Midpeninsula Regional Open Space District

R-25-10
Meeting 25-03
January 22, 2025

REVISED SPECIAL MEETING AGENDA ITEM 1

AGENDA ITEM

Skyline Field Office Rapid Assessment Results and Selection of the Sherrill Site in Monte Bello Open Space Preserve as the new Skyline Field Office Location to Begin Conceptual Design

GENERAL MANAGER'S RECOMMENDATIONS

1. Accept the Skyline Field Office Rapid Assessment and Site Selection Report.

2. Select the Sherrill Site as the new Skyline Field Office location to advance into the conceptual design phase.

SUMMARY

After completing two new staff facilities, a new South Area Field Office for the Foothills region and relocation of the Administrative Office, the Midpeninsula Regional Open Space District (District) has prioritized improving the Skyline Field Office (SFO) to meet current and future operational needs. The SFO consists of an office and auxiliary buildings on Skyline Boulevard (Highway 35) where 52 field staff are assigned. Discussions to expand and improve the SFO facilities first began in 2009, however, the project was deferred after 2012 due to other competing priorities and both limited capital funding and project management capacity. The SFO Project was restarted in 2023, and the District hired Siegel & Strain in 2024 to provide architectural, landscape architectural, and engineering services to conduct a rapid assessment of potential field office locations and develop conceptual and schematic building and site plan options for the selected site. Siegel and Strain completed a rapid assessment of three exploratory sites that have been evaluated against numerous operational/functional, public interface, and environmental criteria. The Sherrill Site in Monte Bello Open Space Preserve ranked as the highest of the three potential locations that best meets District needs for the future SFO.

DISCUSSION

Background

The SFO, located at 21150 Skyline Boulevard, La Honda, currently services the District's Skyline region and the San Mateo County Coast (separately, the District is working to establish a coastal field office to service coastal properties). The SFO is located primarily within Santa Clara County with its northwestern edge in San Mateo County and includes a 2,560 square-foot office built approximately 30 years ago that provides administrative workspace, a meeting room, and shower and locker room facilities. Various older ranch buildings inherited by the District as part of the property acquisition have been repurposed for storage, a shop, a wood shop, and additional locker rooms. There are also storage containers, large equipment, a yard, fueling

station, and parking spread throughout the site. The SFO has outgrown the District's current and future needs due to increases in staff, which correspond to the substantial growth in land acreage over the last ten plus years that have required increased capacity for patrol, maintenance, and land stewardship work. The existing buildings and site layout do not provide enough space for District field office needs; therefore, a new facility will need to be built either at the current SFO site or at a new location within close proximity to the SFO site.

At the October 11, 2023 Board meeting (R-23-117), the Board received the SFO Needs Assessment Report (Attachment 1), describing existing conditions and future facility needs at the SFO. The Board also approved the following project goals:

1. Address facility deficiencies and improve functionality.
2. Address needs related to administration, shop use, utilities (including back-up power and cell service), parking and circulation, materials/equipment storage, and locker room/shower facilities.
3. Accommodate current and projected staff growth identified in the Coastal Management Plan and Financial Operational and Sustainable Model Update for the next 30-40 years, looking holistically at both the Skyline and Coastal regions (and future Coastal Office).
4. Incorporate design elements to reflect and complement the existing character of the site.
5. Include sustainable building and site features that support Climate Action Plan priorities and comply with climate-related state mandates.
6. Maintain internal equity for staff facilities.
7. Enhance workplace interactions and efficiencies and allow for standard start times and space for large staff gatherings/meetings.
8. Create a workplace environment that attracts and retains staff.
9. Incorporate fire resiliency goals into the design and construction.
10. Implement the project for cost and time efficiency.
11. Maximize efficiency of the available buildable land and locate as many of the uses at the existing site as possible to centralize ranger and maintenance needs.

At the April 24, 2024 regular meeting (R-24-11), the Board awarded a contract to Siegel & Strain to provide architectural, landscape architectural, and engineering services and develop conceptual and schematic building and site plan options. Over the past several months, the consultant team has familiarized themselves with the District's culture, values, aesthetic character and landscape of the preserves; field facilities in general; the in-depth layout and operational areas at the SFO; and the needs of District field staff through user surveys and focused staff interviews, meetings, site visits, and review of background documents.

Site Selection Process for the Improved SFO Facility

At the October 9, 2024 regular meeting (R-24-27), the Board approved the site selection criteria to evaluate three potential sites for the SFO facility. The current SFO site (Alternative 1) has many constraints due to its topography, which create uncertainties and challenges with a proposed facility expansion for current and future needs. The availability of sites that are in the vicinity, already disturbed, relatively flat, and large enough for a future field office, are limited. Staff explored several sites and located two potential alternate locations. Alternative 2 is a portion of the Skyline Ridge Open Space Preserve parking area, which contains more parking than is generally used by the public. This location has relatively flat topography and good access, but would be visible from Hwy 35 and impact current visitor access, including the ability to host large, by-permit 100+ people events. Alternative 3 is a portion of the former Sherrill site and

affects a small portion of the existing Skyline Ranch Christmas Tree Farm in Monte Bello Open Space Preserve that is currently leased out to a tenant (the same tenant also leases 36 acres of land for the same use across the highway in Skyline Ridge Open Space Preserve). Of the 16 acres of Christmas Tree Farm that exists in Monte Bello Open Space Preserve, the proposed SFO Project would affect approximately 2.5 acres. The proposed SFO site on the Sherrill Property includes other surrounding land, totaling approximately 6 acres in size and is a largely disturbed site and relatively flat with direct access to the highway, lending itself well for a field office site.

To determine which of the three alternative sites should advance to the next phase of the project when a conceptual site plan with building and pathway footprints is developed, the project team developed site evaluation and selection scoring categories and criteria based on discussions with the Board and extensive input from staff on the important features and considerations for the new SFO. To acknowledge that some categories may be more important to the District's mission and the project goals relative to others, each category is assigned a factor weight of 1 or 2, with 2 being of highest importance. A weighting factor of 2 is applied to both Category 1 (*Function & Workplace Culture*) and Category 2 (*Organization, Adjacencies, & Circulation*). The other three categories are weighted a factor of 1 (Table 1). The Board approved the evaluation categories, criteria and weights at the October 9, 2024 Board meeting (R-24-27).

Table 1. Site Evaluation and Selection Scoring Criteria

Categories	Proposed Specific Criteria	Weight
1 Function & Workplace Culture	**1.** Facilitates a great place for employees and volunteers to do their best work in furthering the District's mission. **2.** Supports a healthy, comfortable, equitable workplace that attracts and retains staff. **3.** Allows for multi-purpose and flexible workspaces, organized to accommodate future growth, fluctuating population, and District needs. **4.** Provides for adequately sized shops and outdoor covered work areas that prioritize function, safety, efficiency, and workflow. **5.** Provides for centrally located gathering areas (both indoor and outdoor) for all SFO staff to support cross-pollination and community. **6.** Locates and lays out staff amenities (locker rooms, washer/dryer, break spaces) to accommodate the rhythm of the workday (start of day, breaks, end of day). **7.** Allows for minimal impacts on the current SFO operations during construction.	2
2 Organization, Adjacencies & Circulation	**1.** Consolidates all functions of the field office and its operations. **2.** Provides for clear boundaries, delineation and control between staff areas and public areas. **3.** Provides for ample and safe circulation for vehicles and large equipment - including maneuvering, loading, unloading, cleaning, maintaining, fueling and charging - organized to not compromise the flow of operations. **4.** Safe vehicular access to and from Skyline Blvd, with appropriate and compliant sight lines and turning radius	2

	5. Sufficient parking for employee and District vehicles, bikes, and motorcycles. **6.** Circulation that allows equipment and vehicles to pull through whenever possible, including through the workshop. **7.** Minimize cross traffic between employee and/or visitor vehicles with District vehicles and equipment. **8.** Safe access and onsite circulation for fire trucks and emergency vehicles **9.** Appropriately sized and located storage spaces for each department, organized to allow equipment that is used together to be stored together. **10.** Provides designated areas for receiving, stockpiling, storing and retrieving construction materials.	
3 Site Character & Public Interface	**1.** Minimizes impact of operations on open space. **2.** Minimizes development in undisturbed areas. **3.** Minimizes impact on views to, and from, open space, cultural/historic resources, the public right-of-way and scenic corridors. **4.** Maintains a rural ranch aesthetic/character. **5.** Minimizes earthwork and retaining walls. **6.** Minimizes impacts to native species, riparian areas, and wildlife connectivity. **7.** Minimizes spread of soilborne pathogens. **8.** Minimizes watershed impacts draining to Alpine Pond and Horseshoe Lake. **9.** Minimizes impacts to agricultural uses. **10.** Structures, roads/paths and above-grade infrastructure fit into their surroundings and are responsive to the site topography, site context, and natural setting. **11.** Minimizes overlaps between public trails and operational spaces. **12.** Allows public access areas to be clearly indicated and primarily located on the edges of the Field Office.	1
4 Resiliency & Sustainability	**1.** Provides required utilities (water, septic, power, cellular connectivity, and data) with relatively simple expansion or new facilities; does not require major new utility connections/systems. **2.** Organized to provide resiliency of operations. **3.** Offers opportunities for photo voltaic integration and battery locations. **4.** Resilient to wildfire; able to maintain defensible spaces. **5.** Offers opportunities to maximize energy efficiency strategies in the design and use of the facility. **6.** Provides good solar daylight access for workspaces. **7.** Offers opportunities for natural air circulation for structures to incorporate operable windows/pull up doors. **8.** Offers opportunities for protected outdoor workspaces that are sheltered from winds, rain. **9.** Allows for economical and sustainable storm water management.	1

5 **Planning**	**1.** Avoids substantial entitlement/planning process. **2.** Well-positioned to move efficiently through design, permitting and construction. **3.** Respects setbacks to parcel lines, in particular County boundary lines. **4.** Consistent with Resource Management policies, including mitigation chapter. **5.** Addresses local agency highway scenic corridor requirements. **6.** Avoids subsequent use and management actions or decisions beyond those required of the SFO Project.	1
Cost	Based on the relative costs for the three site alternatives determined by the cost estimate.	N/A

Siegel and Strain developed test fit plan diagrams for each of the three sites. The purpose of a test fit diagram is to "test" whether all the necessary program elements can fit on the site in a reasonable layout (a test fit is not a conceptual design). The test fits and the SFO Rapid Assessment and Site Selection Report (Attachment 2) provided the information for staff to evaluate each site. A 13-person cross-departmental project team scored each site against each category using a scale of 0 to 3 (see Table 2 for score definitions) based on how well each site and site layout meets the specific criteria listed within each category. The score was then multiplied by the weighting factor to arrive at a grand total, and the scores from each member of the project team were averaged for a final score.

Table 2. Site Score Definition

Score	Definition
0	Does not meet expectations
1	Below expectations
2	Meets expectations
3	Exceeds expectations

Site Selection Results for the Improved SFO Facility

The SFO site (Alternative 1) has the lowest score of 1.8, followed by the Skyline Ridge Circle Lot (Alternative 2) with a score of 2.2, and Sherrill site (Alternative 3) with a score of 2.5. The primary reason the Sherrill site ranked the highest is that it provides flexibility for an efficient office design, does not impact current operations during construction, does not impact public access, and has minimal viewshed impacts. The Sherrill site does impact 2.5 acres of the Christmas Tree Farm lease area; the larger lease area totals 52-acres in both Monte Bello and Skyline Ridge Open Space Preserves. The test fit was developed and subsequently modified to minimize impacts to the tree farm. During the conceptual design process, the project team would continue to explore options to minimize impacts to the Christmas Tree Farm through specific site design and layout of the pathways, structures, and parking.

The SFO site ranked the lowest due to both topographical constraints, which limit an efficient design and future expansion, and significant impacts to operations during construction. A

summary of the final scores with the advantages and disadvantages of each Alternative site is found in Table 3. The final scores of each site by category are found in Table 4.

