compliant. Unknown factors of liquefaction and surface fault rupture which need to be review by a Geotechnical engineer. The Barracks building is part of an emergency response facility. Therefore an Immediate Occupancy performance level is required. An ASCE 41-13 Immediate Occupancy checklist evaluation for W1 structures identified a number of noncompliant items. These identified issues are all minor in nature and could be retrofitted without significant cost.

The major compliance issue with achieving an Immediate Occupancy building performance level is the structure being located in an area subject to flooding. Flooding will damage the structure and will render the building inoperable during the period of the flood, which would make an Immediate Occupancy performance level difficult to achieve even after a structural retrofit.

5.2.2 Apparatus Building

An ASCE 41-13 Life Safety basic checklist evaluation identifies the structure as being predominately noncompliant or unknown. Some of these identified issues are a mezzanine structure not being independently braced and no confirmation that the original steel system has capacity for the various additions. The Apparatus building is part of an emergency response facility. Therefore an Immediate Occupancy performance level is required. An ASCE 41-13 Immediate Occupancy checklist evaluation for S3 structures identified a number of noncompliant items. It would be anticipated that the identified issues would be major in nature and could be a challenge to retrofit without significant cost.

Two additional compliance issues required to achieve an Immediate Occupancy building performance level are the structure being located in an area subject to flooding and being located adjacent to a slope.

5.3 Mechanical, Electrical, Plumbing, IT Assessment

Refer to Appendix 8.3 for complete consultant's report.

5.3.1 Electrical Systems Existing Conditions

Most of the electrical equipment, including the standby generator (see EE2), and automatic transfer switch (see EE3), has been in use for more than thirty years. The coastal climate, severe weather conditions, and some flooding have caused rusting of the enclosed outdoor service entrance equipment (see EE1). Many broken, inadequate, or unsafe electrical conditions are noted in the report (Appendix 8.3).

5.3.2 Plumbing and Mechanical Systems Existing Conditions

The septic tank floods periodically, requiring station personnel to rent and use portable toilet facilities when the septic system is being repaired and cleaned. Fuel tanks show rust and evidence of leakage. Mechanical ventilation to occupied spaces is missing or inadequate. Some rooms have not heat. The consultant recommends demolishing all existing mechanical, plumbing, fuel, and electrical systems.

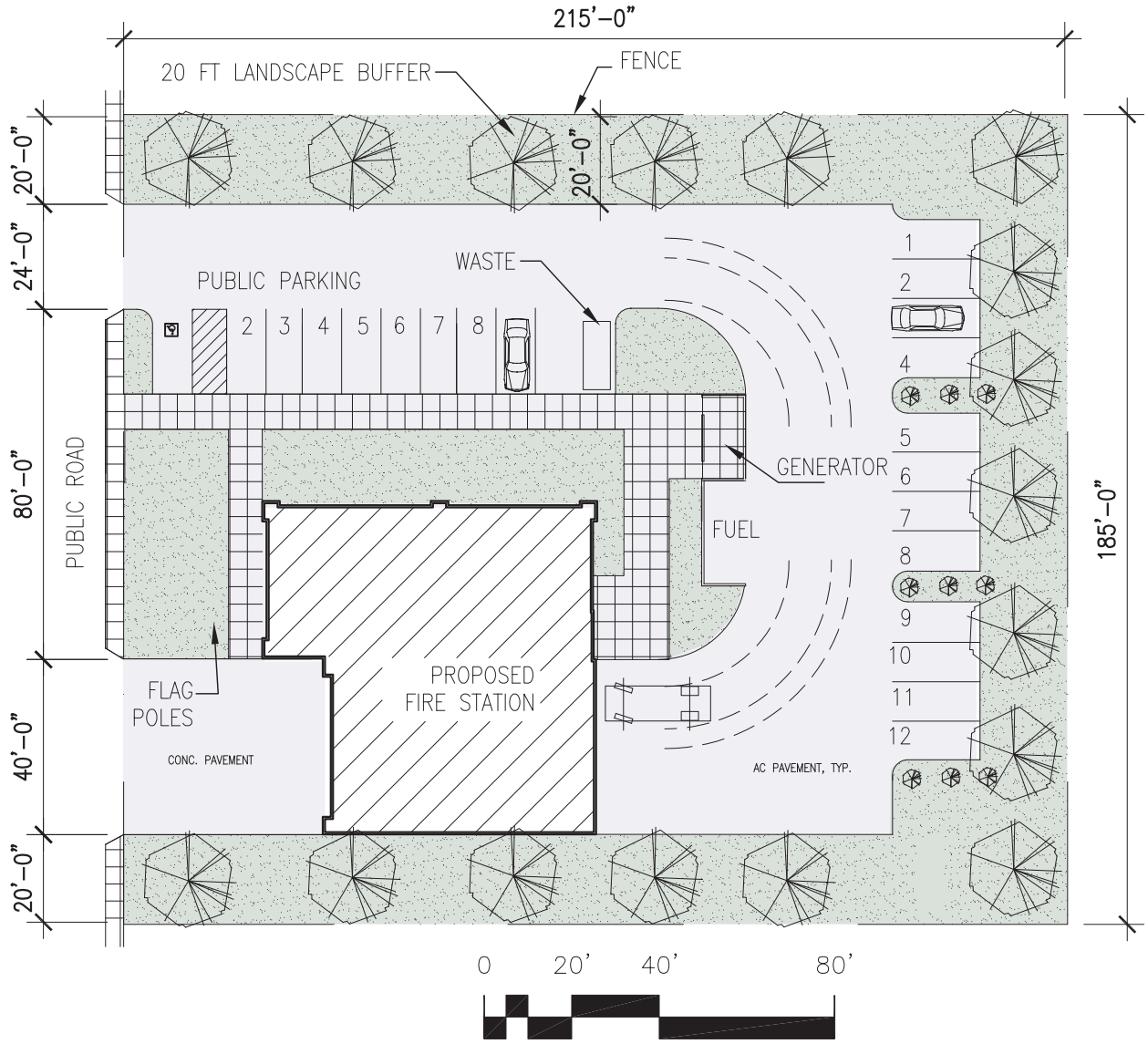
5.4 Civil Assessment

The site and buildings are outdated and in need of improvement, either at the existing site, or at a new site, in order to meet current standards and to adequately serve its community. The Pescadero Fire Sta. is located in the flood plain of the Butano Creek (see “Pescadero Floodway Map” attached, Appendix 8.4) The site is has experienced an increase in the occurrence of flooding since the mid 1980’s due to the accumulation of silt and debris in Butano Creek and Pescadero Marsh as a result of halted dredging operations.

Civil utilities on-site consist of domestic water served by the local water service municipality. The septic system is reported to back-up during flood events, which is to be expected. A new septic system will likely be required. Because the location of the existing system becomes inundated with water during flood events (see Appendix 8.4, Photo 1), it is unlikely that this location will meet code. As such, alternative locations on site should be considered.

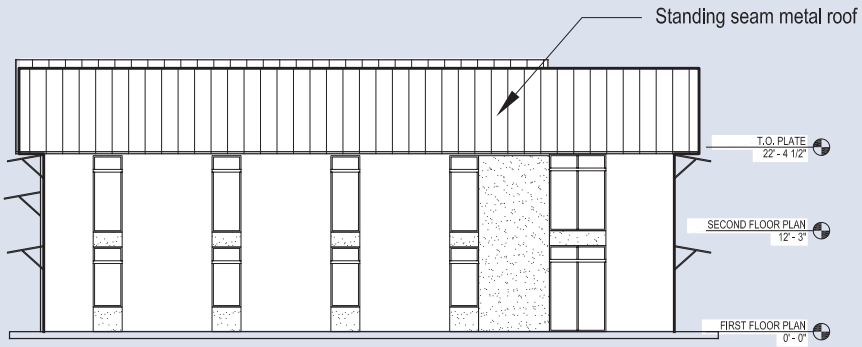
6. Diagrams

SK A1. (New site) Ideal Site Plan

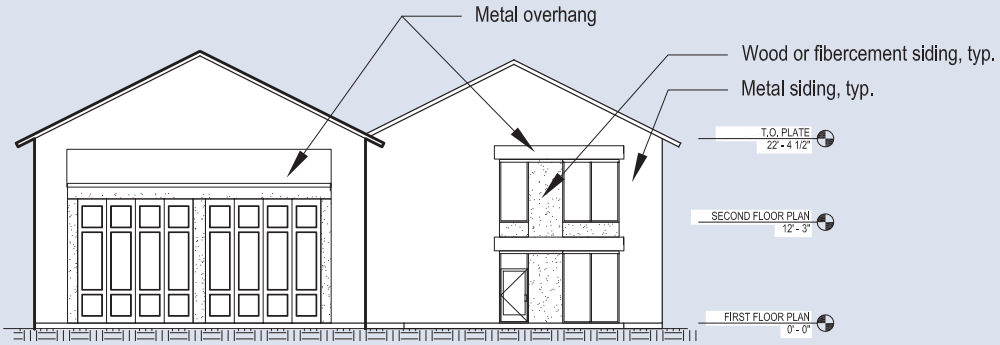


SK A2. (New site) Floor Plans

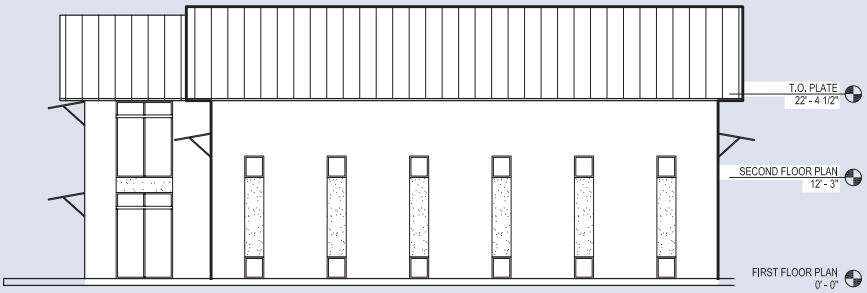
SK A3. (New site) Elevations



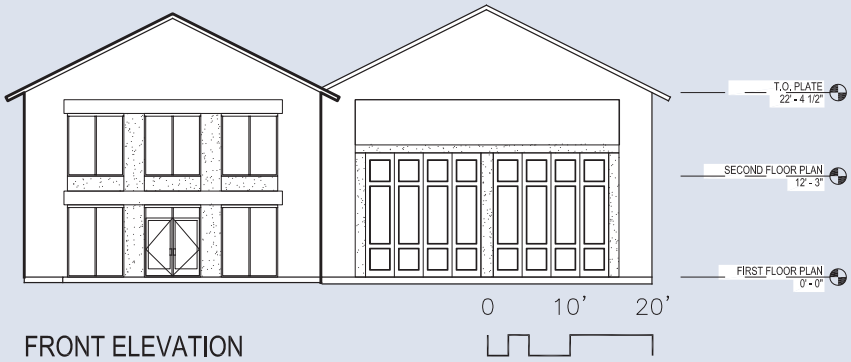
LEFT SIDE ELEVATION



BACK ELEVATION

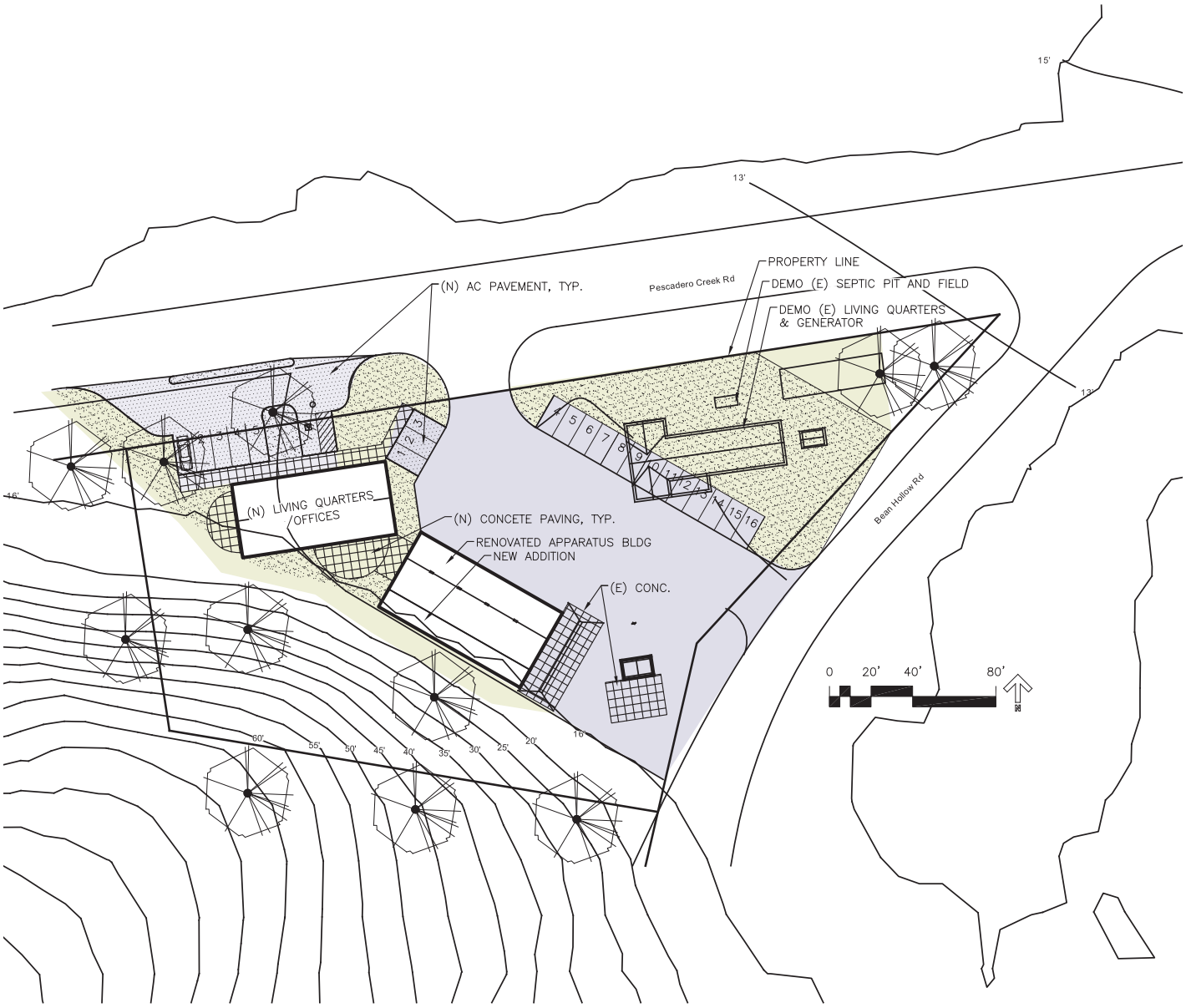


RIGHT SIDE ELEVATION

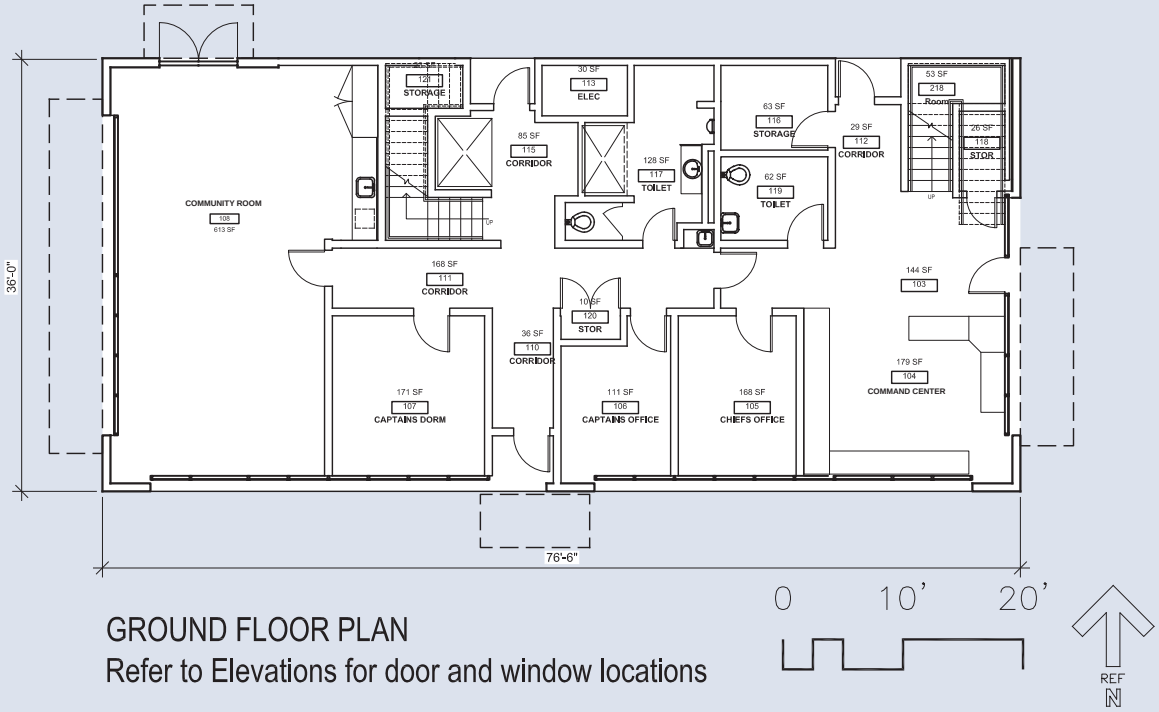


FRONT ELEVATION

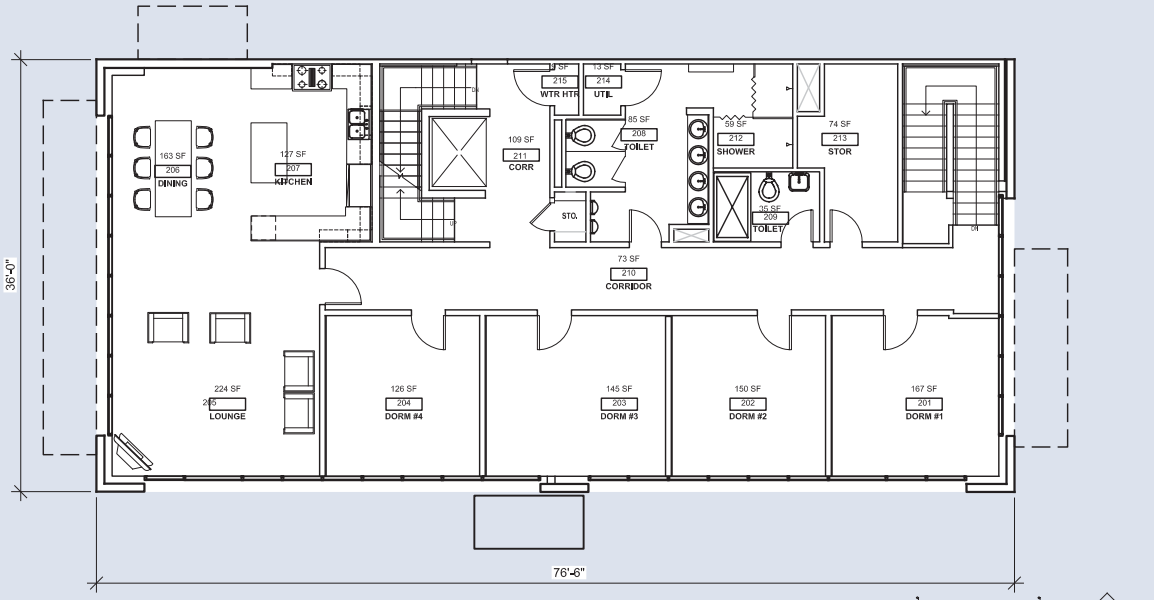
SK B1.0 (Existing site through Phase 2) Site Plan



SK B1.1 (Existing site, Phase 1) new Living Quarters floor plan

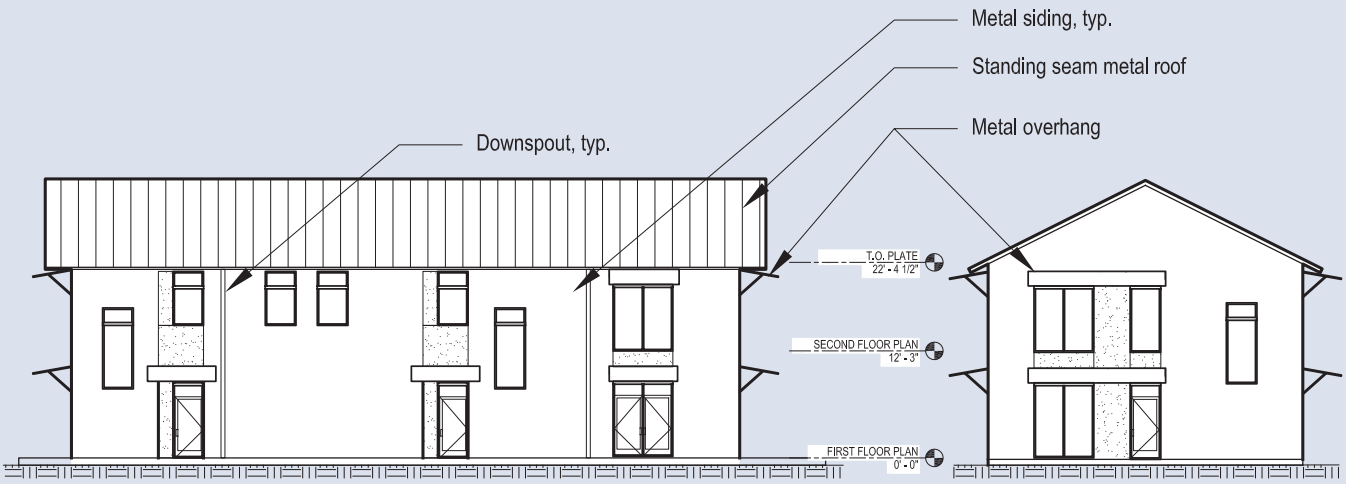


GROUND FLOOR PLAN
Refer to Elevations for door and window locations



UPPER FLOOR PLAN
Refer to Elevations for door and window locations

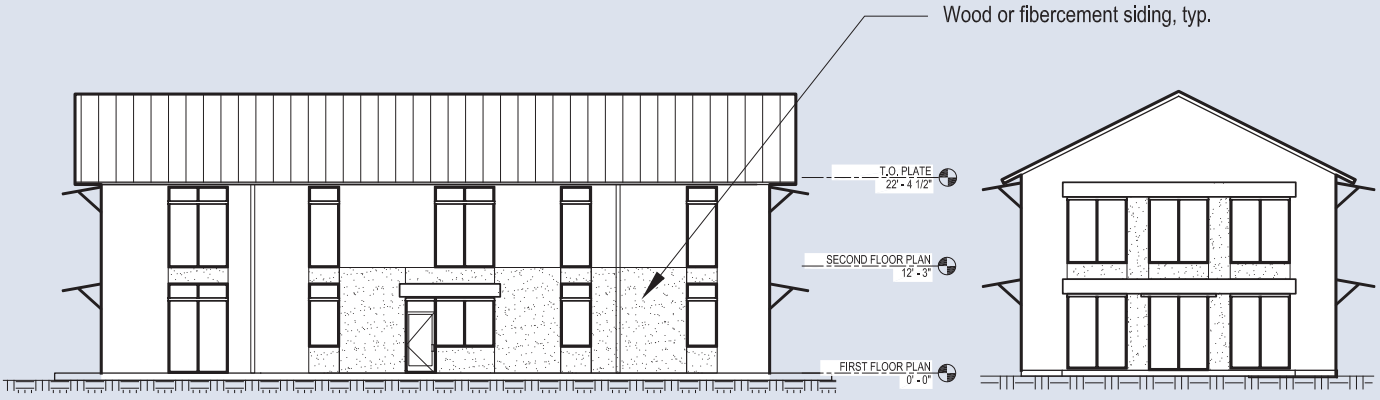
SK B1.2 (Existing site, Phase 1) new Living Quarters elevations



NORTH ELEVATION

0 10' 20'

EAST ELEVATION

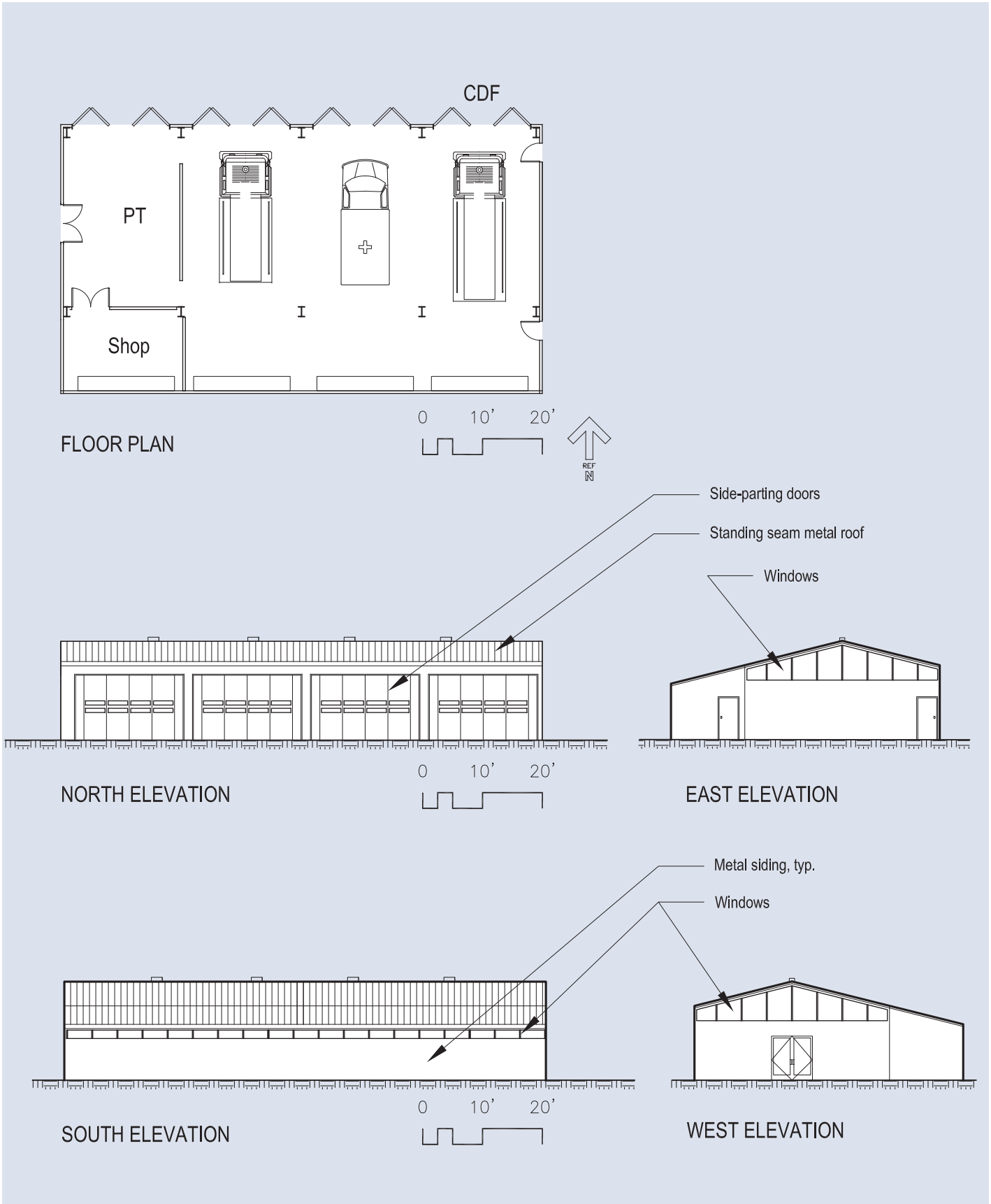


SOUTH ELEVATION

0 10' 20'

WEST ELEVATION

SK B2.1 (Existing site, Phase 2) Apparatus Building drawings



7. Cost Analysis

Options Analyzed

The project consists of Two Options:

Option A (New Site): Project consists of a new two-story 8,904 SF fire station with living quarters and apparatus bays. Sitework includes vehicular and pedestrian paving, landscaping, site lighting and drainage, new emergency generator and fuel storage tanks. Utilities include incoming water, storm drain and electrical service. Sewer is provide by an onsite septic system, gas is provided by propane tanks.

Option B (Existing Site): Project consists of replacing existing living quarters building with a new two-story 5,508 SF living quarters building, complete interior/exterior renovation to the existing 2,400 SF apparatus building, a new 1,100 SF addition to the existing apparatus building. Sitework includes vehicular and pedestrian paving, landscaping, site lighting and drainage, replacement of existing emergency generator and fuel storage tanks. Utilities include septic system replacement, distribution of utilities to buildings.

Cost summaries extracted from the full report are given on the following pages.

Basis for Pricing

Refer to full analysis given in Appendix 8.1. This estimate reflects the fair construction value for this project and should not be construed as a prediction of low bid. Subcontractor's markups have been included in each line item unit price. Subcontractor's markups typically range from 15% to 25% of the unit price depending on market conditions. This cost estimate is based on standard industry practice, professional experience and knowledge of the local construction market costs.

OVERALL SUMMARY OPTION A - NEW FIRESTATION AND SITE

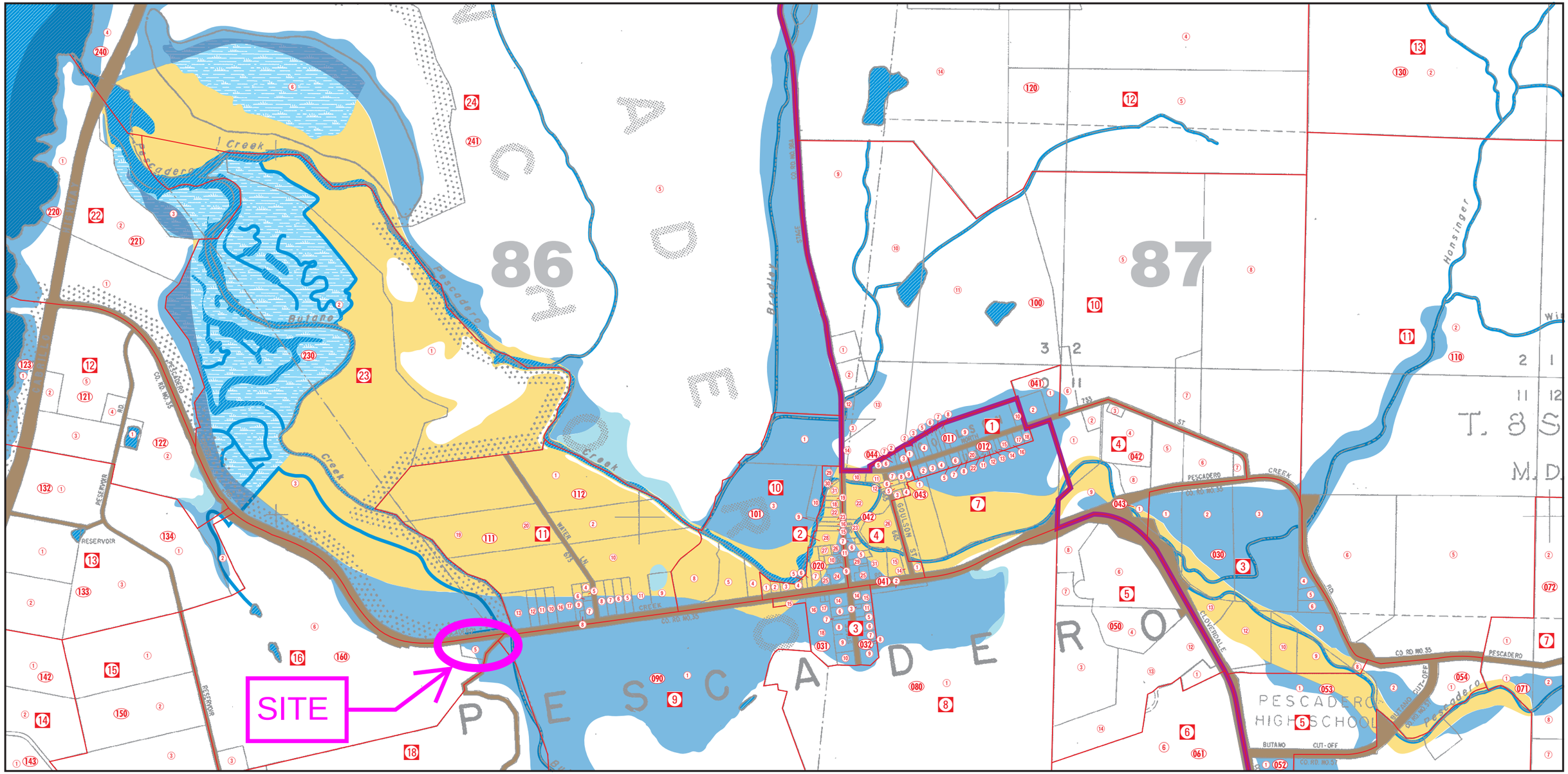
BUILDING			
Fire Station and Apparatus Bays	8,104	SF	2,779,194
Furniture, Fixtures and Equipment (FF&E)			See FF&E Budget
SITEWORK			
Site Preparation, Development and Utilities	1	LS	836,240
DIRECT COSTS SUB-TOTAL			**3,615,434**
SITE REQUIREMENTS AND JOBSITE MANAGEMENT (One Phase over 10 to 12 Months)		11.5%	415,775
ESTIMATE SUB-TOTAL			**4,031,209**
INSURANCE + BONDING		2.5%	100,780
FEE		3.0%	123,960
ESTIMATE SUB-TOTAL			**4,255,949**
DESIGN CONTINGENCY		15.0%	638,392
CONSTRUCTION CONTINGENCY		0.0%	Excluded
ESTIMATE SUB-TOTAL			**4,894,341**
ESCALATION (January 2015 start of Construction)		5.0%	**244,717**
ESTIMATE TOTAL			**5,139,058**

OVERALL SUMMARY OPTION B - EXISTING FIRE STATION AND SITE

BUILDINGS			
New Living Quarters	5,508	SF	1,759,001
Existing Apparatus Building Renovation	2,400	SF	867,100
Apparatus Building Addition	1,100	SF	259,600
Furniture, Fixtures and Equipment (FF&E)			See FF&E Budget
Subtotal - Buildings	9,008	SF	2,885,701
SITEWORK			
Site Preparation, Development and Utilities	1	LS	829,125
DIRECT COSTS SUB-TOTAL			**3,714,826**
SITE REQUIREMENTS AND JOBSITE MANAGEMENT (Two Phases over 18 Months)		17.0%	631,520
ESTIMATE SUB-TOTAL			**4,346,346**
INSURANCE + BONDING		2.5%	108,659
FEE		4.5%	200,475
ESTIMATE SUB-TOTAL			**4,655,480**
DESIGN CONTINGENCY		15.0%	698,322
CONSTRUCTION CONTINGENCY		0.0%	Excluded
ESTIMATE SUB-TOTAL			**5,353,802**
ESCALATION (January 2015 start on Construction)		7.0%	**374,766**
ESTIMATE TOTAL			**5,728,568**

8. Appendices

8.0 Water risks documentation



Pescadero Floodway Map

Disclaimer: The digital flood hazard data used on this map was derived from scanned and composited FEMA Floodway maps. The base cartographic map information was derived from a combination of Assessor and Public Works maps. For this reason and several others, including the scale or resolution that the information is displayed at, these maps should be considered an **advisory tool** for general hazard awareness, education, and flood plain management. This map is **not a legal document** to be used when making a single site flood hazard determination. That determination will have to be made by direct use of the FEMA FIRM or Floodway maps. (This is a non-archival inkjet print and is subject to fading when exposed to direct sunlight. Please store or display accordingly for maximum longevity.)

- Flood plain
- Floodway
- 500-yr Flood
- Lake
- Marshland
- Creeks; perenial
- Major Roads
- 87 Assessors book number
- Assessors book boundary
- Assessors page boundary
- 6 Assessors page number
- 061 Assessors block number
- 6 Assessors parcel number

N

SOURCES: SMC General Plan Map, 1988; FEMA Floodway Map, July 1984 and Geological Survey USGS Map, 1978.
For visual reference only.

pescadero floodway map.cdr rp 11/21/00 disc. rev 2/19/03 rp

The Annual Flooding of Pescadero Creek Road

Issue | Background | Findings | Conclusions | Recommendations | Responses | Attachments

Issue

For over 25 years the main road into Pescadero has been blocked by the annual flooding of Butano Creek, jeopardizing public safety and impeding access by public safety officers and medical responders into and out of the Pescadero community. Why has the County not resolved this problem and how can it finally be fixed?

Summary

The blockage of Pescadero Creek Road, in the unincorporated community of Pescadero, happens one or more times each rainy season, often for days each time. Flooding jeopardizes the safety of local citizens in two primary ways: First, alternative routes into the Pescadero area are along much longer, narrower roadways requiring at least two to three times more driving time from the coastal highway. In the case of emergencies where the San Mateo County Sheriff, CAL FIRE or the California Highway Patrol is required, response time is critical and delays can impact personal safety of citizens and their property. Second, as the road floods, there are always some individuals who deliberately or inadvertently drive through the flooded road areas, sometimes successfully, sometimes not. A flooded road impacts local commerce, tourist traffic, and agribusiness in the area, and often leaves debris and silt to clean up.

The flooding is linked to decades of silt accumulation in the streambed, and excess vegetation growth and debris build-up along Butano Creek and in Pescadero Marsh. The drainage from the Marsh into the sea, and associated flushing of silt into the sea, is compromised by natural and man-made changes. These include logging debris, erosion, run-off, levees and channels built to facilitate agriculture, as well as certain now-abandoned modifications intended to correct watershed problems. The bottom line is that rains cannot be contained within Butano Creek's banks, resulting in predictable and dangerous road flooding.

The San Mateo County Civil Grand Jury recommends the removal of excess silt and clearance of vegetation overgrowth and debris from as much of the Butano Creek as necessary to eliminate the road flooding by October 1, 2012, before the 2012/2013 rainy season, using the regulatory framework of "Emergency" action if necessary.

Background

Since the 1880s, the town of Pescadero, population ~650, has been a farming and ranching community. The town is located at the upstream (eastern) edge of Pescadero Marsh, at the confluence of Pescadero and Butano Creeks, both of which empty into the Pacific.

The flooding of the Pescadero Creek Road at the Butano Creek Bridge closes the main route into and out of Pescadero, while simultaneously inundating privately owned farmlands. The road closure isolates the town and surrounding areas from its CAL FIRE Station, severely impacting emergency services. Alternate roads are small and winding through local hills. An ambulance, fire engine, or police vehicle could require an extra hour or more in transit time. In recent years, flooding has occurred several times during the rainy season, often for 24-48 hours at a time.

Several sources document the history and complexities of the Pescadero watershed. [1] The cause of the annual flooding includes progressive silt accumulation and vegetation overgrowth and debris build-up in Butano Creek up- and down-stream of the Bridge and beyond into the Marsh itself. Additionally, numerous property owners decades ago created levees and channels in the marsh for their land-uses, and several projects for the Coastal Highway have modified the seasonal sand-berm that affects the Butano Creek's flow from the Marsh to the Ocean. State regulations enacted beginning in the 1960s have prevented property owners from dredging and clearing creeks on their property and opening the sand-berm as they had historically done.[2]

Survey profiles demonstrate the silt build up. (*See*, Attachment A.) The streambed was ~12 feet below the bottom of the bridge in 1968.[3] Currently the bridge clears the silted creek bottom by only two feet. The creek has no capacity to handle rainstorm run-off; the water has nowhere to go but up and over the road.

The California Department of State Parks and Recreation began acquiring Marsh properties in the 1960s, and in 1993 started to implement extensive modifications to the Marsh area intended to address and resolve environmental concerns[4]. Modifications included adding and removing dikes, adding water-control gates and culverts, and re-contouring certain flow features. The added features were not maintained, and were subsequently abandoned.[5] The reasons for this abandonment have not been identified. As a result, silt-up and vegetation overgrowth has reduced the capacity and impeded the water flow in the Creek. Fish-kills within the Marsh have also increased; agribusiness has suffered; sport fishing has all but disappeared; and negative effects on endangered wildlife are being documented.[6]

Interviewees from local citizens' groups including the Pescadero Municipal Advisory Group (PMAC), the California Alliance for Species Enhancement (CASE), and the San Mateo County Farm Bureau have stated that State Parks' modifications have exacerbated the flooding. Scientists are mostly in agreement.[7] For many years, citizens' groups have advocated County and State

---

[1] IDC, from Sans, Director DPW, to San Mateo County Planning Commission May 8, 1992, "Flooding of Butano Creek at Pescadero Road", and to Pescadero Community Council Nov 10, 1992; Pescadero-Butano Watershed Assessment, Final Report March 5, 2004, Environmental Science Associates.

[2] *See, e.g.*, California Fish and Game Code §§ 1600-1602.

[3] *See*, Attachment A, "Silt-up Profiles."

[4] Website, C.A.S.E., caseforourenvironment.org, August 2011, Example of Jerry Smith's 201995/6 SJSU studies, prepared for State Parks.

[5] Interview, Biologist, NOAA / Fisheries.

[6] Website, C.A.S.E, caseforourenvironment.org, Conditions in Pescadero Marsh, Lennie Roberts report, 2004.

[7] Interview, scientist, California Dept. of Fish and Game.

action to provide relief from the flooding, and have proposed some immediate fixes. These included: dredging the streambed; raising the roadway at the bridge and especially at the low-point of the road; building a causeway and/or; installing a pump to move water from the upstream side of the bridge to a point downstream. None of these proposals have been implemented.

Permitting complexities can be additional barriers to immediate and broader County action. However, the Grand Jury is unaware that the County has actually applied for, or has been denied, any permits to address the road-flooding problem. The entities involved in permitting and advising permit issuance include State Parks, State Fish and Game, U.S. Fish and Wildlife Service, the Coastal Commission, and many others. (See, Attachment B: San Mateo County Public Works Permitting Flowchart.) A November 2010 letter from NOAA's National Marine Fisheries Service (NMFS) to California State Parks and Recreation and San Mateo County Public Works states that dredging may be a feasible solution to local road flooding, as well as alleviating the now encumbered fish passage (salmonids) until more extensive Marsh ecosystem recovery work is completed.[8] It also advises that dredging permits from the State (if necessary) should not be a hindrance and that NOAA stands ready to work with State Parks and the County on such an effort. (*See,* Attachment C: NOAA letter to California State Parks and San Mateo County Dept. of Public Works.)

The responsibility for Pescadero Creek Road and its maintenance belongs to San Mateo County Public Works. Public Works is also responsible for a 30-ft right-of-way on either side of the road. Silt re-deposition, vegetation overgrowth, and debris collection likely would require limited periodic clearing and clean-up efforts in future years. From interviews, the Grand Jury learned that action has not been taken in part because of other priorities, political and jurisdictional disputes with other levels of State and Federal government as well as potential permitting complexities.

County officials and advisors have discussed the concept of "Emergency" public works action with the Grand Jury.[9] The concept of "Emergency" action applies in two distinct circumstances. One is the declaration of a state of emergency by either a local government or the state, such as in 2010 when the San Bruno gas line exploded. The other involves conditions in which a local governmental entity, such as San Mateo County Public Works, can take emergency action to resolve an issue without the need to obtain prior permits to approve such actions. The permits in both circumstances may be resolved after the fact. Typically, Public Works has taken immediate action when necessary to repair roads/access due to slip-outs, rock-falls, flooding, under emergency authority, with permitting/remediation resolved after the fact.

California Government Code §21060.3 defines "Emergency" as a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. "Emergency"

---

[8] Attachment B, Letter, NOAA / Fisheries to Public Works, and State Parks, November 24, 2010.
[9] CEQA Cal Government Code §21060.3; Cal. Code of Regulations, §15269 (d).

includes such occurrences as fire, flood, earthquake or other soil or geologic movements, as well as such occurrences as riot, accident or sabotage.

The California Code of Regulations §15269 (Title 14, Ch. 3, Art. 18), Emergency Projects, exempts a series of emergency project types from the requirements of the California Environmental Quality Act (CEQA). Among them are:

> (c) Specific actions necessary to prevent or mitigate an emergency. This does not include long term actions undertaken for the purpose of preventing or mitigating a situation that has a low probability of occurrence in the short-term.

In addition to the California Government Code reference cited above, there are other emergency provisions for waiving permits, allowing immediate actions to address issues of protecting life and public property from imminent danger, including fill and dredging activities under emergency conditions. Applicable references include:

- California Coastal Act: Public Resources Code § 30611 Emergencies; waiver of permit
- Local Coastal Program: SMC Local Coastal Program 9.15 Emergency Provisions
- US Army Corps of Engineers Regional General Permit 5 (emergency defined according to CEQA)[10]
- California Dept. of Fish and Game Code §1610 (a)(b)[11]

Road flooding is one symptom of a deteriorating Marsh watershed. An integrated overall plan is necessary to identify engineering actions needed to address all the interactive elements of the Pescadero Marsh ecosystem. One initiative to develop an overall solution is now underway by the Resource Conservation District (RCD), chartered to advise the County on conservation and environmental issues. The RCD is a Special District of California and is appointed by and advisory to the San Mateo County Board of Supervisors. The RCD obtained funding in 2011 to conduct a study to explore lasting solutions for the Marsh watershed, including resolution of the road-flooding problem. The elapsed time for the RCD research study plus the resulting actual project work will take at least 5 years.

Investigation

To investigate Pescadero Creek flooding, the San Mateo Civil Grand Jury took site tours, reviewed documents and reports, and conducted interviews with Federal, State and County government personnel, and scientific and citizens' groups, including:

- San Mateo County Board of Supervisors
- San Mateo County Public Works
- San Mateo County Resource Conservation District (RCD)
- California State Fish and Game Department

---

[10] http://www.spn.usace.army.mil/regulatory/RGP/28218s.pdf and http://ceres.ca.gov/ceqa/stat/Ch_2-5.html .

[11] http://www.dfg.ca.gov/habcon/1600/1600code.html .

- National Oceanic and Atmospheric Administration (NOAA / Fisheries)
- Committee for Green Foothills
- San Mateo County Farm Bureau
- Citizens Against Species Extinction (C.A.S.E.)
- Pescadero Municipal Advisory Council (PMAC)

Note that the Grand Jury attempted to interview two individuals from California State Parks and Recreation, the agency that owns the Marsh and is responsible for its management. The individuals first agreed, then later declined through their lawyers, to provide informational interviews to the Grand Jury on the subject of this Report. After substantial delay, the State's lawyers subsequently claimed that State Park and Recreation has "…very little specific knowledge about the impacts, the causes, or the responsibility for the flooding" and therefore would not allow its clients to be interviewed (even when written questions were tendered in advance). The Grand Jury is disappointed in the lack of cooperation and surprised by the claimed ignorance on the part of the public agency directly responsible for managing the Marsh. For the record, the Grand Jury considers the issuance of this Report to be only part of an open and continuing investigation of matters relating to road flooding, Butano Creek, and the Pescadero Marsh. The Grand Jury expressly reserves its right to request that a subpoena issue from the Superior Court compelling the attendance of and/or production of records before the Grand Jury from any witness. The Grand Jury continues to evaluate whether such steps are required in this matter.

Reference documents reviewed included public records and reports, relevant websites, County engineering and scientific documents and reports, and documents provided by or referenced by the interviewees.

Site tours included several walk-arounds of Butano Creek (at and around the Bridge) and the Marsh and its tributary creeks, as well as the estuary exit sand-berm along the coast.

Findings

The Grand Jury finds:

1. The Butano Creek overflows its banks and floods Pescadero Creek Road and surrounding farmland each year during periods of rains.

2. The flooding of Pescadero Creek Road at Butano Creek Bridge creates a dangerous setting and, when impassable, delays public safety access and virtually isolates a Pescadero community of approximately 650 people.

3. Silt accumulation, vegetation overgrowth, and debris have reduced flow capacity of Butano Creek and increased road flooding risk.

4. Butano Creek has not been thoroughly cleared of accumulated silt, vegetation overgrowth, or debris for decades.

5. California State Parks and Recreation, beginning in 1993, made extensive modifications in the Marsh to re-establish a "natural ecological environment." Some modifications have not been maintained (e.g., flood gates) and, according to several interviewees, are presently ineffective and have made road-flooding conditions worse.

6. Solutions proposed to San Mateo County Public Works to correct the flooding include a raised roadway or a causeway, over-road pumping, dredging, and brush and debris clearance. The County has not adopted any of these suggestions.

7. San Mateo County is responsible for maintaining Pescadero Creek Road and its 30-foot right of way and therefore for correcting the road-flooding situation.

8. Multiple agencies, each with its own specific interests, might normally have to approve or advise on approval of permits to make changes that would resolve the flooding problem. Currently, any one agency could stop the process.

9. Multiple sections of California and federal law, e.g. California Fish and Game Code §1601, CEQA, CA Gov't Code §21060.3, and Cal. Code of Regs. §15269(d), provide for emergency exceptions to the permitting restrictions that normally apply to stream bed changes and road repairs. These may be available to Public Works to expedite actions that would eliminate Pescadero Road flooding.

10. The Grand Jury is unaware that the County has ever applied for, or been denied, any permit(s) for actions that would address the road flooding.

11. A November 24, 2010 letter from the NOAA's National Marine Fisheries Service (NMFS) North Central Coast Office to California State Parks and San Mateo County Public Works expressed the view that the permits required to address the road flooding should not be a hindrance and that "NMFS stands ready to work with State Parks and the County toward the shared goal of resource protections while improving the safety of Pescadero Road."

12. The Resource Conservation District has funding to explore solutions to environmental quality issues in the Pescadero Marsh ecosystem and intends to address Pescadero Creek Road flooding as part of its efforts. Its time frame, however, does not address the immediate need.

Conclusions

The Grand Jury concludes:

1. The status quo of annual road flooding is unsafe and unacceptable. The annual flooding of the main road serving Pescadero seriously jeopardizes citizens' safety, and impedes commercial activity in the area.

2. The diminishing capacity of the Butano Creek due to accumulated silt, vegetation

overgrowth, and debris increases the risk of flooding with lesser rainfall. This annual flooding is predictable and correctable.

3. The Board of Supervisors and responsible County government entities are essentially nonresponsive, hampered by other priorities, jurisdictional disputes with various State and Federal agencies, permitting requirements, and insufficient political will to overcome these.

4. The difficulty of obtaining approval of permits to address road flooding cannot be substantiated because, to the Grand Jury's knowledge, none have ever been applied for, or denied.

5. The Grand Jury believes that the County could invoke the "emergency repair" concept, take remedial action, and immediately end the Pescadero Creek Road flooding.

6. The estimated five years timing for any flood-control relief resulting from RCD's efforts is unacceptable.

7. Immediate solutions to road flooding must be implemented. The most promising include removal of excess silt and clearance of vegetation overgrowth and debris from as much of the Butano Creek as necessary to eliminate the annual road flooding.

Recommendations

The Grand Jury recommends that the Board of Supervisors:

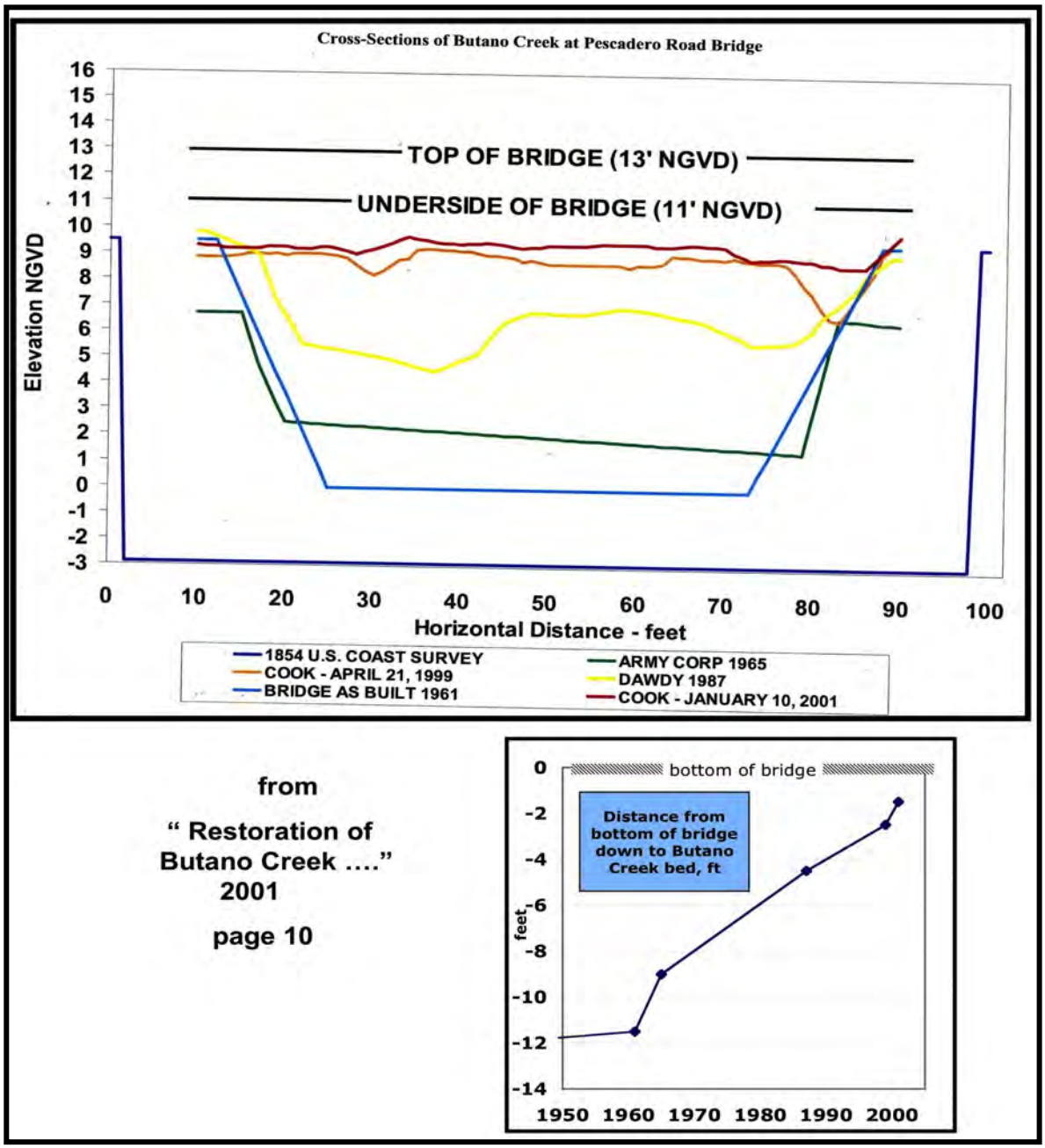
1. Immediately direct the County Department of Public Works to remove excess silt and clear vegetation overgrowth and debris from as much of the Butano Creek as necessary to eliminate the road flooding. The work should be completed as soon as possible, and in all circumstances before October 1, 2012, the start of the 2012-13 rainy season. The intended result of this work is to prevent flooding of Butano Creek onto and around Pescadero Creek Road and farmlands.

2. Review the NOAA (NMFS) Nov 24, 2010 letter (*See,* Attachment B), and consult with NOAA and the San Mateo County RCD on strategies for expediting permit approvals, if any are required, to accomplish the work described in Recommendation 1.

3. If needed to accomplish Recommendation Number 1, use San Mateo County's authority under the various emergency provisions of California and/or federal law to take actions mitigating flooding to protect life or property.

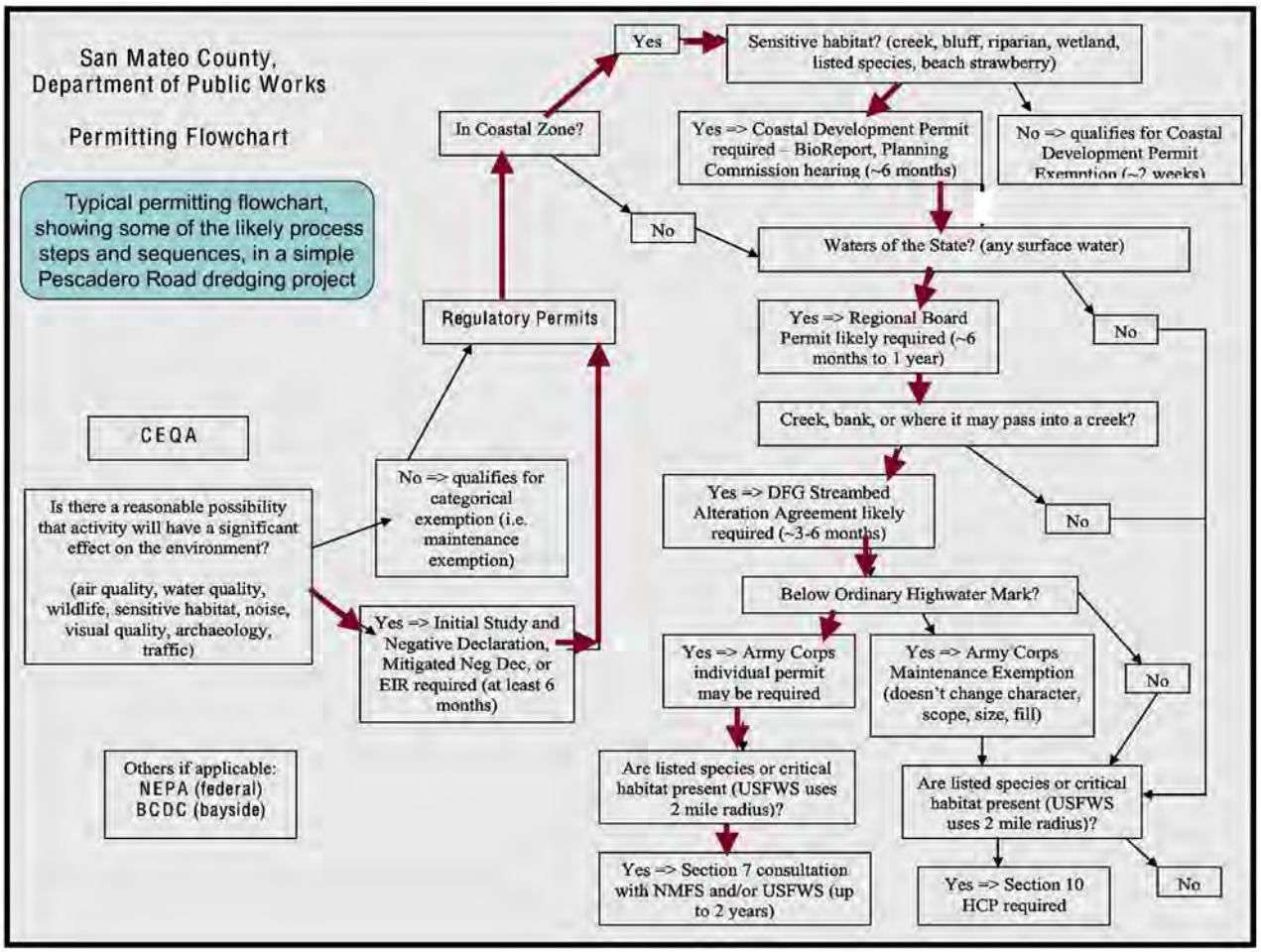
4. Direct the San Mateo County Department of Public Works to periodically clean new silt, vegetation overgrowth, and debris from Butano Creek as needed to maintain flows and eliminate the recurrence of Pescadero Creek Road flooding.

Attachment A: Silt-up Profiles of Butano Creek Bridge



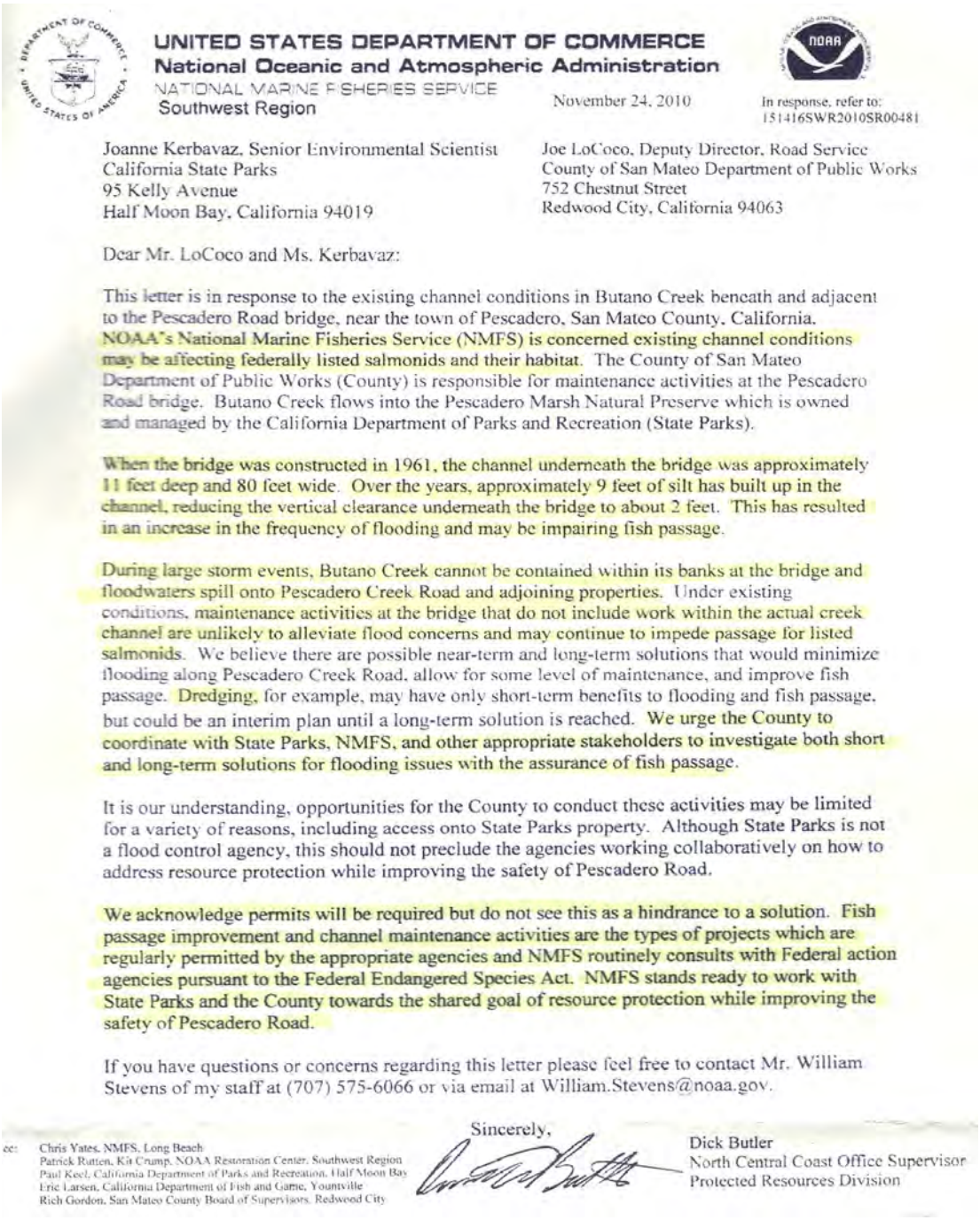
This image shows the profile of the Butano Creek streambed below the Pescadero Creek Road Bridge. Early surveys show the streambed some 12 feet below the bottom of the bridge. Today, the bridge clears the silted and debris-filled creek bottom by only 2 feet.

Attachment B:
San Mateo County Public Works Permitting Flowchart



This flowchart, prepared by the San Mateo County Department of Public Works, illustrates the path and sequence for obtaining permit approval for relatively straightforward projects. It does not show the additional entities that, as a matter of course, provide technical input and guidance to the indicated permitters.

Attachment C: NOAA / Fisheries Letter



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region

November 24, 2010

In response, refer to:
151416SWR2010SR00481

Joanne Kerbavaz, Senior Environmental Scientist
California State Parks
95 Kelly Avenue
Half Moon Bay, California 94019

Joe LoCoco, Deputy Director, Road Service
County of San Mateo Department of Public Works
752 Chestnut Street
Redwood City, California 94063

Dear Mr. LoCoco and Ms. Kerbavaz:

This letter is in response to the existing channel conditions in Butano Creek beneath and adjacent to the Pescadero Road bridge, near the town of Pescadero, San Mateo County, California. NOAA's National Marine Fisheries Service (NMFS) is concerned existing channel conditions may be affecting federally listed salmonids and their habitat. The County of San Mateo Department of Public Works (County) is responsible for maintenance activities at the Pescadero Road bridge. Butano Creek flows into the Pescadero Marsh Natural Preserve which is owned and managed by the California Department of Parks and Recreation (State Parks).

When the bridge was constructed in 1961, the channel underneath the bridge was approximately 11 feet deep and 80 feet wide. Over the years, approximately 9 feet of silt has built up in the channel, reducing the vertical clearance underneath the bridge to about 2 feet. This has resulted in an increase in the frequency of flooding and may be impairing fish passage.

During large storm events, Butano Creek cannot be contained within its banks at the bridge and floodwaters spill onto Pescadero Creek Road and adjoining properties. Under existing conditions, maintenance activities at the bridge that do not include work within the actual creek channel are unlikely to alleviate flood concerns and may continue to impede passage for listed salmonids. We believe there are possible near-term and long-term solutions that would minimize flooding along Pescadero Creek Road, allow for some level of maintenance, and improve fish passage. Dredging, for example, may have only short-term benefits to flooding and fish passage, but could be an interim plan until a long-term solution is reached. We urge the County to coordinate with State Parks, NMFS, and other appropriate stakeholders to investigate both short and long-term solutions for flooding issues with the assurance of fish passage.

It is our understanding, opportunities for the County to conduct these activities may be limited for a variety of reasons, including access onto State Parks property. Although State Parks is not a flood control agency, this should not preclude the agencies working collaboratively on how to address resource protection while improving the safety of Pescadero Road.

We acknowledge permits will be required but do not see this as a hindrance to a solution. Fish passage improvement and channel maintenance activities are the types of projects which are regularly permitted by the appropriate agencies and NMFS routinely consults with Federal action agencies pursuant to the Federal Endangered Species Act. NMFS stands ready to work with State Parks and the County towards the shared goal of resource protection while improving the safety of Pescadero Road.

If you have questions or concerns regarding this letter please feel free to contact Mr. William Stevens of my staff at (707) 575-6066 or via email at William.Stevens@noaa.gov.

Sincerely,

Dick Butler
North Central Coast Office Supervisor
Protected Resources Division

cc: Chris Yates, NMFS, Long Beach
Patrick Rutten, Kit Crump, NOAA Restoration Center, Southwest Region
Paul Keel, California Department of Parks and Recreation, Half Moon Bay
Eric Larsen, California Department of Fish and Game, Yountville
Rich Gordon, San Mateo County Board of Supervisors, Redwood City

This letter from Mr. Butler of NOAA/Marine Fisheries, dated November 24, 2010, summarizes the silt-up of the Butano Creek streambed and its association with the annual Pescadero Road flooding. It acknowledges the potential interim benefits of dredging. It urges the County to coordinate with stakeholders to investigate solutions and provides guidance and offers support in overcoming permitting issues. (*highlights supplied*).

COUNTY OF SAN MATEO
Inter-Departmental Correspondence
County Manager

Date: July 3, 2012
Board Meeting Date: July 24, 2012
Special Notice / Hearing: None
Vote Required: Majority

To: Honorable Board of Supervisors

From: John L. Maltbie

Subject: 2011-12 Grand Jury Response

RECOMMENDATION:
Approve the Board of Supervisors' response to the 2011-12 Grand Jury report titled: The Annual Flooding of Pescadero Creek Road.

BACKGROUND:
On March 1, 2012, the Grand Jury filed a report titled: The Annual Flooding of Pescadero Creek Road. A copy of the Grand Jury report is attached hereto and identified herein as Exhibit A. The Board of Supervisors is required to submit comments on the findings and recommendations pertaining to the matters under control of the County of San Mateo within ninety days. The County's response to the report is due to the Hon. Gerald J. Buchwald no later than July 30, 2012.

Acceptance of this report contributes to the Shared Vision 2025 outcome of a Collaborative Community by ensuring that all Grand Jury findings and recommendations are thoroughly reviewed by the appropriate County departments and that, when appropriate, process improvements are made to improve the quality and efficiency of services provided to the public and other agencies.

DISCUSSION:
The Annual Flooding of Pescadero Creek Road

Findings:

Grand Jury Finding Number 1. The Butano Creek overflows its banks and floods Pescadero Creek Road and surrounding farmland each year during periods of rains.

Response: Agree. Butano Creek (Creek) overflows its banks and floods Pescadero Creek Road in most years.

Grand Jury Finding Number 2. The flooding of Pescadero Creek Road at Butano Creek Bridge creates a dangerous setting and, when impassable, delays public safety access and virtually isolates a Pescadero community of approximately 650 people.

Response: Disagree in part. Depending on the severity of flooding, access to the community can be impacted. However, the community of Pescadero does not become isolated, as there are two additional, though more circuitous routes into and out of Pescadero that can be taken when Pescadero Creek Road is impacted. These routes include Stage Road, which provides access from the north, and Pescadero Creek Road which provides access from the east. In addition, prior to expected flood events, the County Fire engine at Pescadero moves from the station on the west side of the bridge to the east side, closer to town. Fire response and emergency response are therefore available to the community during flooding events.

Grand Jury Finding Number 3. Silt accumulation, vegetation overgrowth, and debris have reduced flow capacity of Butano Creek and increased road flooding risk.

Response: Disagree in part. It is not clear to what the "debris" reference refers to. Among other contributory flooding factors, silt accumulation and vegetation overgrowth within and adjacent to the Creek, have contributed to flow capacity restrictions within the channel. However, because the area downstream of the bridge and extending as far as the ocean is relatively flat, sediment will naturally accumulate along this section of Creek as long as a sediment source, such as the naturally occurring sandstone formations in the upper watershed, exists.

It is ultimately not clear to what extent these may be naturally occurring processes and to what extent they "have increased road flooding risk." It is also not clear whether downstream restoration efforts or modifications to the Creek system have contributed to any issues associated with flooding..

Grand Jury Finding Number 4. Butano Creek has not been thoroughly cleared of accumulated silt, vegetation overgrowth, or debris for decades.

Response: Disagree in part. The Creek is lengthy and the Finding is not specific to a specific section of Creek. The County performed silt removal work within the Creek and Pescadero Creek Road right-of-way during the 1980's and early 1990's. Additionally, we understand that members of the Pescadero community removed woody debris, including beaver dams, in early 2000's. The County of San Mateo has a limited road right of way along Pescadero Creek Road at the Creek, which is 100 feet wide, and is offset 40 feet approximately 40 feet at the middle of the bridge. With the right of way offset, the County actually has only approximately 60 feet of right of way that is uniformly under our control. Accounting for the width of the bridge (approx. 24 feet), we have full control of approximately 18 feet of channel on either side of the bridge. Silt removal performed by the County is generally limited to the section of Creek within the County's right of way.

Grand Jury Finding Number 5. California State Parks and Recreation, beginning in 1993, made extensive modifications in the Marsh to re-establish a "natural ecological environment." Some modifications have not been maintained (e.g., flood gates) and, according to several interviewees, are presently ineffective and have made road-flooding conditions worse.

Response: Disagree in part. California State Parks and Recreation has performed work within the Marsh. This includes installation of tidegates which we understand are not presently functioning. The specific interaction and effect of the Marsh on the Creek and flooding is not conclusive. Additionally, it has not been determined whether or not the tide gates have a direct effect on the flooding of Pescadero Creek Road.

Grand Jury Finding Number 6. Solutions proposed to San Mateo County Public Works to correct the flooding include a raised roadway or a causeway, over-road pumping, dredging, and brush and debris clearance. The County has not adopted any of these suggestions.

Response: Disagree in part. These have been "suggested solutions" communicated by the community. However, it has not been determined whether any of these "suggested solutions" would in fact eliminate the flooding of Pescadero Creek Road. A significant section of Pescadero Creek Road within the vicinity of the Creek is designated on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps as being subject to flooding. Flooding within the areas designated on the FEMA maps will always be a possibility.

Grand Jury Finding Number 7. San Mateo County is responsible for maintaining Pescadero Creek Road and its 30-foot right of way and therefore for correcting the road-flooding situation.

Response: Disagree. The County of San Mateo is responsible for maintaining constructed road infrastructure within the limits of its road right-of-way. The road right-of-way for Pescadero Creek Road is 100 feet wide at the bridge over the Creek and is offset by forty feet (40') creating right of way limits that vary on each side of the bridge and Creek. The County of San Mateo does not have responsibility for areas outside of its road right of way (upstream or downstream of the bridge over the Creek), nor does it have responsibility for private property drainage. This Finding infers that the County has the responsibility to clear sediment or debris from the Creek upstream and downstream of the bridge to ensure that Pescadero Creek Road will not flood, which is not the case.

Grand Jury Finding Number 8. Multiple agencies, each with its own specific interests, might normally have to approve or advise on approval of permits to make changes that would resolve the flooding problem. Currently, any one agency could stop the process.

Response: Agree. The flooding that occurs on Pescadero Creek Road is a complex, multi-agency, and jurisdictional issue, which may potentially involve State and Federal agencies, the County, and private land owners. Not only are downstream solutions to be evaluated, but upstream property owners and land use must also be considered because the upstream properties are the source of sediment.

Grand Jury Finding Number 9. Multiple sections of California and federal law, e.g. California Fish and Game Code §1601, CEQA, CA Gov't Code §21060.3, and Cal. Code of Regs. §15269(d), provide for emergency exceptions to the permitting restrictions that normally apply to stream bed changes and road repairs. These may be available to Public Works to expedite actions that would eliminate Pescadero Road flooding.

Response: Disagree in part. There are in fact emergency exemptions which allow for after the fact permitting and would allow for expedited work. However, these exemptions generally pertain to situations where there is an immediate threat to public safety as a result of extreme natural events. On-going drainage issues within a designated area of flooding are generally not considered to be eligible for emergency permitting exemptions and would not be applicable to the flooding of Pescadero Creek Road.

Grand Jury Finding Number 10. The Grand Jury is unaware that the County has ever applied for, or been denied, any permit(s) for actions that would address the road flooding.

Response: Disagree. While a solution to the flooding issue has not been determined, the County of San Mateo has in the past applied for permits that would improve or restore localized drainage. Within the past year, the County received a permit to clear a culvert (pipe) along the south side of Pescadero Creek Road that flows to the south side of the bridge over the Creek. In addition, the County currently has a permit application pending for restoring the culvert capacity leading to the north side of the bridge.

Grand Jury Finding Number 11. A November 24, 2010 letter from the NOAA's National Marine Fisheries Service (NMFS) North Central Coast Office to California State Parks and San Mateo County Public Works expressed the view that the permits required to address the road flooding should not be a hindrance and that "NMFS stands ready to work with State Parks and the County toward the shared goal of resource protections while improving the safety of Pescadero Road."

Response: Disagree in part. NMFS is one regulatory agency among several that would be required to approve work in the Creek. NMFS regulates impacts to marine and anadromous wildlife, such as steelhead and Coho. Other agencies that would need to permit sediment removal from the Creek include: California Dept. of Fish and Game (regulates streambed alteration and species protection), California Regional Water Quality Control Board (regulates impacts to "Waters of the State" under Section 401 of the Clean Water Act), U.S. Army Corps of Engineers (regulates dredge and fill work

under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act), and U.S. Fish and Wildlife Service (regulates terrestrial and freshwater species protection such as California red-legged frog and San Francisco garter snake). All agencies have agreed to work with the County and State Parks towards expediting permits once a project has been proposed. However, this does not mean that the regulatory agencies would allow the County or State Parks to do whatever is necessary to dredge the Creek. Any dredging of the Creek beyond the County road right-of-way would have potentially high impacts to existing dense riparian and wetland habitats, water quality, and endangered species. Any proposed dredging would require working closely with regulatory agencies to develop a plan to minimize those impacts to the maximum extent possible and mitigation for any impacts would likely be required.

Grand Jury Finding Number 12. The Resource Conservation District has funding to explore solutions to environmental quality issues in the Pescadero Marsh ecosystem and intends to address Pescadero Creek Road flooding as part of its efforts. Its time frame, however, does not address the immediate need.

Response: Disagree. The San Mateo County Resource Conservation District (SMCRCD) does not have funding to explore solutions to environmental quality issues in the Pescadero Marsh ecosystem. The SMCRCD provided the Pescadero Municipal Advisory Council, at their April 10, 2012 meeting, with a written description of the SMCRCD work as funded by a $75,000 grant from the Bay Area Integrated Regional Water Management Plan through Proposition 84. The following includes excerpts from the written description as shown below in quotation marks.

“This project is to do the required analysis (most likely hydrology, hydraulics, refined sediment budget - not anything that has already been done but in some cases refining what has been done to a resolution required for permits) and develop consensus around an option or suite of options so that it is permit-ready and implementation-ready.”

“What it can do: Develop conceptual designs that are broadly supported by community members, landowners, and resource agencies, do the preliminary work for permit-readiness, include climate change considerations.”

“What it will not do: address flooding from mainstem Pescadero, complete designs, complete permits, construct solutions, presuppose a solution before the analysis has been completed.”

Recommendations:

1. Immediately direct the County Department of Public Works to remove excess silt and clear vegetation overgrowth and debris from as much of the Butano Creek as necessary to eliminate the road flooding. The work should be completed as soon as possible, and in all circumstances before October 1, 2012, the start of the 2012-13 rainy season. The

intended result of this work is to prevent flooding of Butano Creek onto and around Pescadero Creek Road and farmlands.

Response:
This recommendation requires further analysis, as it has not been determined how dredging would affect riparian and wetland habitat, sensitive species, or adjacent properties. Furthermore, the County of San Mateo has no authority to enter onto private property to perform work of any kind absent a mutual agreement to do so with landowners, and we do not believe that dredging within the 100 feet of County right of way will relieve flooding.

It has also not been determined that dredging is the optimal solution to preventing flooding of Pescadero Creek Road from the Creek. While dredging the Creek has been suggested, there has been no analysis of the impacts of dredging on surrounding lands. It has been reported that the Creek does not have a defined channel approximately 1,000 feet downstream of the Pescadero Creek Road Bridge. Thus, it is not clear whether it is possible to dredge "as much of the Butano Creek as necessary to eliminate the road flooding." The fact that the area is in a defined flood plain suggests that dredging of the creek to eliminate flooding is not in fact achievable. We also do not believe an October 1, 2012 timeframe is plausible for any work involving the Creek. Our experience has been that permit approvals can be expected to take more than one year to obtain in instances such as these where many permit approvals are required to assure that the water quality, sensitive habitats, and protected species are not adversely impacted.

As mentioned above in the Response to Finding 12, the SMCRCD is currently working on a grant funded project which would provide additional site analysis. It is believed that such an analysis will help establish potential solutions to the localized flooding. The County has been in contact with the SMCRCD regarding the possibility of supporting an expanded study by the SMCRCD that would include an analysis of the impacts associated with Creek dredging efforts.

In addition, County staff are working on ways to reduce the danger to the community during flooding by posting electronic message signs on either side of the flood prone area near the bridge. This will not solve the long term flooding problem, but will clearly inform the drivers that the bridge is flooded and hopefully reduce the danger to drivers in the near term. (Are these the measures being considered?)

2. Review the NOAA (NMFS) Nov 24, 2010 letter (See, Attachment B), and consult with NOAA and the San Mateo County RCD on strategies for expediting permit approvals, if any are required, to accomplish the work described in Recommendation 1.

Response:
This recommendation requires further analysis; however, the County has been in contact with NMFS, the SMCRCD, other pertinent regulatory agencies, and State representatives regarding the issues surrounding the Creek, Pescadero Creek Road,

and the Marsh. As stated in the Response to Finding 11, multiple permits or approvals would be required to perform dredging or any work in or near the Creek. The additional site analysis which is to be performed by the SMCRCD through the grant funding is generally considered the next key step in identifying potential flood mitigation solutions. To the extent that the SMCRCD study could be expanded to include levels of detail that would allow for a complete site analysis, the County intends to prepare a comprehensive report during FY 2012/13 which can be utilized as a baseline for the development of solutions to reduce the flooding of Pescadero Creek Road from the Creek. Through discussions with the various permitting agencies, there has been general agreement among the agencies to expedite their reviews.

3. If needed to accomplish Recommendation Number 1, use San Mateo County's authority under the various emergency provisions of California and/or federal law to take actions mitigating flooding to protect life or property.

Response:
This recommendation will not be implemented because it is not feasible. The County's Department of Public Works, works closely with regulatory agencies on numerous projects every year and has had discussions with the various agencies with respect to this and other projects. We have confirmed at several levels that work within the Creek channel would not be considered by the regulatory agencies as emergency work and would therefore require standard reviews and permit approvals. We are, however, continuing to investigate whether there may be FEMA funding opportunities through CalEMA and whether these programs offer opportunities for expedited work approvals.

4. Direct the San Mateo County Department of Public Works to periodically clean new silt, vegetation overgrowth, and debris from Butano Creek as needed to maintain flows and eliminate the recurrence of Pescadero Creek Road flooding.

Response:
This recommendation requires further analysis. As noted in the Response to Recommendation 1, it has not been determined that dredging the Creek is a feasible short term or long term solution to flooding. The County currently has plans to perform an engineering analysis that would consider the effectiveness of potential alternatives, including dredging within the Pescadero Creek Road right-of-way and beyond. We are planning on prioritizing such studies and anticipate that they will be completed within the next fiscal year. Regular and periodic removal of silt, vegetation, and debris from the Creek would require permits from the regulatory agencies.

FISCAL IMPACT:
There is no Net County Cost associated with accepting this report.

8.1 Cost Analysis

Pescadero Fire Station
Pescadero, California

January 14, 2014

tbd consultants

1663 Eureka Road
Roseville, CA 95661
(916) 742-1770
www.tbdconsultants.com

Prepared for:
Ratcliff Architects
5856 Doyle Drive
Emeryville, CA 94608
(510) 899-6400

TABLE OF CONTENTS

BASIS OF ESTIMATE

PROJECT DESCRIPTION

The project consists of Two Options:

Option A (New Site): Project consists of a new two-story 8,104 SF fire station with living quarters and apparatus bays. Sitework includes vehicular and pedestrian paving, landscaping, site lighting and drainage, new emergency generator and fuel storage tanks. Utilities include incoming water, storm drain and electrical service. Sewer is provide by an onsite septic system, gas is provided by propane tanks.