Table 3. Site Evaluation and Selection Scoring

Site	Estimated Cost	Final Weighted Score	Advantages	Disadvantages
Alternative Site 1 – Skyline Field Office	~~$29,032,000~~ $29,532,000	1.8	• Already developed site. • Not visible from Skyline. Blvd. or surrounding open space. • Less earthwork and retaining walls required than other sites. • Existing well, water tank, and leach field can be used and expanded.	• Impact on staff and operations during construction would be costly and disruptive. • Site constraints lead to a dispersed field office layout with limited potential for future growth/expansion. • Parking is not consolidated. • Site constraints require multiple turnaround locations for large vehicles making maneuvering a challenge. • Requires rerouting a public trail. • Poor sightlines at driveway intersection on Skyline Blvd. • More heavily forested site than other sites; most challenging to maintain defensible space. • Potential impacts to Alpine Pond.
Alternative Site 2 - Skyline Ridge Circle Lot Score	$28,295,000	2.2	• Efficient, compact, and flexible field office layout. • Lots of outdoor workspace. • Allows the existing SFO to continue to be operational during construction of a new field office. • Clear and sufficient circulation for District vehicles and emergency access. • Clear sightline from driveway and a center turn lane at Skyline Blvd. • Occupies a previously disturbed area. • Buildings are well-suited to passive ventilation, daylight and rooftop PV system. • Good defensible space to reduce wildland fire risk.	• Very close to and highly visible from Skyline Blvd. • Close to public trails and open space; difficult to delineate and secure. • Driveway shared by public and District vehicles. • Displaces public parking, restroom, and requires rerouting of public trails. • Requires extensive planting of screening vegetation. • Potential impacts to Horseshoe Lake. • No existing utilities. • Does not provide a secluded location for staff to work and take breaks. • Proximity to Skyline Blvd. poses a security challenge. • Requires some earthwork and retaining walls.

Site	Estimated Cost	Final Weighted Score	Advantages	Disadvantages
Alternative Site 3 – Sherill Site	~~$27,625,000~~ $29,105,000	2.5	• Efficient, compact, and flexible field office layout. • Lots of outdoor workspace. • Allows the existing SFO to continue to be operational during construction of a new field office. • Clear and sufficient circulation for District vehicles and emergency access. • Occupies a previously disturbed area. • Buildings are well-suited to passive ventilation, daylight and rooftop PV system. • Good defensible space to reduce wildland fire risk. • Provides a secluded and scenic place for staff to work. • No public trails or access in the area; relatively easy to secure. • Distance from Skyline Blvd. makes the site relatively easy to secure.	• Somewhat visible from Skyline Blvd. and trails in Monte Bello. • Displaces a portion of the existing Christmas tree farm. • Requires the most earthwork and retaining walls of the three alternative sites. • Potential impacts on Stevens Creek watershed. • Requires new water and septic system.

Table 4. Site Evaluation and Selection Scoring by Category

Criteria Categories	Site 1 (SFO)	Site 2 (Skyline Ridge Circle Lot)	Site 3 (Sherrill)	Comments
1 – Function & Workplace Culture	1.6	2.5	2.9	Site 1 ranks the lowest due to the impact on staff during construction and the dispersed and inefficient layout. Site 2 ranks slightly lower than Site 3 due to Site 2's higher visibility and proximity to the Highway.
2 – Organization, Adjacencies, & Circulation	1.5	2.4	2.7	Site 1 ranks lowest due to the site constraints that require multiple turnaround locations and dispersed layout. Site 2 ranks lower than Site 3 due to shared driveway with the public parking area.
3 – Site Character & Public Interface	2.3	1.6	2.2	Site 2 ranks the lowest due to the visibility of the site and impacts to public parking, restrooms, and trails. Site 3 ranks slightly lower than Site 1 since Site 3 is minimally visible to the public, with no public interface, while Site 1 has a long-standing use as a staff facility site that is well buffered by Highway 35.
4 – Resiliency & Sustainability	1.8	2.3	2.5	Site 1 ranks the lowest due to the limited opportunities for future expansion and is more challenging to maintain defensible space than the other two sites. Site 3 provides the best opportunity for future expansion and site conditions are good for maintaining defensible space.
5 – Planning	1.9	1.4	1.9	All three sites have permitting challenges, but Site 2 ranks the lowest due to its high visibility and resulting visual impacts to the Highway 35 Scenic Corridor.
Overall Weighted Score	**1.8**	**2.2**	**2.5**	**Site 3 ranks highest overall, followed by Site 2; Site 1 ranks the lowest**

Preliminary Cost Estimates

A preliminary cost estimate was developed for each of the site's test fit to establish a rough order of magnitude cost for each Alternative as another data point to inform the Board's site selection decision (Table 5). The three sites are all relatively close in cost considering the early stage of design and given that many details need to be refined. Alternative Site 1 has the higher cost due to the added costs of building demolition and temporary staff facilities needed during construction. Additionally, there will be a loss in labor efficiency due to moving staff twice and working out of temporary facilities while the SFO renovation occurs at Alternative Site 1.

The preliminary cost estimates do not include costs to reroute trails (Alternative Site 1 – SFO), replace parking, restrooms, and reroute trails (Alternative Site 2- Skyline Ridge Circle Lot), or the loss of revenue of 2.5 acres of the Christmas Tree Farm lease (Alternative Site 3 – Sherrill).

Table 5. Cost Estimates for Each Alternative Site

	Site 1 – SFO	**Site 2 – Skyline Ridge Circle Lot**	**Site 3 – Sherrill**
New Construction Costs	$27,400,000	$28,295,000	$29,105,000
Demolition Costs	$666,000	N/A	N/A
Temporary Facilities	$966,000	N/A	N/A
Efficiency Loss (staff time lost due to temporary facilities)	$500,000		
***Total Costs in 2024 Dollars**	**$29,532,000**	**$28,295,000**	**$29,105,000**

*Does not include soft costs; note: these are preliminary high-level costs, a future updated and refined cost estimate for the selected site will be prepared during the conceptual design phase.

FISCAL IMPACT

The recommended action has no immediate fiscal impact, and sufficient funds are included in the current fiscal year to proceed with next steps through end of June. Future fiscal year budgets are projected to include funding for design work as shown in the table below. Construction is scheduled to occur after FY27. Given the magnitude of future construction costs, the Controller reviewed a placeholder construction cost of $30 million, confirming that this amount is within the parameters and expectations of the 30-year fiscal model and therefore fiscally sustainable. If Site Alternative 3 is selected, a minor reduction in revenue from the Christmas Tree Farm Lease is expected.

31914 - Skyline Field Office Renovation	**Prior Year Actuals**	**FY25 Amended**	**FY26 Projected**	**FY27 Projected**	**Estimated Future Years**	**TOTAL**
Total Budget (Fund 40):	**$53,194**	**$355,000**	**$290,000**	**$230,000**	**$25,050,000**	**$25,978,194**
Spent-to-Date (as of 12/11/24):	($53,194)	($90,153)	$0	$0	$0	**($143,347)**
Encumbrances:	$0	($259,727)	$0	$0	$0	**($259,727)**
Construction of Site 3:	$0	$0	$0	$0	($29,105,000)	**($29,105,000)**
Budget Remaining (Proposed):	**$0**	**$5,120**	**$290,000**	**$230,000**	**($4,055,000)**	**($3,529,880)**

This recommended action is not funded by Measure AA.

PRIOR BOARD AND COMMITTEE REVIEW

October 11, 2023 Board Study Session: Board received the Skyline Field Office Needs Assessment Report, reviewed and approved goals of the Skyline Field Office Project, reviewed and approved the Phase I project scope. (R-23-117, meeting minutes)

April 24, 2024 Board Meeting: Board awarded contract to Siegel and Strain to provide architectural and landscape architecture/site design services for the Skyline Field Office Project and Coastal Field Office Project (R-24-11, meeting minutes).

October 9, 2024 Board Meeting: Board provided feedback on the Skyline Field Office Site Evaluation Criteria for three potential site options for the Skyline Field Office Project (R-24-27, meeting minutes).

PUBLIC NOTICE

Public notice was provided as required by the Brown Act. The District has also been in communication with the Skyline Christmas Tree tenant to keep them informed of site selection considerations.

CEQA COMPLIANCE

Site selection is not a project subject to the California Environmental Quality Act. The District would conduct environmental review prior to an award of contract for construction for the SFO Project.

NEXT STEPS

Pending Board action, Siegel and Strain will begin more detailed technical studies and develop conceptual designs for the selected site. Conceptual design options are scheduled to be presented to the Board in spring of 2026.

Attachment(s)
1. Skyline Field Office Needs Assessment Report
2. Skyline Field Office Renovation Project Rapid Assessment & Site Selection Report

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Prepared by / Contact person:
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Skyline Field Office Renovation Project
Needs Assessment Report
October 11, 2023

By Midpeninsula Regional Open Space District

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1.0 Introduction

The District spends considerable time and resources planning and developing office and field facilities because these facilities are critical to the District's operations and ability to achieve the District's mission. Currently there are five offices: Administrative Office (AO), Foothills Field Office (FFO), Skyline Field Office (SFO), South Area Office (SAO), and the Coastal Area Outpost (CAO) (Appendix 1). Between 2009 and 2012, staff worked on two facility remodel projects (AO and SFO), which catalyzed a strategic facility planning effort to better understand overall staff facility priorities. The Board of Directors (Board) formed a Facilities Ad Hoc Committee to provide policy-level feedback. Due to the economic forecast at the time, competing initiatives requiring staff resources, and other capital project priorities, including the overall staff facility planning effort, the SFO Remodel project was put on hold.

Shortly after passage of Measure AA in June of 2014, the District embarked on a District-wide Financial and Operational Sustainability Model (FOSM) that evaluated the necessary changes to internal workflow, staff capacity, and organizational structure for delivering Measure AA projects. The FOSM recommendations were accepted by the Board in 2015. The FOSM is currently being updated and final recommendations will be available in early 2024.

In 2015, staff completed a Staff Facilities Opportunities and Constraints Analysis (Staff Facilities Report), which was accepted by the Board in November. Two key recommendations in the report were to prioritize and complete the Administrative Office and permanent South Area Office due to anticipated staff growth and the opening of Mount Umunhum. These projects have been completed.

Since the passage of Measure AA, the District has changed significantly with an increase in staff, land, and public facilities. Field staff numbers have increased to support newly opened preserves and increased maintenance and land management. Staff have accommodated operational growth over time by gradually maximizing the most efficient use of the site, staggering schedules, and being adaptable, but the facility can no longer absorb additional staff growth without making substantial changes.

2.0 Purpose

The purpose of this Needs Assessment Report is to document existing conditions and facility needs for the Skyline Field Office. The findings of this report came from interviews and tours with Skyline field staff and several staff who work out of the Administrative Office and also work periodically out of the Skyline Field Office. Additionally, a survey was available to all field staff from June 29 to July 26, 2023. Thirty-seven staff responded to the survey. A focus group with several staff met on August 10 to discuss facility and operational needs in more depth. The information in this report provides important context and a foundation for planning future recommendations related to facility renovations and site improvements.

3.0 Existing Conditions

Table 1- Skyline Field Office Facts and Figures

Location and Jurisdiction	21150 Skyline Blvd., La Honda, CA. Santa Clara County and San Mateo County jurisdiction.
Current Staffing	52 employees (includes seasonals and aides). There are currently four vacancies.
Site Footprint	1.5 acres
Existing Buildings	• Main office: 2,500 sq ft • Shop: 1,100 sq ft • Equipment and Tool Storage: 6,300 sq ft
Existing Parking Capacity	55 vehicles (32 District vehicles, 23 employee vehicles)
Construction	1996 office, 1930s shop and other auxiliary buildings
Protected Lands served by SFO (and CAO)	41,480 acres out of 71,340 total acres
Roads and Trails maintained by SFO	246 miles out of 400 total miles (158 miles of which are open to the public), includes 850 culverts out of 1,338
Preserve Parking and Restroom Facilities served by SFO	24 public parking areas and 14 restrooms out of 54 and 25

4.0 Findings

The overwhelming feedback from staff who responded to the survey is that the SFO site has exceeded capacity and staff need more administrative office space (which includes offices, meeting rooms, and shared workstations), locker rooms, restrooms, kitchen space, material storage areas, shop and woodshop areas, and circulation room for parking and maneuvering vehicles. Many respondents reported feeling cramped and acknowledged that adding additional staff and vehicles will be very challenging given the constraints and layout of the site.