Option B (Existing Site): Project consists of replacing existing living quarters building with a new two-story 5,508 SF living quarters building, complete interior/exterior renovation to the existing 2,400 SF apparatus building, a new 1,100 SF addition to the existing apparatus building. Sitework includes vehicular and pedestrian paving, landscaping, site lighting and drainage, replacement of existing emergency generator and fuel storage tanks. Utilities include septic system replacement, distribution of utilities to buildings.

REFERENCE DOCUMENTATION

Documents provided by Ratcliff Architects and their Design Team.

SITE VISIT

Meeting and site visit November 20, 2013.

BASIS FOR PRICING

This estimate reflects the fair construction value for this project and should not be construed as a prediction of low bid. Prices are based on local prevailing wage construction costs at the time the estimate was prepared. Pricing assumes a procurement process with competitive bidding for all sub-trades of the construction work, which is to mean a minimum of 3 bids for all subcontractors and materials/equipment suppliers. If fewer bids are solicited or received, prices can be expected to be higher.

Subcontractor's markups have been included in each line item unit price. Markups cover the cost of field overhead, home office overhead and subcontractor’s profit. Subcontractor's markups typically range from 15% to 25% of the unit price depending on market conditions.

General Contractor’s/Construction Manager's Site Requirement costs are calculated on a percentage basis. General Contractor’s/Construction Manager's Jobsite Management costs are also calculated on a percentage basis.

General Contractor’s/Construction Manager's overhead and fees are based on a percentage of the total direct costs plus general conditions, and covers the contractor’s bond, insurance, site office overheads and profit.

Unless identified otherwise, the cost of such items as overtime, shift premiums and construction phasing are not included in the line item unit price.

BASIS OF ESTIMATE

This cost estimate is based on standard industry practice, professional experience and knowledge of the local construction market costs. TBD Consultants have no control over the material and labor costs, contractors methods of establishing prices or the market and bidding conditions at the time of bid. Therefore TBD Consultants do not guarantee that the bids received will not vary from this cost estimate.

CONTINGENCY

Design Contingency ***15%***

The Design Contingency is carried to cover scope that lacks definition and scope that is *anticipated* to be added to the Design. As the Design becomes more complete the Design Contingency will reduce.

Construction Contingency ***0%*** ***to be carried elsewhere in Owner's Budget***

The Construction Contingency is carried to cover the unforeseen during construction execution and Risks that do not currently have mitigation plans. As Risks are mitigated, Construction Contingency can be reduce, but should not be eliminated.

ESCALATION

Escalation has been included based on a January 2015 start of construction.

EXCLUSIONS

- Land acquisition, feasibility, and financing costs
- All Owner soft costs
- All professional fees and insurance
- Construction Manager or Agency Costs
- Site or existing condition survey investigation costs, including determination of subsoil conditions
- Hazardous materials inspection costs, or accommodations in construction for hazardous materials.
- Owners Construction Contingency for scope changes and market conditions at time of bid
- Permits

ITEMS THAT MAY AFFECT THIS ESTIMATE

Such items include, but are not limited to the following:

Modifications to the scope of work subsequent to the preparation of this estimate
Unforeseen existing conditions
Compression of planned construction schedule
Special requirements for site access or off-hours work
Restrictive technical specifications, excessive contract or non-competitive bid conditions
Sole source specifications for materials, products or equipment
Bid approvals delayed beyond the anticipated project schedule

OVERALL SUMMARY OPTION A - NEW FIRESTATION AND SITE

BUILDING			
Fire Station and Apparatus Bays	8,104	SF	2,779,194
Furniture, Fixtures and Equipment (FF&E)			See FF&E Budget
SITEWORK			
Site Preparation, Development and Utilities	1	LS	836,240
DIRECT COSTS SUB-TOTAL			**3,615,434**
SITE REQUIREMENTS AND JOBSITE MANAGEMENT (One Phase over 10 to 12 Months)		11.5%	415,775
ESTIMATE SUB-TOTAL			**4,031,209**
INSURANCE + BONDING		2.5%	100,780
FEE		3.0%	123,960
ESTIMATE SUB-TOTAL			**4,255,949**
DESIGN CONTINGENCY		15.0%	638,392
CONSTRUCTION CONTINGENCY		0.0%	Excluded
ESTIMATE SUB-TOTAL			**4,894,341**
ESCALATION (January 2015 start of Construction)		5.0%	**244,717**
ESTIMATE TOTAL			**5,139,058**

OVERALL SUMMARY OPTION B - EXISTING FIRE STATION AND SITE

BUILDINGS			
New Living Quarters	5,508	SF	1,759,001
Existing Apparatus Building Renovation	2,400	SF	867,100
Apparatus Building Addition	1,100	SF	259,600
Furniture, Fixtures and Equipment (FF&E)			See FF&E Budget
Subtotal - Buildings	9,008	SF	2,885,701
SITEWORK			
Site Preparation, Development and Utilities	1	LS	829,125
DIRECT COSTS SUB-TOTAL			**3,714,826**
SITE REQUIREMENTS AND JOBSITE MANAGEMENT (Two Phases over 18 Months)		17.0%	631,520
ESTIMATE SUB-TOTAL			**4,346,346**
INSURANCE + BONDING		2.5%	108,659
FEE		4.5%	200,475
ESTIMATE SUB-TOTAL			**4,655,480**
DESIGN CONTINGENCY		15.0%	698,322
CONSTRUCTION CONTINGENCY		0.0%	Excluded
ESTIMATE SUB-TOTAL			**5,353,802**
ESCALATION (January 2015 start on Construction)		7.0%	**374,766**
ESTIMATE TOTAL			**5,728,568**

New Fire Station (8,904 SF)

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	STRUCTURE					
	Building Pad					
	Built-up building pad - allow	7,200	SF	2.50	18,000	
	Foundations					
	Perimeter wall footing	340	LF	100.00	34,000	
	Column footings	30	EA	650.00	19,500	
	Interior grade beams - allow	1	LS	10,000.00	10,000	
	Elevator pit - single	1	EA	10,000.00	10,000	
	Vertical Structure					
	Steel columns and moment frames - allow					
	6.00#/SF	25	TN	4,500.00	112,500	
	Floor and Roof Structure					
	Slab on grade including base					
	Living quarters	2,754	SF	10.00	27,540	
	Apparatus	2,596	SF	14.00	36,344	
	Steel framed floor structure including metal					
	decking and concrete topping - allow 8.00#/SF	2,754	SF	30.00	82,620	
	Steel framed pitched roof structure and roof					
	overhangs including metal decking - allow					
	Living quarters	3,360	SF	25.00	84,000	
	Apparatus - long span	3,100	SF	30.00	93,000	
	Wall curbs, equipment pads and curbs	1	LS	10,000.00	10,000	
	Miscellaneous metals and rough carpentry	8,104	SF	3.00	24,312	
	Seismic joints between living quarters and					
	apparatus building	1	LS	10,000.00	10,000	
	Fireproofing steelwork - not required				NIC	
	STRUCTURE				**571,816**	
	EXTERIOR WALLS AND ROOFING					
	Exterior Walls					
	Steel stud framed exterior walls with plywood					
	sheathing	6,900	SF	16.00	110,400	
	Metal/wood siding, batt insulation, gypsum board					
	and paint to interior face of exterior wall	6,900	SF	25.00	172,500	
	Operable windows (allow 25% of exterior walls)	1,700	SF	80.00	136,000	
	Shade structures at windows - allow	1	LS	10,000.00	10,000	
	Soffits/roof overhangs	1,200	SF	25.00	30,000	
	Entrance doors and service doors	1	LS	20,000.00	20,000	
	Apparatus bi-fold doors - motorized	4	EA	30,000.00	120,000	
	Fascia's, trim and ornamentation	1	LS	20,000.00	20,000	
	Entrance canopy or covered porch	1	LS	10,000.00	10,000	
	Louvers and vents	1	LS	3,000.00	3,000	
	Outdoor Patio					
	Concrete paving	240	SF	15.00	3,600	
	Roof structure including structure and metal					
	roofing	240	SF	75.00	18,000	
	Roofing					
	Metal roofing including insulation and flashing	6,460	SF	25.00	161,500	
	Gutters and downspouts	1	LS	10,000.00	10,000	
	Miscellaneous flashing, caulking and sealants	1	LS	8,000.00	8,000	
	Skylights - not required				NIC	
	EXTERIOR WALLS AND ROOFING				**833,000**	

New Fire Station (8,904 SF)

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	INTERIOR CONSTRUCTION					
	Interior Partitions					
	Metal stud partitions including sound insulation,					
	gypsum board and paint finish	4,200	SF	15.00	63,000	
	Interior doors -allow	26	EA	2,000.00	52,000	
	Interior Finishes					
	Flooring including base					
	Carpet and vinyl	5,108	SF	8.00	40,864	
	Ceramic tile	400	SF	22.00	8,800	
	Sealer	2,596	SF	2.50	6,490	
	Walls					
	Ceramic tile	1,200	SF	20.00	24,000	
	Painted plywood panels at apparatus room	1,500	SF	8.00	12,000	
	Miscellaneous wall finishes - allow	1	LS	15,000.00	15,000	
	Ceilings					
	Suspended acoustical tile and gypsum board					
	ceilings	8,104	SF	10.00	81,040	
	Equipment					
	Kitchen					
	Base cabinet including countertop	30	LF	450.00	13,500	
	Upper wall cabinet	20	LF	200.00	4,000	
	Island	1	EA	3,000.00	3,000	
	Appliances	1	LS	20,000.00	20,000	
	Restrooms					
	Vanities	10	LF	300.00	3,000	
	Shower stalls	3	EA	1,500.00	4,500	
	Partitions and accessories	1	LS	6,000.00	6,000	
	Offices, meeting room and training room					
	Built-in casework - allow	1	LS	10,000.00	10,000	
	Equipment and accessories	1	LS	10,000.00	10,000	
	Wardrobe lockers - allow	13	EA	1,200.00	15,600	
	Restroom lockers - allow	13	EA	600.00	7,800	
	Turn-out lockers - allow	24	EA	800.00	19,200	
	Casework and workbench at apparatus room	1	LS	10,000.00	10,000	
	Laundry room casework, washer and dryer	1	LS	6,000.00	6,000	
	Shelving, wall guards and corner guards	1	LS	5,000.00	5,000	
	Window blinds or shades	1,700	SF	7.00	11,900	
	Signage and graphics (interior and exterior)	1	LS	10,000.00	10,000	
	Miscellaneous equipment and accessories	1	LS	15,000.00	15,000	
	Furniture, beds and moveable furnishings -					
	FF&E Budget				FF&E Budget	
	Vertical Transportation					
	Elevator- two stop hydraulic including shaft walls					
	and associated mechanical and electrical					
	requirements	1	EA	100,000.00	100,000	
	Stair including railings	2	EA	15,000.00	30,000	
	INTERIOR CONSTRUCTION				**607,694**	
	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION					
	Plumbing					
	Plumbing system	8,104	SF	18.50	149,924	
	Heating and Ventilation					
	Heating and ventilation system (no air conditioning)	8,104	SF	16.00	129,664	
	Vehicle exhaust system (2 bays)	1	LS	90,000.00	90,000	
	Electrical					
	Electrical system including power, lighting, alarm					
	systems and communications	8,104	SF	44.00	356,576	

New Fire Station (8,904 SF)

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	Fire Protection					
	Fire sprinkler system	8,104	SF	5.00	40,520	
	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION				**766,684**	
	SELECTIVE BUILDING DEMOLITION / TEMPORARY WORK					
	No work anticipated					
	SELECTIVE BUILDING DEMOLITION / TEMPORARY WORK					
	SITE WORK					
	See Site Work Estimate				Site Work	
	SITE WORK					
DIRECT COSTS SUB-TOTAL					**2,779,194**	

Two-Story Living Quarters Building (5,508 SF)

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	STRUCTURE					
	Building Pad					
	Built-up building pad - allow	4,000	SF	3.00	12,000	
	Foundations					
	Perimeter wall footing	220	LF	100.00	22,000	
	Column footings	15	EA	650.00	9,750	
	Interior grade beams - allow	1	LS	5,000.00	5,000	
	Elevator pit - single	1	EA	10,000.00	10,000	
	Vertical Structure					
	Steel columns and moment frames - allow					
	6.00#/SF	17	EA	4,500.00	76,500	
	Floor and Roof Structure					
	Slab on grade including base	2,754	SF	10.00	27,540	
	Steel framed floor structure including metal					
	decking and concrete topping - allow 8.00#/SF	2,754	SF	30.00	82,620	
	Steel framed pitched roof structure and roof					
	overhangs including metal decking - allow 8.00#/SF	3,360	SF	25.00	84,000	
	Miscellaneous metals and rough carpentry	5,508	SF	3.00	16,524	
	Wall curbs, equipment pads and curbs	1	LS	5,000.00	5,000	
	Fireproofing steelwork - not required				NIC	
	STRUCTURE				**350,934**	
	EXTERIOR WALLS AND ROOFING					
	Exterior Walls					
	Steel stud framed exterior walls with plywood					
	sheathing	4,500	SF	16.00	72,000	
	Metal/wood siding, batt insulation, gypsum board					
	and paint to interior face of exterior wall	4,500	SF	25.00	112,500	
	Operable windows (allow 25% of exterior walls)	1,125	SF	80.00	90,000	
	Shade structures at windows - allow	1	LS	10,000.00	10,000	
	Soffits/roof overhangs	600	SF	25.00	15,000	
	Entrance doors and service doors	1	LS	15,000.00	15,000	
	Fascia's, trim and ornamentation	1	LS	10,000.00	10,000	
	Entrance canopy or covered porch	1	LS	10,000.00	10,000	
	Outdoor Patio					
	Concrete paving	240	SF	15.00	3,600	
	Roof structure including structure and metal					
	roofing	240	SF	75.00	18,000	
	Roofing					
	Metal roofing including insulation and flashing	3,360	SF	25.00	84,000	
	Gutters and downspouts	1	LS	8,000.00	8,000	
	Miscellaneous flashing, caulking and sealants	1	LS	5,000.00	5,000	
	Skylights - not required				NIC	
	EXTERIOR WALLS AND ROOFING				**453,100**	

Two-Story Living Quarters Building (5,508 SF)

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	INTERIOR CONSTRUCTION					
	Interior Partitions					
	Metal stud partitions including sound insulation,					
	gypsum board and paint finish	3,200	SF	15.00	48,000	
	Interior doors -allow	22	EA	2,000.00	44,000	
	Interior Finishes					
	Flooring including base					
	Carpet and vinyl	5,108	SF	8.00	40,864	
	Ceramic tile	400	SF	22.00	8,800	
	Walls					
	Ceramic tile	1,200	SF	20.00	24,000	
	Miscellaneous wall finishes - allow	1	LS	15,000.00	15,000	
	Ceilings					
	Suspended acoustical tile and gypsum board					
	ceilings	5,508	SF	10.00	55,080	
	Equipment					
	Kitchen					
	Base cabinet including countertop	30	LF	450.00	13,500	
	Upper wall cabinet	20	LF	200.00	4,000	
	Island	1	EA	3,000.00	3,000	
	Appliances	1	LS	20,000.00	20,000	
	Restrooms					
	Vanities	10	LF	300.00	3,000	
	Shower stalls	3	EA	1,500.00	4,500	
	Partitions and accessories	1	LS	6,000.00	6,000	
	Offices, meeting room and training room					
	Built-in casework - allow	1	LS	10,000.00	10,000	
	Equipment and accessories	1	LS	10,000.00	10,000	
	Wardrobe lockers - allow	13	EA	1,200.00	15,600	
	Restroom lockers - allow	16	EA	600.00	9,600	
	Laundry room casework, washer and dryer	1	LS	6,000.00	6,000	
	Window blinds or shades	1,125	SF	7.00	7,875	
	Shelving, wall guards and corner guards	1	LS	5,000.00	5,000	
	Signage and graphics (interior and exterior)	1	LS	5,000.00	5,000	
	Miscellaneous equipment and accessories	1	LS	10,000.00	10,000	
	Furniture, beds and moveable furnishings -					
	FF&E Budget				FF&E Budget	
	Vertical Transportation					
	Elevator- two stop hydraulic including shaft walls					
	and associated mechanical and electrical					
	requirements	1	EA	100,000.00	100,000	
	Stair including railings	2	EA	15,000.00	30,000	
	INTERIOR CONSTRUCTION				**498,819**	
	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION					
	Plumbing					
	Plumbing system	5,508	SF	23.00	126,684	
	Heating and Ventilation					
	Heating and ventilation system (no air conditioning)	5,508	SF	20.00	110,160	
	Electrical					
	Electrical system including power, lighting, alarm					
	systems and communications	5,508	SF	32.00	176,256	
	Fire Protection					
	Fire sprinkler system	5,508	SF	6.00	33,048	
	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION				**446,148**	

Two-Story Living Quarters Building (5,508 SF)

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	SELECTIVE BUILDING DEMOLITION / TEMPORARY WORK					
	Clear site for building pad	5,000	SF	2.00	10,000	
	SELECTIVE BUILDING DEMOLITION / TEMPORARY WORK				**10,000**	
	SITE WORK					
	See Site Work Estimate				Site Work	
	SITE WORK					
DIRECT COSTS SUB-TOTAL					**1,759,001**	

Existing Apparatus Building (2,400 SF)

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	STRUCTURE					
	Existing Foundations					
	Foundation work at new moment frames - allow	110	LF	150.00	16,500	
	Existing Bent Frame Structure					
	Allowance for miscellaneous structural modifications to bring existing structure up to current codes - allow	2,400	SF	5.00	12,000	
	Moment frames at overhead doors	3	EA	12,000.00	36,000	
	Moment frames at exterior walls	2	EA	12,000.00	24,000	
	Floor and Roof Structure					
	Patch and repair existing concrete slab on grade	2,400	SF	4.00	9,600	
	Steel joist roof structure including plywood decking	2,600	SF	13.00	33,800	
	Wall curbs, equipment pads and curbs	1	LS	5,000.00	5,000	
	Miscellaneous metals and rough carpentry	2,400	SF	5.00	12,000	
	STRUCTURE				**148,900**	
	EXTERIOR WALLS AND ROOFING					
	Exterior Walls					
	steel stud wall framed exterior walls including plywood sheathing	2,400	SF	16.00	38,400	
	Metal/wood siding, batt insulation, gypsum board and paint to interior face of exterior wall	2,400	SF	25.00	60,000	
	Operable windows - allow	200	SF	80.00	16,000	
	Soffits/roof overhangs	200	SF	25.00	5,000	
	Louvers and vents	1	LS	3,000.00	3,000	
	Entrance doors and service doors	1	LS	10,000.00	10,000	
	Overhead doors - motorized	3	EA	12,000.00	36,000	
	Fascia's, trim and ornamentation	1	LS	5,000.00	5,000	
	Entrance canopy or covered porch	1	LS	5,000.00	5,000	
	Roofing					
	Metal roofing including insulation and flashing	2,600	SF	25.00	65,000	
	Gutters and downspouts	1	LS	6,000.00	6,000	
	Miscellaneous flashing, caulking and sealants	1	LS	5,000.00	5,000	
	Skylights - not required				NIC	
	EXTERIOR WALLS AND ROOFING				**254,400**	
	INTERIOR CONSTRUCTION					
	Interior Partitions					
	Interior partition and door allowance	1	LS	10,000.00	10,000	
	Interior Finishes					
	Flooring					
	Gym flooring	600	SF	15.00	9,000	
	Concrete sealer	1,800	SF	2.00	3,600	
	Steel structure - paint	2,400	SF	2.00	4,800	
	Walls					
	Painted plywood panels	1,500	SF	8.00	12,000	
	Ceiling - paint exposed structure and services	2,400	SF	2.00	4,800	

Existing Apparatus Building (2,400 SF)

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	Equipment					
	Special equipment - allow	1	LS	10,000.00	10,000	
	Bollards at overhead doors	6	EA	1,000.00	6,000	
	Turn-out lockers - allow	24	EA	800.00	19,200	
	Casework and workbench at apparatus room	1	LS	10,000.00	10,000	
	Window blinds or shades	200	SF	7.00	1,400	
	Signage and graphics (interior and exterior)	1	LS	5,000.00	5,000	
	Miscellaneous equipment and accessories	1	LS	10,000.00	10,000	
	Furniture and moveable furnishings - FF&E Budget				FF&E Budget	
	INTERIOR CONSTRUCTION				**105,800**	
	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION					
	Plumbing					
	Plumbing system	2,400	SF	3.50	8,400	
	Heating and Ventilation					
	Heating and ventilation system (no air conditioning)	2,400	SF	8.00	19,200	
	Vehicle exhaust system (3 bays)	1	LS	120,000.00	120,000	
	Electrical					
	Electrical system including power, lighting, alarm systems and communications	2,400	SF	50.00	120,000	
	Fire Protection					
	Fire sprinkler system	2,400	SF	4.00	9,600	
	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION				**277,200**	
	SELECTIVE BUILDING DEMOLITION / TEMPORARY WORK					
	Selective Building Demolition					
	Remove interior construction, exterior walls, mezzanine, roofing, mechanical and electrical systems	2,400	SF	12.00	28,800	
	Hazardous material abatement or removal - excluded				NIC	
	Temporary Construction					
	Temporary enclosure/shelter to house vehicles, lockers and equipment during renovation of the apparatus building - allow	8	MO	5,000.00	40,000	
	Shoring and bracing of existing structure during construction	2,400	SF	5.00	12,000	
	SELECTIVE BUILDING DEMOLITION / TEMPORARY WORK				**80,800**	
	SITE WORK					
	See Site Work Estimate				Site Work	
	SITE WORK					
	DIRECT COSTS SUB-TOTAL				**867,100**	

Apparatus Building Addition (1,100 SF)

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	STRUCTURE					
	Building Pad					
	Built-up building pad - allow	1,500	SF	3.00	4,500	
	Foundations					
	Perimeter wall footing	120	LF	100.00	12,000	
	Vertical Structure					
	Steel stud framed exterior walls with plywood sheathing (load bearing and shearwalls)	1,000	SF	16.00	16,000	
	Floor and Roof Structure					
	Slab on grade including base and dowels to existing slab	1,100	SF	12.00	13,200	
	Steel joist roof structure including plywood decking	1,200	SF	15.00	18,000	
	Steel ledger at existing building for roof framing	80	LF	75.00	6,000	
	Wall curbs, equipment pads and curbs	1	LS	3,000.00	3,000	
	Miscellaneous metals and rough carpentry	1,100	SF	3.00	3,300	
	STRUCTURE				**76,000**	
	EXTERIOR WALLS AND ROOFING					
	Exterior Walls					
	Metal/wood siding, batt insulation, gypsum board and paint to interior face of exterior wall	1,000	SF	25.00	25,000	
	Operable windows - allow	100	SF	80.00	8,000	
	Soffits/roof overhangs	100	SF	25.00	2,500	
	Entrance doors and service doors	1	LS	5,000.00	5,000	
	Roofing					
	Metal roofing including insulation and flashing	1,200	SF	25.00	30,000	
	Gutters and downspouts	1	LS	3,000.00	3,000	
	Miscellaneous flashing, caulking and sealants	1	LS	2,000.00	2,000	
	Expansion joint covers (walls and roof)	1	LS	5,000.00	5,000	
	Skylights - not required				NIC	
	EXTERIOR WALLS AND ROOFING				**80,500**	
	INTERIOR CONSTRUCTION					
	Interior Partitions					
	Interior partition and door allowance	1	LS	5,000.00	5,000	
	Interior Finishes					
	Flooring including base					
	Concrete sealer	1,100	SF	3.00	3,300	
	Ceilings					
	Gypsum board and paint to underside of roof framing	1,100	SF	12.00	13,200	
	Equipment					
	Restroom accessories	1	LS	1,000.00	1,000	
	Window blinds or shades	100	SF	7.00	700	
	Miscellaneous equipment and accessories	1	LS	5,000.00	5,000	
	Furniture and moveable furnishings - FF&E Budget				FF&E Budget	
	INTERIOR CONSTRUCTION				**28,200**	

Apparatus Building Addition (1,100 SF)

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION					
	Plumbing					
	Plumbing system	1,100	SF	9.00	9,900	
	Heating and Ventilation					
	Heating and ventilation system (no air conditioning)	1,100	SF	15.00	16,500	
	Electrical					
	Electrical system including power, lighting, alarm systems and communications	1,100	SF	35.00	38,500	
	Fire Protection					
	Fire sprinkler system	1,100	SF	5.00	5,500	
	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION				**70,400**	
	SELECTIVE BUILDING DEMOLITION / TEMPORARY WORK					
	Clear site for building pad	1,500	SF	3.00	4,500	
	SELECTIVE BUILDING DEMOLITION / TEMPORARY WORK				**4,500**	
	SITE WORK					
	See Site Work Estimate				Site Work	
	SITE WORK					
DIRECT COSTS SUB-TOTAL					**259,600**	

New Site

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	SITE PREPARATION					
	Building Demolition					
	No work required				NIC	
	Site Demolition					
	Miscellaneous site demolition - allow	1	LS	5,000.00	5,000	
	Site Clearing and Grading					
	General clearing, grading and compaction	40,000	SF	1.00	40,000	
	Building pad - see building estimate				Building	
	Erosion control and site drainage during construction	1	LS	20,000.00	20,000	
	SITE PREPARATION				**65,000**	
	SITE DEVELOPMENT					
	Vehicular Paving					
	Concrete driveway including curbs and gutters	1,760	SF	15.00	26,400	
	Asphalt paving including curbs and gutters	13,880	SF	10.00	138,800	
	Striping, signage and graphics	1	LS	5,000.00	5,000	
	Pedestrian Paving					
	Concrete paving and walkways	2,680	SF	10.00	26,800	
	Patio - see building estimate				Building	
	Site Structures and Features					
	Trash enclosure	1	LS	10,000.00	10,000	
	Fuel storage system including containment - allow	1	LS	35,000.00	35,000	
	Monument sign, site signage and flagpoles	1	LS	15,000.00	15,000	
	Benches, planters, screen walls and bollards	1	LS	25,000.00	25,000	
	Perimeter fencing and gates					
	Wood fencing - allow	600	LF	35.00	21,000	
	Vehicle gate - motorized	1	EA	20,000.00	20,000	
	Site Lighting and Power					
	Generator enclosure - allow	1	LS	25,000.00	25,000	
	Emergency generator - see electrical utilities				Electrical Utilities	
	Site lighting and miscellaneous power					
	Paved areas	18,320	SF	1.50	27,480	
	Landscape areas	16,240	SF	0.50	8,120	
	Site Drainage					
	Site drainage					
	Paved areas	18,320	SF	1.00	18,320	
	Landscape areas	16,240	SF	0.50	8,120	
	Vehicle wash area containment and filters - allow	1	LS	15,000.00	15,000	
	Landscaping and Irrigation					
	Soil preparation, planting and irrigation system	16,240	SF	5.00	81,200	
	Trees - allow	1	LS	10,000.00	10,000	
	SITE DEVELOPMENT				**516,240**	

New Site

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	UTILITIES ON SITE					
	Mechanical Utilities (allow 100 LF)					
	Water					
	Water service to building	1	LS	10,000.00	10,000	
	Fire water					
	Water service to building including riser assembly	1	LS	20,000.00	20,000	
	Sanitary sewer					
	Septic system including distribution piping to building	1	LS	50,000.00	50,000	
	Storm drainage					
	Included with site drainage				Site Drainage	
	Natural gas					
	Propane tanks - by Propane Company				Propane Company	
	Piping to building	1	LS	5,000.00	5,000	
	Electrical Utilities (allow 100 LF)					
	Power and communications					
	Incoming service to building	1	LS	20,000.00	20,000	
	Emergency generator, switchboard, automatic					
	transfer switch and day tank (allow 150 KVA)	1	LS	150,000.00	150,000	
	Radio system - by Owner				Owner	
	UTILITIES ON SITE				**255,000**	
	DIRECT COSTS SUB-TOTAL				**836,240**	

Existing Site

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	SITE PREPARATION					
	Building Demolition					
	Living quarters building	2,175	SF	7.00	15,225	
	Apparatus building addition and slab	200	SF	20.00	4,000	
	Emergency generator building and generator	1	LS	10,000.00	10,000	
	Site Demolition					
	Fuel storage system	1	LS	10,000.00	10,000	
	Septic system	1	LS	5,000.00	5,000	
	Miscellaneous site demolition	1	LS	5,000.00	5,000	
	Site Clearing and Grading					
	General clearing, grading and compaction	22,000	SF	1.00	22,000	
	Building pad - see building estimate				Building	
	Erosion control and site drainage during construction	1	LS	15,000.00	15,000	
	SITE PREPARATION				**86,225**	
	SITE DEVELOPMENT					
	Vehicular Paving					
	Concrete driveways including curbs and gutters	1,100	SF	15.00	16,500	
	Asphalt paving including curbs and gutters	6,800	SF	10.00	68,000	
	Patch and repair existing asphalt paving - allow	13,000	SF	1.00	13,000	
	Striping, signage and graphics	1	LS	5,000.00	5,000	
	Pedestrian Paving					
	Concrete paving and walkways	1,800	SF	10.00	18,000	
	Patio - see building estimate				Building	
	Site Structures and Features					
	Retaining walls at hillside behind new living quarters and apparatus building additions - allow	100	LF	200.00	20,000	
	Trash enclosure	1	LS	10,000.00	10,000	
	Fuel storage system including containment - allow	1	LS	35,000.00	35,000	
	Monument sign, site signage and flagpoles	1	LS	15,000.00	15,000	
	Benches, planters, screen walls and bollards	1	LS	15,000.00	15,000	
	Perimeter fencing and gates					
	Wood fencing - allow	850	LF	35.00	29,750	
	Vehicle gates - motorized	2	EA	20,000.00	40,000	
	Site Lighting and Power					
	Generator enclosure - allow	1	LS	25,000.00	25,000	
	Emergency generator - see electrical utilities				Electrical Utilities	
	Site lighting and miscellaneous power					
	Paved areas - new and existing	22,700	SF	1.50	34,050	
	Landscape areas - new and existing	11,900	SF	0.50	5,950	
	Site Drainage					
	Site drainage					
	Paved areas - new and existing	22,700	SF	1.00	22,700	
	Landscape areas - new and existing	11,900	SF	0.50	5,950	
	Culvert at new driveway	1	LS	10,000.00	10,000	
	Vehicle wash area containment and filters - allow	1	LS	15,000.00	15,000	
	Landscaping and Irrigation					
	Soil preparation, planting and irrigation system	9,200	SF	5.00	46,000	
	Patch and repair existing planting areas	1	LS	5,000.00	5,000	
	Trees - allow	1	LS	5,000.00	5,000	
	SITE DEVELOPMENT				**459,900**	

Existing Site

REF	DESCRIPTION	QUANTITY	UoM	UNIT RATE	TOTAL	COMMENTS
	UTILITIES ON SITE					
	Mechanical Utilities					
	Water					
	Water service to site - existing				Existing	
	Distribution to buildings (allow 300 LF)	1	LS	10,000.00	10,000	
	Fire Protection					
	Water service to site - existing				Existing	
	Distribution to buildings (allow 250 LF plus					
	riser assemblies)	1	LS	25,000.00	25,000	
	Sanitary sewer					
	Septic system including 300 LF of distribution					
	piping to buildings	1	LS	60,000.00	60,000	
	Storm drainage					
	Included with site drainage				Site Drainage	
	Natural gas					
	Propane tanks - existing to remain				Existing	
	Relocate propane tanks - by Propane Company				Propane Company	
	Distribution to buildings (allow 200 LF)	1	LS	8,000.00	8,000	
	Electrical Utilities					
	Power and communications					
	Incoming service - existing				Existing	
	Distribution to buildings	1	LS	15,000.00	15,000	
	Emergency generator, switchboard, automatic					
	transfer switch and day tank (allow 150 KVA)	1	LS	150,000.00	150,000	
	Emergency power distribution to buildings	1	LS	15,000.00	15,000	
	Radio system - by Owner				Owner	
	UTILITIES ON SITE				**283,000**	
DIRECT COSTS SUB-TOTAL					**829,125**	

8.2 Structural report

I. Structural Assessment of Existing Site

Introduction

This report presents the findings of building structural assessments per *ASCE 41: Seismic Rehabilitation of Existing Buildings.* Aspects of building performance that are considered include structural, nonstructural, and foundation/geologic hazard issues. Lifelines such as water, electrical, gas and waste, etc., beyond the perimeter of the building are not considered.

The ASCE 41 process has 3 tiers or levels of evaluation. A Tier 1 evaluation is considered a preliminary phase with the purpose of screening out buildings that are compliant and quickly identifying buildings with potential seismic deficiencies. A Tier 2 evaluation is an analysis of the building that addresses the potential seismic deficiencies identified in Tier 1 screening. A Tier 3 evaluation is a detailed and complete analysis of the building. For this evaluation, a Tier 1 screening was performed.

The structural elements including foundations and the nonstructural elements are evaluated with a choice of three main performance objectives: Collapse Prevention, Life-safety or Immediate Occupancy. In evaluating the fire station site, the life-safety and immediate occupancy damage states were considered. However because the fire station is an emergency facility the ultimate performance objective should be immediate occupancy.

Life-safe structural performance is the post-earthquake damage state in which significant damage to the structure has occurred, but some margin against the onset of partial or total collapse remains. Some structural elements and components are severely damaged, but this does not result in large falling debris hazards, either within or outside the building. Injuries may occur during the earthquake; however overall risk of life-threatening injury as a result of structural damage is expected to be low. It should be possible to repair the structure; however, for economic reasons this may not be practical. While the damaged structure is not an imminent collapse risk, it would be prudent to implement structural repairs or install temporary bracing prior to re-occupancy. Immediate Occupancy structural performance is the post-earthquake damage state to both structural and non-structural components such that damage is not life-threatening so as to permit immediate occupancy of the building after a design earthquake. Damage is repairable while the building is occupied.

The scope of work for the structural building assessments included the following tasks:

1. Reviewing available original construction documents.
2. Making a site visit to confirm that the available drawings properly identify the extent of the building, to observe whether significant building modifications have occurred, and to observe the nonstructural systems bracing and anchorage.
3. Performing the required calculations as required by ASCE 31.
4. Preparing a report summarizing our findings.

Barracks Building

The Barracks building is a single-story, light wood framed structure. The structural system matches that of a single family dwelling. The foundation consists of raised wood floor construction with a continuous concrete perimeter footing and isolated interior concrete piers. The floor and roof framing consist of short spanning, wood members not spaced more than 24 inches apart. The exterior walls and roof have plywood sheathing, while interior walls are sheathed with plaster or gypsum board. Multiple undocumented additions and modifications were observed. In general the additions and modifications consisted of wood construction similar to original construction type.

ASCE 41-13 Seismic Rehabilitation of Existing Buildings describes this structure as Building Type W1. In general this type of structure is ductile and tends to perform well in seismic events.

An ASCE 41-13 Life Safety basic checklist evaluation identifies the structure as being predominately compliant. The main exceptions were unknown factors of liquefaction and surface fault rupture which need to be review by a Geotechnical engineer. In addition the structural load path needs to be confirmed since the original documents do not clearly state how various concealed connections are constructed.

The Barracks building is part of an emergency response facility. Therefore an Immediate Occupancy performance level is required. An ASCE 41-13 Immediate Occupancy checklist evaluation for W1 structures identified a number of noncompliant items. These items must be addressed during a retrofit to comply with CBC requirements for Emergency Faculties. Some of these issues are no Hold-down anchors at shear walls, discontinuous chords and collectors, excessive unblocked diaphragms ratios if only exterior walls are considered part of the lateral resisting elements, interior shear walls with no footings or plywood sheathing if interior walls are considered part of the lateral system, as well as the items identified in the Life Safety check list. These identified issues are all minor in nature and could be retrofitted without significant cost.

The major compliance issue with achieving an Immediate Occupancy building performance level is the structure being located in an area subject to flooding. The structure has been subject to flood waters three times in recent years. In one of those events the structure experienced flood water levels three feet above the finished floor line of the building. Flooding will damage the structure and will render the building inoperable during the period of the flood, which would make an Immediate Occupancy performance level difficult to achieve even after a structural retrofit.

Apparatus Building

The original, main portion of the Apparatus building is a single-story, pre-engineered and pre-fabricated steel building. The structure consists of rigid steel frames in the transverse direction and rod bracing in the longitudinal direction on one side of the structure. There is no lateral system in the longitudinal direction where the large equipment doors are located. The foundation is a concrete slab-on-grade system with spread footings around the perimeter and under the steel frame locations. The walls are constructed with wood studs attached to steel frames and horizontal girts. The roof framing consists of steel joists with lightweight metal roofing. The diaphragm consists of rod bracing in alignment with the vertical rod bracing lateral system locations. An addition and modifications were observed during the site visit. In general the addition and modifications consist of wood construction and are not similar to the pre-manufactured steel building they are connected too.

ASCE 41-13 describes this steel building portion of the structure as Building Type S3. In general this type of system is designed for maximum efficiency of material and cost and not for a high performance during seismic events.

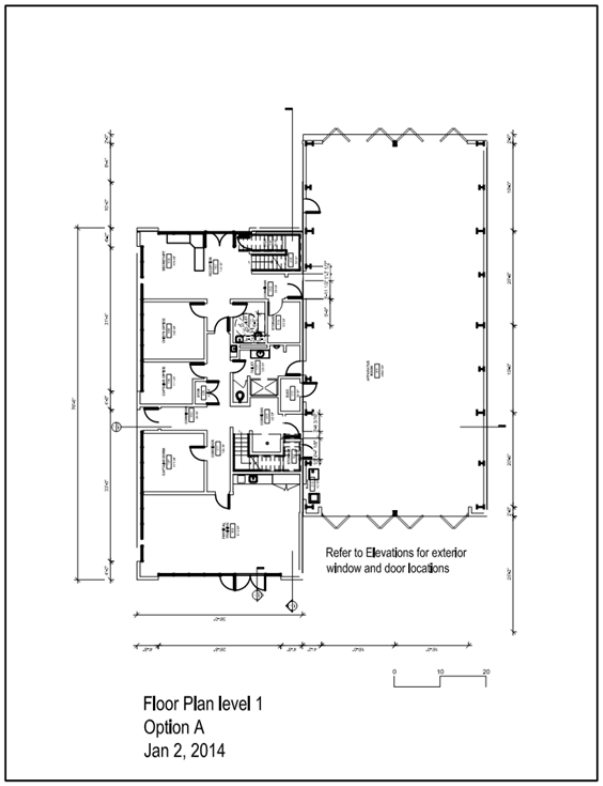
An ASCE 41-13 Life Safety basic checklist evaluation identifies the structure as being predominately noncompliant or unknown. Some of these identified issues are a mezzanine structure not being independently braced from the main building, load path issues related to the various additions, and no confirmation that the original, economically designed steel system has the additional capacity to resist the added demands from the various additions. The unknown factors of liquefaction and surface fault rupture also exist and need to be review by a Geotechnical engineer.

The Apparatus building is part of an emergency response facility. Therefore an Immediate Occupancy performance level is required. An ASCE 41-13 Immediate Occupancy checklist evaluation for S3 structures identified a number of noncompliant items which would need to be addressed during a retrofit to comply with CBC requirements for Emergency Faculties. Most of these noncompliant issues relate to the steel frame ductility checks. Since this type of steel system is typically designed for economy and not performance it would be anticipated that the identified issues would be major in nature and could be a challenge to retrofit without significant cost. The items identified in the Life Safety check list would also need to be addressed by the retrofit.

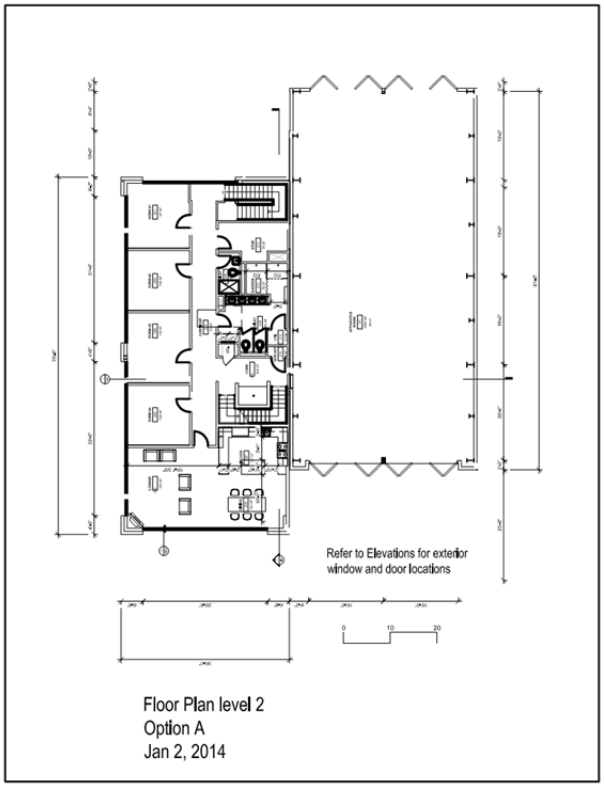
Two additional compliance issues required to achieve an Immediate Occupancy building performance level are the structure being located in an area subject to flooding and being located adjacent to a slope. In recent years the property has flooded numerous times. Although this structure has not been flooded, access into and out of the emergency facility during a flood event was impeded and would need to be evaluated and addressed. Due to the building being located within close proximity to an adjacent slope a Geotechnical engineer must evaluate the risk of slope failure and rock falls.