- *"Not enough space for equipment storage and staff at the site."*
- *"We have run out of room long ago and have been making do ever since."*

4.1 Locker Rooms

There are four locker rooms. The office has a women's locker room and a men's locker room. The women's locker room has one toilet, one sink, one shower, and ten half lockers (36" high, 16" wide, 18" deep). The men's locker room has one toilet, one urinal, one sink, two showers, and 24 half lockers (36" high, 16" wide, 18" deep).

There is a locker room in the bunkhouse that has one toilet, two showers, and nine full lockers (70" high, 18" wide, 18" deep). It is heated by a space heater. The laundry room and ice machine are also located in the bunkhouse. The locker room in the stables has one toilet and 9 full lockers (60" high, 12" wide, 12" deep) but does not have showers or heat.

Almost all respondents mentioned that the locker rooms and restrooms are too small for the number of people using the facility. This feedback was consistent for both male and female staff. There is a definite need for more restroom stalls, more showers, more lockers, bigger lockers, and more floor space for dressing. The climate control and ventilation in the locker rooms need improvement. A few staff desire more privacy.

In order to accommodate the number of staff who are currently using the facility, shifts are staggered to spread out the use and reduce overlap. Even with the staggered shifts, there can still be multiple people waiting at the end of the day to use the showers. Skyline staff regularly work in and around poison oak, and showers are used at the end of the day to avoid severe poison oak reactions. Several staff mentioned that the long wait times deter some staff from taking a shower to decontaminate, which could pose issues for those who are severely allergic to poison oak.

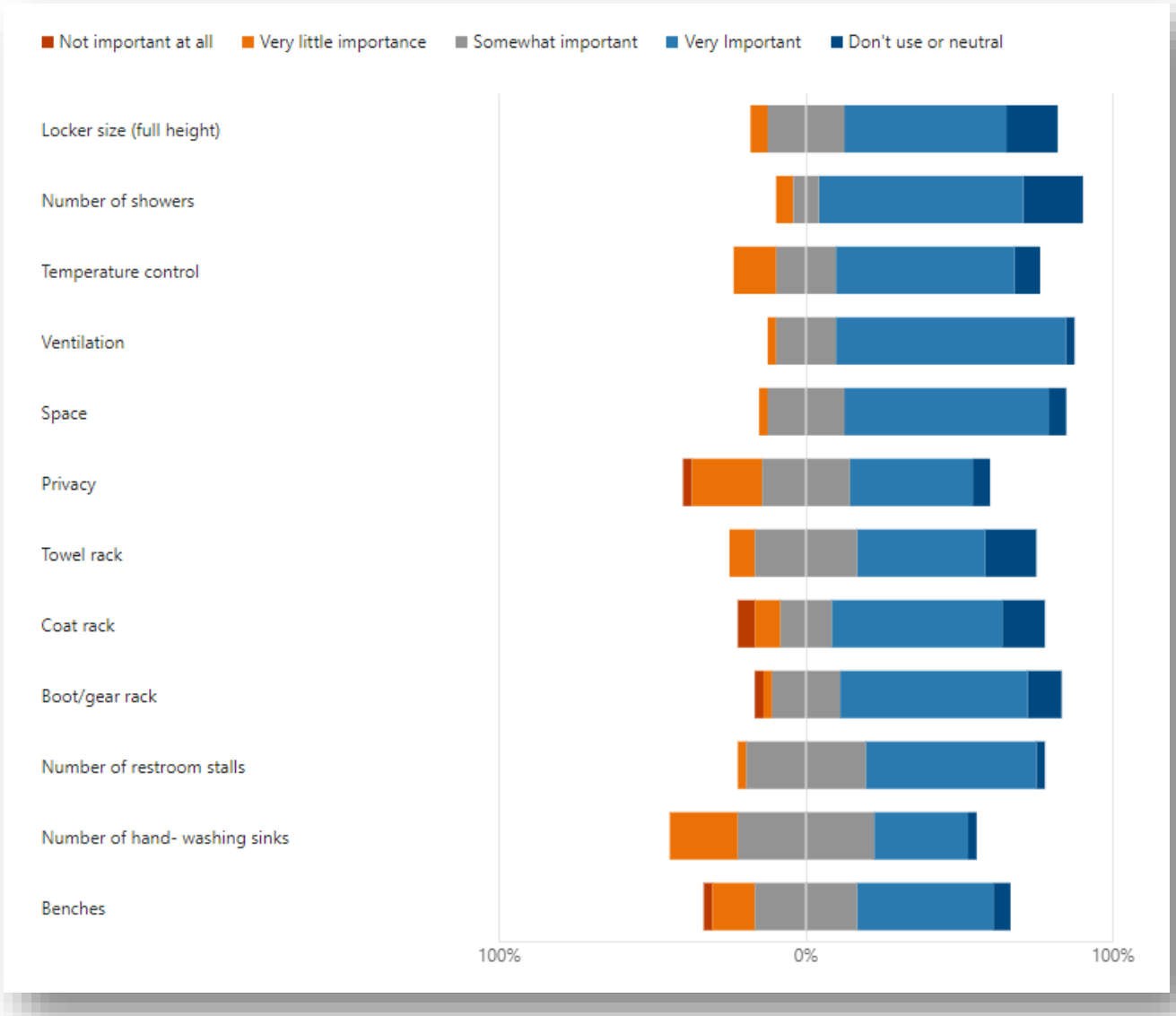
Many staff could benefit from having larger lockers (full size and double-wide) as the half lockers do not meet all their storage needs or allow for hanging longer items. The type of gear stored in the lockers include uniforms (usually multiple uniforms for the week), an extra change of clothes, cold weather gear, protective equipment, shower supplies, jackets, backpack, water bottle, overalls, rain gear, personal items (such as keys, wallet, phone), extra boots, socks, and a towel. Some staff do not have a locker due to a lack of available ones and store their gear in their vehicles. Some staff store their gear in cardboard boxes above the lockers.

Several staff recommended future improvements to separate locker rooms from some of the restrooms (some restrooms located in the locker area and some in the office area), create multiple locker rooms, and/or create gender neutral restrooms to allow for flexibility with growth if the gender make up changes or if there are non-binary individuals on staff. The Administrative Office locker room located in the garage could serve as a model as it is gender neutral, with individual rooms for restrooms and showers and a shared locker, sink, and laundry area.

Having the laundry room and ice machine located in the bunkhouse locker room is inconvenient for staff not using that locker room. A dedicated laundry room would be desired and as staff numbers grow, there may be a need for additional machines as a few staff found it hard to find the time and opportunity to use the washer and dryer. Having an ice machine located in the kitchen was mentioned several times as important to staff.

In addition to the needs identified above, there is also an issue with one of the showers (hot water and pressure are inadequate) and the septic system pipe needs replacing in the near future.

Table 2 - Respondents rated the importance of locker room features



The features that are the most important to respondents in the locker room are ventilation, space, number of restroom stalls, number of showers, locker size (for sufficient storage of gear), temperature, and boot/gear racks. Privacy and number of sinks were rated as highly important. Overall, most respondents felt all the features listed were important.

- *"The women's locker room only has one stall, having another would be nice. Having more space to dress would be great as well."*
- *"It's pretty tight if there are more than two people trying to get dressed."*
- *"It would be nice if the toilet stalls were enclosed with their own ventilation. Definitely need more showers and locker room space. For the winter we need more boot [drying] racks and additionally enough ventilation to dry rain gear overnight."*

4.2 Personal Gear Storage

Staff store their gear either in a bin in the shop, their locker, personal vehicles, the wet room, at home, or a combination of all these locations. There is a trailer next to the administrative office (referred to as the "wet room") which houses gear such as helmets, fire gear, winter gear, harness, chainsaw chaps, and first aid supplies. Some gear is stored in work trucks, in particular for full-time Ranger positions where every person is assigned a vehicle. Almost every respondent commented that more storage space for seasonal gear is needed as well as a dedicated space with a heater to hang and dry wet rain gear. The boot drying machines located in the locker rooms are useful but at capacity and with an increase in staff there will need to be more boot dryers available. Currently some staff use their lockers or the clothesline in the shop for drying gear. The clothesline in the shop was heavily used this winter and having it there interferes with working in the shop.

- *"Since there are not enough lockers at SFO, I don't have a locker. This means anytime I am working at SFO I have to remember to bring all of my gear with me...jacket, hats, rain gear, towel, etc., & extra clothes if I need to take a shower due to PO [poison oak] exposure."*
- *"For my rain jacket and rain pants I have one peg to hang them; Fire gear in the my fire bag with me on patrol - then stored in the shared patrol area in the wet room when away from work; Class A uniform is hanging on a shared closet bar in the locker room; Gear bag in patrol truck with me - body armor, chaps, cold weather gloves, beanie, spare water and food, ball caps, ear/audio protection, cleaning supplies; These items stored in my personal storage area in the wet room - bike shoes and helmet, chainsaw helmet, motorcycle helmet, TRAFx data collection materials, training binders, felt flat hat, brushing harness, emergency supplies; File cabinet drawer - training materials and records, documentation records, spare food and personal effects."*
- *"I currently have two lockers, because just hanging my shirts fills the top locker from the top to the bottom. Based on my job needs, I have 3 pairs of boots that I need storage for between uses. During the wet season and only having one set of rain gear, there needs to be sufficient temperature and airflow for everything to dry overnight between shifts."*

4.3 Office Space

There are three offices shared by six people. There are four hoteling stations for staff to use for writing emails, submitting timecards, researching projects, ordering materials, and completing data entry. The frequency of hoteling station use varies based on the position of the person and their associated duties, but at the start and end of each day this area can get crowded. The Administrative Assistant space is centrally located and houses office supplies. There is no break room, but there is a lunch table on the outside deck. The conference room has a workstation that is sometimes used as well.

Sharing offices fosters collaboration but can also be distracting and feel cramped. The offices should have better soundproofing for private or sensitive conversations and room for collaboration (such as a table where people can gather and look at maps, plans, etc.). Some staff like sharing an office and others find it challenging, especially when they need to take calls or focus. Even if staff don't mind sharing space, there is still a need for larger offices and focus rooms for sensitive conversations, for focus work without distractions, or meeting rooms for trainings, webinars, and private meetings. The supervisors need more private offices as some have trouble finding space to hold private conversations and therefore take them in their vehicle or outside.

Many people, both those that work in an office and those that work in hoteling stations, see the need for focus rooms, similar to the ones at the AO, where staff can have private conversations or quiet focus time. If there were more focus rooms and hoteling space, AO staff could also come and have a place to work at SFO, which is important for AO staff who have strong operational connections to SFO staff or the region. More hoteling stations are also needed as many people felt the four existing stations can get congested. A meeting room that can hold approximately 10 people would also be beneficial for team meetings.

The current office layout is not ideal with respect to outlets, internet port locations, and general function. Some items that would improve functionality include ergonomic furniture such as sit/stand desks, layout tables, whiteboards, and areas to collaborate (such as a table where people can sit around and look at maps, plans, etc.). The floors need replacing and the telephone system needs to be re-evaluated. It would also be beneficial to have a place like a mud room to take off and hang muddy wet clothes before entering the locker room or office.