II. Option A: New Fire Station, Idealized Site

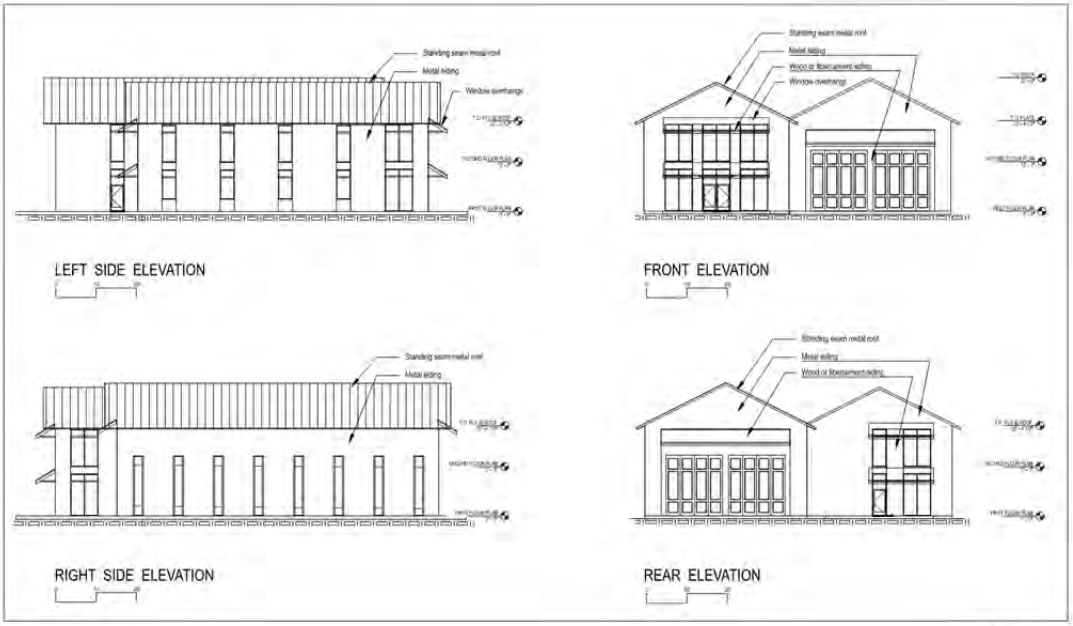
The structural system narrative is based on the concept architectural plans for a new apparatus building adjacent to an office and living quarters building as shown below. The two structures will be separate by a seismic joint.



Floor Plan level 1
Option A
Jan 2, 2014



Floor Plan level 2
Option A
Jan 2, 2014



Option A
Jan 2, 2014

The structural gravity system for the apparatus structure consists of steel beams in the transverse direction and along the perimeter supported on steel columns. Light gauge or wood roof framing members span between the steel beams to form the roof system. Exterior cladding is composed of either light gauge steel studs or wood studs spanning from the foundation to the roof framing level. The lateral system consists of steel moment frames in the transverse direction and plywood shear walls in the longitudinal direction. Reinforced masonry shear walls is an option to the plywood walls in the longitudinal direction. A plywood roof diaphragm is used to transfer seismic forces to the lateral system.

The structural gravity system for the Office/Living Quarters structure consists of light gauge or wood joists at the roof and floor levels. The joists at both levels are supported by light gauge or wood stud interior and exterior bearing walls. Roof joists span the transverse direction and are supported on interior corridor walls as required. The direction of floor joists framing is dependent on the Level One wall layout. As an alternate to roof and floor joists, trusses can be utilized at both levels. The lateral system in both transverse and longitudinal directions consists of plywood shear walls. Plywood roof and floor diaphragms are used to transfer seismic forces to the lateral system. For both gravity and lateral systems to be implemented efficiently, a series of interior walls in both the longitudinal and transverse direction must be “stacked” between the first and second levels to provide continuous load paths to the foundation. In addition at the front and rear exterior walls one or more of the wall segments must have a height to width ratio no greater than 2:1 between each framing level for plywood shear walls to be utilized.

The ideal site for these types of structures is a relatively flat site with soils suitable for typical continuous shallow reinforced concrete footings with a concrete slab-on-grade. Sites with expansive or liquefiable soils should be avoided if possible. Sites subject to flooding should be avoided.

III. Option B: New Living Quarters/Offices Building and Renovate Apparatus Building at Prescadero Creek Road Site

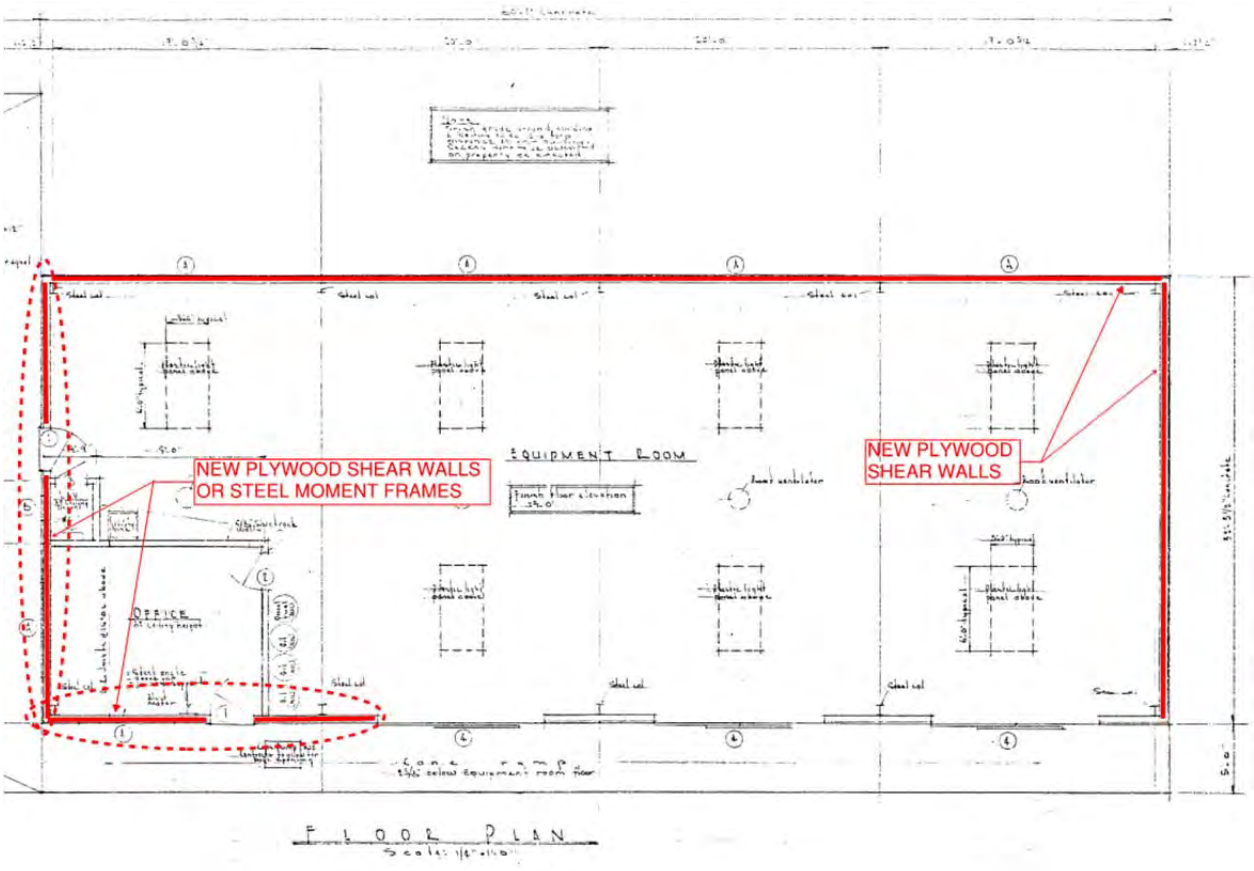
The structural system narrative is based on the concept architectural plans shown on this page. The new Living Quarters/Office portion of the structure is assumed to be the same layout as Option A.

The station would consist of two separate building structures: new Office/Living Quarters and renovated Apparatus.

The structural gravity system for the Office/Living Quarters structure consists of light gauge or wood joists at the roof and floor levels. The joists at both levels are supported by light gauge or wood stud interior and exterior bearing walls. Roof joists span the transverse direction and are supported on interior corridor walls as required. The direction of floor joists framing is dependent on the Level One wall layout. As an alternate to roof and floor joists, trusses can be utilized at both levels. The lateral system in both transverse and longitudinal directions consists of plywood shear walls. Plywood roof and floor diaphragms are used to transfer seismic forces to the lateral system. For both gravity and lateral systems to be implemented efficiently, a series of interior walls in both the longitudinal and transverse direction must be “stacked” between the first and second levels to provide continuous load paths to the foundation. In addition at the front and rear exterior walls one or more of the wall segments must have a height to width ratio no greater than 2:1 between each framing level for plywood shear walls to be utilized.

With minor modifications the existing apparatus building should have a gravity system capability of meeting the requirements for Immediate Occupancy as described previously. However, the existing

structure lacks a lateral system adequate to meet the requirements of Immediate Occupancy for Emergency Response building occupancies. As described in the existing apparatus building evaluation the structure is a single-story, pre-engineered and pre-fabricated steel building. In general this type of system is designed for maximum efficiency of material and cost and not for a high performance during seismic events. Therefore, the existing lateral system will be abandoned in place and allowing the steel frames to remain as the primary gravity system only. A new lateral system will supersede the existing system. The new system will consist of plywood shear walls on as many as four sides of the structure over new light gauge or wood stud exterior walls. Depending on the height to width ratios of the new shear walls, the existing foundation may be determined to be adequate if the ends of the walls terminate at steel column locations. At the front and left side of the structure new steel moment frames may need to be installed to resist lateral forces if the existing window and door openings cannot be modified to allow for plywood shear walls to be utilized. New foundation elements will be required at steel moment frame locations. Plywood roof diaphragm will be used to transfer seismic forces to the new lateral system.



8.3 Mechanical, electrical, and plumbing report

NBA ENGINEERING, INC.

San Francisco * Oakland * Los Angeles

Fire Station at 1200 Pescadero Creek Rd, Pescadero, CA
Investigative Study for Mechanical & Electrical Systems

Bill Blessing
Ratcliff Architects
5856 Doyle Street
Emeryville, CA 94608

I. Existing Conditions:

A. Electrical Systems Existing Conditions

Currently, the fire station consists of four buildings: the Living Quarters, the Apparatus Building, the Pump Room, and the Generator Room. The entire station's power is provided by a pole-mounted, PG&E 15KVA, single-phase transformer. The service to the four buildings is a 120/240V, 1PH, 3-wire system. In addition, there is a 50 KW/62.5 KVA diesel fuel standby generator with an automatic transfer switch to provide power in case of emergency. Most of the electrical equipment, including the standby generator (see EE2), and automatic transfer switch (see EE3), has been in use for more than thirty years. The coastal climate, severe weather conditions, and some flooding have caused rusting of the enclosed outdoor service entrance equipment (see EE1). Some of the equipment covers are missing or broken. The existing storage room panel board is very old and rusted (see EE1). The amperage in the exercise room is not adequate to run the exercise equipment. There is no security camera or intrusion detection system in this facility.

The following lighting installations have been observed in the field:

1. There are smoke detectors missing from the bedrooms.
2. Due to years of operation, the translucent acrylic prismatic fluorescent fixture diffusers have become discolored at the center/edge of the luminaire (see EE5).
3. Most of the fluorescent fixtures are equipped with 40-watt lamps, which are considered obsolete. The current standard for fluorescent lamps with electronic ballast is a rating of 32 watts.
4. Building door lights and fixtures at the Living Quarters are equipped with 60-watt incandescent lamps. One wall mounted light in the Living Quarters is broken (see EE6). Incandescent lamps consume more energy and provide less illumination than compact fluorescent lamps.
5. There are five high-wattage security HID flood lights on the building roof that consume a great deal of electricity when in use.
6. There are three 25-inch diameter HID fixtures, plus eight 2 lamp, 1'x4' industrial-type fluorescent fixtures in the Apparatus Building. All fixtures are ceiling-mounted. There is a time delay due to lamp warm up when the HID lights are turned on. This hampers operation and maintenance of the vehicles.

Miscellaneous Findings:

1. Most of the receptacles inside all three buildings are worn, having been in use for many years. Some are discolored. They need to be replaced.
2. Ceiling-mounted, battery-powered smoke detectors have been found in some rooms. Some rooms lack these smoke detectors, particularly in Living Quarters.
3. Sump pump power and control equipment is located outdoors in a wooden cabinet adjacent to the Headquarters building. The enclosures show rust.

B. Mechanical Systems Existing Conditions

There is no gas or sewer piping to these buildings. There is an underground septic tank for black water. The septic tank floods periodically, requiring station personnel to rent and use portable toilet facilities when the septic system is being repaired and cleaned.

A propane tank provides gas to these buildings. The kitchen oven runs on propane. There is an old propane domestic water heater serving showers and lavatories in the Living Quarters (see ME1). There is rust on the 500 gallon propane tank and the dual fuel tank (1000 gallon diesel and 500 gallon unleaded gasoline), probably due to flooding. The fuel tank appears leak (see ME3 and ME5).

An old, forced-air propane furnace serves the Living Quarters, (see ME2). The ductwork lacks insulation. There are no heating ducts to some of the rooms in the Living Quarters. There is no indication of mechanical ventilation in either the Living Quarters or in the Apparatus Building. There are no fire sprinkler and no fire alarm systems. A large proportion of the equipment is rusted, possibly due to salt water.

The available utilities are Pescadero Community Water System, which provides potable water, and Pacific Gas & Electric providing power. A well on the hill above the site has a holding tank that feeds the stand pipe. It provides non-potable water.

There is a 240-volt air compressor for shop air requirements/Apparatus Building, which is aged. There are three overhead exhaust systems with control boxes on the wall in the Apparatus Building. This building has no fire alarm or fire sprinkler. There is an antiquated bathroom and sink and in the Apparatus Building.

Heat for the Apparatus Building is provided by an old, propane-fired, Reynar unit heater, (see ME6), which has some rusted piping and no insulation on the exhaust flue. There is no heat in the Apparatus Building office areas. The engine area of the Apparatus Building is too small and too proximate to the roll up door. Existing HVAC control systems are localized via thermostat.

II. Option A- New, Single-Building, Fire Station Site

A. Electrical System

A new site will require a 120/240 VAC, single phase, 3 wire power distribution system. A new service transformer shall be provided and installed by the utility company (PG&E) to meet new load requirements. The new utility transformer shall be either the pole mounted or the pad mounted type. Building lighting will be served by a 120 or 208 VAC single phase system. Receptacles shall be served with 120 VAC system. A standby diesel generator and automatic transfer switch shall be provided for emergency power outages.

List of desirable electrical items in an ideal site:

1. New utility company service transformer,
2. Service entrance panel board with utility meter socket,
3. Two power distribution panel boards, one located in Level 1 and the other located in Level 2,
4. New standby diesel generator and associated automatic transfer switch,
5. Addressable fire alarm system for the building
6. CCTV/security systems for the building
7. Telephone system for the building
8. LED type security floodlights for the new building and surrounding areas.
9. An energy management system to control HVAC systems.

B. Mechanical Systems

The building shall be provided with HVAC systems consistent with the design conditions in order to maintain occupants' comfort and functional requirements. Heating and ventilating units and exhaust fans for different zones shall be provided to supply heating and ventilation to the apparatus room , electrical room, dorms, lounge, kitchen, dining, corridors, toilets, shower room, and janitor storage. One split-system heat pump unit per zone will be provided to serve the office area that includes areas for secretary, reception, corridor, and storage. A ductless, split heat pump unit shall be provided to serve the physical training area. Make-up air unit and exhaust fans shall be provided for the engine exhaust in the apparatus room.

The HVAC systems will be equipped with local digital thermostats. Kitchen shall be provided with state-of-the-art exhaust hood and a stove, refrigerator, dish washer, dual-sink, and a garbage disposal.

A. Plumbing Systems

The building plumbing fixtures will include low-flow water closets, urinals, and lavatories; showers, sinks, floor drains, trap primers, hose bibs, roof drains, overflow drains, washing machine hook-up or drains, trench drains, area drains, and filtered water system. One high-efficiency, central, gas-fired, water heater shall be provided to supply domestic hot water for the showers, lavatories, and sinks. A circulating pump will be installed to maintain hot water at the point of use. A compressed-air system with a refrigerated dryer shall be provided to supply compressed air to the apparatus room. A double wall fuel storage tank for diesel and unleaded gasoline fuels will be provided. The fuel storage tanks shall be

equipped with leak detection sensors and monitoring units. All utilities, gas, water, sewer, storm, and fire water to be piped from city/county systems.

III. Option B- Keep Existing Site , New Living Quarters over Offices, Modify Apparatus Building

A. Electrical System

Power distribution system shall be a 120/240VAC, single phase, 3 wire system. It is recommended that a new service transformer shall be provided and installed by PG&E to replace the existing one. Building lighting will be served by a 120 or 208VAC single phase system .Receptacles will be served by a 120VAC system. A standby diesel generator and automatic transfer shall be provided to replace the existing ones.

List of electrical items to be demolished

1. Existing pole-mounted utility transformer,
2. Existing service entrance panel board with utility meter,
3. Existing panel board “ILEC”,
4. Existing diesel standby generator and associated automatic transfer switch,
5. All fluorescent fixtures inside the existing buildings,
6. All building door/outside wall-mounted incandescent light fixtures,
7. All lighting fixtures inside Apparatus Building,
8. All roof-mounted HID floodlights,
9. All conduit, wires, junction boxes associated with demolition items.

B. Mechanical Systems

The buildings shall be provided with HVAC systems consistent with the design conditions in order to maintain occupants’ comfort and functional requirements. Heating and ventilating units and exhaust fans for different zones shall be provided to supply heating and ventilation to the apparatus room , electrical room, dorms, lounge, kitchen, dining, corridors, toilets, shower room, and janitor storage. One split-system heat pump unit per zone will be provided to serve the office area that includes areas for secretary, reception, corridor, and storage. A ductless, split heat pump unit shall be provided to serve the physical training area. Make-up air unit and exhaust fans shall be provided for the engine exhaust in the Apparatus Building.

The HVAC systems will be equipped with local digital thermostats. Kitchen shall be provided with state-of-the-art exhaust hood and a stove, refrigerator, dish washer, dual-sink, and a garbage disposal.

C. Plumbing Systems

The buildings’ plumbing fixtures will include low-flow water closets, urinals, and lavatories; showers, sinks, floor drains, trap primers, hose bibs, roof drains, overflow drains, washing machine hook-up or drains, trench drains, area drains, and filtered water system. One high-efficiency, central, gas-fired, water heater shall be provided to supply domestic hot water for the showers, lavatories, and sinks. A circulating pump will be installed to maintain hot water at the point of use. A compressed-air system with a refrigerated dryer shall be provided to supply compressed air to the Apparatus Building. A double wall

fuel storage tank for diesel and unleaded gasoline fuels will be provided. The fuel storage tanks shall be equipped with leak detection sensors and monitoring units.

List of mechanical and plumbing items to be demolished

1. All the HVAC equipment: furnace, toilet exhaust fans, kitchen hood exhaust fan, and distribution systems (ductwork, diffusers, exhaust grills, etc.) and controls (thermostat) for the Living Quarters shall be demolished and discarded;
2. The existing unit heater and associated piping and exhaust flue in the Apparatus Building shall be demolished and discarded;
3. All existing lavatories and water closets and kitchen sink in the Living Quarters and lavatory and water closet area shall be demolished and discarded;
4. Demolish and discard existing dual fuel tank,
5. Remove and discard existing propane tank,
6. Remove and discard existing air compressor.

ME1 – Water heater and furnace

ME2 – Gas furnace

ME3 – Liquid fuel tank

ME4 – Non-potable water connection

ME5 – Propane fuel tank

ME6 – Gas unit heater

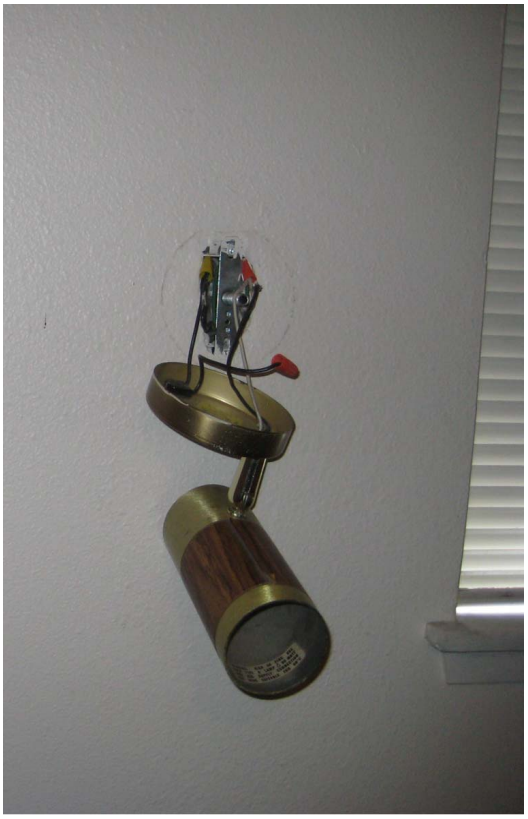
EE1 – Fire Station entrance equipment cabinet

EE2 – Single phase diesel fuel standby generator

EE3 – Automatic transfer switch

EE4 – Storage Room panel

EE5 – Living quarters corridor lights



EE6 – Damaged light, Living Quarters

8.4 Civil engineering report

DRAFT

CIVIL ASSESSMENT

FOR

PESCADERO FIRE STATION

Pescadero, California

Prepared For:
Ratcliff
5856 Doyle Street
Emeryville, CA 94608

Prepared By:
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, California 94949
(415)-883-9850

Prepared:
January 3, 2014

CSW|ST2 File No.:
4.1174.00

CSW | ST2

Introduction

The San Mateo County Fire Station located at 1200 Pescadero Creek Road in Pescadero, CA (Pescadero Fire Sta.) consists of four buildings on a 1.3 acre site. According to the contract drawings and as-builts, the station was originally constructed in 1957 with various improvements made since that time. The site is located within the flood plain which creates a number of issues which will be discussed below. The site and buildings are outdated and in need of improvement, either at the existing site, or at a new site, in order to meet current standards and to adequately serve its community.

Existing Conditions

As mentioned above, the Pescadero Fire Sta. is located in the flood plain of the Butano Creek (see "Pescadero Floodway Map" attached. The site is has experienced an increase in the occurrence of flooding since the mid 1980's due to the accumulation of silt and debris in Butano Creek and Pescadero Marsh as a result of halted dredging operations. It is reported that the site floods at least once a year with as much as three feet of water reported in 1998. Pescadero Creek Road also floods during these events. As such, the Pescadero Fire Sta. staff relocates to alternative sites during heavy rains so that they can maintain their ability to respond to emergency events.

Civil utilities on-site consist of domestic water served by the local water service municipality. Additionally, there is an on-site well used for non-potable water needs (i.e. to supply the existing wharf hydrant), and a septic system for the disposal of site generated sewage waste. The septic system is reported to back-up during flood events, which is to be expected considering the ground would be saturated during these events and would have no additional hydraulic capacity. The system was constructed along with the rest of the site in 1957. Considering the age of the system, it is unlikely that it meets current code. Additionally, septic systems have an average lifespan of 25 years. As such, it is likely that the system at the Pescadero Fire Sta. has reached the end of its useful life, though it would have to be tested to confirm this.

Option A. New Fire Station / Idealized Site

The selected site should be one that is located at an elevation that is above the flood plain with additional vertical elevation to allow for sea level rise. Additionally, the road(s) leading to and from the fire station should be similarly above flood elevations to maximize, as much as possible, access to the community during flood events. There shall also be adequate space on-site to provide for State and local storm water treatment requirements.

Domestic water shall be provided by the local water service municipality if available at the selected location. If municipal water is unavailable at the selected location, there must be adequate potable well water available to serve the new fire station's needs.

In absence of any municipal sewer system, the sewage disposal needs will need to be met with an on-site septic system that meets current code. As such, there must be adequate space and soil conditions to accommodate this.

Option B. Keep Pescadero Creek Rd Site: New Living Quarters over Offices, Renovate Apparatus Bldg.

In this scenario, the existing residence building will be demolished and relocated to a new two story addition adjacent to the existing apparatus building. The new addition must be constructed such that the finished floor elevation of the first level is above the flood elevation with additional vertical elevation clearance to allow for sea level rise. The existing apparatus building, however, may be at an elevation that is below future flood elevations as sea level rise continues. As such, this building may experience flooding in the future. A new driveway access will be constructed to Bean Hollow Road at the south-east side of the site which is at a higher elevation than the existing access from Pescadero Creek Road. This will improve access during flood events, though access to Pescadero Creek Road will still be limited due to flooding. Space will also have to be dedicated on-site to meet State and local storm water treatment requirements. The location of the existing residence would be a likely alternative for this.

The new addition is likely to be situated such that a portion of the existing hillside will have to be excavated to accommodate the structure. As such, a new retaining wall will need to be constructed along with adequate drainage facilities to capture hillside runoff.

Domestic water will continue to be served by the local water service municipality.

A new septic system will likely be required. The location of the existing system would be the ideal location if it has adequate space and soil conditions to accommodate a system that meets current code. Due to the likelihood of high groundwater at the location of the existing system, a shallow pressure dosing system would likely be required. However, because this location becomes inundated with water during flood events (see Photo 1), it is unlikely that this location will meet code. As such, alternative locations on site should be considered such as the western side of the site or on the hillside along the southern end of the site. It is unlikely, however, that the southern end will be feasible due to the steep slope and the confined area.

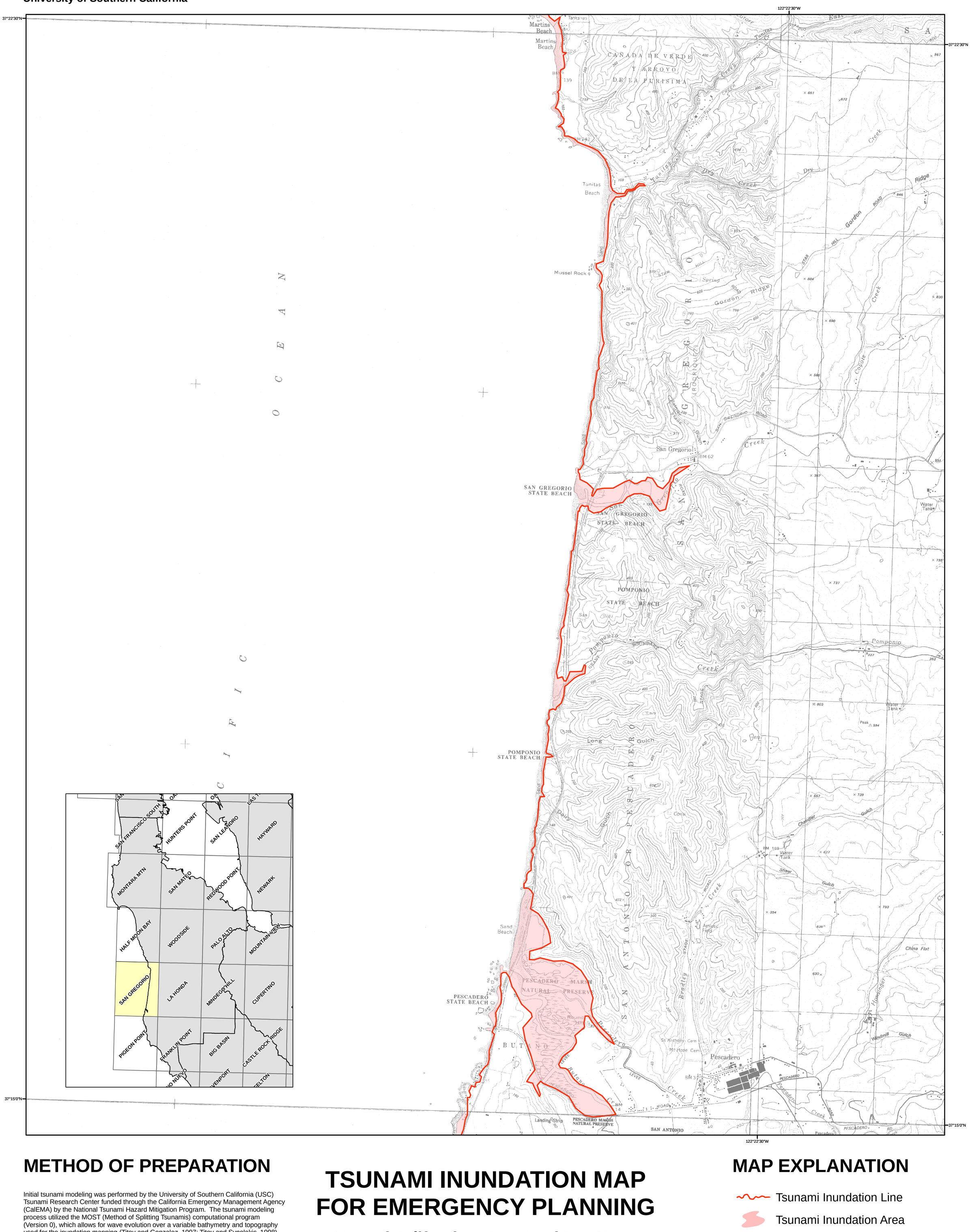
Septic field with flood elevation marker (white post with red marks) shown in the background

8.5 Reference documents

California Emergency Management Agency
California Geological Survey
University of Southern California

Tsunami Inundation Map for Emergency Planning
San Gregorio Quadrangle

State of California
County of San Mateo



METHOD OF PREPARATION

Initial tsunami modeling was performed by the University of Southern California (USC) Tsunami Research Center funded through the California Emergency Management Agency (CalEMA) by the National Tsunami Hazard Mitigation Program. The tsunami modeling process utilized the MOST (Method of Splitting Tsunamis) computational program (Version 0), which allows for wave evolution over a variable bathymetry and topography used for the inundation mapping (Titov and Gonzalez, 1997; Titov and Synolakis, 1998).

The bathymetric/topographic data that were used in the tsunami models consist of a series of nested grids. Near-shore grids with a 3 arc-second (75- to 90-meters) resolution or higher, were adjusted to "Mean High Water" sea-level conditions, representing a conservative sea level for the intended use of the tsunami modeling and mapping.

A suite of tsunami source events was selected for modeling, representing realistic local and distant earthquakes and hypothetical extreme undersea, near-shore landslides (Table 1). Local tsunami sources that were considered include offshore reverse-thrust faults, restraining bends on strike-slip fault zones and large submarine landslides capable of significant seafloor displacement and tsunami generation. Distant tsunami sources that were considered include great subduction zone events that are known to have occurred historically (1960 Chile and 1964 Alaska earthquakes) and others which can occur around the Pacific Ocean "Ring of Fire."

In order to enhance the result from the 75- to 90-meter inundation grid data, a method was developed utilizing higher-resolution digital topographic data (3- to 10-meters resolution) that better defines the location of the maximum inundation line (U.S. Geological Survey, 1993; Intermap, 2003; NOAA, 2004). The location of the enhanced inundation line was determined by using digital imagery and terrain data on a GIS platform with consideration given to historic inundation information (Lander, et al., 1993). This information was verified, where possible, by field work coordinated with local county personnel.

The accuracy of the inundation line shown on these maps is subject to limitations in the accuracy and completeness of available terrain and tsunami source information, and the current understanding of tsunami generation and propagation phenomena as expressed in the models. Thus, although an attempt has been made to identify a credible upper bound to inundation at any location along the coastline, it remains possible that actual inundation could be greater in a major tsunami event.

This map does not represent inundation from a single scenario event. It was created by combining inundation results for an ensemble of source events affecting a given region (Table 1). For this reason, all of the inundation region in a particular area will not likely be inundated during a single tsunami event.

References:

Intermap Technologies, Inc., 2003, Intermap product handbook and quick start guide: Intermap NEXTmap document on 5-meter resolution data, 112 p.

Lander, J.F., Lockridge, P.A., and Kozuch, M.J., 1993, Tsunamis Affecting the West Coast of the United States 1806-1992: National Geophysical Data Center Key to Geophysical Record Documentation No. 29, NOAA, NESDIS, NGDC, 242 p.

National Atmospheric and Oceanic Administration (NOAA), 2004, Interferometric Synthetic Aperture Radar (IfSAR) Digital Elevation Models from GeoSAR platform (EarthData): 3-meter resolution data.

Titov, V.V., and Gonzalez, F.I., 1997, Implementation and Testing of the Method of Tsunami Splitting (MOST): NOAA Technical Memorandum ERL PMEL – 112, 11 p.

Titov, V.V., and Synolakis, C.E., 1998, Numerical modeling of tidal wave runup: Journal of Waterways, Port, Coastal and Ocean Engineering, ASCE, 124 (4), pp 157-171.

U.S. Geological Survey, 1993, Digital Elevation Models: National Mapping Program, Technical Instructions, Data Users Guide 5, 48 p.

TSUNAMI INUNDATION MAP FOR EMERGENCY PLANNING

State of California ~ County of San Mateo

SAN GREGORIO QUADRANGLE

June 15, 2009

SCALE 1:24,000

0.5 0.25 0 0.5 1 Miles

1,000 500 0 1,000 2,000 3,000 4,000 5,000 Feet

0.5 0.25 0 0.5 1 Kilometers

Table 1: Tsunami sources modeled for the San Mateo County coastline.

Sources (M = moment magnitude used in modeled event)		Areas of Inundation Map Coverage and Sources Used	
		San Francisco Bay	Pescadero
Local Sources	Point Reyes Thrust Fault	X	
	Rodgers Creek-Hayward Faults	X	
	San Gregorio Fault	X	
Distant Sources	Cascadia Subduction Zone-full rupture (M9.0)	X	
	Central Aleutians Subduction Zone #1 (M8.9)	X	X
	Central Aleutians Subduction Zone #2 (M8.9)	X	
	Central Aleutians Subduction Zone #3 (M9.2)	X	X
	Chile North Subduction Zone (M9.4)	X	
	1960 Chile Earthquake (M9.3)	X	
	1964 Alaska Earthquake (M9.2)	X	X
	Japan Subduction Zone #2 (M8.8)	X	
	Kuril Islands Subduction Zone #2 (M8.8)	X	
	Kuril Islands Subduction Zone #3 (M8.8)	X	
	Kuril Islands Subduction Zone #4 (M8.8)	X	
	Marianas Subduction Zone (M8.6)	X	X

Cal EMA CALIFORNIA EMERGENCY MANAGEMENT AGENCY

CGS CALIFORNIA GEOLOGICAL SURVEY

USC UNIVERSITY OF SOUTHERN CALIFORNIA

MAP EXPLANATION

Tsunami Inundation Line

Tsunami Inundation Area

PURPOSE OF THIS MAP

This tsunami inundation map was prepared to assist cities and counties in identifying their tsunami hazard. It is intended for local jurisdictional, coastal evacuation planning uses only. This map, and the information presented herein, is not a legal document and does not meet disclosure requirements for real estate transactions nor for any other regulatory purpose.

The inundation map has been compiled with best currently available scientific information. The inundation line represents the maximum considered tsunami runup from a number of extreme, yet realistic, tsunami sources. Tsunamis are rare events; due to a lack of known occurrences in the historical record, this map includes no information about the probability of any tsunami affecting any area within a specific period of time.

Please refer to the following websites for additional information on the construction and/or intended use of the tsunami inundation map:

State of California Emergency Management Agency, Earthquake and Tsunami Program:
http://www.oes.ca.gov/WebPage/oeswebsite.nsf/Content/B1EC51BA215931768825741F005E8D80?OpenDocument

University of Southern California – Tsunami Research Center:
http://www.usc.edu/dept/tsunamis/2005/index.php

State of California Geological Survey Tsunami Information:
http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/index.htm

National Oceanic and Atmospheric Agency Center for Tsunami Research (MOST model):
http://nctr.pmel.noaa.gov/time/background/models.html

MAP BASE

Topographic base maps prepared by U.S. Geological Survey as part of the 7.5-minute Quadrangle Map Series (originally 1:24,000 scale). Tsunami inundation line boundaries may reflect updated digital orthophotographic and topographic data that can differ significantly from contours shown on the base map.

DISCLAIMER

The California Emergency Management Agency (CalEMA), the University of Southern California (USC), and the California Geological Survey (CGS) make no representation or warranties regarding the accuracy of this inundation map nor the data from which the map was derived. Neither the State of California nor USC shall be liable under any circumstances for any direct, indirect, special, incidental or consequential damages with respect to any claim by any user or any third party on account of or arising from the use of this map.

RATCLIFF
5856 Doyle Street
Emeryville CA 94608
Tel 510 899 6400
www.ratcliffarch.com

Meeting Minutes

Meeting Date: November 20, 2013
Meeting time: 9:30 am

Meeting No.: 2

Project: Pescadero Fire Station (PFS) Assessment Study
Pescadero, CA
Ratcliff Project No: 32053.00

Place: Pescadero Fire Station

Attendees:

Name

Bill Blessing, Ratcliff
Nina Pakanant, Ratcliff
Scott Ernest, PFS
Robert Pierson, PFS
Andy Cope, PFS
Guido Misculin, San Mateo County
Theresa Yee, San Mateo County

Meeting Minutes:

Item		Agenda topic	Action	Due Date

1		**Existing Drawings**
		- Ratcliff received existing drawings of the Apparatus Building.
		- Current fire station service coverage:
		  ○ North boundary – Tunitas Creek Rd.
		  ○ East boundary – Hwy 84
		  ○ South boundary – Cloverdale Rd.
		- Ratcliff needs a Service Area map.		

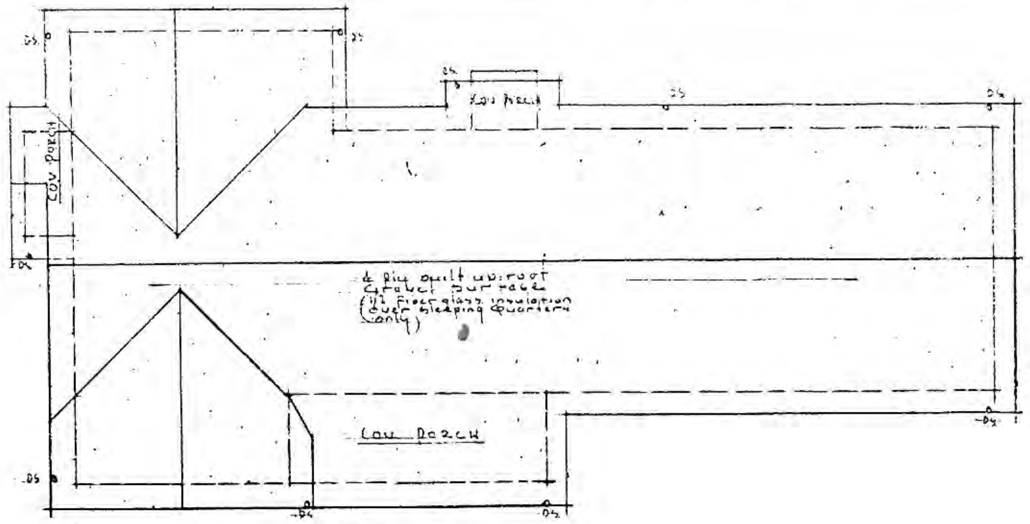
2		**Ratcliff Presentation** - Presented example of stations from Chico Airport Fire Station, Yuba City Fire Station, and Emeryville Fire Station. - Proposed new site in Town of Pescadero is also in the flood zone. - San Mateo OES can provide Tsunami plan.		
3		**Issues with current fire station location** - During seasonal flood, an engine from Station 17 is sent to a site nearby high school. A temporary modular trailer is set up at the fire station. - Chemical run off contaminates rain water. - Response plan includes Engine 40 from Half Moon Bay and Station 55 (volunteer).	.	
4		**Staffing** - Under normal budget, the station has 4 staff (2 rescuers, 2 engine staff). Under the budget cut, the station has 3 engine staff and 1 supplemental rescuer. - Maximum staff is 9. This occurs approximately 8 times per		

		year. - Fire season is between: May 15 – Nov. 1. When maximum staffing typically occurs. - During off-season: 3-4 staff - Typical shift: 3 work days. 4 off days.		
5		**Site** - Currently the overall storage space is insufficient. The shed and shipping container houses landscaping tools and emergency supplies. - Current above grade dual fuel tank is rusting and has some leaks. - Original underground tank had been dug out. (soil contamination ?) - Well water is used for the Apparatus and hydrants. The Living Quarters uses potable city water. - Current emergency power generator is pre 1983. - PFS is ok with 72 hr generator. Ratcliff to confirm size needed. - Need a wharf hydrant. - Hose rack is antiquated. Prefer modern hose dryer.		
6		**Apparatus Bay** - Current engines: (1) Type 1 engine, (1) rescue 59, (1) seasonal Type 3, (1) utility pick-up truck, (1) water tender - Prefer solution for adjacency among decontamination, turn-out room, and extractor equipment spaces. - Currently turnout gear is on sides and rear of Apparatus bays, and is circulation around vehicles is reduced. - Need sizable medical storage due to the variety of incident types required: coastal waters, coastal cliffs, highway, forest, town. - Ratcliff needs make and model of the engines for planning. - Staff performs minor station repairs on site, others by County mechanics. - Need washing apparatus pad. Prefer indoor. Underside spray needed due to salt vapor within coastal areas. - Currently no oil disposal set up. - Need to accommodate 11'-3" high truck at this time. - Rear addition (date:?) includes area for physical training. - Area is insufficient and not efficiently laid out. At present – no daylight and area is mixed with vehicle bay air systems.		
7		**Public/ Office** - PFS prefers having a lobby/office area to receive visitors. - Office space requirements: (2) workstations, (1) EMS workstation, (1) captain's office - Guido requested Ratcliff to present an option of having Emergency Operation Center function. - Prefers having spaces to accommodate public meetings and training (e.g. PMAC Meeting and voting) - Current EMS training takes place at Station 40. - Outdoor training takes place at PFS. - Deliveries: occasional big deliveries. - Need public restroom.		

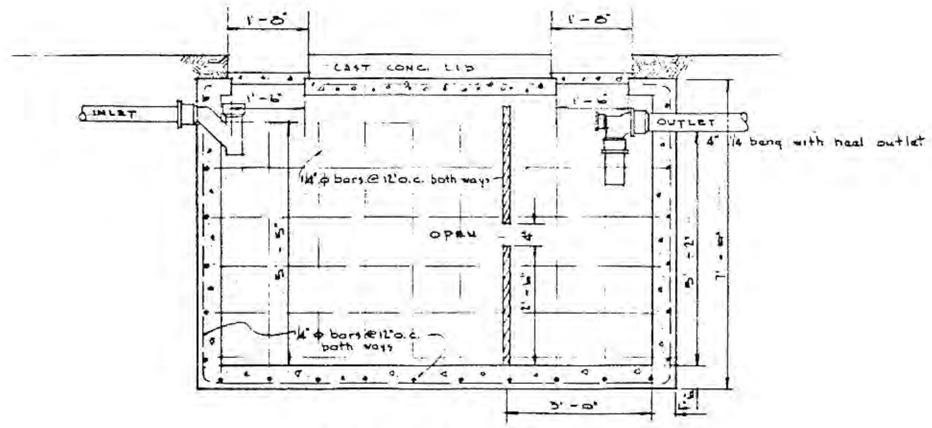
8		**Living Quarters** - Existing beds: 7. - During training, living facility is insufficient. Would prefer to provide separate gender bathrooms and bedrooms. - Prefer Day Room to have separation from Dining and Kitchen - Kitchen size is currently sufficient. Would like to have commercial-grade dish washer. - Current pantry storage space insufficient. - Dining table some time is used for meetings. During having maximum staffing, some people dine in the Day Room. - Outdoor patio needs wind and insect screen protection in the coastal area. - Prefer commercial-grade washer and dryer.		
9		**Programming Report** - Ratcliff to explore possibly 4 options: o Option A: Renovating existing fire station – occupied site (need phased planning) o Option B: Renovation existing fire station – unoccupied site (need temp site) o Option C: : Renovation existing fire station – with a remote mini station concept. (need remote site) o Option D: New fire station at a new location (need new site TBD). - Ratcliff to incorporate sustainable features.		
10		**Aesthetic** - Not deeply discussed, but some preference for association with local rural structures was mentioned.		

These minutes summarize the conclusions of the subject meeting. If there are substantial errors or omissions, please contact Ratcliff within three working days of receipt of this memorandum

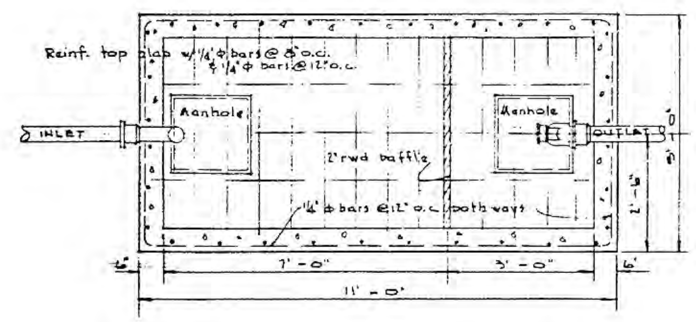
Nina Pakanant
Ratcliff



ROOF PLAN
Scale: 1/8" = 1'-0"

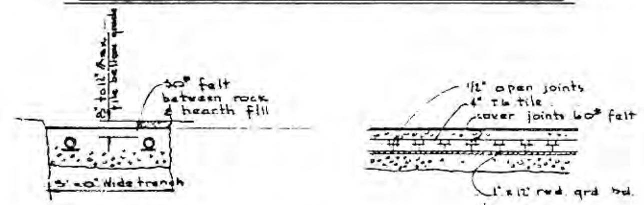


SECTION

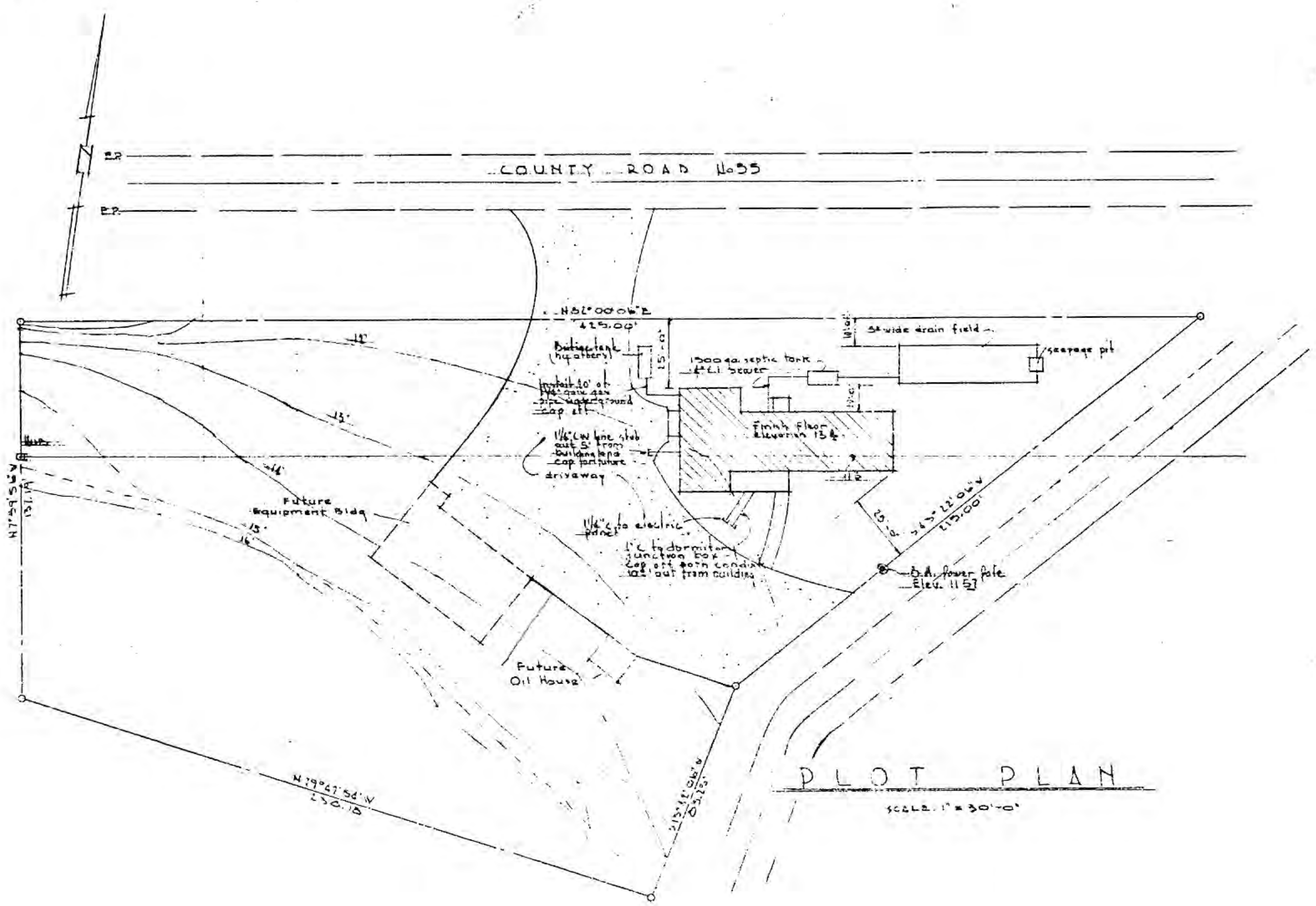


PLAN

SEPTIC TANK DETAILS



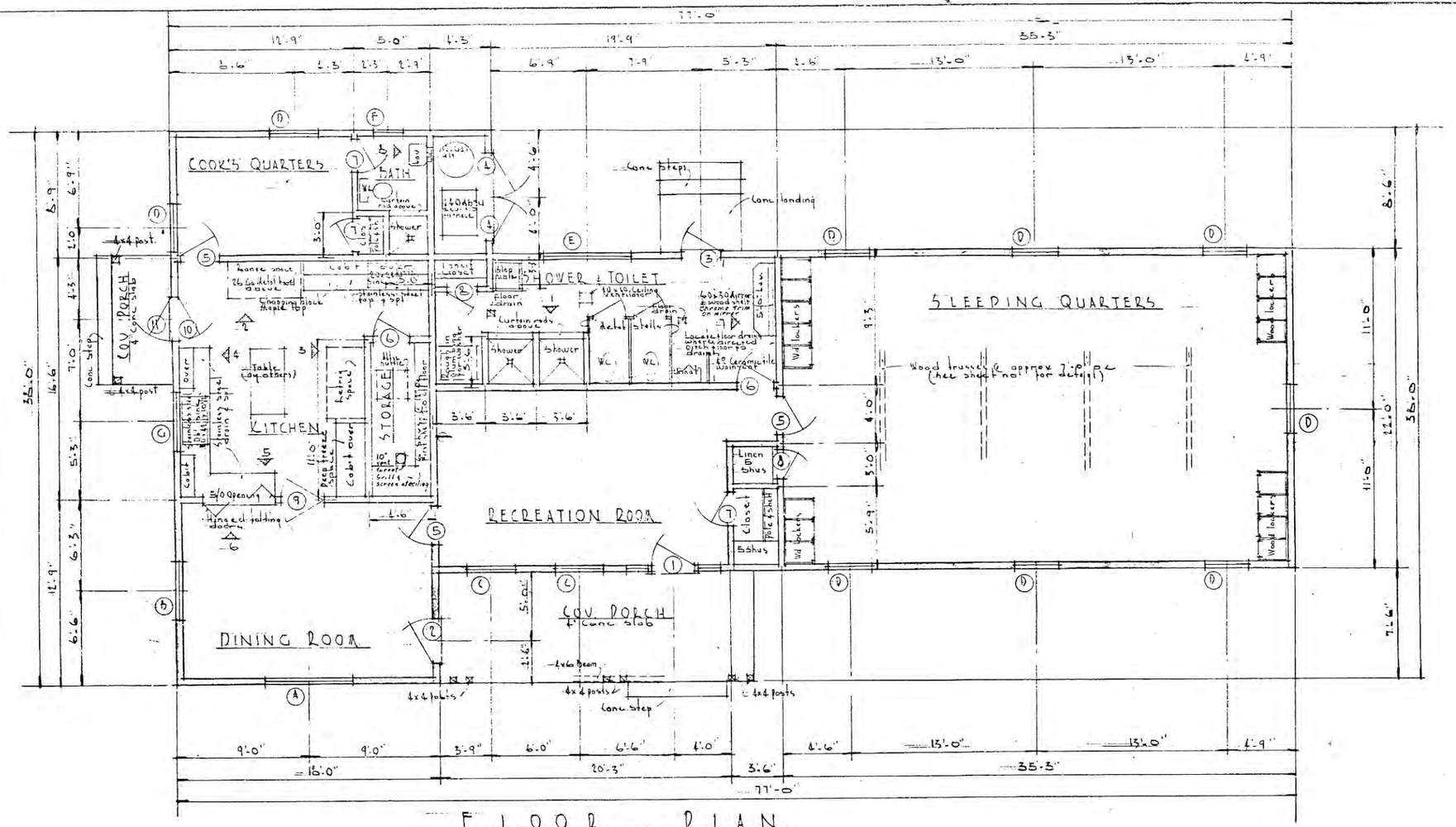
TYPICAL TRENCH DETAILS



PLOT PLAN
SCALE: 1" = 30'-0"

Approved by		
Fire Warden	LIVING Q_ARTERS FOR PES_ADERO FIRE ST_TION	Date
Chairman Board Supervisor		Scale
County Manager	SAN MATEO COUNTY DEPARTMENT OF CONSTRUCTION & MAINTENANCE	Drawn by
Director of Constr.		Sheets
		File No.

P-2-1



FLOOR PLAN

Scale: 1/4"=1'-0"

see sheet no. 3 for truss detail

SCHEDULE OF ROOM FINISHES

ROOM	FLOOR	BASE	WALLS	TRIM	CEILING	PAINTING SPECIFICATIONS
SLEEPING QUARTERS	Asphalt tile	Rubber base	Sheetrock painted	Wood	painted as ceiling Exposed trusses painted	Spec #1 & 2
DINING	(Concrete proof)	" "	" "	"	Sheetrock painted	" #1 & 2
COOKS QUARTERS	" "	" "	" "	"	" "	" #1 & 2
KITCHEN	(Concrete proof)	" "	" "	"	" "	" #2 & 3
BATH	" "	" "	" "	"	" "	" #2 & 3
SHOWERS TOILET	Ceramic tile by owners	Ceramic tile Ceramic tile	Ceramic tile Sheetrock painted	"	" "	" #2 & 3
STORAGE	Asphalt tile	Rubber base	Sheetrock painted	"	" "	" #1 & 2
CLOSET	" "	" "	" "	"	" "	" #1 & 2
RECREATION	" "	" "	" "	"	" "	" #1 & 2
FURNACE	4" conc. slab	None	5/8 sheetrock no paint	"	5/8 sheetrock no paint	" #2

PAINTING NOTES:
1. Interior woodwork shall be specification #2 except ceiling at Sleeping Room which shall be #1
2. Interior walls & ceilings shall be specification #1 except in Kitchen, Bath & Toilets which shall be #3
3. Exterior woodwork shall be specification #4
4. Exterior metal shall be specification #4

WINDOW SCHEDULE

NO	SIZE	TYPE	NOTES
A	6'-0" x 4'-2 5/8"	Alum Casement	All glass shall be "B" Quality type Double Strength
B	4'-0" x 4'-2 5/8"	" "	
C	3'-0" x 4'-2 5/8"	" "	
D	3'-0" x 3'-2 5/8"	" "	
E	6'-0" x 3'-2 5/8"	" "	1 Horiz. muntin in Obscure glass is to clear glass see Interior elevations
F	2'-0 1/2" x 2'-2"	" "	Obscure glass
G	4'-0" x 3'-2 5/8"	" "	

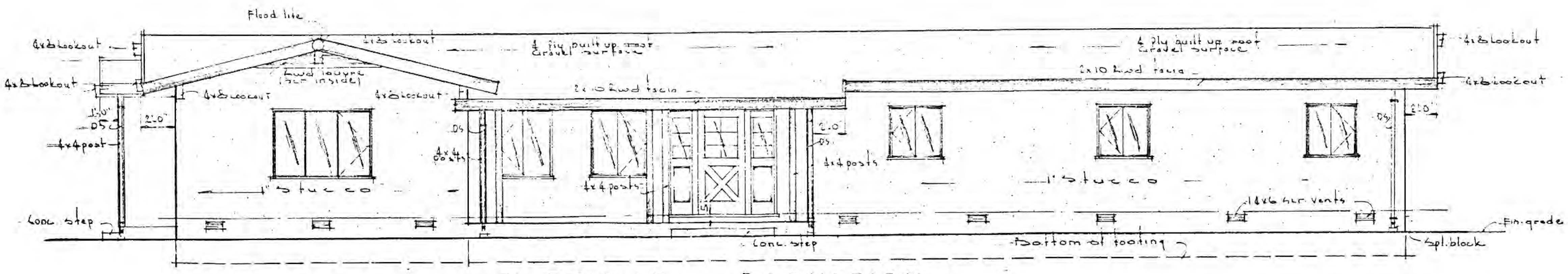
Furnish one screen for each vented window

DOOR SCHEDULE

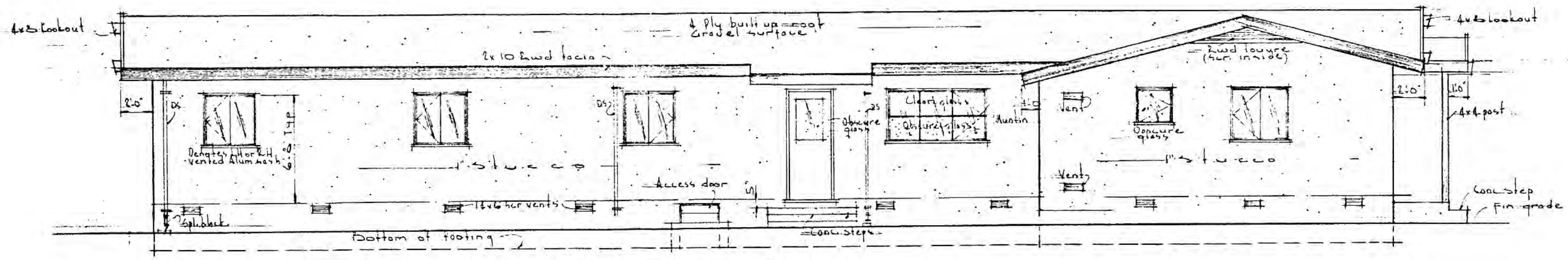
NO	SIZE	TYPE	NOTES
1	3'-0" x 6'-8" 1 3/4"	D.F. 9 Lites	Obscure glass see 1'-6" x 6'-8" 3/4"
2	3'-0" x 6'-8" 1 3/4"	D.F.	Flush - Solid core
3	2'-8" x 6'-8" 1 3/4"	D.F. Hollywood	Obscure glass
4	3'-0" x 6'-8" 1 3/4"	D.F.	Flush - Solid core
5	2'-8" x 6'-8" 1 3/8"	D.F.	" Hollow core
6	2'-6" x 6'-8" 1 3/8"	D.F.	" " "
7	2'-4" x 6'-8" 1 3/8"	D.F.	" " "
8	2'-0" x 6'-8" 1 3/8"	D.F.	" " "
9	3'-0" x 6'-8" 1 3/8"	D.F. Double acting	1/3 - Obscure glass 2/3 - Clear glass
10	3'-0" x 6'-8" 1 3/4"	D.F. Lite	Flush - Solid core
11	3'-0" x 6'-8" 1 3/8"	D.F. Louver	

Approved by:	LIVING QUARTERS FOR RELOCATED FAMILY	Date: 1-7-57
FILE VERSION		Drawn by: Noted
COUNTY ENGINEER	SAN MATEO COUNTY DEPARTMENT OF CONSTRUCT. & MAINTENANCE	Checked by:
RECOMMENDED FOR APPROVAL		Approved FILE NO.

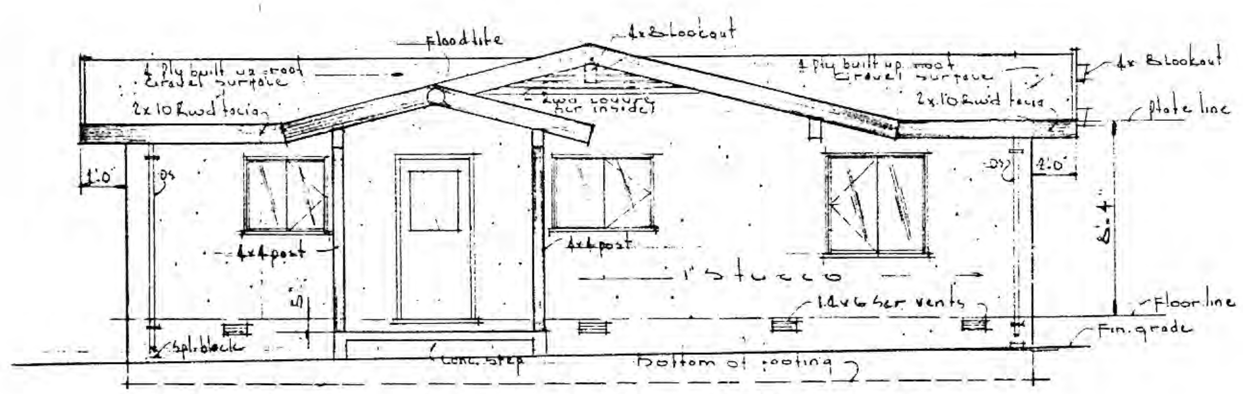
P-2-6



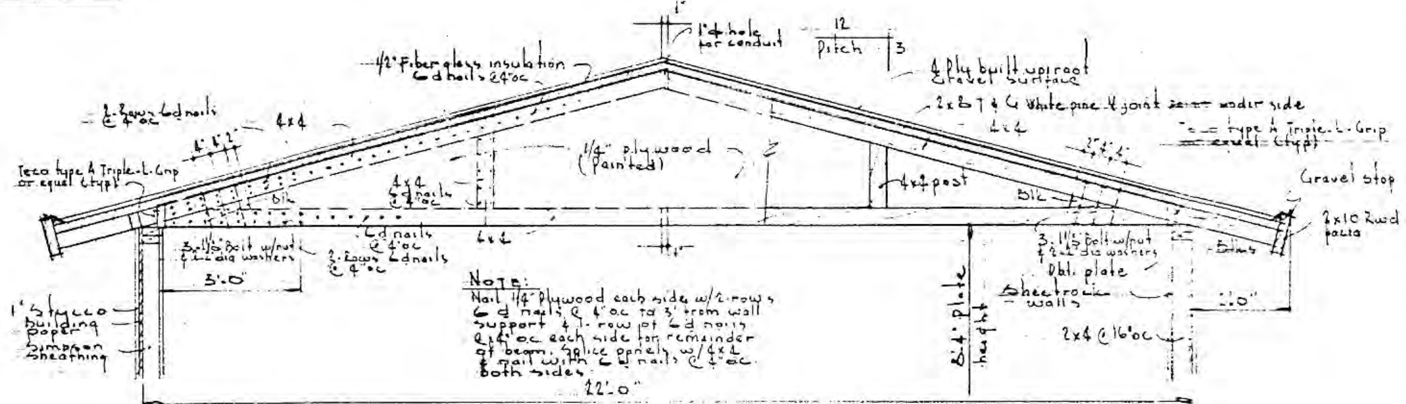
FRONT ELEVATION



REAR ELEVATION



LEFT ELEVATION

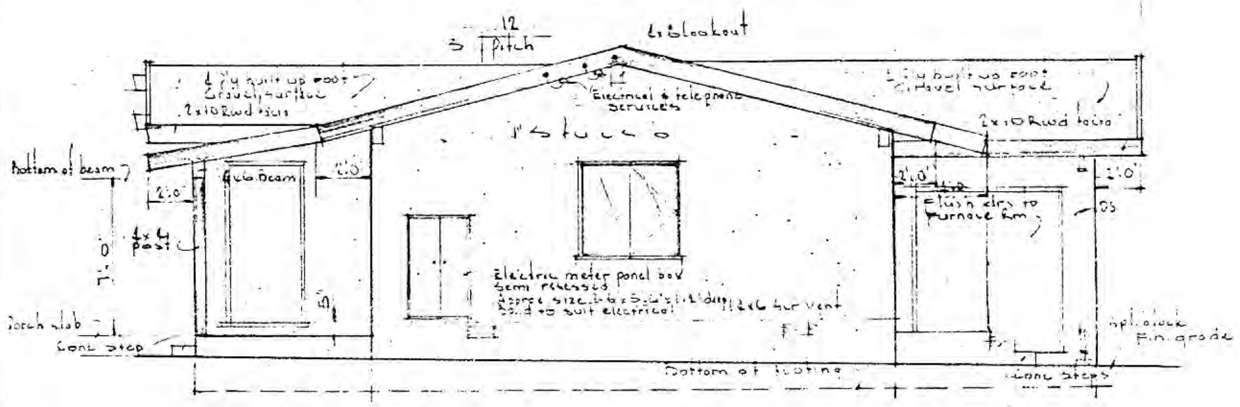


TRUSS DETAIL AT SLEEPING QUARTERS

Scale: 1/2" = 1'-0"

Truss detail only by FRED L. HASTING - CIVIL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
FRED L. HASTINGS
No. 8939
CIVIL ENGINEER
STATE OF CALIFORNIA



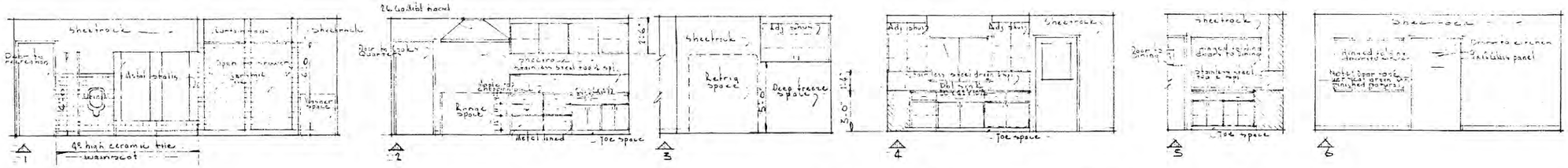
RIGHT ELEVATION

EXTERIOR ELEVATIONS

Scale: 1/4" = 1'-0"

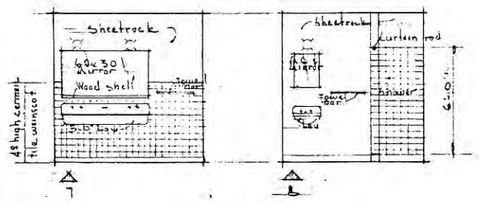
Approved by	LIVING QUARTERS FOR PESCADERO FIRE STATION	Date 2-7-57
FIRE WARDEN		Scale Noted
CHAIRMAN BD OF SUPERVISORS		Drawn by A.L.A.
COUNTY ARCHITECT	SAN MATEO COUNTY DEPARTMENT OF CONSTRUCTION & MAINTENANCE	Sheets
DIR. OF BLDG CONSTR.		File No

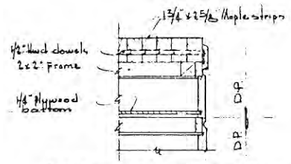
5-2-4



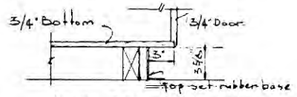
INTERIOR ELEVATIONS

Scale: 1/4" = 1'-0"



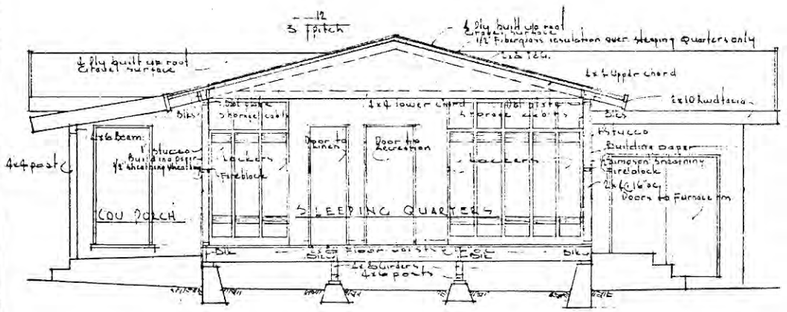


DETAIL AT CUTTING BLOCK



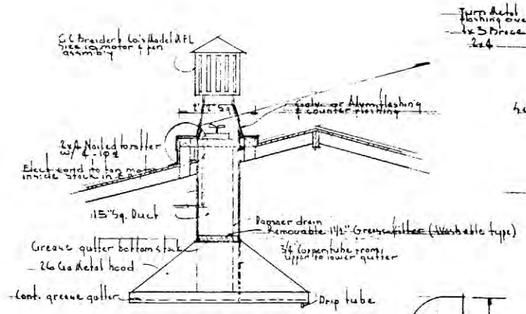
TYP TOE SPACE

Scale: 1 1/2" = 1'-0"



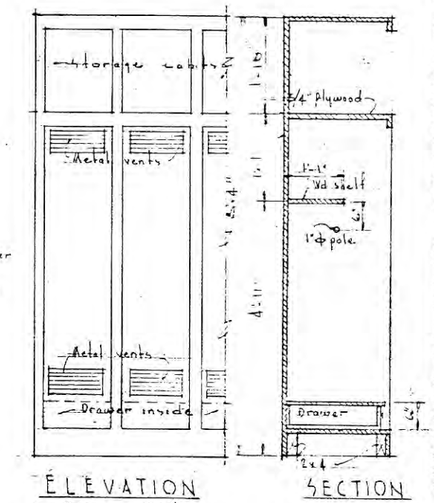
SECTION X

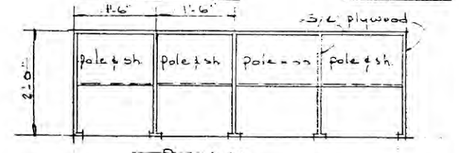
Scale: 1/4" = 1'-0"



HOOD & EXHAUST FAN DETAIL

Scale: 1/2" = 1'-0"

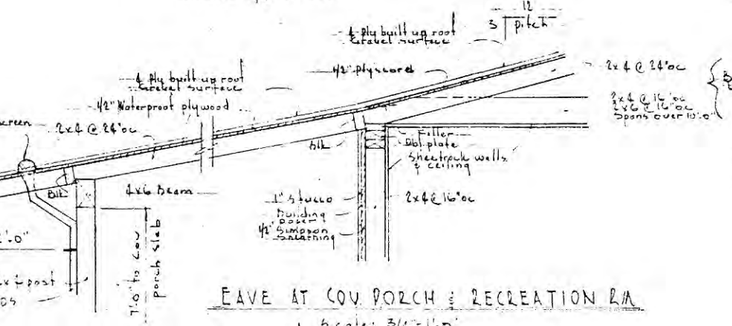




PLAN

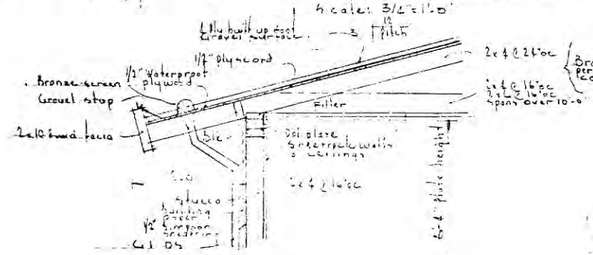
LOCKERS' DETAILS

Scale: 3/4" = 1'-0"

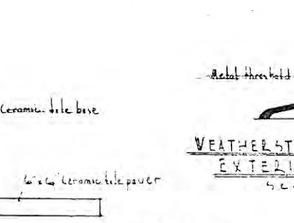


EAVE AT COV. PORCH & RECREATION RM

Scale: 3/4" = 1'-0"



EAVE DETAIL



TYP BASE DETAIL AT CERAMIC TILE FLOOR

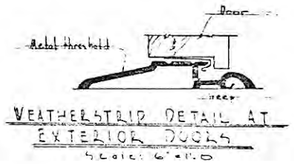
Scale: 3" = 1'-0"

TYP TRIM DETAIL

Scale: 8" = 1'-0"

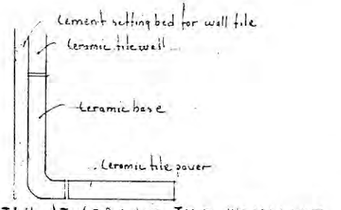
TYP BASE DETAIL

Scale: 12" = 1'-0"



WEATHERSTRIP DETAIL AT EXTERIOR DOORS

Scale: 6" = 1'-0"

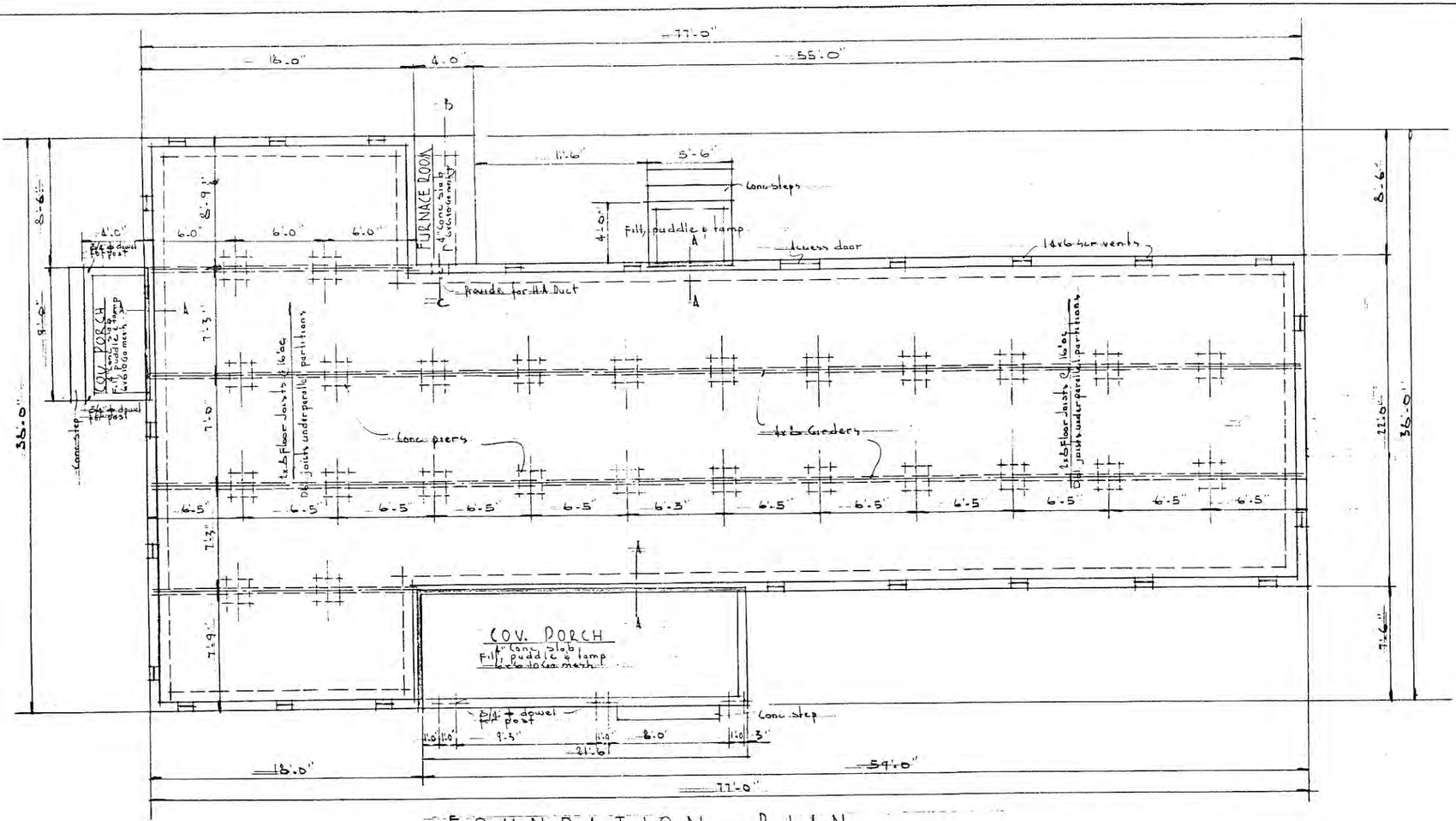


DETAIL AT CERAMIC TILE WAINSCOT

Scale: 3" = 1'-0"

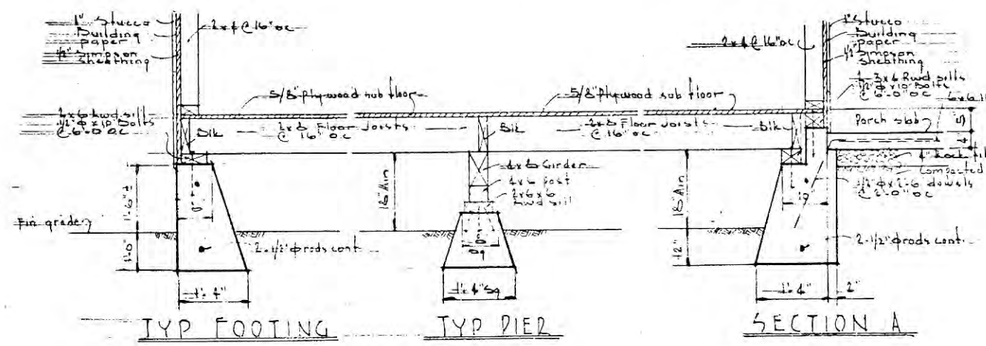
APPROVED BY: FIRE WARDEN; CHAIRMAN OF BOARD OF SUPERVISORS; COUNTY MANAGER; FIRE CHIEF, CDF&FPD, COUNTY	LIVING QUARTERS FOR PESCADERO FIRE STATION	DATE 1-17-57; REVISED NOTED; SHEET 1 OF SHEETS; JOB NO
	SAN MATEO COUNTY DEPARTMENT OF CONSTRUCTION — SUPERINTENDENT	

C-2-3

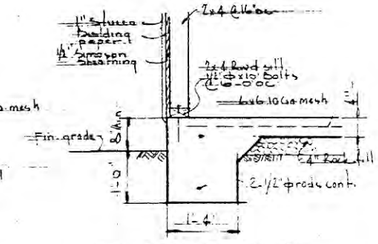


FOUNDATION PLAN

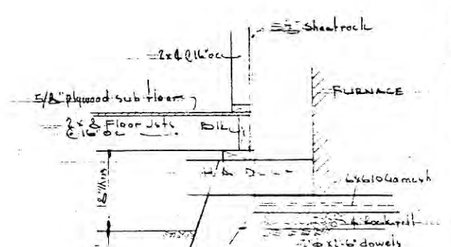
Scale: 1/4"=1'-0"



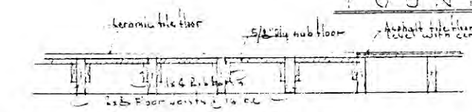
TYP FOOTING TYP PIER SECTION A



SECTION B



SECTION C

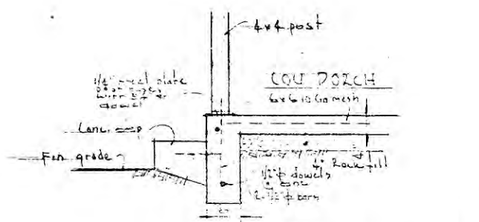


FLOOR DETAIL FOR TILE FLOOR

Scale: 3/4"=1'-0"

FOUNDATION DETAILS

Scale: 3/4"=1'-0"



POST DETAIL AT COV PORCH

Scale: 3/4"=1'-0"

Approved by: FIRE WARDEN	LIVING QUARTERS FOR DESERT FIRE STATION	Date: 2-1-57
Chief of Division		Scale: None
County Architect: Henry F. Hansen	San Mateo County Department of Construction & Maintenance	Drawn by:
		Sheet No.
		File No.