- *"I use the conference room at SFO at least 2 times/ week as an office for day to day tasks such as email, timecards, phone calls, teams, planning/coordinating project work. Private space at this field office would be very helpful."*
- *"We need more offices and multiple private meeting rooms. Our conference room needs to be larger to accommodate the number of staff we currently have. More work stations for all of the staff not in an office."*

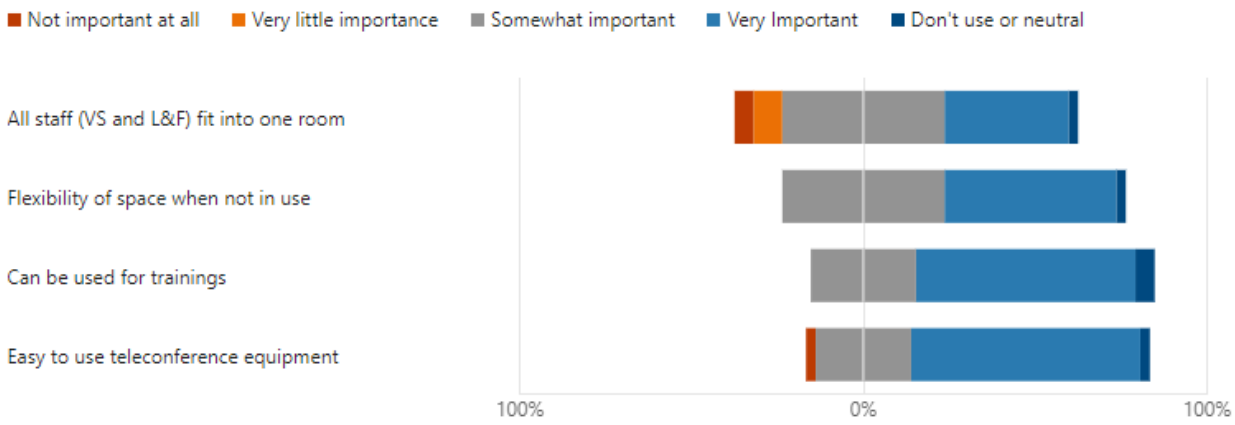
4.4 Conference Room

The only dedicated meeting space is a conference room, although staff can use an office if it happens to be unoccupied. The conference room has two workstations and can handle videoconferencing, although it is not easy to use. The multi-purpose conference room is also used as a library for books and historic artifacts, and storage for files, an evidence locker, exercise mats and balls, and field gear. Staff often eat in the conference room since there is no other indoor break room. It is not big enough to fit all field staff in it.

Impromptu meetings are held in the main open office where staff huddle in the morning and interact, socialize, share food, and get office supplies.

Staff were asked in the survey about the features of a conference room that are important to them. Most respondents felt that easy-to-use teleconference equipment and space for training or other uses are higher priorities than having all staff fit into one room. Many were open to the idea of the room being flexible and used for multiple purposes, including for hoteling space, a break area, a stretching area, a library, or a training space. Some respondents noted that it would be good to have a dedicated break room (i.e. not use the conference room), so that a break room is always available when meetings are occurring. The space needs to be flexible for hands-on training like emergency medical response or defensive tactics. It is important that a conference room functions for hybrid meetings so that sound, lighting, and image work well and the system is easy to use. Other meeting room needs include focus rooms and a waiting room for visitors. An outstanding question is whether this room should also be designed to serve as a Regional Emergency Command Center. Any flexible uses of the space need to take into account that the space won't always be accessible depending on which use gets booked.

Table 3-Respondents rated the importance of conference room features



The features in a conference room that were rated most important to staff are easy-to-use teleconference equipment and that it can be used for trainings. Since a conference room takes up a lot of space and is not always in use for large meetings, it is important to look for a way to maximize flexible use of the space. One idea is to include a separation wall similar to the AO board room and atrium that can expand or shrink the room based on space needs. The room should have a dedicated closet to store items (such as chairs, tables, etc.) so that it does not become cluttered.

4.5 Kitchen

The kitchen is small, can fit one person at a time, and is in an awkward location at the end of a short hall outside the conference room and an office. It consists of a sink, refrigerator, and dishwasher. A shelf next to the kitchen was added to accommodate more appliances and storage. There isn't enough power for multiple appliances to run at the same time. Some kitchen supplies have migrated to the shop and bunkhouse. When in the office, staff eat at their desks, outside on the patio, or elsewhere on site.

Many respondents mentioned that the kitchen is very small and that a larger kitchen is desirable, with more counter space and cabinet storage as well as an oven and burner. The location could be in a more suitable location where noise doesn't interfere with staff in meetings. Other desirable features are connecting the kitchen to an indoor break room and outdoor eating/grill space and providing easy access to filtered water and ice at the kitchen. Having a shaded picnic area outside would be nice for staff events. The half-size fridge works for current needs, but as staff numbers increase, a full-size fridge will be needed.

- *"The kitchen is small and hidden at the end of that little hallway by the meeting room, so people are making noise in the kitchen at times while others are in meetings. It's an awkward layout for the amount of people we have entering/exiting each day."*
- *"The kitchen is tiny, no counter space to prepare food. No space for more than one person to be in the kitchen area at once, so getting a cup of coffee in the morning or heating food at lunch is often a line. Fridge capacity seems fine. An oven and stovetop would be good for team meals. Would be nice to have ice more readily available in the kitchen."*

4.6 Shop

The shop area is made up of a series of separate rooms that include a main shop area, a wood shop, welding room, and a chainsaw room that is accessed from a separate exterior door. Staff have added insulation and propane heaters to make the main shop more comfortable, as well as a workstation, but the wood shop and other rooms are not insulated and very cold in the winter. Oftentimes staff will hold larger staff meetings in the main shop because it has more space than the conference room. Staff also utilize storage in the shop for personal gear.

Some respondents feel the space is adequate and functions well for current needs, but most expressed a desire for a bigger space despite liking the charm of the buildings. The size limits the number of people working on equipment at the same time and currently every space is utilized and packed. More space for tools would be beneficial. The shop is too small for large trucks and lacks a lift for servicing vehicles. Oftentimes work occurs outside because the shop is too small for large equipment. Several respondents mentioned features at FFO's shop that would be good to replicate are a shop with bay doors at either end so vehicles can pull through the shop and an upstairs storage area. One respondent suggested it would nice if each crew had their own shop bay so there was space for individual crews to work on their projects at the same time, but still share tools. Another respondent suggested it would be nice if the rooms were connected and not separated.

Most respondents felt the woodshop was mostly adequate, but could have a better exhaust system and more room for large projects. It was noted that staff need to work outside for larger projects. The woodshop is also not insulated.

- *"Shop is too small, particularly when it comes to maintenance and repair of large vehicles and heavy equipment."*
- *"Additional shop and wood shop space is essential as we grow."*
- *"I think it is nice to have separate areas available to perform specific trades such as carpentry, metal shop, mechanical repairs, etc. However this could be accomplished under the same roof to maximize space rather than having separate buildings spread throughout the site."*

4.7 Parking and Circulation

Parking is scattered throughout the site and staff park wherever they can find available space. Near the office there is a fueling station with a 1,000-gallon gasoline tank and 500-gallon diesel tank. There is an area to make a full circle around the fueling station, although it is tight for large equipment. Down the hill from the shop is an open, sloping yard and it is very tight and does not allow for pull through circulation, so large trucks and those towing trailers have to back down the hill or make tight three-point turns to turn around. There are no electric vehicle (EV) chargers, bike racks, dedicated motorcycle parking, or dedicated areas for members of the public to park, all of which are desirable features.

Almost every respondent mentioned the lack of parking is an issue, especially when up to eleven seasonal Open Space Technicians join the roster in the summer. It can be hard to hold trainings at SFO because there is no place to park. Late-shift staff have to find alternate places to park that are far and inconvenient to walk to at night or in inclement weather. Traffic jams occur regularly, especially in the morning when people are loading up and getting ready for their day. Some respondents would like the parking to be paved and see solar panels above the parking spots for power and shade. Staff who have

personal electric vehicles do not have a charger to charge them. Providing EV chargers for staff is part of the District's Climate Action Plan goals.

The yard is too small, and needs to be graded and resurfaced. It can be difficult to navigate large trucks to access the fuel pump. Staff have to back up or make very tight three-point turns with a trailer or large equipment, both of which are a challenge. This could be avoided if the site circulation was designed with a big turnaround or pull through configuration similar to FFO where vehicles can drive around the facility or pull through the shop using the multiple roll-up doors. Circulation improvements at SFO should consider functionality and safety with large equipment and trailers.

Parking will need to accommodate growth in District staff and the District fleet. The District fleet will include electric vehicles per the Fleet Transition Plan (under development) and the state mandate to transform all public fleet vehicles to EV. The future EV fleet will need charging stations. Staff may drive personal electric vehicles, and these will also need a place to charge.

- *"Personal vehicles are parking in four different areas depending on work group and it's kind of disorganized."*
- *"Parking is maxed out."*
- *"Horrible circulation. Lower boneyard is packed and very difficult to back trailers into storage areas. Turning around big trucks and trailers is very difficult and convoluted. It is hard to imagine that circulation could be appropriately corrected with the constraints of the office's current location."*
- *"Vehicle spaces are running low and constantly an issue, and we need more vehicles to accommodate staff."*

4.8 Material Storage

Storage is at capacity and scattered throughout the property in multiple storage containers and different buildings. The materials stored include hazardous materials, ATVs, motorcycles, large equipment, bobcats, culverts, pipes, tanks, signs, bikes, tractors, seeds, trailers, barricades, lumber, base rock, dog kennels, gates, and more. Some of the storage has been moved around due to mice infestations. There is also a container dedicated for the South Skyline Emergency Preparedness Group for the South Skyline Area community (https://southskyline.org/).

Many respondents expressed a desire for more storage space and for more consolidated and organized storage so materials are both easy to find and easy to access. Storage needs to be clean, temperature-regulated, and rodent proof. The SFO needs a secure, clean room for EMS supply storage with storage cabinets. In addition, rangers need an appropriate and secure locker storage for evidence or lost and found items, and large enough for bikes. Storing materials outside subjects them to the elements and decreases their usability.

There is not enough covered storage for equipment such as chippers, masticators, excavators, tractors, trailers, and trucks. Covered parking for heavy equipment (such as at FFO) is important because it prevents sun damage to sensitive rubber components and can shield from falling limbs, extending the life of the equipment. The location of the covered storage is also important so that maneuvering is easy. For instance, the location of ride-on-mowers in the lower stables area is not ideal because maneuvering them into a small space is a challenge and exposes the driver to exhaust. For greater functionality, the space should be large enough for staff to drive up and load vehicles.

- *"It would be nice to consolidate some of this and make it less confusing where to find specific things."*
- *"We are scattered all over the grounds and have had to expand out into the preserve for sufficient space and it would be helpful to be more centralized and not have to store materials in so many shipping containers."*

4.10 Power/Internet/Utilities

There are many deficiencies with power at SFO. When PG&E power goes down (due to fire or storms) propane and a generator are used as backup. However, backup power is not sufficient for all of SFO's needs and staff have experienced power outages and lack of heat during extreme summer and winter events. The HVAC system is overly complicated which makes it a challenge to maintain or modify. Fiber optics are in the attic and are fastened on plywood, neither of which is an ideal set up. The septic system pipe needs to be replaced, and the leach field may be undersized for the current use.

The survey for staff did not include questions about utilities because they are foundational and need to be improved as part of the project. Upgrades include a more secure location with better temperature control for fiber optics and improved ventilation, temperature, light, outlets, internet ports, and telephone system. The telephone system and septic system need to be evaluated. There also needs to be a secure and climate-controlled space for server equipment. Backup power via battery storage, and/or a generator are essential and need to be included in any future plans. Energy saving methods are important for the District to consider for meeting the Climate Action Plan goals, but several staff mentioned green features should not come at the expense of functionality. Any future system should be simple to operate and maintain. Burying utility lines would also be beneficial to the site. One staff suggested adding a cell tower, which would provide regional benefits.