P-2-5

ELECTRICAL FIXTURE SCHEDULE

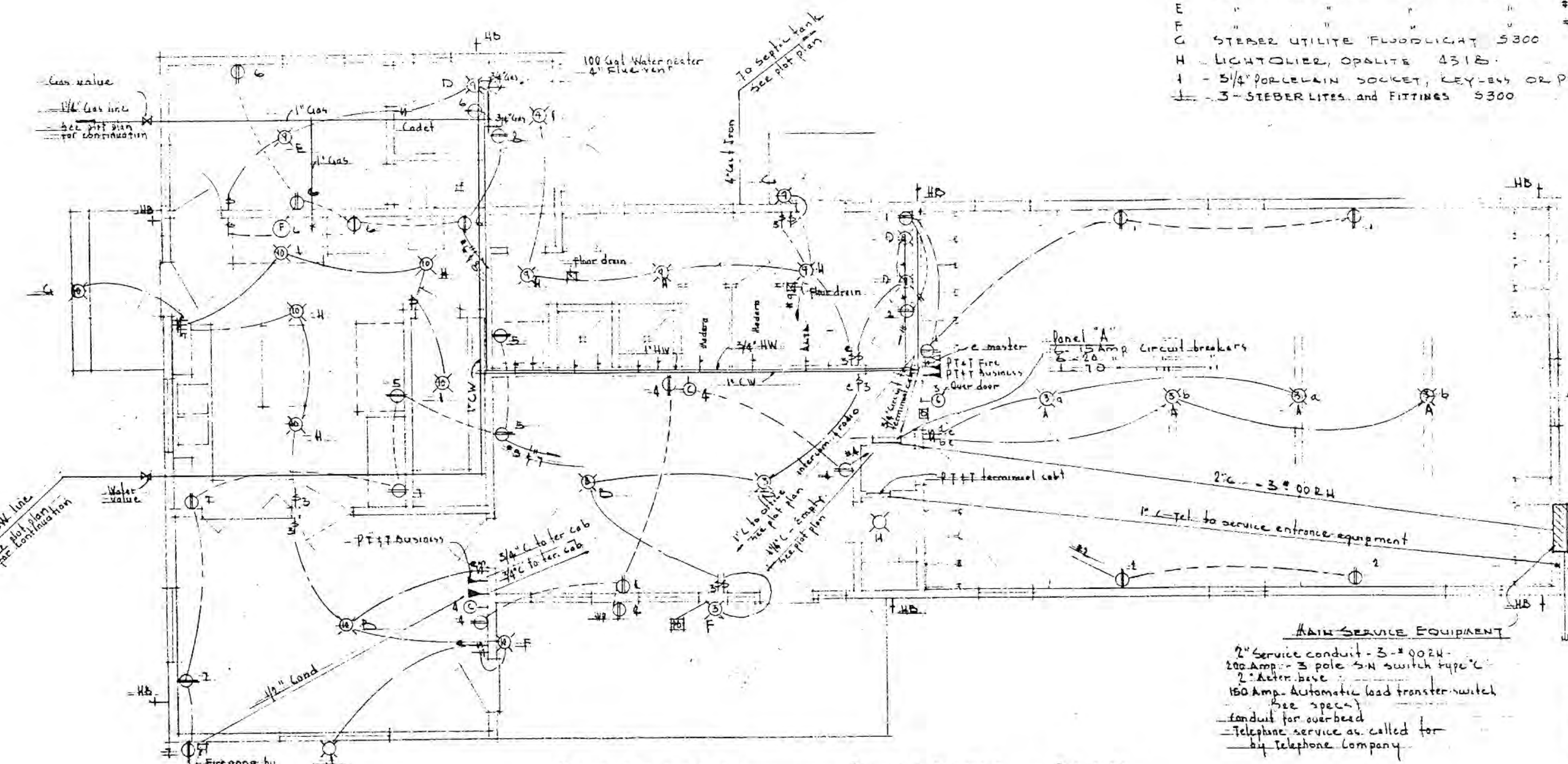
A	THOMAS INDUSTRIES INC., STARLIGHT #TI-229-4.40 WATT LAMPS	
B	GRAYBAR HOMES AREA LITES 24×24 ... PLASTIC - 2 G.E CIRCLINE LAMPS	
C	LIGHTOLIER OPALITE 4317	2-75 WATT LAMPS
D	THOMAS INDUSTRIES INC., STARLIGHT #TI-235	2-40 "
E	" " " " #SL-143	2-60 "
F	" " " " #TI-751	1-40 "
G	STEBER UTILITE FLOODLIGHT S300	1-260 LAMP
H	LIGHTOLIER, OPALITE 4318	3-60 WATT LAMP
I	3 1/4" PORCELAIN SOCKET, KEYLESS OR PULL AS REQUIRED - 1-75 W LAMP	
	3 - STEBER LITES and FITTINGS S300	3-R40 LAMPS

NOTE

Telephone: Electrical contractor shall furnish and install all cabinets, boxes and conduits necessary for the telephone system.

SYMBOLS

- Outlet wall or ceiling
- Duplex convenience outlet
- WP Weatherproof convenience outlet
- Clock outlet (110 volts)
- PT&T Telephone
- Intercom & radio
- Push button
- Buzzer or bell as selected
- e Switches on emergency light circuit (See specs).



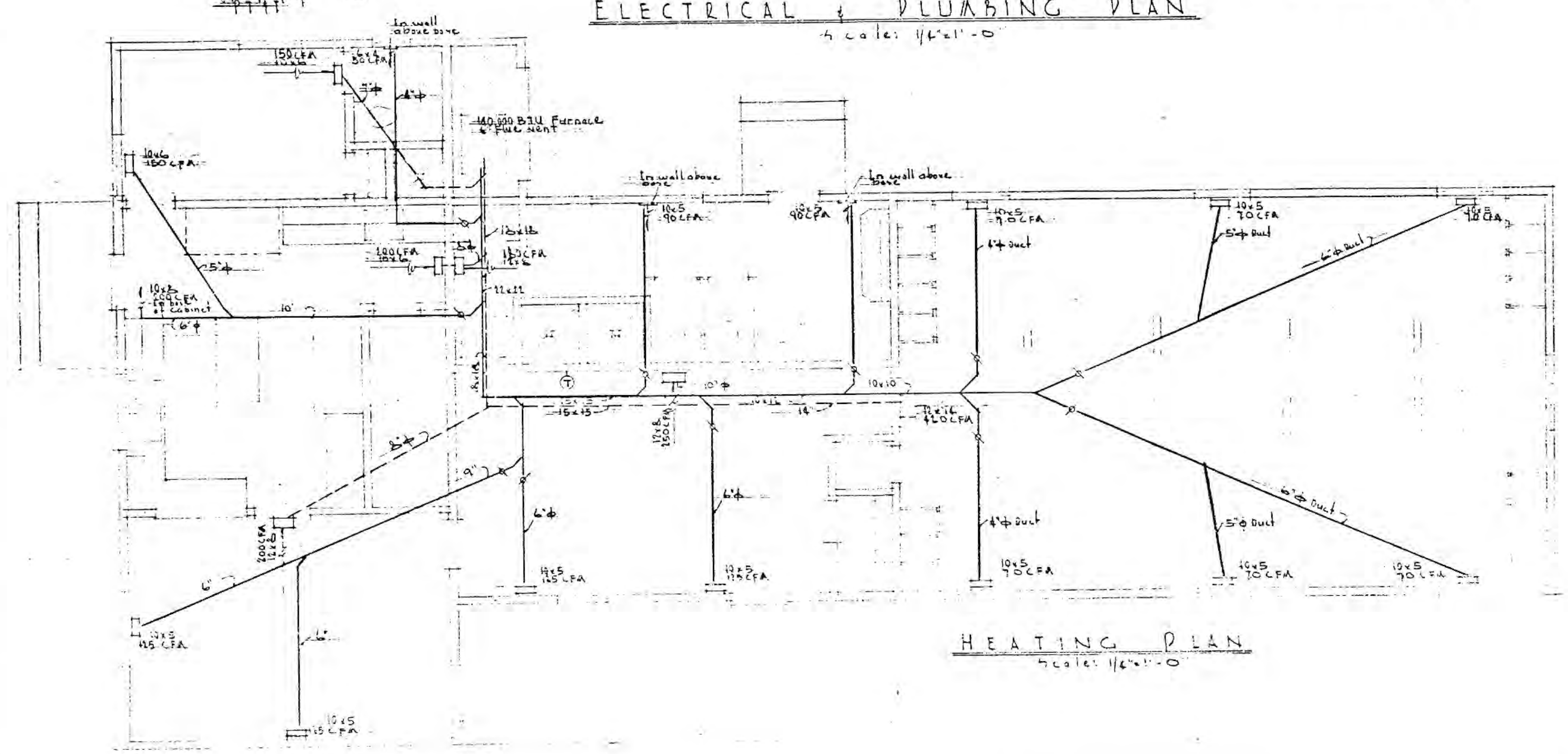
MAIN SERVICE EQUIPMENT

2" Service conduit - 3 - # 00 RH
200 Amp - 3 pole S.N switch type "C"
2" Meter base
150 Amp. Automatic load transfer switch (See specs)
Conduit for overhead
Telephone service as called for by Telephone Company

ELECTRICAL & PLUMBING PLAN
Scale: 1/4"=1'-0"

PLUMBING NOTES:

Hot & cold water supply to water heater shall be 1"
Hot & cold feeder lines shall be of size shown on plans.
Taps for fixtures & hose bibbs shall be sized in accordance with San Mateo County Plumbing Code.
Pressure on system shall be 30 lbs.
Rough in only for washing machine
Gas line shall be as shown on plans
Waste and venting shall be in accordance with San Mateo County County Code and shall be complete with septic tank and drain field as shown on plans.
See plot plan for extensions of ...



HEATING PLAN
Scale: 1/4"=1'-0"

HEATING NOTES:

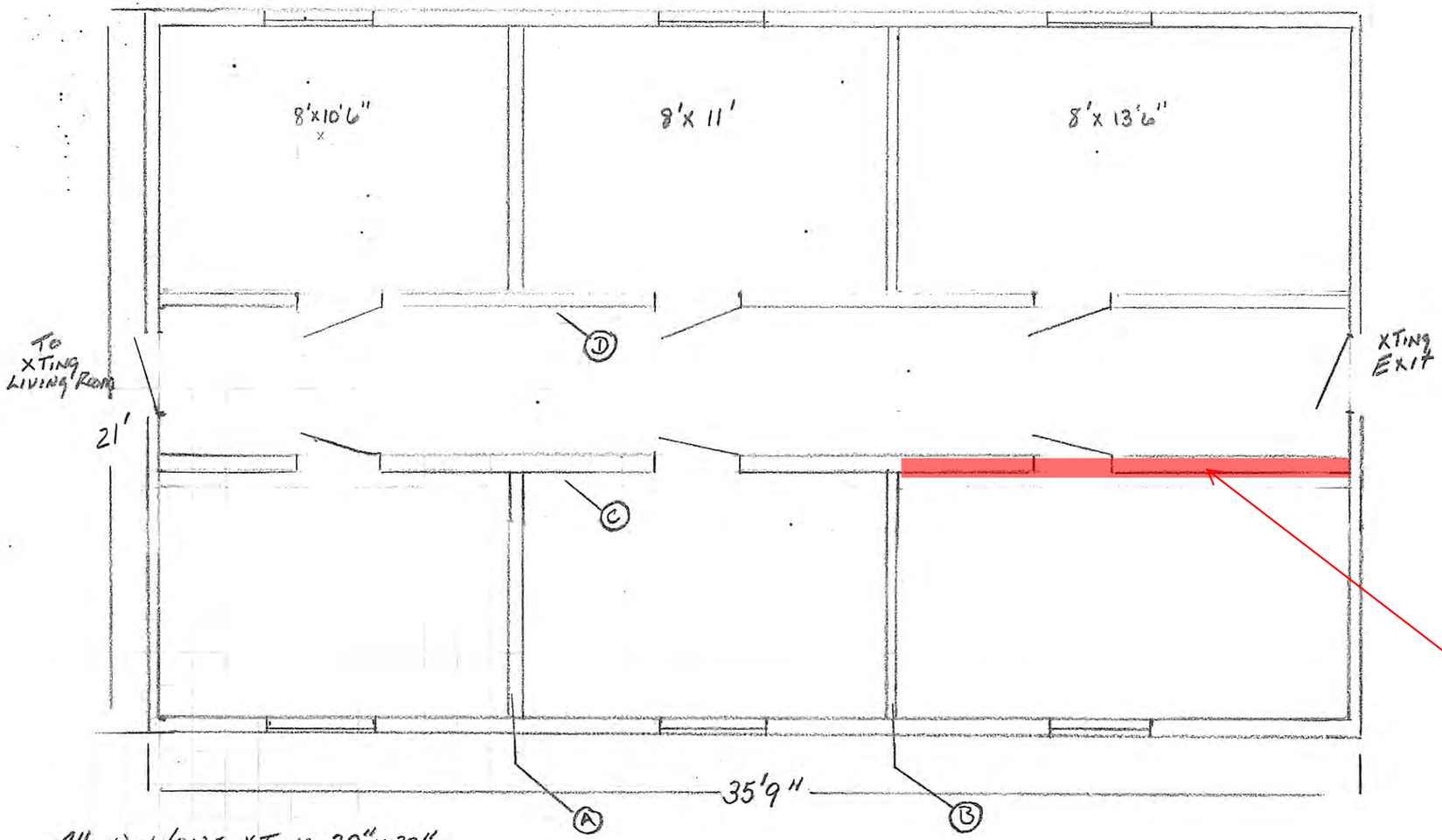
1. Floor supply diffusers shall be TUTTLE & BAILEY T-60 with adjustable dampers
2. Return air registers shall be TUTTLE & BAILEY AEROVANE MODEL T 78" or equal with opposed blade dampers
3. Return air ducts shall be in attic space, supply ducts under floor

LEGEND

- Supply Air
- Return Air
- Volume damper
- Room Thermostat

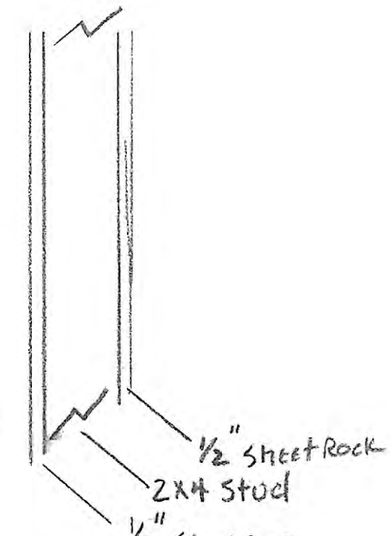
Approved by	LIVING QUARTERS FOR PESCADERO FIRE STATION	Date 2-7-57
FIRE WARDEN		Scale Noted
CHAN. BD. OF SUPERVISORS		Drawn by
COUNTY MANAGER	SAN MATEO COUNTY DEPARTMENT OF CONSTRUCTION & MAINTENANCE	Sheets
ENGINEERING COUNTY		File No.

F-2-2



All windows XTing 38"x38"
All doors 3° Hollow core
All walls insolated for sound Resistance

Walls A, C, D New Partitians
Wall B XTing Partitian



Typical wall detail

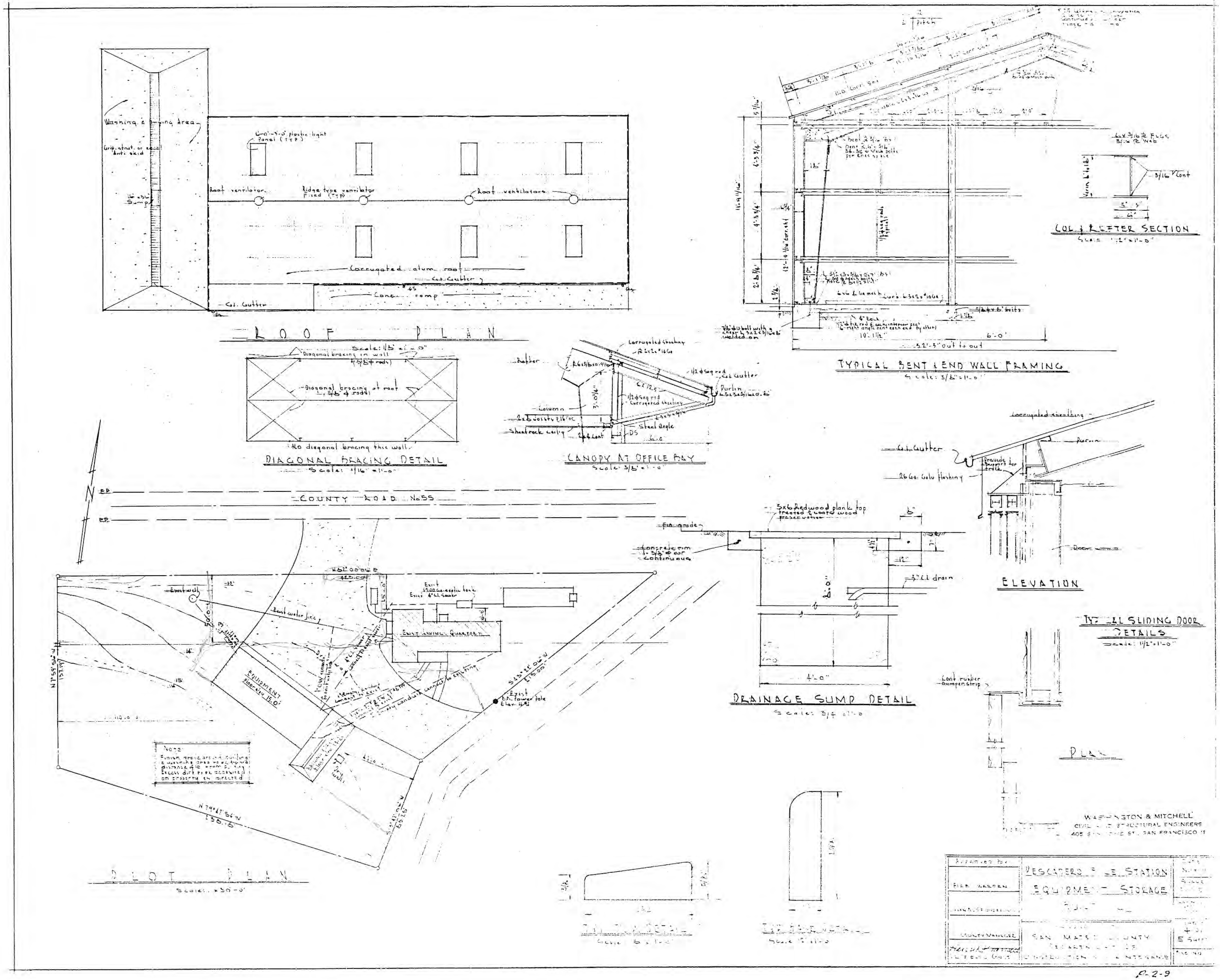
This wall was not built.
Confirmed on 11/20/13.
Note:
"xting" means "Existing Condition"

Date of Drawing:
Unknown

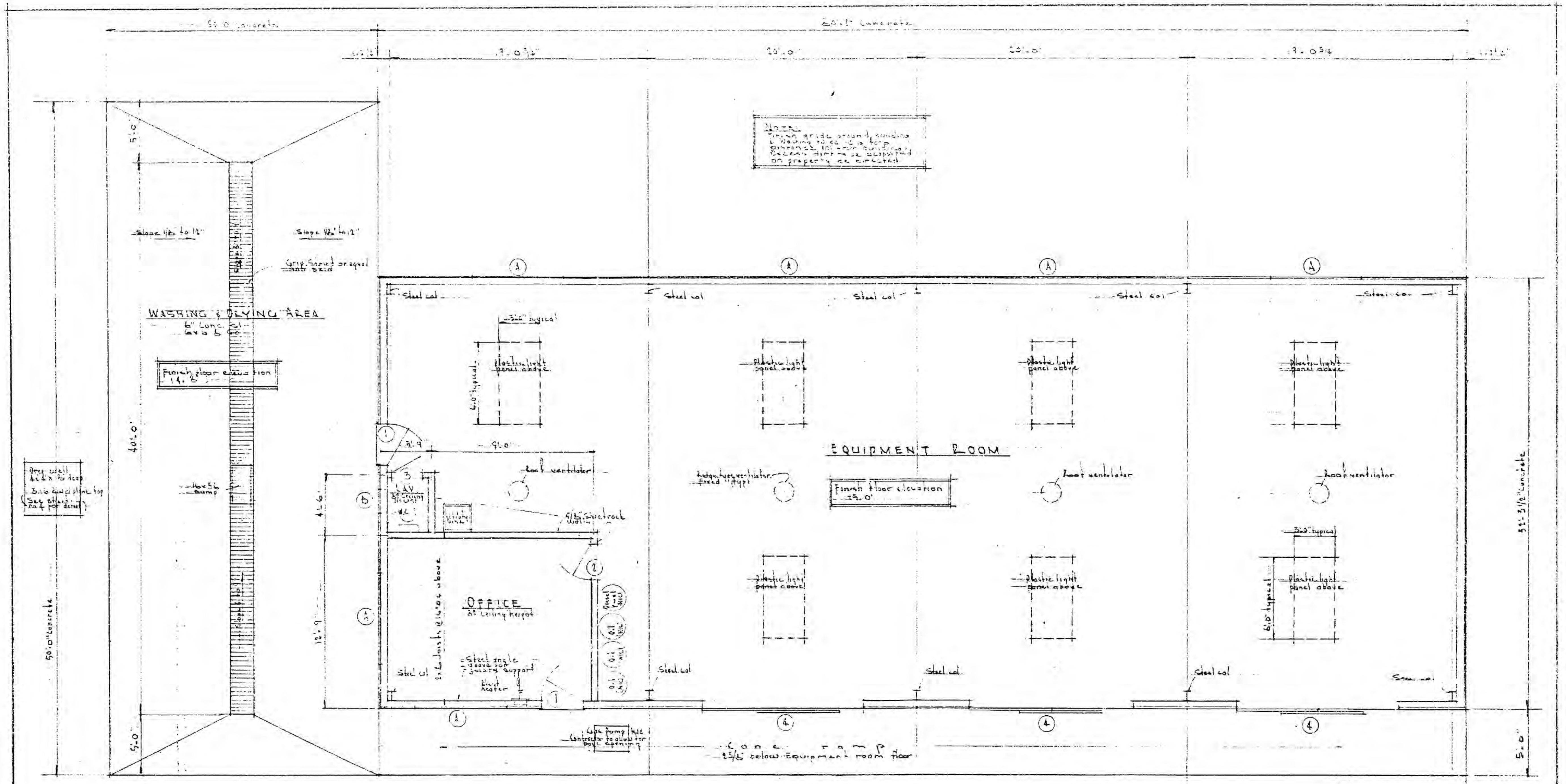
1/4" Scale

D. Risney

Pescadero Fire Station
Barracks



Washing & ...ing Area
Roof ventilator
Ridge type ventilator Fixed (Typ)
Roof ventilators
Corrugated alum roof
Gal. Gutter
Conc. ramp
ROOF PLAN
Scale: 1/8" = 1'-0"
Diagonal bracing in wall
Diagonal bracing at roof
No diagonal bracing this wall
DIAGONAL BRACING DETAIL
Scale: 1/16" = 1'-0"
Rafter
Corrugated sheathing
Gal. Gutter
Purlin
Column
Steel angle
Sheetrock ceiling
CANOPY AT OFFICE BAY
Scale: 3/8" = 1'-0"
TYPICAL BENT & END WALL FRAMING
Scale: 3/8" = 1'-0"
32'-3" out to out
COL. & RAFTER SECTION
Scale: 1 1/2" = 1'-0"
COUNTY ROAD No 55
Exist well
Exist water line
Exist living quarters
Exist 1500 Ga. septic tank
Exist 4" C.I. sewer
EASEMENT
Exist P.G.&E. power pole
N 74°47'56" W 138.5
Note: Finish grade around building & washing area to ext. normal distance 40' from building. Excess dirt to be disposed of on property as directed
PLOT PLAN
Scale: 1" = 30'-0"
5x6 Redwood plank top treated & coated wood preservative
Fin. grade
Concrete rim
5" C.I. drain
4'-0"
DRAINAGE SUMP DETAIL
Scale: 3/4" = 1'-0"
Gal. Gutter
26 Ga. Galv. flashing
Corrugated sheathing
Purlin
Door
ELEVATION
TYPICAL SLIDING DOOR DETAILS
Scale: 1 1/2" = 1'-0"
Cont rubber bumper strip
PLAN
WASHINGTON & MITCHELL
CIVIL AND STRUCTURAL ENGINEERS
405 SANSOME ST., SAN FRANCISCO 11
PESCADERO FIRE STATION
EQUIPMENT STORAGE
FIRE WARDEN
COUNTY MANAGER
SAN MATEO COUNTY
CONSTRUCTION & MAINTENANCE
P-2-9



FLOOR PLAN

Scale: 1/8"=1'-0"

SCHEDULE OF ROOM FINISHES						
ROOM	FLOOR	BASE	WALLS	TRIM	CEILING	PAINTING SPECIFICATIONS
EQUIPMENT	[illegible]	[illegible]	[illegible]	None	[illegible]	[illegible]
OFFICE	[illegible]	[illegible]	[illegible]	Wood	[illegible]	Spec [illegible]
LAV	[illegible]	[illegible]	[illegible]	Wood	Sheetrock	Spec [illegible]

PAINTING NOTES:

Exterior & interior alum. sheathing no paint
Structural steel shop coat only by building supplier
Exterior sides of doors & metal sash Spec #3
Interior sides of doors & metal sash see schedule of room finishes above

WINDOW SCHEDULE			
NO	SIZE	TYPE	NOTES
[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	Steel projected out	Obscure glass

FROM SOULE' STEEL WINDOW CATALOG

DOOR SCHEDULE			
NO	SIZE	TYPE	NOTE
1	[illegible]	[illegible]	[illegible]
2	[illegible]	SF	Flush [illegible]
3	[illegible]	SF	Flush [illegible]
4	[illegible]	Sliding	[illegible]

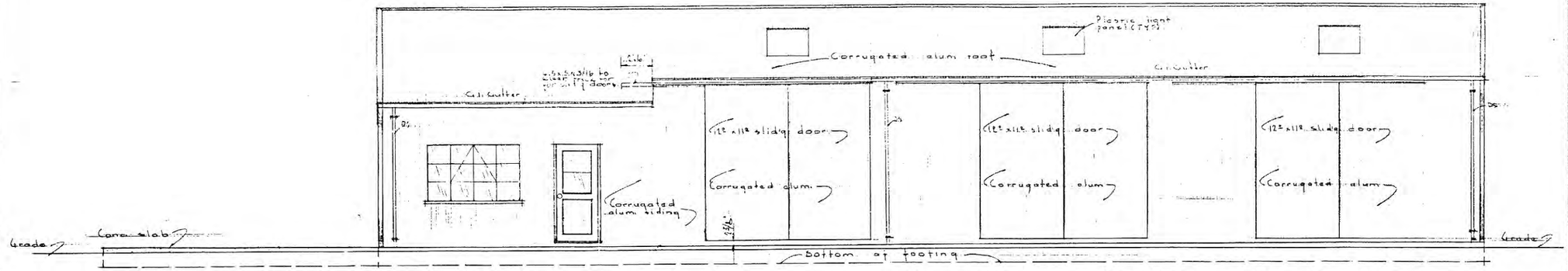
WASHINGTON & MITCHELL
CIVIL AND STRUCTURAL ENGINEERS
SAN FRANCISCO

APPROVED BY
FIRE WARDEN
COUNTY MANAGER

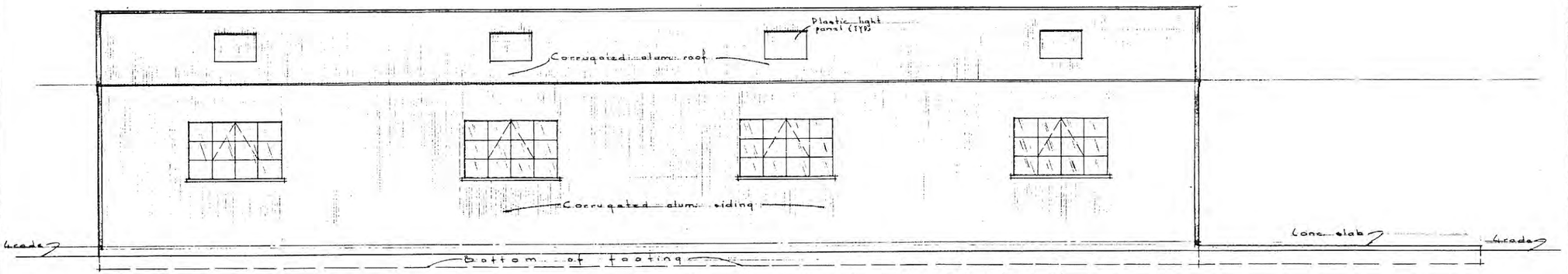
PESCADERO [illegible] STATION
EQUIPMENT STORAGE
[illegible]

SAN MATEO COUNTY
[illegible]
CONSTRUCTION [illegible] MAINTENANCE

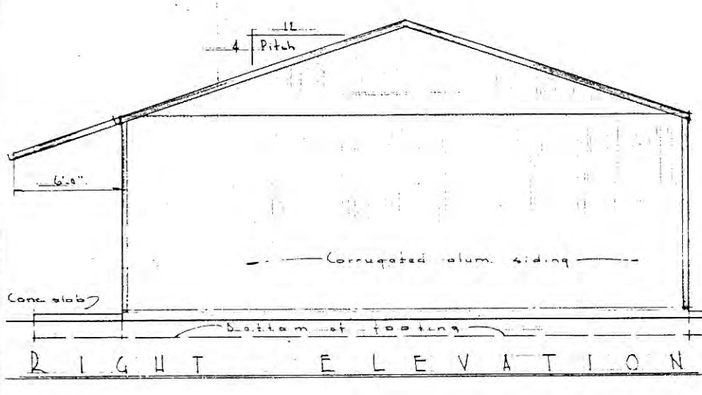
F-2-12



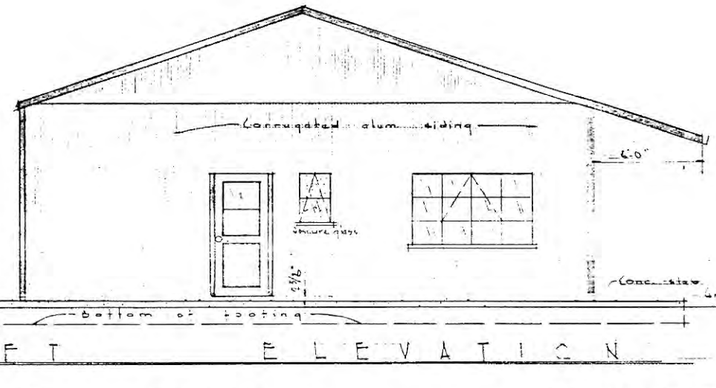
F R O N T E L E V A T I O N



R E A R E L E V A T I O N



R I G H T E L E V A T I O N



L E F T E L E V A T I O N

E X T E R I O R E L E V A T I O N S

Scale: 1/4" = 1'-0"

WASHINGTON & MITCHELL
CIVIL AND STRUCTURAL ENGINEERS
405 SANSOME ST. SAN FRANCISCO 11

APPROVED BY	PESCADERO FIRE STATION
FIRE WARDEN	EQUIPMENT STORAGE
COMM. ED OR SUPERVISOR	BUILDING
COUNTY MANAGER	SAN MATEO COUNTY
Dir. of Bldg. Constr.	DEPARTMENT OF CONSTRUCTION & MAINTENANCE
DATE	
SCALE	NOTED
DRAWN BY	
SHEET	5 OF 5 SHEETS
FILE NO.	

P-2-10

WASHING & DRYING AREA

6" conc. slab
6x6 b.w.m. mesh
(Washing & drying area 2⅞" below equipment room floor line)

EQUIPMENT ROOM

6" conc. slab
6x6 & 6 mesh

EXPANSION JOINT DETAIL

1 ON EACH COLUMN LINE

(TWO FOR WASHING & DRYING AREA)

NOTE:

Building quantities to conform to owners engineers calculations & justifying design of building to meet 1946 Uniform Building Code. Maximum soil pressure not yet determined @ 2000 #/sq.ft.

SECTION H-H

SECTION J-J

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-E As Noted

SECTION E-F As Noted

SECTION G-G

TYPE A BAY

TYPE B BAY

TYPE C BAY

TYPE D BAY

TYPE 32-A END WALL

Expansion joint

Typical interm. footing

Typical corner footing

Concrete ramp

(Concrete ramp 2⅜" below equipment room floor line)

FOUNDATION PLAN

Scale: 1/4" = 1'-0"

DAY DETAILS

Scale: 3/8" = 1'-0"

FOUNDATION DETAILS

Scale: 3/8" = 1'-0"

WASHINGTON & MITCHELL
CIVIL AND STRUCTURAL ENGINEERS
433 SANSOME ST., SAN FRANCISCO 11

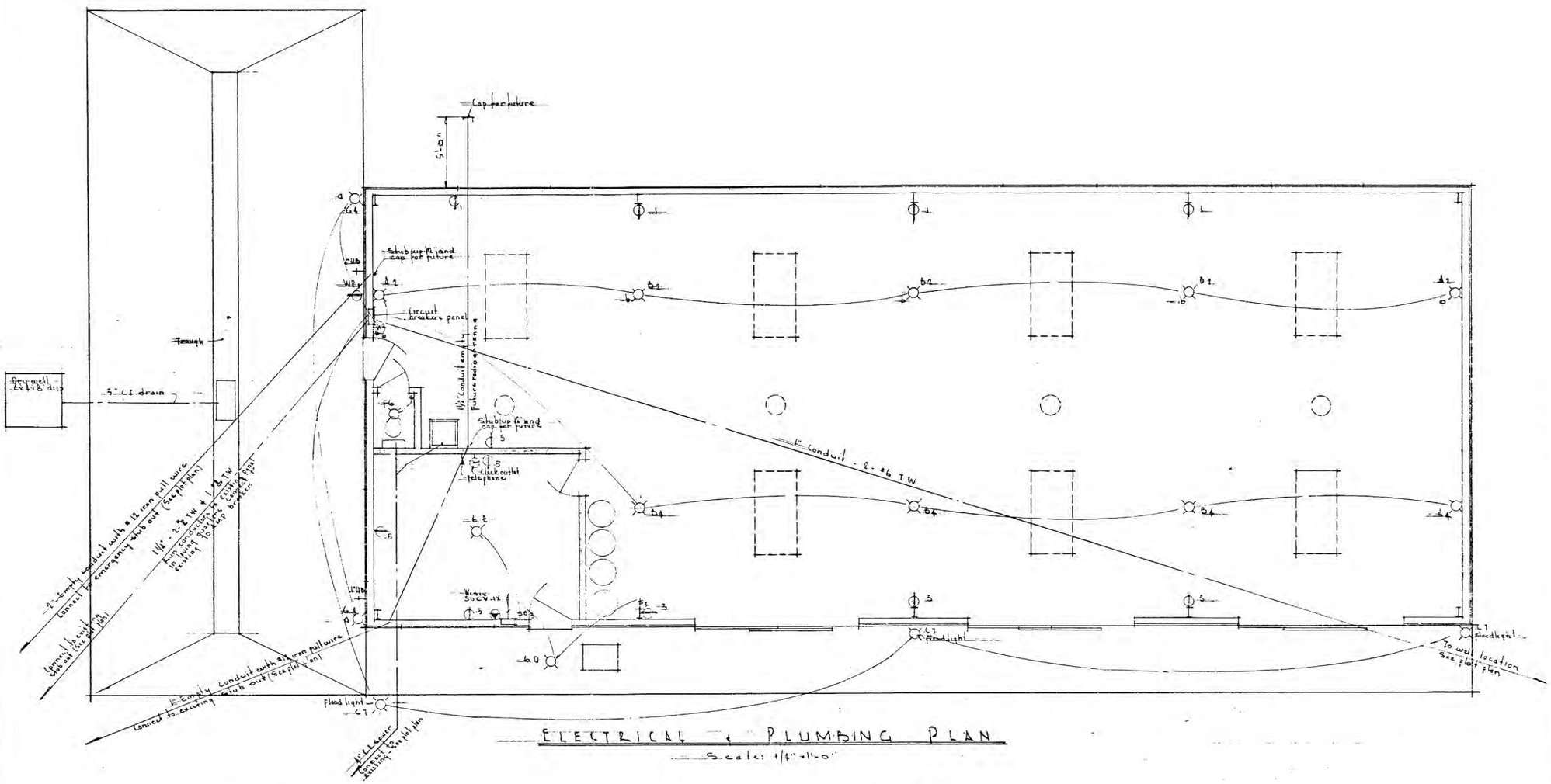
DESCANSO BUS STATION
EQUIPMENT STORAGE
BUILT

SAN MATEO COUNTY
DEPARTMENT OF

F. E. WALDEN
COUNTY MANAGER

7-11-52

E-2-11



ELECTRICAL & PLUMBING PLAN

Scale: 1/4" = 1'-0"

ELECTRIC FIXTURE SCHEDULE

A Benjamin #5526 with 200 watt lamp
B Benjamin #5826 with #N-3585 Aligner and 200 watt lamp
C 3. Steberlites & fittings each fixture S-300 with 3-R 40 Lamps
D R & S. #6362 Shallow dome vaportight with 100 watt lamp
E All-Brite #86296 with 2-96-T 12-430 MA lamps
F 5/16" Pere Keyless Socket
G 1. Steberlite & fittings each fixture S-300 with 2-R 40 Lamps

PANEL SCHEDULE

Cir.			
"	1	South wall receptacles	20 A
"	2	Overhead lights	15 A
"	3	North wall receptacles	20 A
"	4	Overhead lights & Exit lights	15 A
"	5	Office receptacles	20 A
"	6	Office & Isu lights	15 A
"	7	North floods	15 A
"	8	Spare	20 A
"	9	4. Pole - 230 volt well pumps	35 A
"	10	2. Pole - 230 volt Air comp.	15 A
"	11	220 Volt 3 KW Elect heater	20 A

SYMBOLS

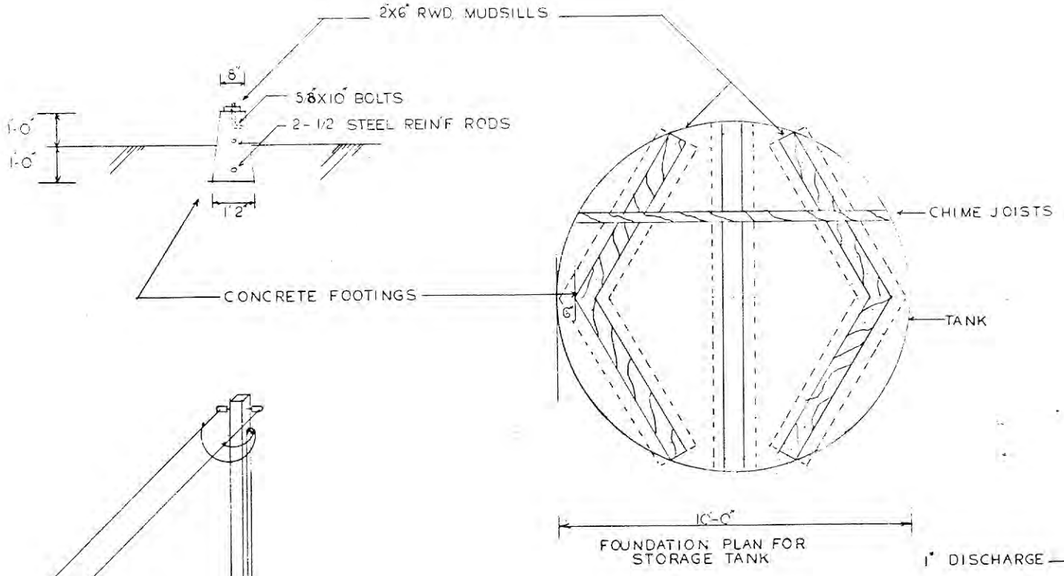
- Outlet wall or ceiling
- Duplex convenience outlet
- 220 V
- Clock outlet to point
- Telephone
- Under slab

APPROVED BY: FIRE WARDEN	PESCADERO F. P. STATION EQUIPMENT STORAGE	DATE: SCALE: 1/4"=1'-0"
COUNTY MANAGER	SAN MATEO COUNTY PESCADERO, CALIF. ELECTRICAL & PLUMBING PLAN	SHEET 5 OF 5 SHEETS FILE NO.

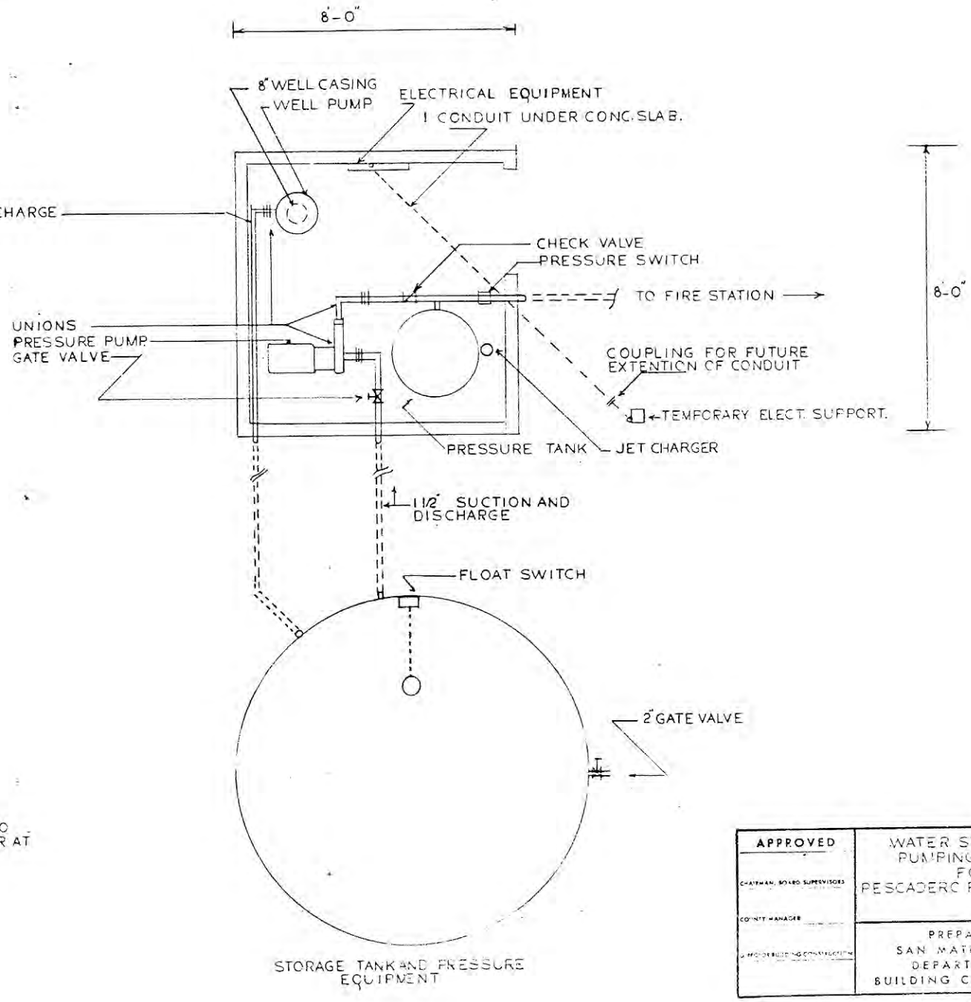
P-2-8

PIPING ABOVE GRADE
PIPING BELOW GRADE
CONDUIT BELOW GRADE
EXISTING CONDUIT

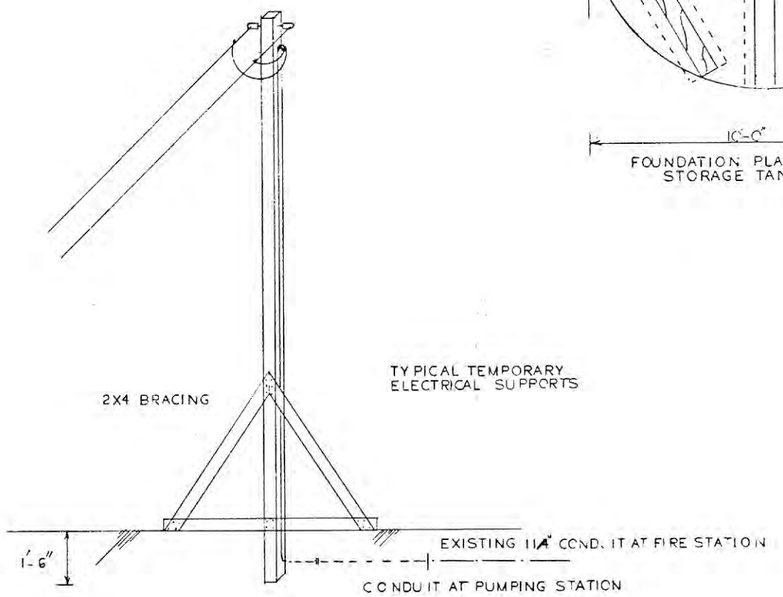
1-CONCRETE FOUNDATION FOR STORAGE TANK BY OTHERS
2-PUMPING STRUCTURE AND CONCRETE FLOOR BY OTHERS
3-ALL PIPING BELOW GRADE SHALL BE INSTALLED AT A DEPTH OF 1'-0" MIN.