- *"Size of fuel tanks (gasoline, diesel, and propane) has recently come up as an issue -- 500 gallons for diesel, 1000 gallons for gasoline, 2 propane tanks. Fuel deliveries are sometimes not frequent enough to keep the fuel tanks full -- we have run out of diesel multiple times and have a hard time keeping propane levels high enough for storms or power outages. Reducing dependence on fuels (solar) or large fuel tanks might help us be better prepared for disasters or extended power outages."*

4.11 Additional Topics

Employee Health and Wellness Needs

Many respondents indicated that a space is needed for working out and stretching. This would also allow them to train during inclement weather. Some ideas include a treadmill, elliptical, stationary bike, and weights.

Other Department Needs

Administrative office staff that use SFO shared districtwide needs for storage for chairs and tents, a mud room for Natural Resources to decontaminate materials, storage for natural resource work, workstations and parking for visiting staff from other offices, a location to store mulch from fuel reduction work, and storage for tools for the volunteer program. For internet connectivity, SFO is an ideal site to support the internet utility needs of the David C. Daniels Nature Center, which may be achieved with the SFO renovation project.

5.0 Operational Planning

Currently both the Land and Facilities Department and the Visitor Services Department are co-located in the same building at the SFO. Since SFO is at capacity, crews have staggered schedules to make the space work. In addition, resident rangers (currently 8 out of 15 total ranger staff, with 4 vacant positions) have been able to report to duty from their homes which has alleviated some of the pressure on the facility. However, this creates a silo effect with some staff/crews not seeing each other. As the SFO remodel project moves forward and staffing numbers grow, the District should examine different operational scenarios, including a possible scenario to disburse staff into different locations. In order to better understand the tradeoff with dispersing staff, especially as it relates to District culture, staff were asked in the survey for feedback about the tradeoffs of co-locating or separating.

Respondents had different opinions regarding co-locating or disbursing departments into separate facilities, with more expressing a desire to stay together in one location. Staff who favored co-locating were worried about unintended consequences such as people becoming siloed and communication breakdown. Staff who favored splitting up recognized the value to the culture that being together fosters, but also acknowledged that this goal isn't as high of a priority as some of the other needs, and that meeting all goals at one site will be a challenge. If the site were larger and more functional, it's unclear if those staff would still favor splitting the departments.

Some Rangers are interested in exploring other models for their work to increase efficiencies and decrease drive time by strategically locating several smaller Ranger offices, where each satellite office can include a computer, restroom, and some storage. In this scenario, a larger, centralized office is still needed to provide conference abilities. A few staff suggested that even if both departments co-located in one building, it would be helpful to separate the space within the building. Rangers could have a separate space to huddle and discuss issues, but the two departments would still be accessible to each other and share common areas such as lockers, the workshop, and kitchen.

If splitting does occur, staff recommend the District find operational ways to prevent the complete separation of the two departments, given that there is an overlap in roles and responsibilities.

- *"I think that splitting L&F staff in one office and VS in different offices would be an excellent solution for the immediate future. It would definitely free up valuable locker/storage/parking areas at SFO for the L&F Staff."*
- *"I think keeping all District staff in one place is important. The collaboration between Departments is a success for the District and should not change. If L&F are in one facility and VS are in multiple ones, it could develop into where each Dept does not know or care what the other is doing."*
- *"I like seeing other groups to get to know more what is going on in the area and it helps me contact and work with other groups when I know them already and/or can run into them when at the office. Additionally, VS's generalist rangers still need access to all the equipment and supplies for their maintenance tasks and would need to go to L&F's offices for these items."*
- *"I would like to see the existing SFO facility remain as is. I believe adding additional maintenance yard/heavy equipment storage is the type of growth that would support operations. Something similar to county and municipal remote maintenance yards."*

- *"I find it very important for L&F and VS to share an office. There is a constant back and forth of information that I feel is essential for the operation of the District. The difficulty with satellite offices is having to duplicate so much equipment and infrastructure, such as fuel pumps and heavy equipment."*
- *"I think the cohabitation of the departments is very valuable and should continue as possible, but finding facilities that allow for it has been a challenge and our geographic spread, from Pescadero to HMB, to Portola Valley, to Stevens Canyon etc doesn't make it efficient in its current setup."*
- *"To me, it is not important to have everyone report to same facility. Of importance is the close proximity of additional maintenance yard to increase storage capacity and provide staff overflow possibilities as need arises. Collaboration with colleagues can be effective as long as travel distances between offices is minimized."*
- *"There is so much information transmitted through casual encounters, sharing the same space is great opportunity for staff to learn through "environmental osmosis" what other departments are working on, challenges they are facing, or advancements they are implementing. Separating use would defeat a central tenet in the success of our organization."*
- *"I like working in an office where people from different departments can all be in one place at one time, and having a sort of central clearing house for supplies and tools is great."*
- *"Patrol staff could separate out from maintenance if needed, but I do find great value in sharing the workspace and being able to quickly communicate across our departments."*
- *"Splitting L&F and VS could work, as VS need to be more mobile and remote for various preserves, where L&F need to be centralized to collaborate and share more tools / equipment."*
- *"All in all, I think it helps greatly with culture and work efficiency to have both L&F and VS working together out of SFO."*
- *"I prefer the interaction with patrol staff as their observations, needs, and actions often relate closely to crew needs."*
- *"I think it's a good idea to have mixed offices where Visitor Services and Land & Facilities staff work together/see each other to build camaraderie."*

Recognizing that the SFO site is space-constrained, several staff in the survey and during the focus group discussion suggested using a nearby site within the Preserve in conjunction with the current site. One option would be to use the nearby location for storage of materials such as rock and lumber (with easier access and circulation for large trucks and trailers). Some of the storage containers that are not utilized frequently could be moved offsite as well. This would free up space at SFO for expansion of facilities and allow for greater design flexibility.

- *"A bigger, flat area would be a better location than the current shop/office. Hard to imagine improvements would work within the constraints of the site."*

A nearby site will also be critical to stage temporary operations and minimize the disruption to staff that will occur with implementation of a renovation project at the SFO. This is a concern to staff and an important consideration when reviewing future design options.

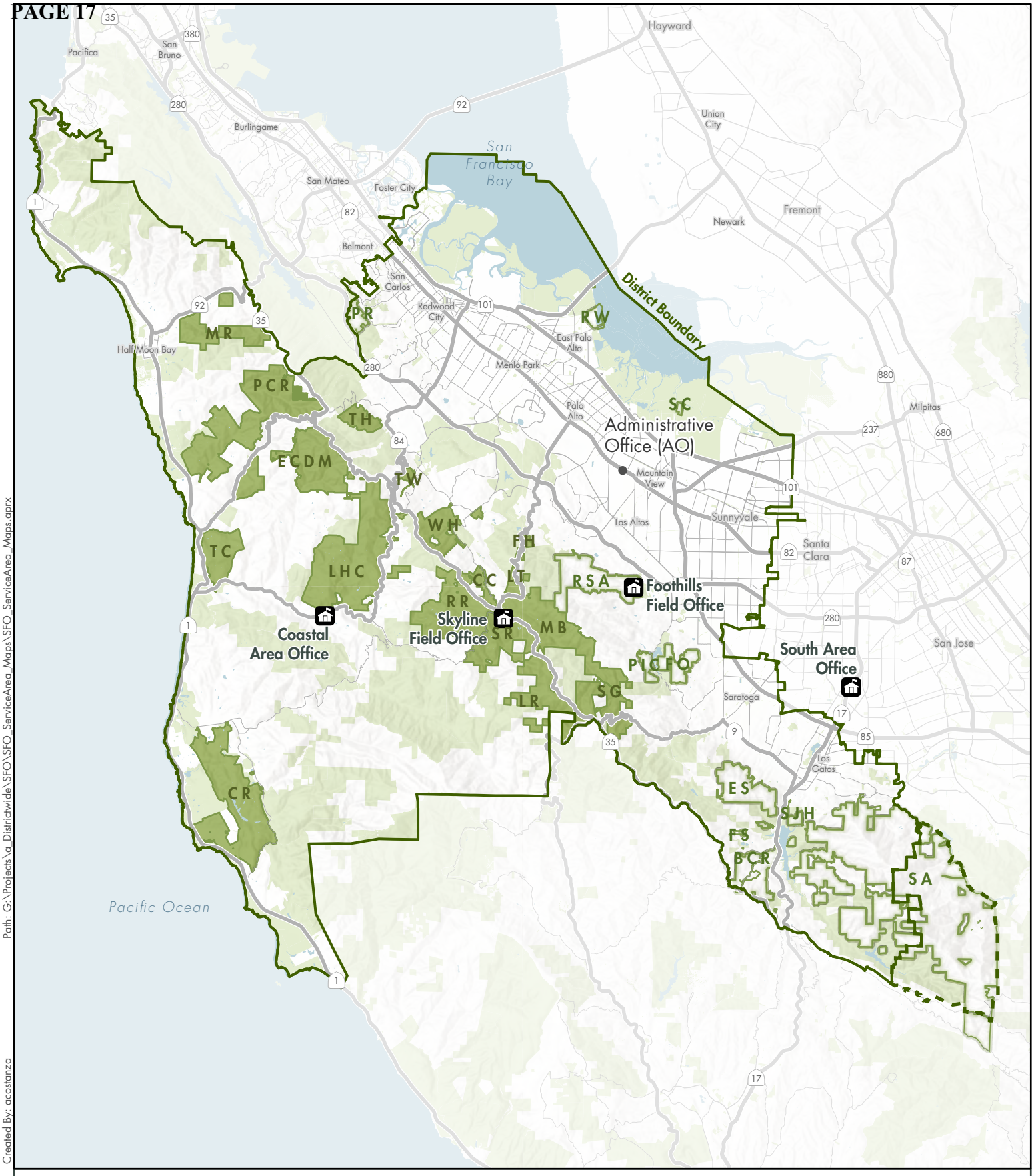
6.0 Conclusion and Next Steps

The feedback received from survey respondents and from the focus group indicate that the SFO has long exceeded capacity and that improvements would increase operational functionality and promote greater cohesion. Some of these needs include:

- Additional locker room space with additional showers, lockers, restrooms, and drying racks
- Central location for laundry facilities and the ice machine
- Additional private office space
- Additional hoteling stations
- Focus rooms and a meeting room
- Improved office functionality through layout of outlets, internet, etc., ergonomic furniture, and work areas
- Multi-functional conference room with easy-to-use teleconference equipment
- Break room
- Larger kitchen with oven and stove
- Larger shop to accommodate more staff, more tools, and larger equipment
- Additional and consolidated storage for materials
- Improved circulation for vehicles and equipment
- Additional parking
- Storage for large vehicles and equipment
- Improved utilities with back-up capacity that includes power, heat, sewer, and water

Staff have been adaptable and have long made it work to the best of their and the site's ability, but this has come at a cost to operational efficiency. SFO cannot accommodate additional growth, and District operations indicate that more staff growth will be needed to address additional land, infrastructure, and programs (e.g., the wildland resiliency program, coastal properties, etc.). Renovation of the facility should take into account the needs identified in this report for current and future staff and equipment. This information will provide a baseline for a future consultant to begin preliminary site planning.

Appendix 1 - Figures



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Created By: acostanza

Field Office Locations and Service Area

- Midpen preserve - Skyline Field Office **(41,480 acres)**
- Midpen preserve - Foothills Field Office **(28,860 acres)**
- Other protected lands

Midpeninsula Regional Open Space District
(Midpen)
8/31/2023

Miles
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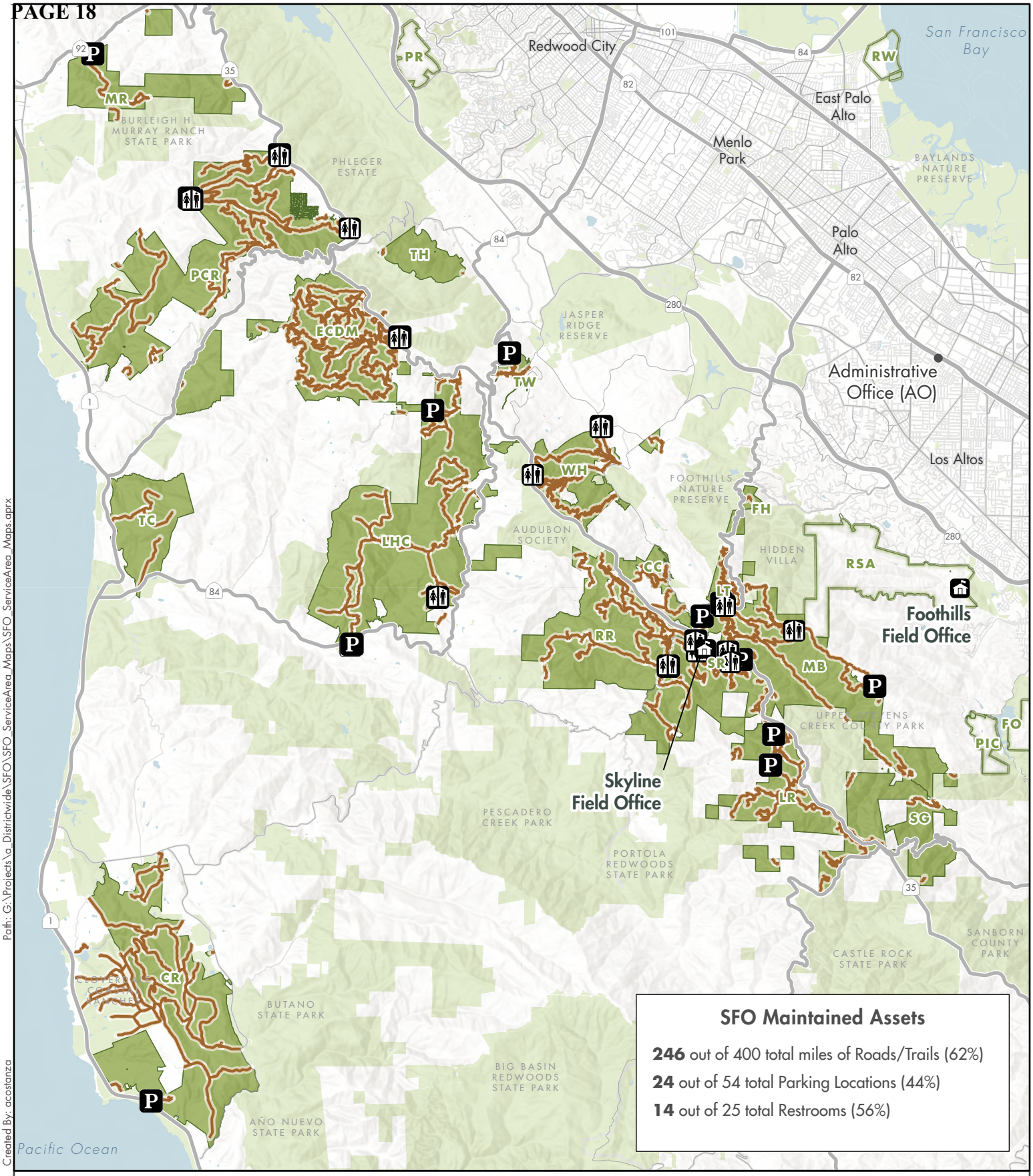

SFO Maintained Assets

246 out of 400 total miles of Roads/Trails (62%)

24 out of 54 total Parking Locations (44%)

14 out of 25 total Restrooms (56%)

SFO Parking Areas, Restrooms, and Maintained Roads & Trails

- Midpen preserve (SFO)
- Midpen preserves (FFO)
- Other protected lands
- Road/trail within SFO service area
- SFO Parking location
- SFO Restroom

Midpeninsula Regional Open Space District
(Midpen)
8/31/2023

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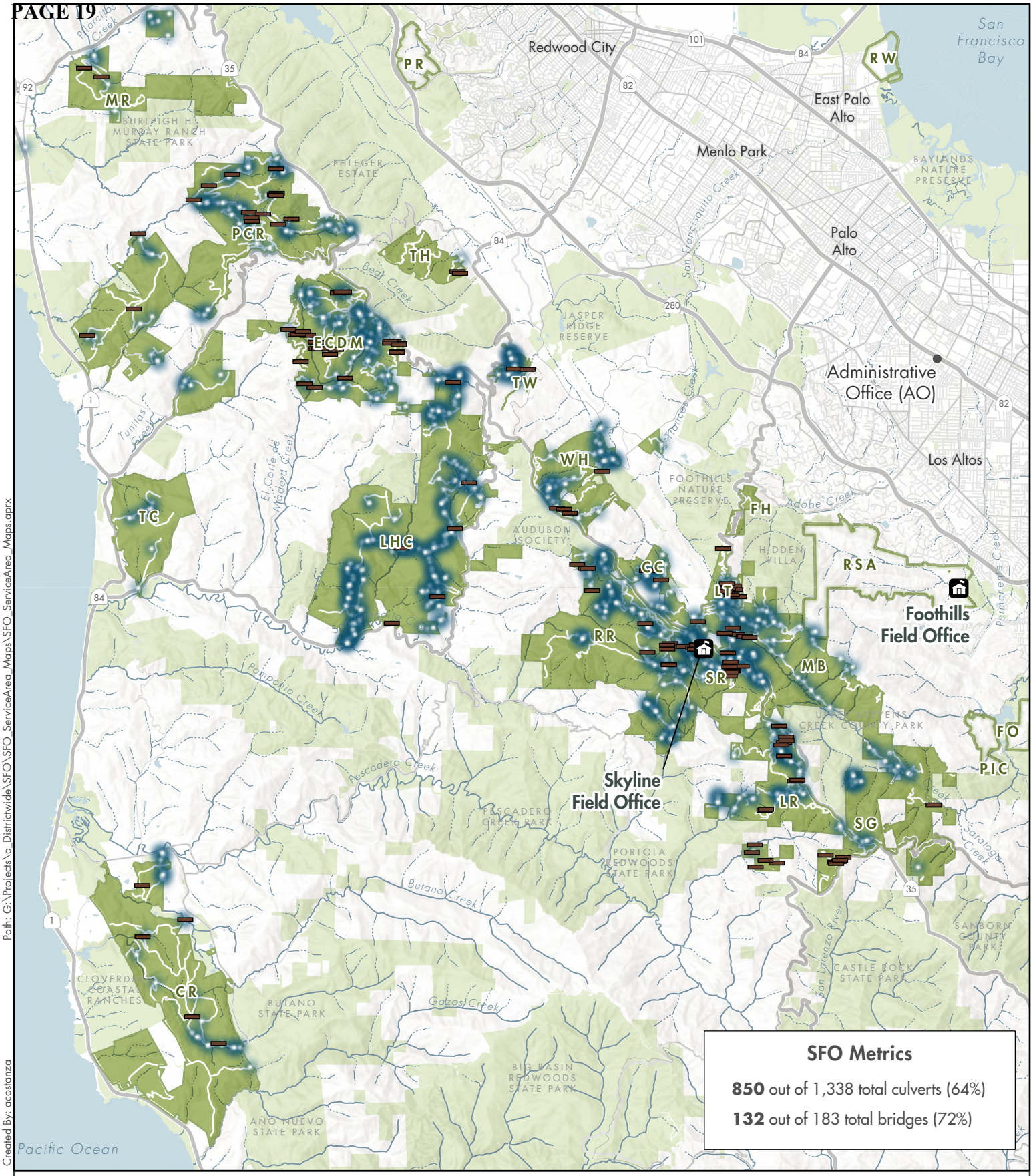

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Created By: acostanza

SFO Bridges, Culverts and Streams

- Midpen preserve (SFO)
- Midpen preserves (FFO)
- Other protected lands
- Roads/trails within SFO service area
- Culvert
- Bridge
- Perennial stream
- Intermittent stream

Midpeninsula Regional Open Space District
(Midpen)
8/31/2023

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Created By: gbasson

SFO Site Map

Public hiking trail

Public hiking, biking, equestrian trail

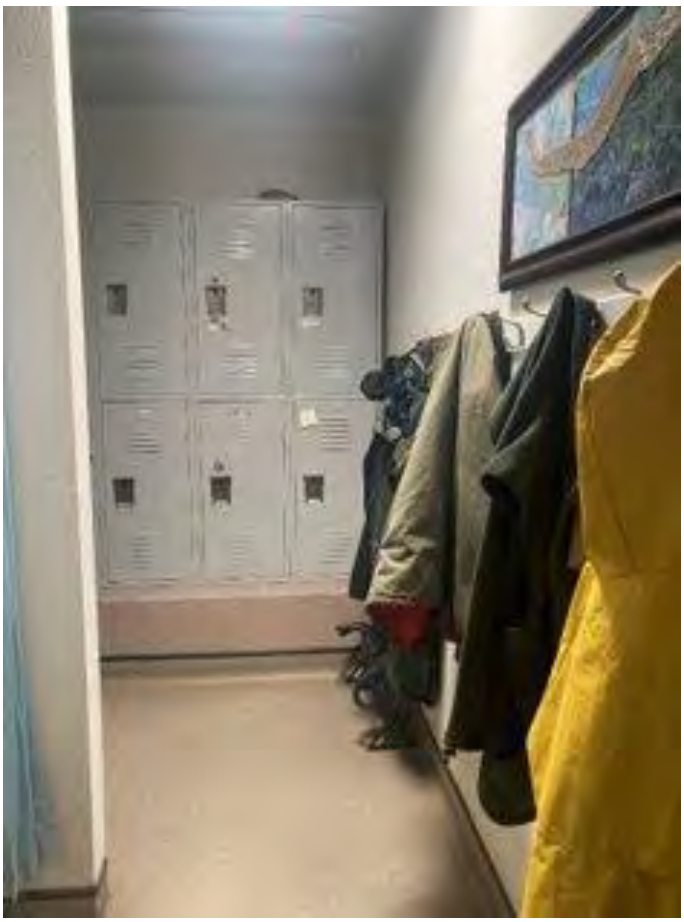
Midpeninsula Regional
Open Space District
(Midpen)
9/11/2023

Feet
0 150 300

While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

Appendix 2 - Photos

Women's Locker Room



The women's locker room is located in the main office and has one toilet, one sink, one shower, and ten half-size lockers.

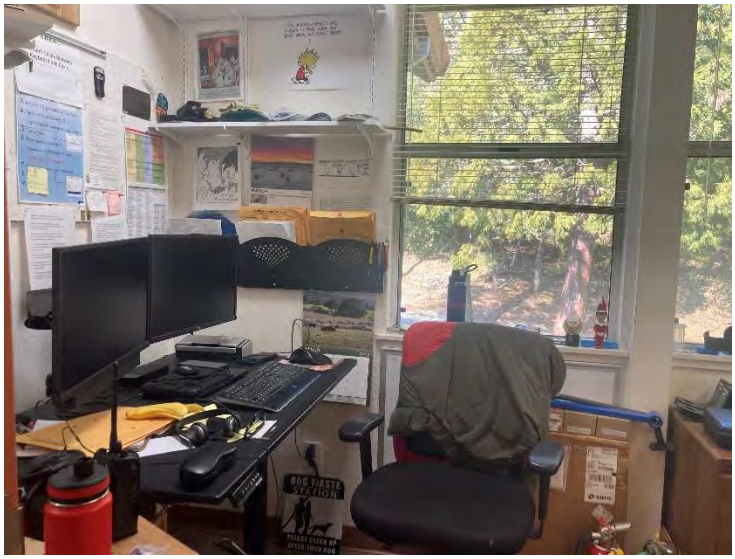
Men's Locker Room (Office)

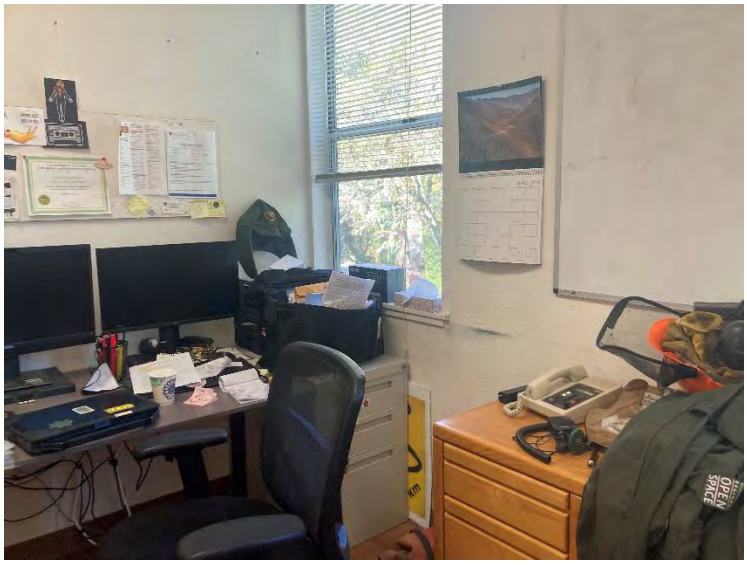
The men's locker room that is located in the main office has one toilet, one urinal, one sink, two showers, and 24 half-size lockers.