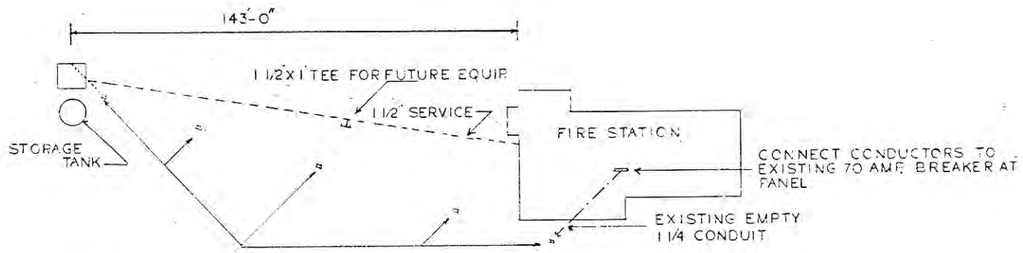
FOUNDATION PLAN FOR STORAGE TANK



STORAGE TANK AND PRESSURE EQUIPMENT



TYPICAL TEMPORARY ELECTRICAL SUPPORTS



TEMPORARY ELECTRICAL SUPPORTS

PLOT PLAN
NO SCALE

APPROVED	WATER STORAGE AND PUMPING SYSTEM FOR PESCADERO FIRE STATION	DATE 6-28-57
CHAIRMAN, BOARD SUPERVISORS		SCALE 1/2"=1'-0"
COUNTY MANAGER		DRAWN BY J.C.D.
DIRECTOR OF BUILDING CONSTRUCTION	PREPARED BY SAN MATEO COUNTY DEPARTMENT OF BUILDING CONSTRUCTION	SHEET NO.

P-2-7

105.6
loft

6.0
Mech

(18) 25"x40"
[9 x 2 high]

380.0

40"x60"

6.0
tool
shed

138.0

60"x72"

60"x72"
[5 tubs above]

40"x86"

18.2

60"x86"

12.1

12.4

EQUIPMENT ROOM

555.0

555.0

555.0

176
HazMat
Stor

OFFICE
295.0

(12) 25"x40"
[6 x 2 high]

FLOOR PLAN
Scale: 1/4"=1'-0"

3023 Main level
105 Loft
3128 GSF

160
storage container

80
storage shed

SCHEDULE OF ROOM FINISHES

ROOM	FLOOR	BASE	WALLS	TRIM	CEILING	REMARKS
EQUIPMENT						
OFFICE						
LAN —						

PAINTING NOTES:

WINDOW SCHEDULE

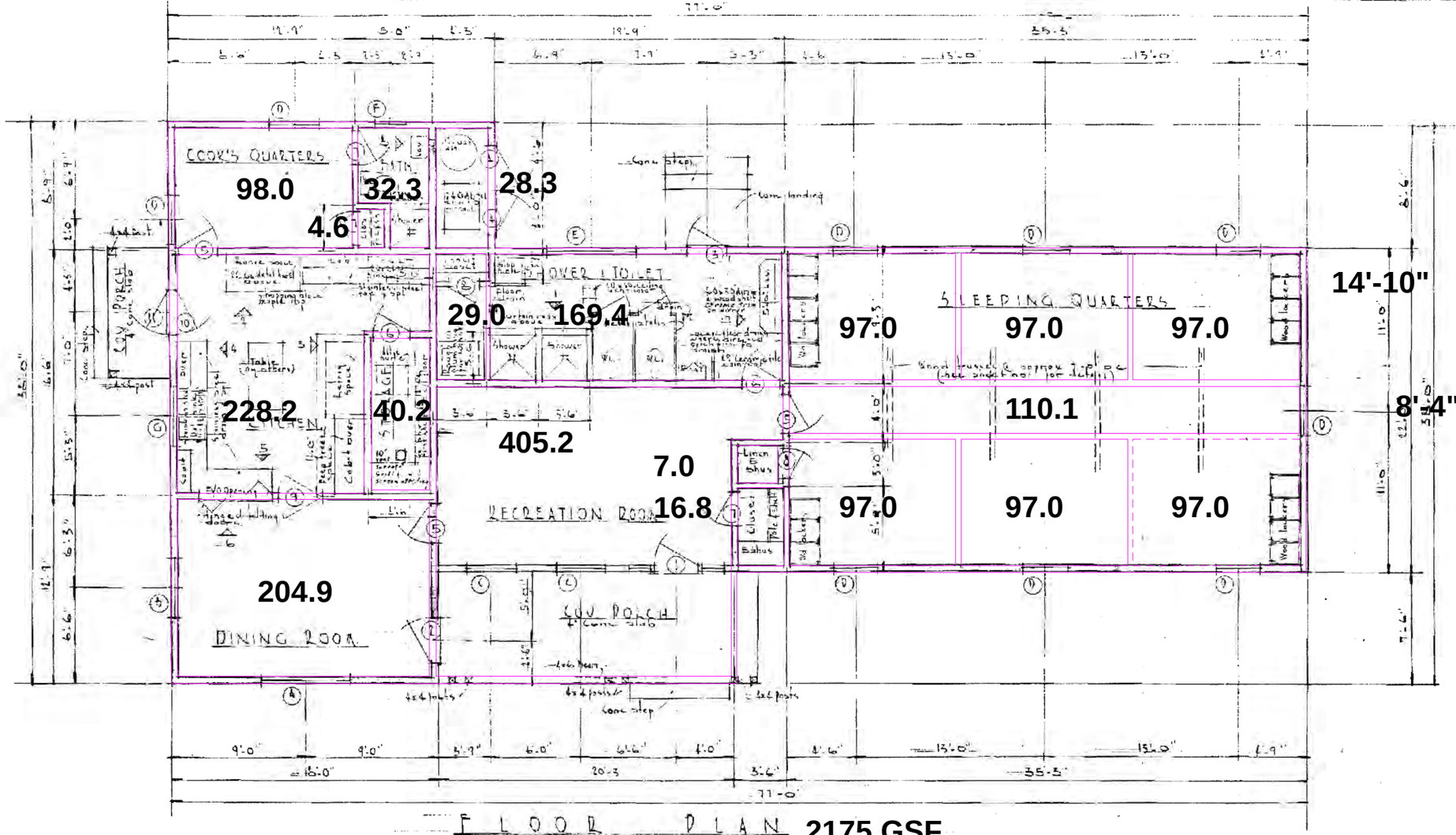
NO	SIZE	TYPE	NOTES
4			
5			

FROM GOULD STEELINE WINDOW CATALOG

DOOR SCHEDULE

NO	SIZE	TYPE	NOTE
1			
2			
3			
4			

PESCADERO FIRE STATION
EQUIPMENT STORAGE



FLOOR PLAN 2175 GSF

1" = 1/8"-0"

(see sheet no 3 for truss detail)

SCHEDULE OF ROOM FINISHES

ROOM	FLOOR	BASE	WALLS	TRIM	CEILING	PAINTING SPECIFICATIONS
SLEEPING QUARTERS	Asphalt tile	Rubber base	Sheetrock painted	Wood	Sheetrock painted (painted V3 ceiling. Exposed beams painted)	Spec * 1 & 2
DINING	(Carbone proof)	" "	" "	"	Sheetrock painted	" * 1 & 2
COOK'S QUARTERS	" "	" "	" "	"	" "	" * 1 & 2
KITCHEN	(Ceramic proof)	" "	" "	"	—	* 2 & 3
BATH	"	" "	" "	"	—	" * 2 & 3
SHOWERS TOILET	Ceramic tile w/ Sauers	Ceramic tile Ceramic tile	Ceramic tile Sheetrock painted	"	" "	" * 2 & 3
STORAGE	Asphalt tile	Rubber base	Sheetrock painted	"	" "	" * 1 & 2
CLOSET	" "	" "	" "	"	" "	" * 1 & 2
RECREATION	" "	" "	" "	"	" "	" * 1 & 2
FURNACE	Conc slab	None	5/8 sheetrock w/o paint	"	5/8 sheetrock w/o paint	" * 2

PAINTING NOTES: Interior woodwork shall be specification *2 except ceiling at Sleeping Room which shall be * 1
Interior walls & ceilings shall be specification * 1 except in Kitchen, Bath & toilets which shall be * 3
Exterior woodwork shall be specification * 4
Exterior metal shall be specification * 4

WINDOW SCHEDULE

NO	SIZE	TYPE	NOTES
A	6'-0" x 4'-2 5/8"	Alum Casement	All glass shall be 'B' Quality type Double Strength
B	4'-0" x 4'-2 5/8"	" "	
C	3'-2" x 4'-2 5/8"	" "	
D	3'-2" x 2'-0 5/8"	" "	
E	6'-0" x 5'-2 5/8"	" "	
F	12'-0 1/2" x 2'-2"	" "	Obscure glass
G	4'-0" x 3'-2 3/8"	" "	

Furnish one screen for each vented window

DOOR SCHEDULE

NO	SIZE	TYPE	NOT
1	3'-0" x 6'-8" 1 3/4"	DF 9 lites	
2	3'-0" x 6'-8" 1 3/4"	DF	Furnish
3	2'-8" x 6'-8" 1 3/4"	DF Half glassed	
4	3'-0" x 6'-8" 1 3/4"	DF	Furnish
5	2'-6" x 6'-8" 1 3/4"	DF	Furnish
6	2'-6" x 6'-8" 1 3/4"	DF	
7	2'-4" x 6'-8" 1 3/4"	DF	
8	2'-0" x 6'-8" 1 3/4"	DF	
9	3'-0" x 6'-8" 1 3/4"	DF Louver at top	
10	3'-0" x 6'-8" 1 3/4"	DF Lite	
11	3'-0" x 6'-8" 1 3/4"	DF Louver	

Approved by
FIRE WARDEN
LIVING QUARTE
FOR RESIDENTIAL
FIRE PROTECTION
SAN MATEO COUNTY

The 2010 Forest and Range Assessment: Final Document

http://frap.fire.ca.gov/data/assessment2010/pdfs/california_forest_assessment_nov22.pdf

This assessment highlights key issues, resource status and trends and priority landscapes for the subsequent strategy document, which will provide a framework for state and federal programs to support good forest and rangeland stewardship in California.

Chapter 3.7 Climate Change: Threats and Opportunities. A variable pattern of annual precipitation is expected; increasing through 2069, then followed by a large decrease by 2099.

California Coastal Commission Draft Sea-Level Rise Policy Guidance. Public Review Draft.

http://www.coastal.ca.gov/climate/slr/guidance/CCC_Draft_SLR_Guidance_PR_10142013.pdf

Page 5 of the document, showing projected sea level rise, is included below.

Table 1. NRC Sea-Level Rise Projections for California (NRC, 2012)

TIME PERIOD	NORTH OF CAPE MENDOCINO	SOUTH OF CAPE MENDOCINO
2000 – 2030	-4 – +23 cm (-1.56 – 9 inches)	4 – 30 cm (1.56 – 11.76 inches)
2000 – 2050	-3 – + 48 cm (-1.2 – 18.84 inches)	12 – 61 cm (4.68 – 24 inches)
2000 – 2100	10 – 143 cm (3.6 – 56.28 inches)	42 – 167 cm (16.56 – 65.76 inches)

Could be 24" rise within 50-year lifespan of New Fire Station

In addition to these sea-level rise projections, the 2012 NRC report provides information on the impacts of sea-level rise in California. According to the report, sea-level rise will cause flooding and inundation, an increase in coastal erosion, changes in sediment supply and movement, and saltwater intrusion to varying degrees along the California coast. These effects in turn could have a significant impact on the coastal economy and could put important coastal resources and coastal development at risk, including ports, marine terminals, commercial fishing infrastructure, public access, recreation, wetlands and other coastal habitats, water quality, biological productivity in coastal waters, coastal agriculture, and archeological and paleontological resources.

PRINCIPLES FOR ADDRESSING SEA-LEVEL RISE IN THE COASTAL ZONE

This guidance is rooted in certain fundamental guiding principles, many of which derive directly from the requirements of the Coastal Act. In this respect, the principles are not new, but rather generally reflect the policies and practices of the Commission since its inception in addressing coastal hazards and the other resource and development policies of the Act. Each of the four groups of principles below embodies important concepts that are specifically and increasingly raised by the challenges of rising sea levels. This guidance builds on the cumulative knowledge and experience of the agency to help identify practical guidance for addressing sea-level rise in the California coastal zone, consistent with these principles and the statewide policies of the California Coastal Act.

A. Use Science to Guide Decisions [Coastal Act Sections 30006.5; 30335.5]

1. Acknowledge and address sea-level rise as necessary in planning and permitting decisions.
2. Use the best available science to determine locally relevant (context-specific) sea-level rise projections for all stages of planning, project design, and permitting reviews.
3. Recognize scientific uncertainty by using scenario planning and adaptive management techniques.

B. Minimize Coastal Hazards through Planning and Development Standards [Coastal Act Sections 30253, 30235; 30001, 30001.5]

4. Avoid significant coastal hazard risks where feasible.
5. Minimize hazard risks to new development over the life of authorized structures.

COUNTY OF SAN MATEO - PLANNING AND BUILDING DEPARTMENT

ATTACHMENT F

BAY AREA OFFICE
1720 Solano Avenue
Berkeley, CA 94707
Phone: 510/559-9603
Fax: 510/559-9605
www.vollmarconsulting.com

Delineation of Potential Jurisdictional Waters

CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects
Pescadero, San Mateo County, California

Prepared for:

Northgate Environment, Inc.
428 13th Street, 4th Floor
Oakland, CA 94612
Contact: Nancy Hendrickson
(510) 839-0688

Prepared by:

Vollmar Natural Lands Consulting
1720 Solano Avenue
Berkeley, CA 94707
Contact: Jake Schweitzer & Ivy Poisson
(510) 559-9603

May 2021

TABLE OF CONTENTS

FIGURES, TABLES, AND APPENDICES

1.0 INTRODUCTION

This document presents the methods and results of the delineation of potential jurisdictional Waters of the United States and/or State of California within the CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects (project). The Study Area for the project is located within the Town of Pescadero, in San Mateo County (County), California (**Figure 1**). The project involves construction of a new County fire station, installation of 1.5 miles of new water supply pipeline to serve Pescadero High School and the new County fire station, and decommission of a portion of the existing County fire station. The new water supply pipeline will extend from the existing CSA-11 water line east of the intersection of Pescadero Creek Road and Stage Road to Pescadero High School, and the pipeline will run along the unpaved roadway shoulders, or within paved road. The new fire station will be constructed within an undeveloped portion of Pescadero High School, which is owned by La Honda-Pescadero Unified School District. The existing fire station, located at 1200 Pescadero Creek Road, will be partially decommissioned, while retaining a portion of the existing structures. The purpose of the delineation is to identify and map any potentially jurisdictional Waters within the Study Area, which is approximately 36.306 acres. The delineation was conducted by staff from Vollmar Natural Lands Consulting (VNLC).

All Waters delineated within the Study Area may be subject to federal jurisdiction by the U.S. Army Corps of Engineers (ACOE) through Section 404 of the Clean Water Act/Section 10 of the Rivers and Harbors Act and may also be subject to State jurisdiction by the California Department of Fish and Wildlife (CDFW), the Regional Water Quality Control Board (RWQCB) and/or the California Coastal Commission (CCC) through state regulations. The results of this delineation are preliminary and must be reviewed and verified in writing by the ACOE to be considered an official delineation.

The delineation identified a total of 2.123 acres of potential jurisdictional wetlands, which include 0.204 acre of emergent channel and 1.919 acres of riparian habitat.

2.0 PROJECT BACKGROUND INFORMATION

2.1 Extent and Location of Study Area

The Study Area consists of the San Mateo County Fire Station – Station 59 (APN 086-160-050), the proposed water pipe alignment along Pescadero Creek Road/Cloverdale Road, and Pescadero High School (APN 087-053-010). Project actions like ingress/egress, staging, and construction are anticipated to occur within the Study Area.

The Study Area is broken up into the western and eastern portions; the western portion consists of the existing Fire Station 59, while the eastern portion consists of the proposed water pipe alignment and Pescadero High School (where the new fire station is proposed to be built in the southwest corner). The Study Area is mapped within the Franklin Point, La Honda, Pigeon Point, and San Gregorio U.S. Geological Survey (USGS) 7½ minute topographic quadrangles and the Butano Landgrant, San Antonio or Pescadero Landgrant, and Sections 10 and 11 of Township 08 South, Range 05 West (**Figure 2**). The Study Area may be accessed via the Pacific Coast Highway by exiting at Pescadero Creek Road and continuing east for 1.25 miles until Fire Station 59 is reached, at 1200 Pescadero Creek Road. To reach Pescadero High School, continue west along Pescadero Creek Road for another 1.25 miles, turn right (southeast) on Cloverdale Road, and then turn left (east) on Butano Cutoff. Pescadero High School is located to the left (north) after 0.2 mile, at 360 Butano Cutoff, Pescadero.

The western Study Area (Fire Station 59) is primarily surrounded by open space, with Butano Creek and agricultural land use to the east. The eastern Study Area is surrounded by agricultural land use, civic buildings, and open space. The Study Area is described in greater detail below.

Legend

- Study Area (39.306 ac)
- Highway
- Midpen Preserve
- Other Public or Preserved Land
- Water Body
- Urbanized Area

Data Sources: Midpen, 2019, 2020 | CPAD, 2016
USGS, Various | GAP, 1998 | VNLC, 2019
GAP Analysis Project, 1998 | TIGER, 2012
GIS/Cartography by: Ivy Poisson, Dec. 2020
Map File: 484_Vicinity_484_A-P_2020-1230.mxd

FIGURE 1
Regional Vicinity Map

CSA-11 Water Service Extension and
Pescadero Fire Station (Station 59) Projects
San Mateo County, California

N
W E
S

1:200,000

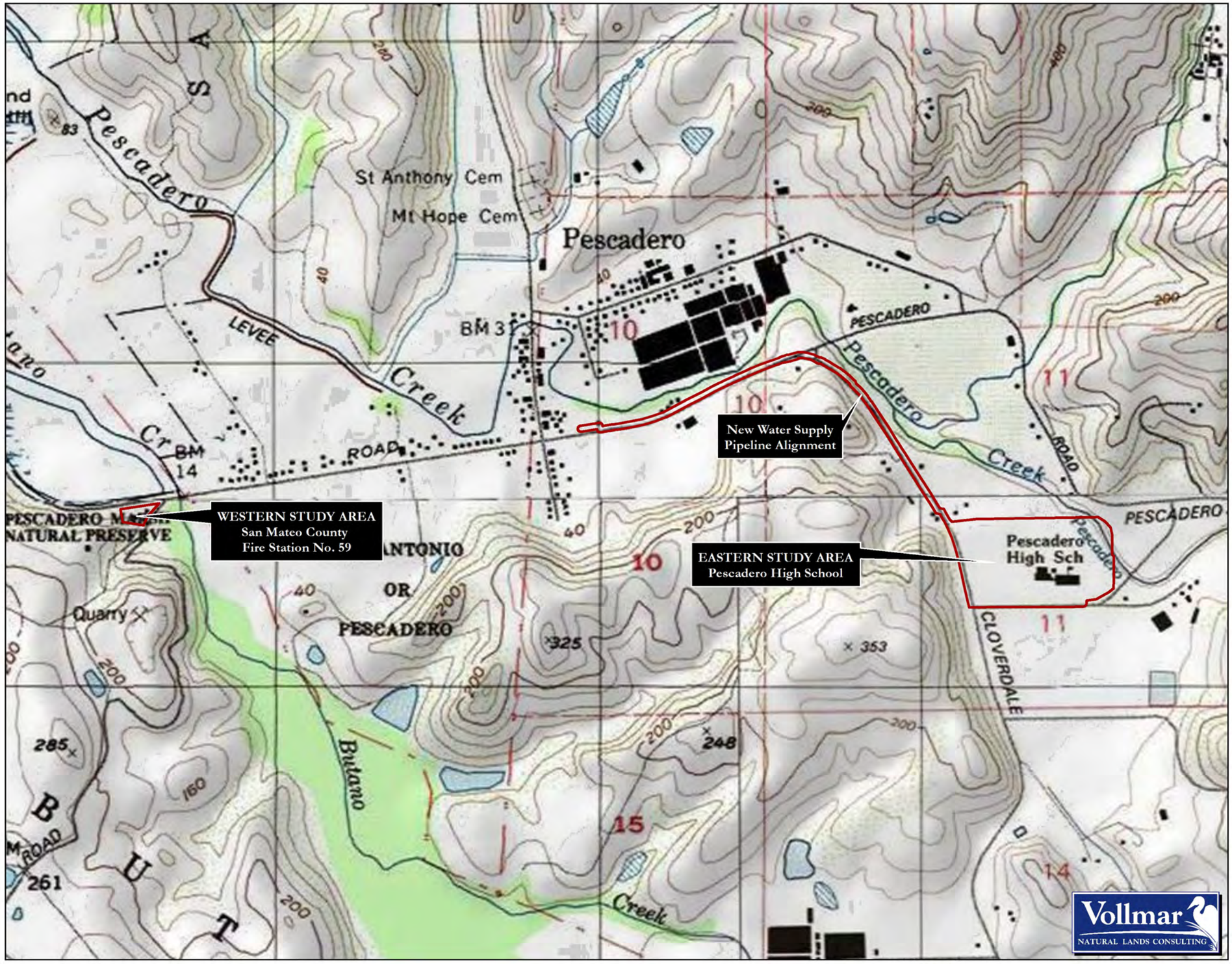
0 2 4 Km

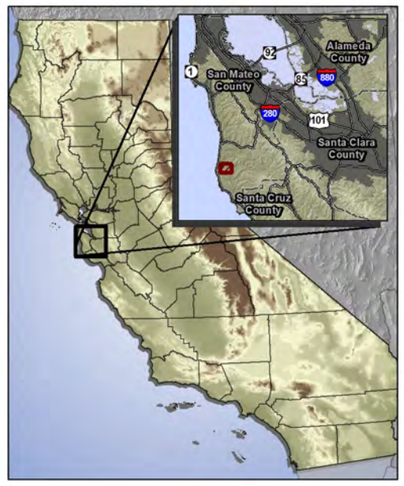
0 1 2 4 Miles

FIGURE 2
USGS Topographic Map

CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects
San Mateo County, California

Project and Study Area (39.306 ac)





N
W E
S

1:12,000
(1 in. = approx. 1,000 feet at tabloid layout)

0 150 300 600 Meters

Feet
0 300 600 1,200

Data Sources: LSA, 2017 | TIGER, 2012 | DWR, 2001
GGNRA, 2020 | ESRI/DigitalGlobe, 2019
GIS/Cartography by: Ivy Poisson, Jan. 2021
Map File: 484_USGS_B-P_2021-0517b.mxd

Vollmar NATURAL LANDS CONSULTING

2.2 General Setting of Study Area

The Study Area is located within the Pescadero Watershed, the largest watershed in San Mateo County. Land use within the surrounding area is predominantly rural, which is a blend of open space, agriculture (farmland and ancillary structures), and civic buildings (school and fire station). The elevation within the Study Area ranges from 26-92 feet (8-28 meters) above sea level (USGS 1997). There are two creeks that are within or adjacent to the Study Area: Butano Creek is located 150 feet east of the western Study Area (**Figure 3a**), while Pescadero Creek is located within the northeastern corner of the eastern Study Area (**Figure 3b – 3d**). Since there is no riparian or wetland habitat associated with Butano Creek within the western Study Area, both the western Study Area and Butano Creek will not be discussed further in this report.

The Study Area is located within the Coastal Zone, as defined by the CCC. Therefore, only one parameter is required for a feature to be considered a wetland (CCC 2011; County of San Mateo 2021). The Study Area and greater San Mateo County coast is within the "Western Mountains, Valleys, and Coast" climate zone, as defined by the ACOE.

The region's coastal climate is similar to California's Mediterranean climate, which is characterized by cool, wet winters and hot, dry summers, though the coastal climate features warmer winters, cooler summers, and greater moisture throughout the year. Mean annual precipitation and temperature at the study area are 29.7 inches and 55.9 degrees Fahrenheit, respectively (PRISM 2021). More than 98 percent of annual precipitation occurs during the "wet season," which extends from October to May. The 2020-2021 wet season (up to the end of April 2021) experienced much lower than average precipitation and slightly lower than average temperatures compared to historical wet seasons (October to April, due to the date of this report). Specifically, precipitation was 42.0 percent of normal (11.8 inches versus 28.0 inches), and mean temperatures were 96.2 percent of normal (51.6 degrees F versus 53.6 degrees F) (ibid). Each month of the 2020-2021 wet season received significantly lower than average rainfall. See **Table 1**.

TABLE 1. WETS Analysis Table for the May 2021 Survey

Precipitation Data from the Last 30 Years (1990-2020)[1]			Recent Field Conditions Compared to Precipitation Data from the Last 30 Years, and Analysis[1]					
Date	**30th Percentile (inches)**	**70th Percentile (inches)**	**Date**	**Recorded Rainfall (inches)**	**Rainfall Condition Compared to Previous 30 Years[2]**	**Numeric Condition Value[3]**	**Weighting Factor[4]**	**Product of Condition Value and Weighting Factor[5]**
Apr	1.69	3.78	Apr 2021	0.22	Dry	1	3	3
Mar	2.61	6.52	Mar 2021	2.33	Dry	1	2	2
Feb	2.9	9.77	Feb 2021	3.03	Normal	2	1	2
[1] All precipitation data is obtained from the Skyline Ridge Preserve, CA Weather Station (USDA-NRCS 2021). [2] Below 30th percentile = dry; between 30th and 70th percentile = normal; above 70th percentile = wet. [3] Relative rainfall conditions are then translated to a numeric condition value, as follows: dry = 1, normal = 2, wet = 3. [4] Greater weight is given to the most recent month as this would most likely influence what hydrologic or vegetative characteristics are observed. [5] The numeric condition value is then multiplied by the weighting factor, then the subtotals are added to get the total value. Total value equivalents: 6-9 = dry; 10-14 = normal; 15-18 = wet						**TOTAL[5]**	7 or DRY

3.0 REGULATORY BACKGROUND

3.1 Federal Regulatory Framework

The federal government, through Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (RHA), has jurisdiction over all Waters of the United States. Waters of the United States are divided into four subsets – territorial seas and traditional navigable waters (TNWs); tributaries to TNWs; lakes, ponds, and impoundments of TNWs; and wetlands adjacent to territorial seas and TNWs. Section 404 of the CWA regulates the discharge of dredged or fill material into Waters of the United States. The CWA grants dual regulatory authority of Section 404 to the U.S. Environmental Protection Agency (EPA) and ACOE. The ACOE is responsible for issuing and enforcing permits for activities in jurisdictional Waters in conjunction with prior permitting authorities in navigable Waters under the RHA of 1899. The EPA is responsible for providing oversight of the permit program. In this capacity, the EPA has developed guidelines for permit review (Section 404 [b][1] Guidelines) and has the authority to veto permits by designating certain sites as non-fill areas (Section 404[c] of the CWA). The EPA also has enforcement authority under Section 404. The ACOE generally extends its jurisdiction to all areas meeting the criteria for Waters of the United States.

As defined in the 2020 Navigable Waters Protection Rule (published in the Federal Register, effective June 22, 2020), waters of the U.S. exclude features that lack hydrological surface connection to territorial seas and TNWs. Examples of water features excluded from federal jurisdiction include: groundwater, ephemeral features in a typical water year, diffuse stormwater runoff/sheet flow over upland areas, farm/roadside ditches[1], cropland[2], artificially irrigated areas[3], artificially created water conveyance structures located in uplands, groundwater systems in upland or in non-jurisdictional waters, and waste treatment systems.

Projects which propose activities that fall under the jurisdiction of Section 404 of the CWA and/or Section 10 of the RHA must obtain approval from the ACOE through the individual or nationwide permit (NWP) process. Individual permits entail a full public interest review that includes consultation with other federal and state agencies.

3.2 California State and Regional Regulatory Framework

California Department of Fish and Wildlife

The CDFW regulates river, stream, and lake habitats through Fish and Game Code section 1600 *et seq*. Fish and Game Code section 1602 requires an entity to notify the CDFW prior to commencing any activity that may do one or more of the following:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or
- Deposit debris, waste, or other materials that could pass into any river, stream, or lake.

A “river, stream, or lake" includes those that are episodic (i.e., they are dry for periods of time) as well as those that are perennial. The definition includes ephemeral streams, desert washes, and watercourses with a subsurface flow (CDFW 2016) and may also apply to work undertaken within the flood plain of a body of water, the boundary of which may be identified as a topographic feature or as riparian vegetation. In

[1] This exclusion would not apply if the farm/roadside ditch satisfies flow conditions of a perennial/intermittent tributary; i.e., the feature flows more than in direct response to precipitation events.
[2] This exclusion would not apply if the site was abandoned and reverts to wetland within 5 years.
[3] This exclusion would only apply if the artificially irrigated area would revert to upland conditions if irrigation ceased.

addition, the CDFW does not distinguish between a "pond" and a "lake," such that relatively small bodies of water, including both natural and artificial features, may be regulated under section 1600.

The CDFW requires a Lake and Streambed Alteration (LSA) Agreement when it determines that the activity, as described in a complete LSA Notification, may substantially adversely affect existing fish or wildlife resources (ibid). A LSA Agreement includes measures necessary to protect existing fish and wildlife resources. The CDFW may suggest ways to modify a project that would eliminate or reduce harmful impacts to fish and wildlife resources. Before issuing a LSA Agreement, CDFW must comply with the California Environmental Quality Act (CEQA).

Regional Water Quality Control Board

The Study Area is located within the San Francisco Bay (Region 2) Regional Water Board which has authority to regulate projects that could potentially impact wetlands and/or other Waters. According to the California State Water Resources Control Board (State Water Board, 2006), the authority derives from the following:

- Porter-Cologne Water Quality Control Act through Waste Discharge Requirements to protect Waters of the state;
- The CWA under Section 4013;
- The San Francisco Bay Basin Water Quality Control Plan (Basin Plan [2005]) (Sections 4.23 & 4.23.4) which is available at http://www.waterboards.ca.gov/sanfranciscobay/basinplan incorporates several State directives to protect wetlands including:

  - Governor's Executive Order W-59-93 (i.e., the "California Wetland's Policy" which requires "No Net Loss of Wetlands");
  - Senate Concurrent Resolution No. 28; and
  - California Water Code Section 13142.5 (applies to coastal marine wetlands).

In addition to the state directives to protect wetlands, for individual permits (but not NWPs), the Basin Plan also directs the State Water Board staff to use the EPA's CWA 404(b)(1) guidelines to determine circumstances under which the filling of wetlands may be permitted and requires that attempts be made to avoid, minimize, and only lastly to mitigate for adverse impacts (ibid).

California's jurisdiction to regulate its water resources is much broader than that of the federal government. The State Water Board's Executive Director issued a memorandum directing the Regional Water Boards to regulate such waters under the authority of the Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne extends to "Waters of the State," which is broadly defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." This definition includes isolated wetlands and any action that may impact isolated wetlands is subject to the Water Board's jurisdiction, which may include the issuance of Statewide General Waste Discharge Requirements (WDRs). For projects that will impact less than 0.2 acre of "isolated" wetlands, the State Water Board issued Order No. 2004-004-DWQ, WDRs for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction (General WDRs). These General WDRs streamline the permitting process for low impact projects in isolated wetlands (ibid).

Activities or discharges from a project that could affect California's surface, coastal, or ground waters, require a permit from the local RWQCB. Discharging pollutants (or proposing to) into surface water requires the applicant to file a complete National Pollutant Discharge Elimination System permit application form with the RWQCB. Other types of discharges, such as those affecting groundwater or from

diffused sources (e.g., erosion from soil disturbance or waste discharges to land) are handled by filing a Report of Waste Discharge with the RWQCB in order to obtain WDRs. For specified situations, some permits may be waived and some discharge activities can be handled through enrollment in an existing general permit (ibid). The State has adopted updated Dredge and Fill procedures, which became effective May 28, 2020. These changes modify the current State definition and jurisdictional determination of State wetlands.

California Coastal Commission and San Mateo County

The Study Area is located within the Coastal Zone, which grants the California Coastal Commission (CCC) authority over many activities affecting wetlands (San Mateo 2011 and CCC 2021). Their authority is derived from the California Coastal Act of 1976.

In addition, wetlands in the Coastal Zone are subject to the one-parameter definition, as stated in the California Code of Regulations Title 14, Section 13577:

> "Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats."

Development activities in the Coastal Zone are subject to a Coastal Development Permit from either the CCC or the local government authority with a certified Local Coastal Plan. For this Study Area, San Mateo County would preside over permitting processes, under the guidance of County of San Mateo Local Coastal Program (LCP) Policies (San Mateo County 2013).

Development activities that are subject to the Coastal Development Permit include, but is not limited to:

> "… the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land […]; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan […]. As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line."

The San Mateo County LCP provides their own definition of wetlands and specific guidance regarding permitted uses within wetlands, buffer zone requirements for wetlands, and development activities within the buffer zone. The relevant definitions and policies relating to wetlands are reproduced below.

Policy 7.14: Definition of Wetland

Define wetland as an area where the water table is at, near, or above the land surface long enough to bring about the formation of hydric soils or to support the growth of plants which normally are found to grow in water or wet ground. Such wetlands can include mudflats (barren of vegetation), marshes, and swamps.

Such wetlands can be either fresh or saltwater, along streams (riparian), in tidally influenced areas (near the ocean and usually below extreme high water of spring tides), marginal to lakes, ponds, and man-made impoundments. Wetlands do not include areas which in normal rainfall years are permanently submerged (streams, lakes, ponds and impoundments), nor marine or estuarine areas below extreme low water of spring tides, nor vernally wet areas where the soils are not hydric. In San Mateo County, wetlands typically contain the following plants: cordgrass, pickleweed, jaumea, frankenia, marsh mint, tule, bullrush, narrow-leaf cattail, broadleaf cattail, pacific silverweed, salt rush, and bog rush. To qualify, a wetland must contain at least a 50% cover of some combination of these plants, unless it is a mudflat.

Policy 7.16: Permitted Use in Wetlands
Within wetlands, permit only the following uses: (1) nature education and research, (2) hunting, (3) fishing, (4) fish and wildlife management, (5) mosquito abatement through water management and biological controls; however, when determined to be ineffective, allow chemical controls which will not have a significant impact, (6) diking, dredging, and filling only as it serves to maintain existing dikes and an open channel at Pescadero Marsh, where such activity is necessary for the protection of pre-existing dwellings from flooding, or where such activity will enhance or restore the biological productivity of the marsh, (7) diking, dredging, and filling in any other wetland only if such activity serves to restore or enhance the biological productivity of the wetland, (8) dredging man-made reservoirs for agricultural water supply where wetlands may have formed, providing spoil disposal is planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation, and (9) incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

Policy 7.18: Establishment of Buffer Zones
Buffer zones shall extend a minimum of 100 feet landward from the outermost line of wetland vegetation. This setback may be reduced to no less than 50 feet only where: (1) no alternative development site or design is possible; and (2) adequacy of the alternative setback to protect wetland resources is conclusively demonstrated by a professional biologist to the satisfaction of the County and the State Department of Fish and Game. A larger setback shall be required as necessary to maintain the functional capacity of the wetland ecosystem

Policy 7.19: Permitted Uses in Buffer Zones.
Within the buffer zones, permit the following uses only: (1) uses allowed within wetlands policy (7.16) and (2) public trails, scenic overlooks, and agricultural uses that produce no impact on the adjacent wetlands.

4.0 METHODS

4.1 Preliminary Review and Field Preparation

Prior to conducting the field delineation, the project ecologist reviewed site aerial photography, topographic data, existing preliminary wetland and watershed mapping, and geology and soil survey maps of the Study Area and surrounding areas. This information was used to help characterize the Study Area, identify any potential Waters of the United States on a preliminary basis, and guide the field surveys. Background imagery and a project boundary map were loaded on to a professional GPS unit (Trimble GeoXH 6000) for use in navigation and mapping in the field.

4.2 Field Survey and Personnel

The delineation field survey was conducted on May 7, 2021, by Ivy Poisson (Ecologist, VNLC). During the survey, the ecologist traversed the entire Study Area, using detailed topographic and soils data as guides. The ecologist established delineation data points, recorded additional notes on plant community and site characteristics, and took representative photographs of habitats and features of interest. **Section 5** below presents summaries of the notes recorded during the field survey. A total of 5 delineation data points were established throughout the Study Area. At each data point, data were collected on soils, hydrology, and plant cover following the Routine Wetland Determination Method developed by the ACOE and described in the 1987 ACOE Wetlands Delineation Manual (Environmental Laboratory 1987) and the regional supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (ACOE 2010). The boundaries of all potential jurisdictional Waters identified in the Study Area were mapped using sub-meter precise GPS units.

The specific methods for collecting data on soils, hydrology, and plant cover at delineation data points are described below.

4.2.1 Soils

Soil profiles were taken at each data point using a tile spade shovel and/or a mattock (for difficult digging situations). Soils were examined for positive hydric soil indicators such as low matrix chromas, redox features, gleys, and iron and manganese concretions. The color and texture of the soil layers encountered were recorded on the delineation forms. A standardized soil texture chart used by the California Native Plant Society (CNPS) for assessing soils (adapted from Brewer and McCann 1982) was used to determine texture (e.g., clay versus clay loam, etc.). Soil color was identified using a Munsell soil color chart (Kollmorgen 2009). All soil samples were moistened before determining the color. Soil map units were cross-referenced with the California hydric soils list (SCS 1993) and the national hydric soils list (SCS 1991). Determination of whether or not the hydric soil criterion was met was based upon the criteria specified by the National Technical Committee for Hydric Soils (ibid) and the Western Mountains, Valleys, and Coast Supplement (ACOE 2010). In most cases, soils with a matrix chroma of 1, and mottled soils with a matrix chroma of 2 or less are considered to meet the hydric soil criteria. Soils that do not have low matrix chromas but are inundated or saturated within 12 inches of the surface are considered to be hydric when those conditions persist for at least 5 percent of the growing season (14 consecutive days). Topography and soil unit boundaries can be found on **Figures 3a-d**.

4.2.2 Hydrology

Indicators of wetland hydrology were noted, such as the presence of surface soil cracks, sediment deposits, sub-surface soil characteristics, and water-stained vegetation/thatch. To the extent possible, hydrological connectivity was investigated throughout the Study Area and surrounding habitats. This delineation was conducted in May, which experienced below average precipitation, and followed a winter and early spring that overall experienced below average precipitation (see **Section 2.2** and **Table 1** above). Based on plant

phenology, climate conditions appeared to be suitable for assessing wetland habitats, as perennial and annual seasonal wetland plant cover was conspicuous throughout the Study Area.

4.2.3 Vegetation

At each delineation data point, all herbaceous plant species within a five-foot radius were identified and a visual estimate of percent coverage for each species was recorded. The nearest trees and shrubs were accounted for at distances of 25 and 15 feet, respectively, as appropriate for the site. Plant species and strata cover estimations were calibrated using CNPS percent cover templates—see the following website: http://www.cnps.org/cnps/vegetation/pdf/percent_cover_diag-cnps.pdf.