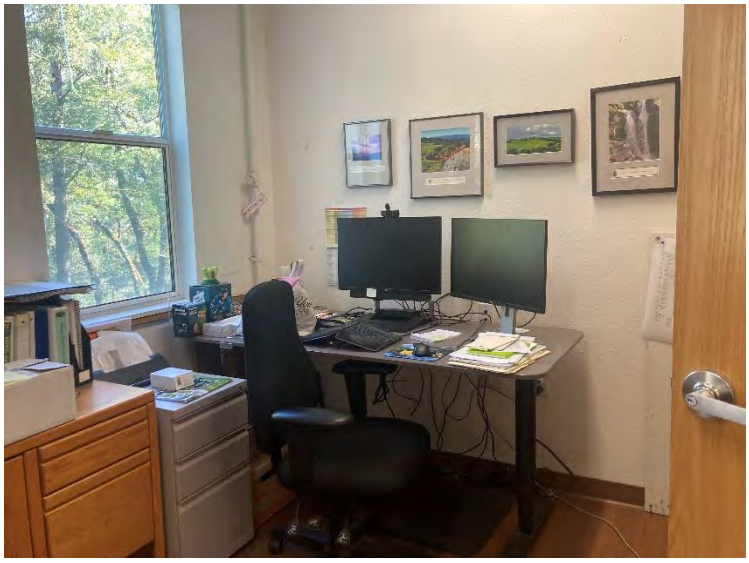
Additional Locker Rooms

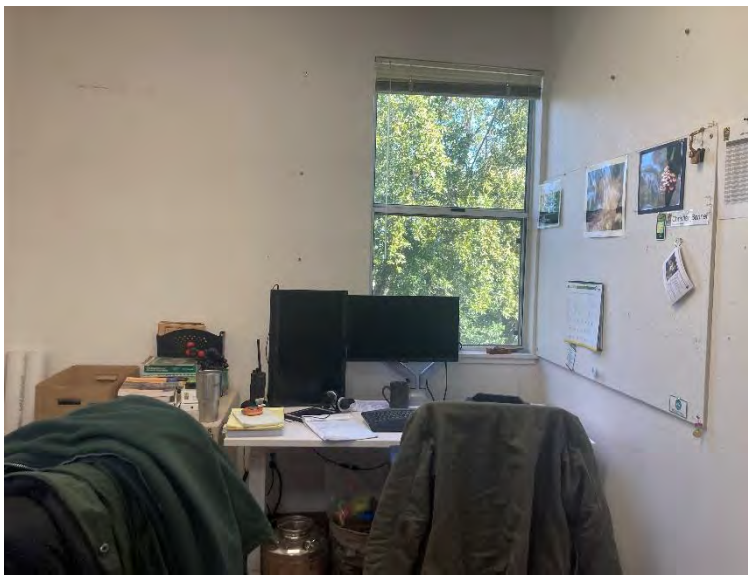
The locker room in the bunkhouse (top) has one toilet, two showers and nine full lockers. The locker room in the stables (bottom) has one toilet and nine full lockers.

Offices



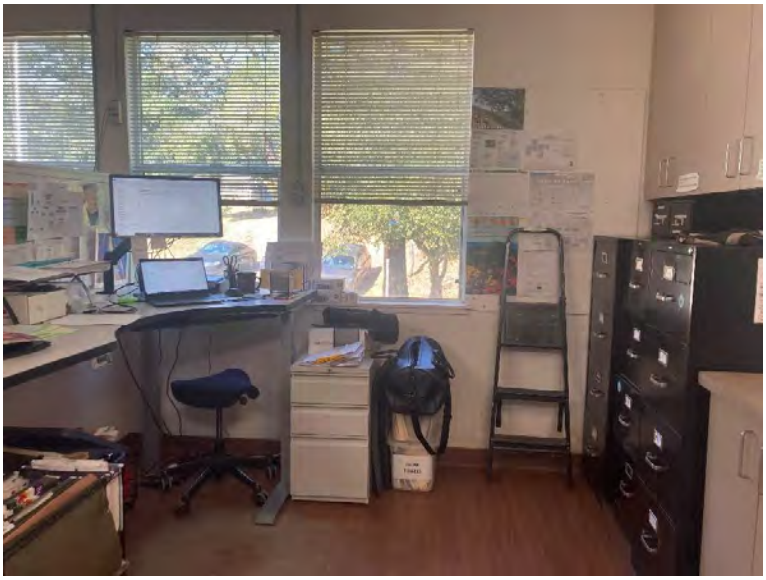






Skyline Field Office has three offices shared by six people.

Hoteling space and Administrative Assistant Desk

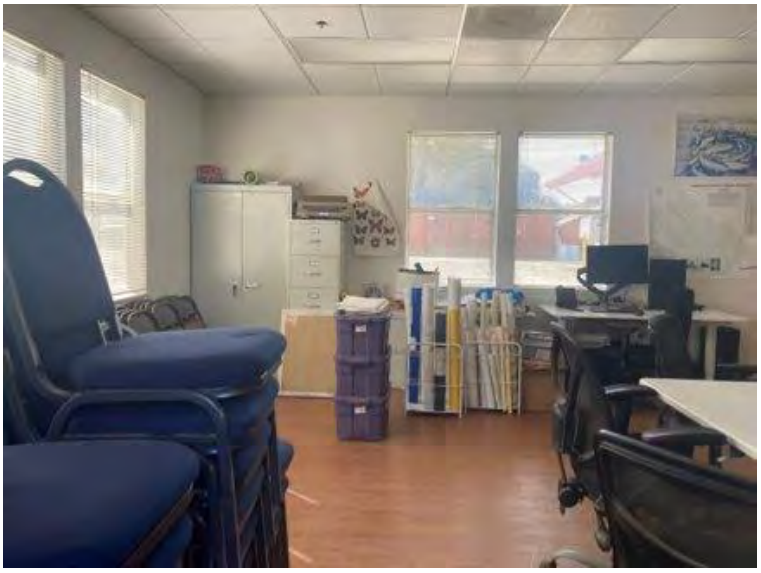


There are four hoteling spaces for staff to use in the main office. The Administrative Assistant desk is also located in the main office area.

Main Office Area

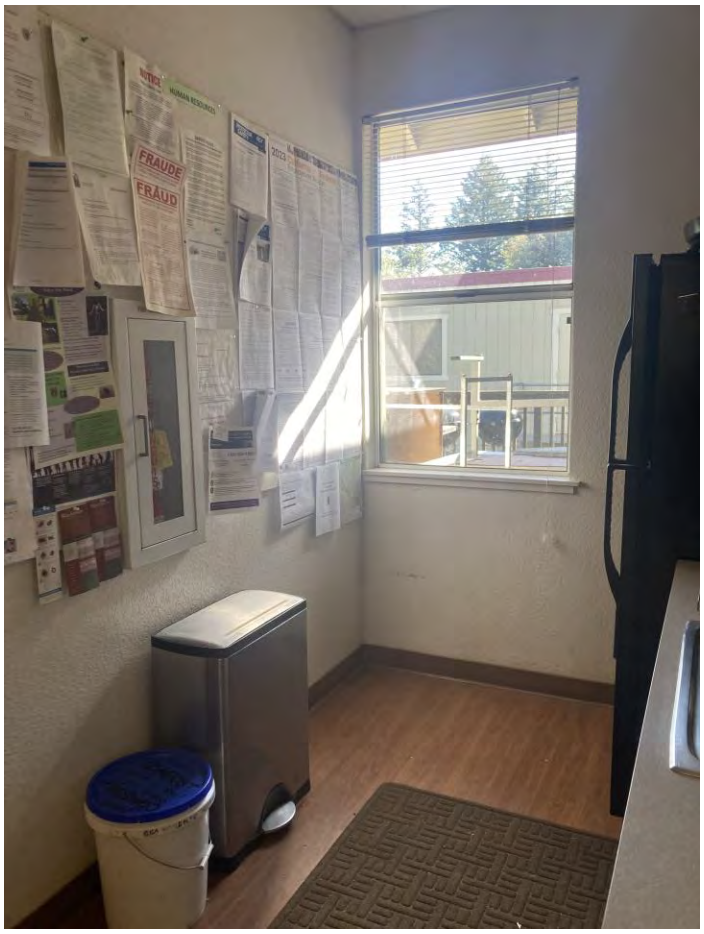
The main office area includes mailboxes, an island, radios, and island and copy machine.

Conference Room and Deck



The conference room is the only dedicated meeting room. It also is used as a library and storage and includes an evidence locker. The deck is right outside the conference room.

Office Kitchen



The kitchen is located at the end of a short hall outside the conference room and an office. It consists of a sink, refrigerator, and dishwasher. A shelf next to the kitchen was added to accommodate more appliances and storage.

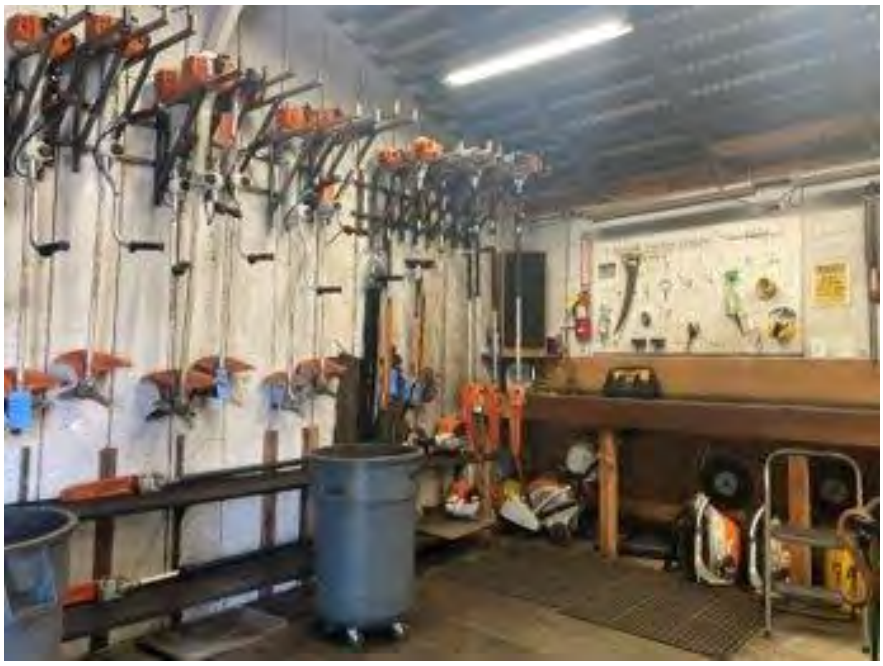
Wet Room

A temporary trailer is located next to the main office and is used for personal gear storage and first aid supplies.