The indicator status of each species was then checked using the most recent ACOE National Wetland Plant List—Version 3.4 (Army Corps, 2018). Indicator status categories are as follows:

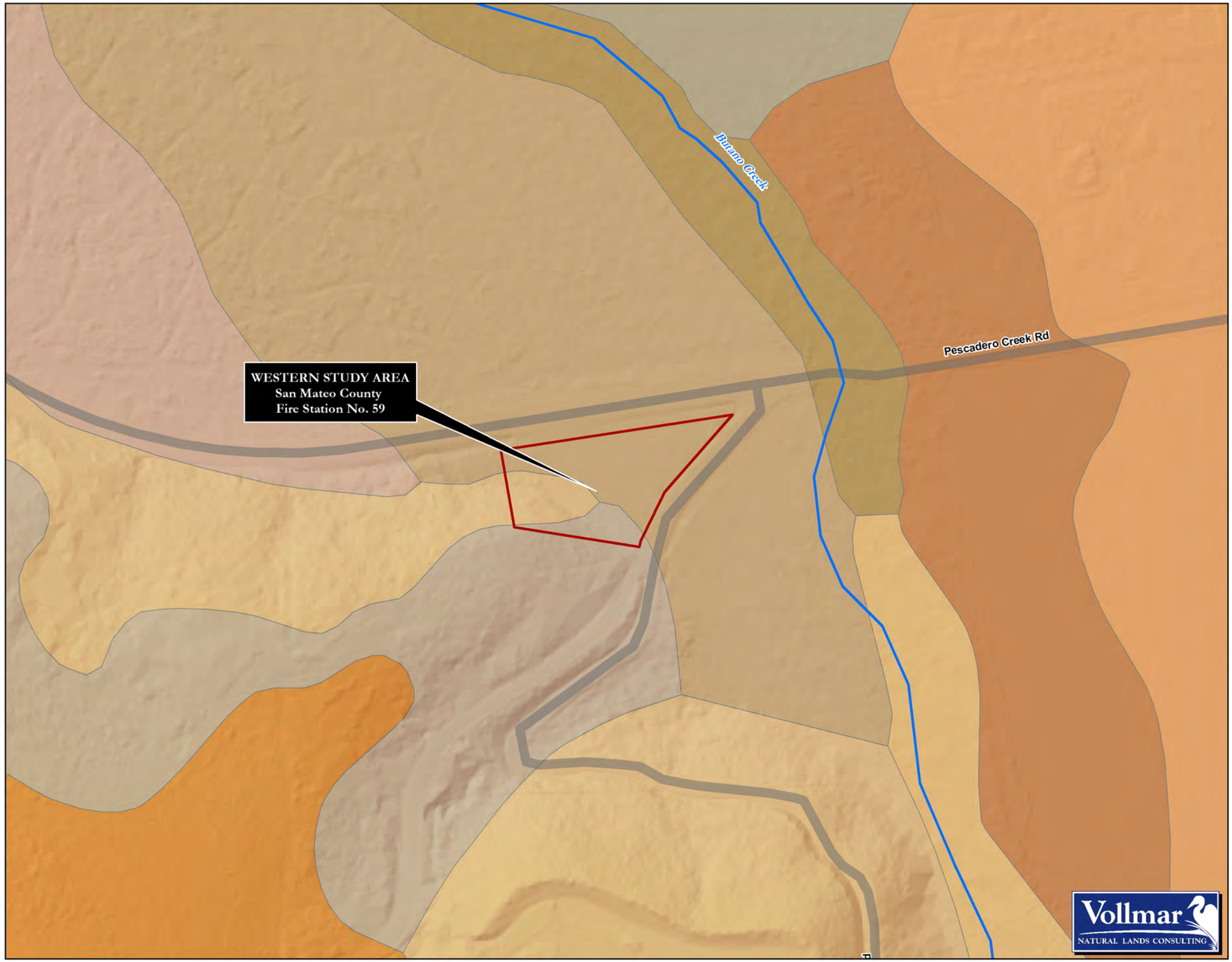
OBL = obligate wetland; >99% probability of occurring in a wetland
FACW = facultative wetland; 67%-99% probability of occurring in a wetland
FAC = facultative; 33%-67% probability of occurring in a wetland
FACU = facultative upland; 1%-33% probability of occurring in a wetland
UPL = obligate upland; <1% probability of occurring in a wetland
NL = not listed (plants not listed in Lichvar et al. [2018], including some known to occur occasionally or primarily in wetlands). Note: unlisted taxa are included as UPL on the delineation data forms included in **Appendix B**.

The wetland plant cover criterion is met when the vegetation passes the dominance test: greater than 50 percent of the dominant plants are designated as OBL, FACW, or FAC wetland indicators. The ACOE defines dominant plant species as those that, when included in descending order of their percent cover, together sum up to 50 percent of the relative cover in their stratum (tree, sapling/shrub/subshrub, herb, or woody vine). In addition, all species with at least 20 percent relative coverage of the total canopy within a stratum are always counted as dominants. All scientific and common plant names correspond to Baldwin et al. (2012) and/or the Calflora database (2021).

If the dominance test is not passed, vegetation can be considered hydrophytic if it meets the requirements of the prevalence index, morphological adaptations, or problematic wetland situations (ACOE 2008).

FIGURE 3a
Topography and Soil Units

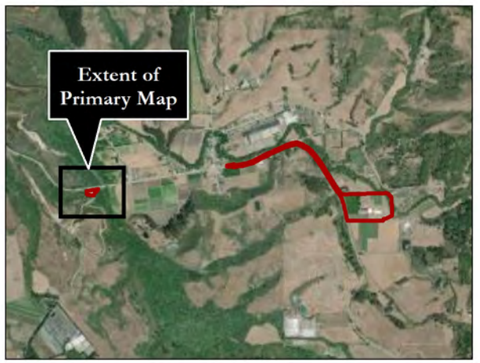
CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects
San Mateo County, California



Project and Study Area (39.306 ac)

Road

Stream



N
W E
S

1:2,000
(1 in. = approx. 166 feet at tabloid layout)

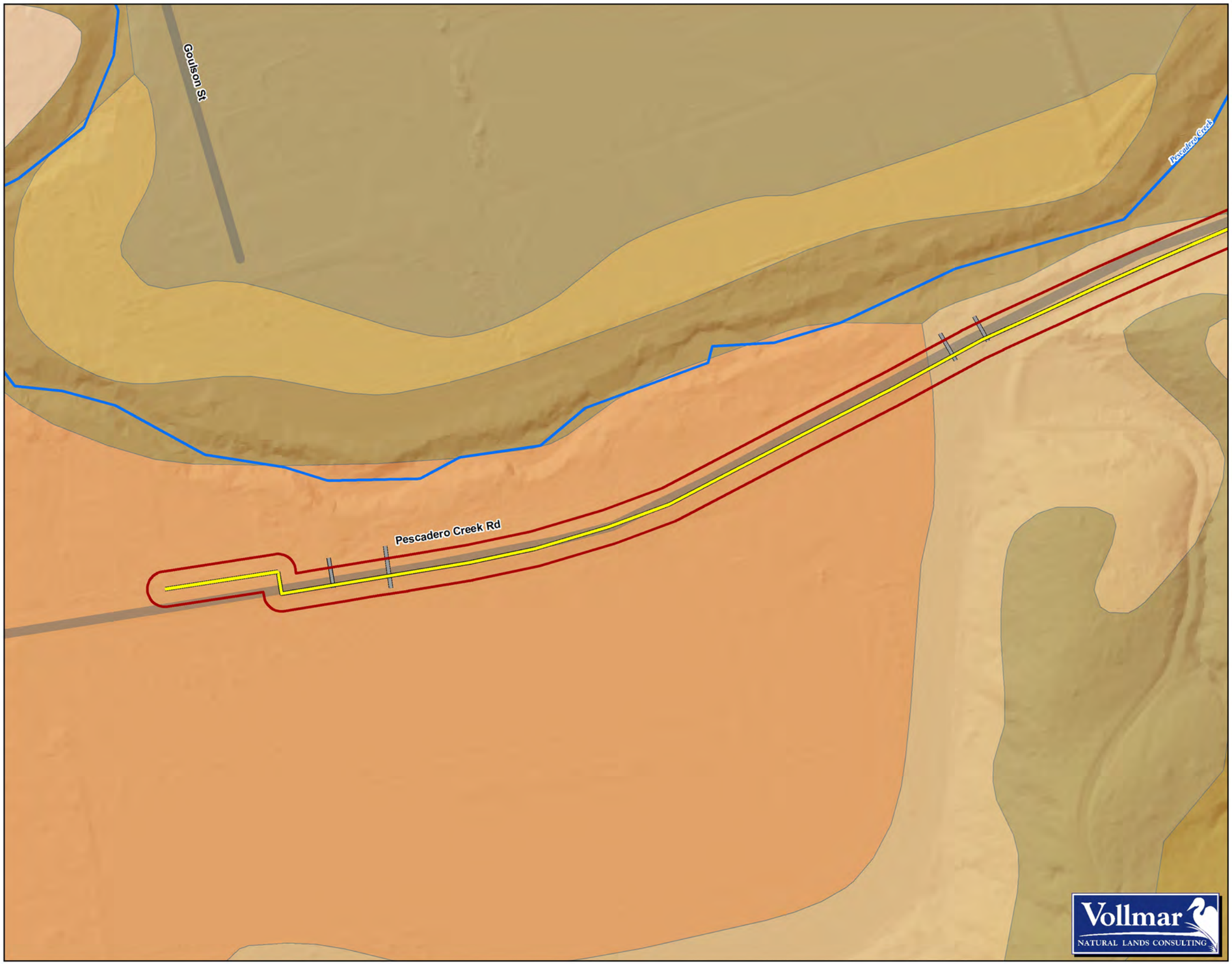
0 25 50 100 Meters

0 75 150 300 Feet

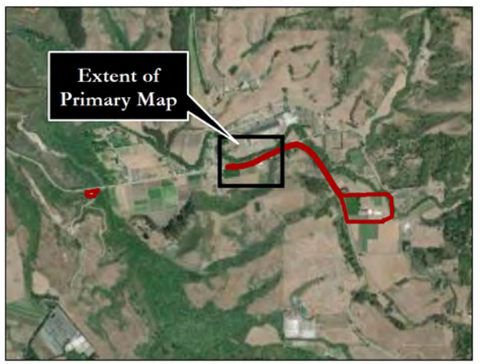
Data Sources: LSA, 2017 | TIGER, 2012 | DWR, 2001
GGNRA, 2020 | ESRI/DigitalGlobe, 2019
GIS/Cartography by: Ivy Poisson, Jan. 2021
Map File: 484_Soils_B-P_2021-0517.mxd

FIGURE 3b
Topography and Soil Units

CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects
San Mateo County, California



- Project and Study Area (39.306 ac)
- Road
- Proposed Pipe Alignment
- Existing Water Conveyence Structures
- Stream



N
W E
S

1:2,000
(1 in. = approx. 166 feet at tabloid layout)

0 25 50 100 Meters

0 75 150 300 Feet

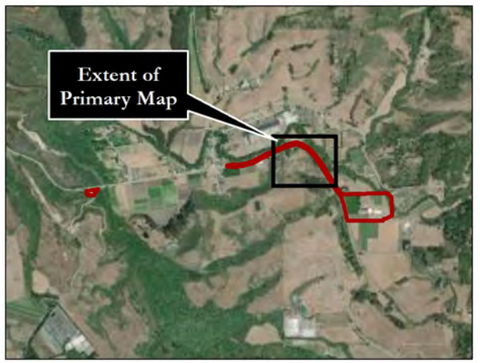
Vollmar NATURAL LANDS CONSULTING

Data Sources: LSA, 2017 | TIGER, 2012 | DWR, 2001
GGNRA, 2020 | ESRI/DigitalGlobe, 2019
GIS/Cartography by: Ivy Poisson, Jan. 2021
Map File: 484_Soils_B-P_2021-0517.mxd

FIGURE 3c
Topography and Soil Units

CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects
San Mateo County, California

- Project and Study Area (39.306 ac)
- Road
- Proposed Pipe Alignment
- Existing Water Conveyence Structures
- Stream
- Roadside Drainage Ditch



N
W E
S

1:2,000
(1 in. = approx. 166 feet at tabloid layout)

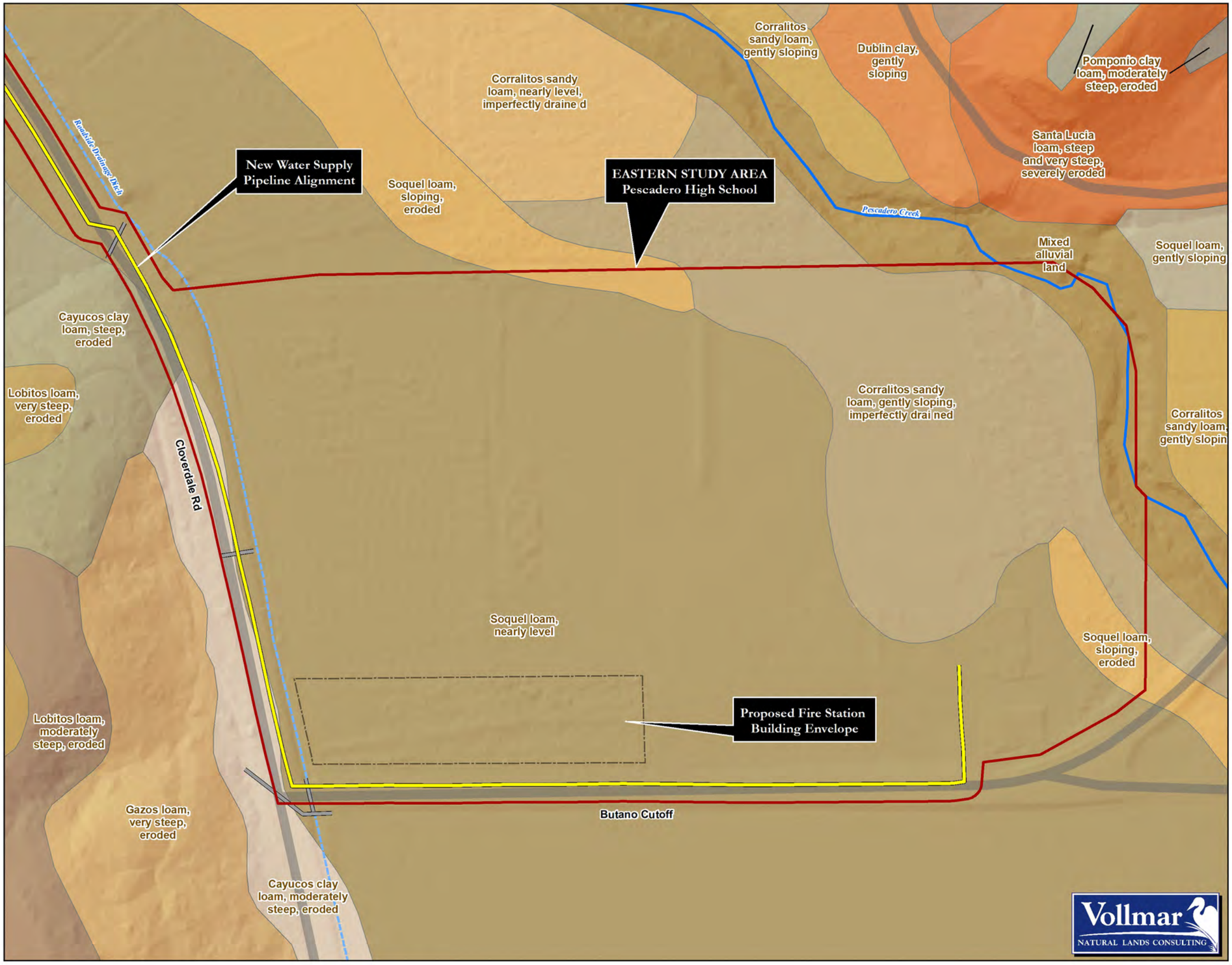
0 25 50 100 Meters

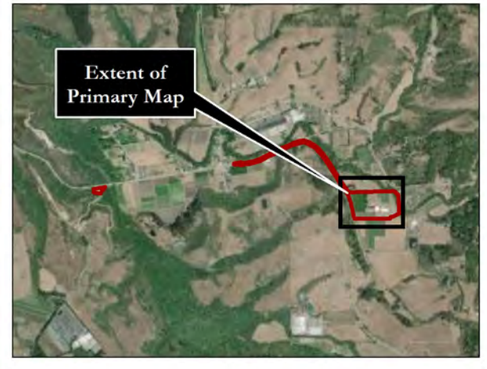
0 75 150 300 Feet

Data Sources: LSA, 2017 | TIGER, 2012 | DWR, 2001
GGNRA, 2020 | ESRI/DigitalGlobe, 2019
GIS/Cartography by: Ivy Poisson, Jan. 2021
Map File: 484_Soils_B-P_2021-0517.mxd

FIGURE 3d
Topography and Soil Units

CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects
San Mateo County, California





N
W E
S

1:2,000
(1 in. = approx. 166 feet at tabloid layout)

0 25 50 100 Meters

0 75 150 300 Feet

- Project and Study Area (39.306 ac)
- Road
- Proposed Pipe Alignment
- Existing Water Conveyence Structures
- Stream
- Roadside Drainage Ditch

Data Sources: LSA, 2017 | TIGER, 2012 | DWR, 2001
GGNRA, 2020 | ESRI/DigitalGlobe, 2019
GIS/Cartography by: Ivy Poisson, Jan. 2021
Map File: 484_Soils_B-P_2021-0517.mxd

Vollmar NATURAL LANDS CONSULTING

5.0 RESULTS

5.1 Overview

Within the 39.306-acre Study Area, the delineation identified a total of 2.123 acres of potentially jurisdictional wetlands. This includes 0.204 acre of emergent channel and 1.919 acre of riparian habitat. These features were determined to be outside of the building envelope for the fire station, and outside of the proposed pipeline alignment.

Table 2 below lists each of these habitat types, and all features are mapped on **Figure 4d**, which also provide acreage values for the individual features. General conditions, as well as vegetation, soil, and hydrology indicators of each wetland feature type are described below. **Appendix A** provides representative photographs of the habitats, and **Appendix B** presents the delineation data forms, of which there are 5, that were recorded throughout the Study Area.

TABLE 2. Acreage of Mapped Potential Jurisdictional Waters

Habitat Type	Cowardin Code	Agency Jurisdiction				Acreage
		Army Corps	CDFW	RWQCB	CCC	
Wetlands						
Riparian Habitat	R5	X	X	X	X	1.919
Emergent Channel	PEM1Ed	X		X	X	0.204
					TOTAL	**2.123**

5.2 Potential Jurisdictional Waters

5.2.1 Riparian Habitat

Feature RP01. This feature is 1.191 acre, and is habitat associated with Pescadero Creek located in the northeastern corner of the Pescadero High School property (see **Figure 4d**). Pescadero Creek is a perennial stream with a canopy of mature riparian vegetation and steep banks, approximately 10-20 feet from top of bank to the water level. The riparian habitat supported by Pescadero Creek features bed and bank topography and a semi-closed canopy with dense understory, consisting of a mix of both native and non-native plant species. Pescadero Creek flows in a northwesterly direction for 3.5 miles, then empties into the Pacific Ocean (a territorial sea). Delineation data points 01 and 02 are representative points for the riparian area, with point 01 representing upland conditions outside of the riparian habitat, and point 02 representing riparian habitat (**Figure 4d**).

The riparian corridor of Pescadero Creek is characterized by Arroyo willow (*Salix lasiolepis*, FACW) as a codominant species with Fremont's cottonwood (*Populus fremontii*). Species observed in the riparian understory include: cape ivy (*Delareia odorata*, FAC), poison hemlock (*Conium maculatum*, FAC), and giant horsetail (*Equisetum telmateia*, FACW). Some weedy upland species were intermixed, and include wild radish (*Raphanus sativus*, UPL), ripgut brome (*Bromus diandrus*, UPL), and black mustard (*Brassica nigra*, UPL). California blackberry (*Rubus ursinus*, FACU) is also commonly seen in the understory.

The paired delineation points were taken within the Corralitos soil series (**Figure 3d**). Both sample points had the same soil characteristics: a color of 10Y 3/2, no redoximorphic features, no restrictive layers, clay loam texture, and uniform soil profile. No hydric soil indicators were observed for either delineation point.

No indicators of wetland hydrology were observed at either delineation point. However, since the Study Area is located in a Coastal Zone (as mentioned previously), only one parameter is needed to be considered a wetland; the presence of hydrophytic vegetation at point 02 satisfies this condition.

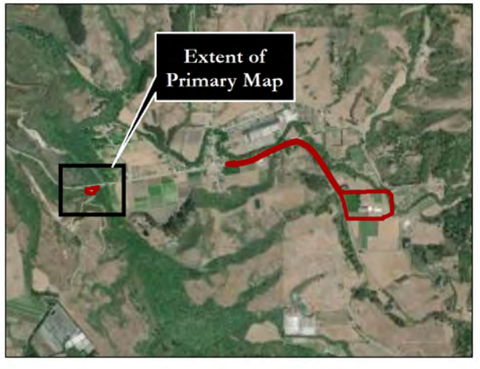
FIGURE 4a
Map of Potential Jurisdictional Waters

CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects
San Mateo County, California

Project and Study Area (39.306 ac)

Road

Stream



N

W E

S

1:2,000

(1 in. = approx. 166 feet at tabloid layout)

0 25 50 100 Meters

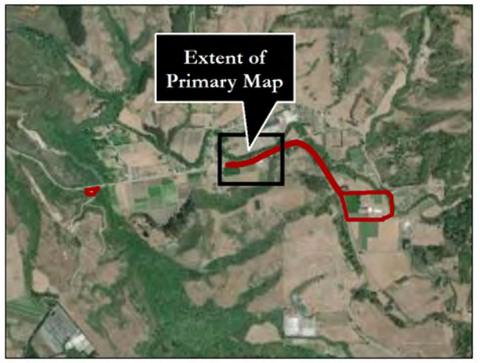
0 75 150 300 Feet

Data Sources: LSA, 2017 | TIGER, 2012 | DWR, 2001
GGNRA, 2020 | ESRI/DigitalGlobe, 2019
GIS/Cartography by: Ivy Poisson, Jan. 2021
Map File: 484_WD_B-P_2021-0526.mxd

FIGURE 4b
Map of Potential Jurisdictional Waters

CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects
San Mateo County, California

- Project and Study Area (39.306 ac)
- Road
- Proposed Pipe Alignment
- Existing Water Conveyence Structures
- Stream



N
W E
S

1:2,000
(1 in. = approx. 166 feet at tabloid layout)

0 25 50 100 Meters

0 75 150 300 Feet

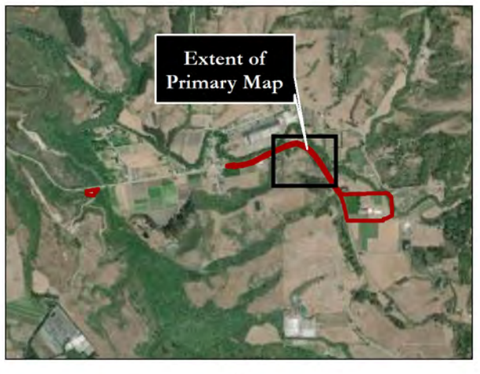
Data Sources: LSA, 2017 | TIGER, 2012 | DWR, 2001
GGNRA, 2020 | ESRI/DigitalGlobe, 2019
GIS/Cartography by: Ivy Poisson, Jan. 2021
Map File: 484_WD_B-P_2021-0526.mxd

Vollmar NATURAL LANDS CONSULTING

FIGURE 4c
Map of Potential Jurisdictional Waters

CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects
San Mateo County, California

- Project and Study Area (39.306 ac)
- Road
- Proposed Pipe Alignment
- Existing Water Conveyence Structures
- Stream
- Roadside Drainage Ditch



N
W E
S

1:2,000
(1 in. = approx. 166 feet at tabloid layout)

0 25 50 100 Meters

0 75 150 300 Feet

Data Sources: LSA, 2017 | TIGER, 2012 | DWR, 2001
GGNRA, 2020 | ESRI/DigitalGlobe, 2019
GIS/Cartography by: Ivy Poisson, Jan. 2021
Map File: 484_WD_B-P_2021-0526.mxd

FIGURE 4d
Map of Potential Jurisdictional Waters

CSA-11 Water Service Extension and Pescadero Fire Station (Station 59) Projects
San Mateo County, California

- Project and Study Area (39.306 ac)
- Road
- Proposed Pipe Alignment
- Existing Water Conveyence Structures
- Stream
- Roadside Drainage Ditch
- Riparian Canopy Dripline
- Sample Points

Potentially Jurisdictional Features

- Emergent Channel (0.204 ac / 860 linear ft)
- Riparian (1.919 ac)

N
W E
S

1:2,000
(1 in. = approx. 166 feet at tabloid layout)

0 25 50 100 Meters

0 75 150 300 Feet

Data Sources: LSA, 2017 | TIGER, 2012 | DWR, 2001
GGNRA, 2020 | ESRI/DigitalGlobe, 2019
GIS/Cartography by: Ivy Poisson, Jan. 2021
Map File: 484_WD_B-P_2021-0526.mxd

Vollmar
NATURAL LANDS CONSULTING

Tributaries are categorically listed as waters of the United States according to the 2020 Navigable Waters Protection Rule. Feature RP01 is likely to fall under Army Corps jurisdiction since Pescadero Creek contributes surface water to the Pacific Ocean, a territorial sea. Pescadero Creek would be classified as a perennial/intermittent stream, or tributary. Feature RP01 is also potentially considered a Water of the State by CDFW, RWQCB, and CCC.

5.2.2 Emergent Channel

Feature EC01. This feature is part of the roadside drainage ditch that connects to Pescadero Creek approximately ¼ mile north of the high school (see **Figure 4c** and **4d**). Delineation data point 05 represents the emergent channel habitat and point 04 is the paired upland point.

This feature supports emergent wetland species, with cattails (*Typha latifolia*, OBL) being dominant throughout the channel. Common rush (*Juncus effusus*, FACW) and giant horsetail was also observed to be growing in the channel, higher up along the edge of the feature.

Points 04 and 05 were taken within the Soquel soil series (**Figure 3d**). Point 05, located within the emergent channel, featured yellower soils, colored at 2.5YR 3/1. In contrast, the soil at point 04 was 10YR 2/1. The soil sample collected at the wetland point (Point 05) also contained higher organic materials; the soil was textured as mucky clay loam. This is also the only sample point within the Study Area that had hydric soil indicators: histosol (A1), black histic (A3), and hydrogen sulfide (A4). Both soil samples featured no redoximorphic features, no restrictive layers, and had a uniform soil profile.

Wetland hydrology indicators observed at point 05 include High Water Table (A2), Saturation (A3), Hydrogen Sulfide Odor (C1) as primary indicators, with Geomorphic Position (D2) as secondary indicator.

Three out of three hydric indicators (vegetation, soils, and hydrology) were present for this feature, which satisfies the one-parameter wetland definition for features in Coastal Zones.

This feature is potentially a Water of the U.S. under Army Corps jurisdiction, since this conveys surface water to Pescadero Creek, which is also potentially a water of the U.S. as described above. While ditches are typically categorically excluded as waters of the U.S., the exception is if there the ditch has water flowing more than in direct response to a single precipitation event in a typical year, which is the case for feature EC01. Since there was saturation and high water table observed within this channel (during a drier than normal year), it is reasonable that there would be intermittent surface water flow in a typical year. This feature is also potentially a Water of the State under RWQCB and CCC jurisdiction.

5.2.3 Upland Agricultural Features

Upland agricultural features are located on a field that gently slopes down towards the west, in the direction of the roadside drainage ditch. At the time of the site visit, these features were located on a recently tilled/fallow field, on a rosemary field, and on a field that was planted with fava beans (*Vicia faba*). A review of historical aerial imagery shows that this area is routinely disturbed as part of the ongoing agricultural operations. Delineation data point 03 is a representative point for this feature type (particularly: soils and hydrology), and this point was taken within the building envelope for the fire station.

The vegetation at point 03 is representative of cultivated/disturbed conditions, located approximately halfway across the proposed building envelope for the fire station. Species observed include fava bean (UPL), growing with other species characteristic of disturbed habitats like scarlet pimpernel (*Lysimachia arvensis*, FAC) and mustard (*Brassica nigra*, UPL). This point does not support wetland vegetation.

Point 03 was taken within the Soquel soil series (**Figure 3d**). The soil was textured to be silty clay loam, had a color of 10Y 2/1, had no redoximorphic features, had no restrictive layers, and had a uniform soil profile. No hydric soil indicators were observed.

At the time of the site visit (both on December 7, 2020 and May 7, 2021), there were no indications of direct-surface water connection from the agricultural features to the emergent channel feature to the west; these features are separated by an at-grade, unpaved roadway. Overall, there were no hydric indicators (vegetation, soils, and hydrology) present for these agricultural features.

This is an upland feature that would likely not be subject to federal, state, or county jurisdiction.

5.3 Summary

All 2.123 acres of wetlands identified within the 36.306-acre Study Area are potentially jurisdictional Waters of the U.S.; this consists of 1.919 acre of riparian habitat and 0.204 acre of emergent channel (see **Section 5.1**, **Table 2**). Waters of the U.S. delineated within the Study Area would be regulated by the ACOE under Section 404 of the Clean Water Act. The riparian habitat would also be regulated under Section 10 of the Rivers and Harbors Act.

These features are also potentially under state jurisdiction, with the riparian habitat potentially regulated by CDFW, RWQCB, and CCC. The emergent channel is potentially regulated by RWQCB and CCC.

The results of this delineation are preliminary and must be reviewed and verified in writing by the ACOE to be considered an official delineation.

6.0 REFERENCES

Calflora. 2021. Calflora online database for California plants. Available online (as of 05/2021) at: http://www.calflora.org/

California Coastal Commission (CCC). 2011. Definition and Delineation of Wetland in the Coastal Zone. October 5, 2011 Briefing. Available at: https://documents.coastal.ca.gov/reports/2011/10/w4-10-2011.pdf.

CCC 2021. Procedural Guidance for Evaluating Wetland Mitigation Projects in California's Coastal Zone. https://www.coastal.ca.gov/weteval/we2.html#:~:text=Coastal%20Act%20Section%2030231%20defines,swamps%2C%20mudflats%2C%20and%20fens.

Environmental Laboratory. 1987. Corps of Engineers (ACOE) Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. 100 pp. plus appendices.

Kollmorgen Instruments Corporation. 2009. Munsell Soil Book of Color. Kollmorgen Instruments Corp., Baltimore, Md.

PRISM Climate Group (PRISM). 2021. Data from PRISM website. Oregon State University, Corvallis. Website available (as of 05/2021) at: http://www.prism.oregonstate.edu/

San Francisco Estuary Institute (SFEI). 2015. Bay Area Aquatic Resources Inventory (BAARI), Version 2 GIS database of streams (modeled from digital elevation models).

San Mateo County. 2011. Planning and Building Map Viewer: Local Coastal Program, Coastal Commission, CCC Coastal Zone. Available at: https://gis.smcgov.org/Html5Viewer/Index.html?configBase=https://gis.smcgov.org/Geocortex/Essentials/REST/sites/publicplanning/viewers/HTML52110/virtualdirectory/Resources/Config/Default. Date Accessed January 15, 2021.

San Mateo County. 2013. Midcoast Local Coastal Program Policies. Available at: http://www.co.sanmateo.ca.us/Attachments/planning/PDFs/LCP/SMC_Midcoast_LCP_2013.pdf

US Army Corps of Engineers (ACOE). 2010. Regional supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region. ERDC/EL TR-10-3.

ACOE 2018. The National Wetland Plant List: April 2018 Update of Wetland Ratings.

U.S. Department of Agriculture (USDA) Soil Conservation Service (USDA-NRCS). 2021. Web Soil Survey Website. Available (as of 05/2021) at: http://websoilsurvey.sc.egov.usda.gov/app/WebSoilSurvey.aspx

USDA-NRCS. 2021. Agricultural Applied Climate Information System (AgACIS). WETS table for Skyline Ridge Preserve, CA Weather Station. Dataset accessed at: http://agacis.rcc-acis.org/

USDA. 1991 Rev. Edition. Hydric Soils of the United States. SCS in cooperation with the National Technical Committee for Hydric Soils. Misc. Publication No. 1491.

APPENDIX A:

REPRESENTATIVE PHOTOGRAPHS OF THE STUDY AREA

(Recorded May 7, 2021)

Representative Photographs of the Study Area

Point 01, facing south-southeast. Point 02 is located to the left of shovel, within riparian canopy.

Point 03, facing southwest, located within fava bean field.

Representative Photographs of the Study Area

Point 04, facing west. Cloverdale Road is shown in the background, with emergent channel in the middle of the photo, and upland edge of channel in the foreground (comprised of California blackberry).

Point 05, facing west. Pure stand of cattails growing in emergent channel.

Representative Photographs of the Study Area

Giant horsetail growing among upland plant species, in an upland area outside of the Pescadero Creek riparian corridor. This photo was taken in an area that was not subject to recent soil/veg disturbance, and may represent mesic, but not wetland, conditions. Equisetum species are known to colonize disturbed areas and may be weedy, indicating that it may not be the best indicator for wetland, particularly if it's the only wetland species occurring.

APPENDIX B:

WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Pescadero Pipeline & Fire Station City/County: Pescadero, San Mateo Co Sampling Date: May 7, 2021
Applicant/Owner: Pescadero Unified School District, City of Pescadero State: CA Sampling Point: 01
Investigator(s): Ivy Poisson, VNLC Section, Township, Range: S11, T08S, R05W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0%
Subregion (LRR): A Lat: 4122572 Long: 556472 Datum: NAD 83
Soil Map Unit Name: Corralitos sandy loam, gently sloping, imperfectly drained NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X	**Is the Sampled Area within a Wetland?**	**Yes ___ No X**
Hydric Soil Present?	Yes ___	No X		
Wetland Hydrology Present?	Yes ___	No X		

Remarks: Second consecutive year of drier than normal conditions. Point located outside of riparian area/top of bank; paired upland point for sampling point 02. Undisturbed area compared to adjacent fallow fields that have been mowed recently.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5 ft)			
1. *Conium maculatum*	40	Y	FAC
2. *Brassica nigra*	20	Y	UPL
3. *Silybum marianum*	10	N	UPL
4. *Raphanus sativus*	5	N	UPL
5. *Equisetum telmateia*	5	N	FACW
6. *Festuca perennis (Lolium perenne)*	5	N	FAC
7. *Bromus diandrus*	4	N	UPL
8. *Melilotus indicus*	1	N	FACU
9.			
10.			
11.			
	90	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	45	x 3 =	135
FACU species	1	x 4 =	4
UPL species	39	x 5 =	195
Column Totals:	90 (A)		344 (B)

Prevalence Index = B/A = 3.82

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:
Ruderal vegetation characteristic of disturbed areas. Vegetation appears to be the least disturbed near this survey plot, which is why this was selected as representative point.

SOIL

Sampling Point: 01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18”	10YR 3/2	100					clay loam	friable soils

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): N/A

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:
Uniform soil horizon throughout 18” soil profile. Expected of disturbed/developed site with potential imported fill.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
None

Remarks:
No wetland hydrology indicators observed

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Pescadero Pipeline & Fire Station City/County: Pescadero, San Mateo Co Sampling Date: May 7, 2021
Applicant/Owner: Pescadero Unified School District, City of Pescadero State: CA Sampling Point: 02
Investigator(s): Ivy Poisson, VNLC Section, Township, Range: S11, T08S, R05W
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 1-3%
Subregion (LRR): A Lat: 4122574 Long: 556477 Datum: NAD 83
Soil Map Unit Name: Corralitos sandy loam, gently sloping, imperfectly drained NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes X No ___

Remarks: Point located just within the edge of the riparian canopy drip line. Hydric soil and wetland hydrology indicators not observed; however, this satisfies the one-parameter wetland for coastal zones because of the presence of wetland vegetation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 25 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	80	Y	FACW
2.			
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. *Delairea odorata*	30	Y	FAC
2. *Conium maculatum*	20	Y	FAC
3. *Bromus diandrus*	10	N	UPL
4. *Equisetum telmateia*	5	N	FACW
5. *Raphanus sativus*	5	N	UPL
6. *Rubus ursinus*	4	N	FACU
7. *Brassica nigra*	1	N	UPL
8.			
9.			
10.			
11.			
	75	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 25

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	50	x 3 =	150
FACU species	4	x 4 =	16
UPL species	16	x 5 =	80
Column Totals:	75 (A)		256 (B)

Prevalence Index = B/A = 3.41

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:
Survey plot is more representative of dry, outer edge of riparian habitat.

SOIL

Sampling Point: 02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18”	10YR 3/2	100					clay loam	friable soils

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): N/A

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:
Same soil type found at point 01. Uniform soil horizon throughout 18” soil profile. Expected of disturbed/developed site with potential imported fill.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
None

Remarks:
No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Pescadero Pipeline & Fire Station City/County: Pescadero, San Mateo Co Sampling Date: May 7, 2021
Applicant/Owner: Pescadero Unified School District, City of Pescadero State: CA Sampling Point: 03
Investigator(s): Ivy Poisson, VNLC Section, Township, Range: S11, T08S, R05W
Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): none Slope (%): 1-3%
Subregion (LRR): A Lat: 4122502 Long: 556111 Datum: NAD 83
Soil Map Unit Name: Soquel loam, nearly level NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation X , Soil X , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X	**Is the Sampled Area within a Wetland?**	**Yes ___ No X**
Hydric Soil Present?	Yes ___	No X		
Wetland Hydrology Present?	Yes ___	No X		

Remarks: Second consecutive year of drier than normal conditions. Located in cultivated field consisting of fava beans (*Vicia faba).* Elevation is slightly higher on the eastern end of the cultivated field; the field slopes down towards the roadside drainage ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. *Vicia faba*	16	Y	UPL
2. *Lysimachia arvensis*	2	N	FAC
3. *Brassica nigra*	2	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	0	x 4 =	0
UPL species	18	x 5 =	90
Column Totals:	20 (A)		96 (B)

Prevalence Index = B/A = 4.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:
Located in cultivated field consisting of fava beans (*Vicia faba),* but with upland plant species growing among fava beans. Beans may be planted as cover crop/nitrogen fixer. Rosemary fields are located to the north. Vegetation is regularly disturbed for ag.

SOIL

Sampling Point: 03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18”	10YR 2/1	100					silty clay loam	slightly blocky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): N/A

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:
Uniform soil horizon throughout 18” soil profile. Expected of disturbed/developed site that is regularly tilled for crops. Soil was moist (not saturated) below 2-4”. Dark soils may make detection of redox difficult; soil ped was left out for over 30 minutes and still no redox features were observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
None

Remarks:
No wetland hydrology indicators observed. Sample point located at slightly higher elevation compared to paired wetland point.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Pescadero Pipeline & Fire Station City/County: Pescadero, San Mateo Co Sampling Date: May 7, 2021
Applicant/Owner: Pescadero Unified School District, City of Pescadero State: CA Sampling Point: 04
Investigator(s): Ivy Poisson, VNLC Section, Township, Range: S11, T08S, R05W
Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): convex Slope (%): 5-7%
Subregion (LRR): A Lat: 4122498 Long: 556060 Datum: NAD 83
Soil Map Unit Name: Soquel loam, nearly level NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X	**Is the Sampled Area within a Wetland?**	**Yes ___ No X**
Hydric Soil Present?	Yes ___	No X		
Wetland Hydrology Present?	Yes ___	No X		

Remarks: Second consecutive year of drier than normal conditions. Point taken at the edge of emergent channel feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. *Rubus ursinus*	50	Y	FACU
2. *Equisetum telmateia*	10	N	FACW
3. *Typha latifolia*	5	N	OBL
4. *Erodium cicutarium*	5	N	UPL
5. *Juncus effusus*	2	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	72	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 28

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	12	x 2 =	24
FAC species	0	x 3 =	0
FACU species	50	x 4 =	200
UPL species	5	x 5 =	25
Column Totals:	72 (A)		254 (B)

Prevalence Index = B/A = 3.52

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:
Although this survey plot indicates mesic conditions (presence of FACW and OBL plants), the dominance of Rubus ursinus at the edge of the emergent ditch feature and indicates transition to upland.

SOIL

Sampling Point: 04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18”	10YR 2/1	100					silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): N/A

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:
Less recently disturbed soils along the top of drain slope share same characteristics as soils found at points 03 and 04.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
None

Remarks:
No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Pescadero Pipeline & Fire Station City/County: Pescadero, San Mateo Co Sampling Date: May 7, 2021
Applicant/Owner: Pescadero Unified School District, City of Pescadero State: CA Sampling Point: 05
Investigator(s): Ivy Poisson, VNLC Section, Township, Range: S11, T08S, R05W
Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): concave Slope (%): 1-3%
Subregion (LRR): A Lat: 4122498 Long: 556058 Datum: NAD 83
Soil Map Unit Name: Soquel loam, nearly level NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?** **Yes X No**
Wetland Hydrology Present?	Yes	X	No	

Remarks: Second consecutive year of drier than normal conditions. Point taken within emergent channel in roadside ditch. Roadside ditch drains to Pescadero Creek, a TNW. Width of emergent channel is approx. 6-8 feet across.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5 ft)			
1. *Typha latifolia*	90	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:
Pure stand of cattails in emergent channel

SOIL

Sampling Point: 05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18”	2.5YR 3/1	100					mucky clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- X Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): N/A

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches):	N/A
Water Table Present?	Yes	X	No	___	Depth (inches):	18”
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	18”

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Soil pit started backfilling with water. Steep/abrupt change in topography from upland point (05) to wetland point (06).