Shop

The shop is made of a main shop area (all three photos above), a wood shop, welding room, and chainsaw room.

Shop



The shop is made of a main shop area, a wood shop (upper left), welding room (right), and chainsaw room (bottom left).

Storage

Storage is scattered throughout the site. There are shipping containers, materials, and covered equipment storage areas as well as a gas and diesel fueling station. Dog kennels are used for lost dogs found on the Preserves.

Storage

Storage is scattered throughout the site.

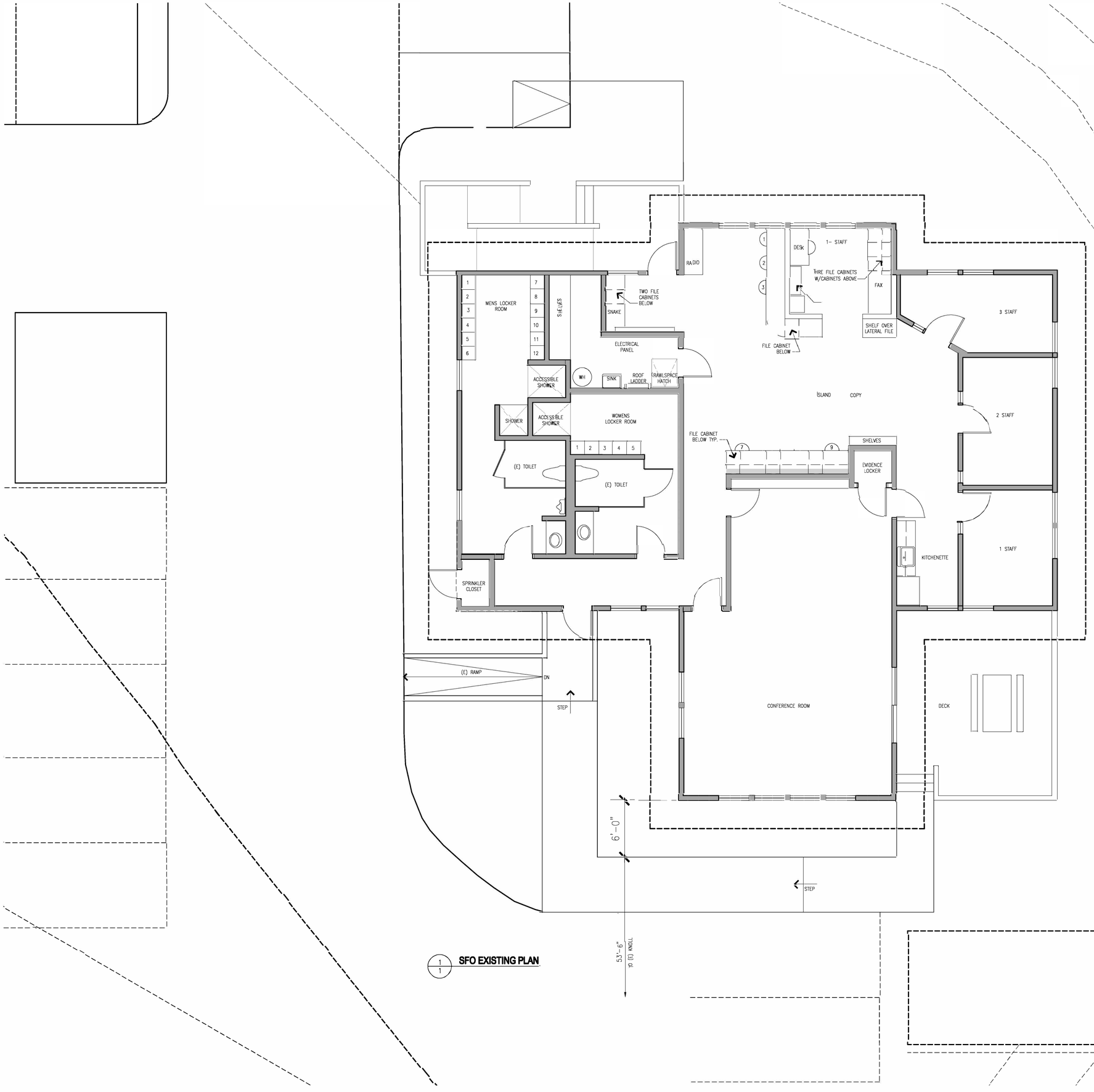
Barn and Barricade Room

The barn (upper right) has three rooms used for signs (upper right), bicycle storage (middle left) and a locker room (see previous page on lockers). Equipment is stored underneath shelter behind the barn middle right). A small building (bottom left) stores barricades (bottom right).

The Yard

Looking down from the shop area to the yard (upper left). Looking up towards the shop (upper right). Yard where trailers and materials are stored (bottom).

Appendix 3 – Floor Plan



1/1 **SFO EXISTING PLAN**

tannerhecht architecture
1151 Mission Street
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www.tannerhecht.com

STAMP

CONSULTANT

PROJECT

REGIONAL OPEN SPACE

MROSD
SKYLINE FIELD OFFICE REMODEL AND SHOP
21150 SKYLINE BLVD.
SANTA CLARA COUNTY, CALIFORNIA

REVISION

DATE:	6.21.2010
JOB NUMBER:	1004
PHASE:	SCHEMATIC
ISSUED FOR:	-
PERMIT NUMBER:	-
SCALE:	1/4" = 1'-0"

TITLE

EXISTING PLAN

SHEET

1

ATTACHMENT 2

SKYLINE FIELD OFFICE RENOVATION PROJECT
MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
RAPID ASSESSMENT & SITE SELECTION REPORT

SIEGEL & STRAIN Architects

JANUARY 6, 2025

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Appendix G - Geotech Desktop Study
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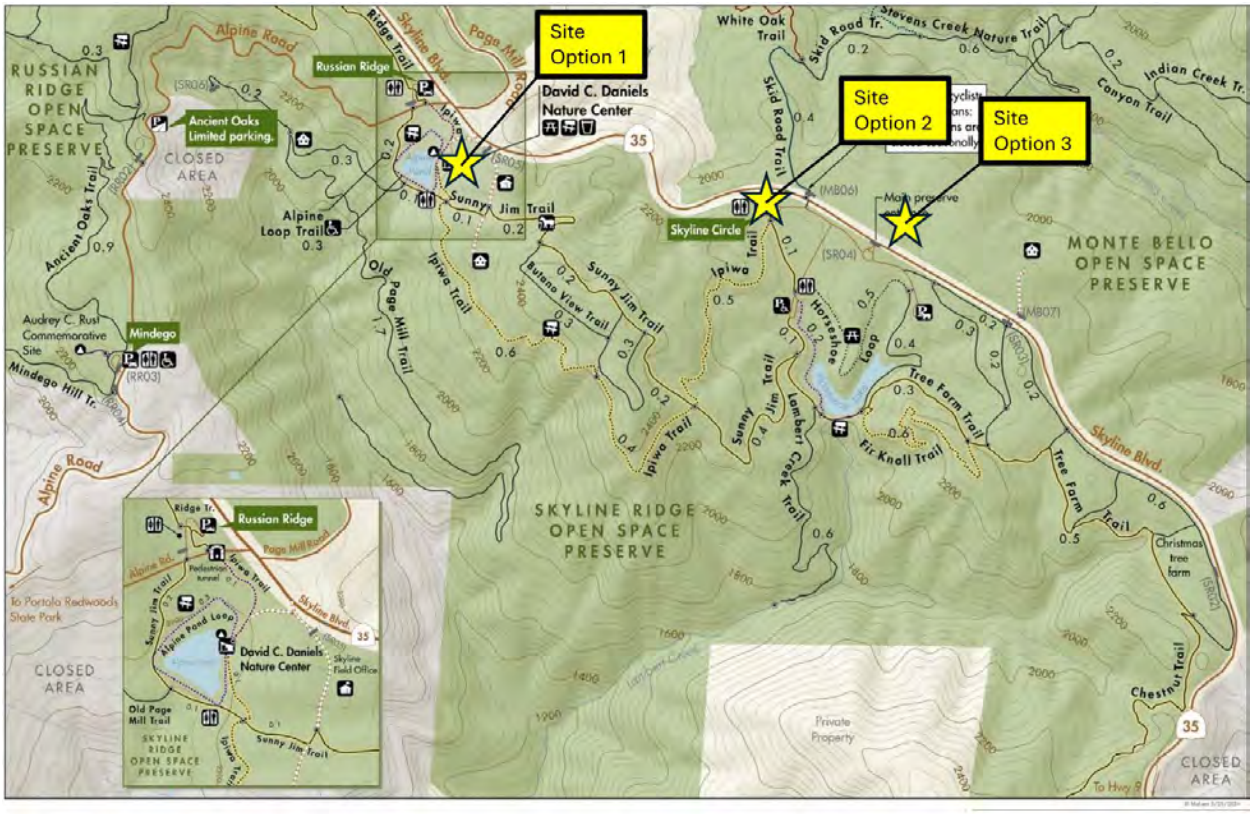
1. PROJECT INTRODUCTION

Project Purpose

Over the last decade, Midpeninsula Regional Open Space District (the District) has seen a significant increase in the area of open space it manages. A result of this additional area is an increase in the number of staff required to steward, maintain, and patrol this natural resource which, in turn, has led the District to outgrow the existing Skyline Field Office (SFO) located on Skyline Boulevard. Therefore, the District is evaluating the feasibility of a new and expanded field office to serve the Skyline region which may be supported in the future, once a suitable site is identified, by an additional field office that serves the District's Coastal region.

The District engaged Siegel & Strain Architects (S&S) and design team to work with staff to establish a comprehensive spatial program and preliminary test fit diagrams for the current SFO site and two nearby alternative sites along Skyline Ridge.



Goals and Priorities

Project goals approved by the District Board of Directors for the Skyline Field Office are:

1. Address facility deficiencies and improve functionality.
2. Address needs related to administration, shop use, utilities (including back-up power and cell service), parking and circulation, materials/equipment storage, and locker room/shower facilities.
3. Accommodate current and projected staff growth identified in the Coastal Management Plan and Financial Operational and Sustainable Model Update for the next 30-40 years, looking holistically at both the Skyline and Coastal regions (and future Coastal Office).
4. Incorporate design elements to reflect and complement the existing character of the site.
5. Include sustainable building and site features that support Climate Action Plan priorities and comply with climate-related state mandates.
6. Maintain internal equity for staff facilities.
7. Enhance workplace interactions and efficiencies and allow for standard start times and space for large staff gatherings/meetings.
8. Create a workplace environment that attracts and retains staff.
9. Incorporate fire resiliency goals into the design and construction.
10. Implement the project for cost and time efficiency.
11. Maximize efficiency of the available buildable land and locate as many of the uses at the existing site as possible to centralize ranger and maintenance needs.

Additional goals revealed through the Information Gathering process are:

12. Consolidate all spaces and functions of the field office and its operations.
13. Expand on Board goals #1, #2 and #7:
    - Provide adequately sized shops and outdoor covered work areas, which prioritize function, safety, efficiency and workflow.
    - Improve and expand staff amenities (locker rooms, washer/dryer, gathering and break spaces).
    - Provide appropriately sized and located storage spaces for each department, organized in a manner that allows equipment that is used together to be stored together.
14. Provide an ample and safe circulation network for District vehicles, emergency vehicles, and large equipment - including maneuvering, loading, unloading, cleaning, maintaining, fueling and charging - organized so as not to compromise the flow of field office operations.
15. Provide sufficient parking for personal staff vehicles and District vehicles.
16. Create clear boundaries and delineating between staff only field office areas and areas open to the public.
17. Minimize the impact of field office operations on open space and watersheds.
18. Expand on Board goal #4: Design structures that blend harmoniously with the surrounding nature and are responsive to the site topography, site context, and natural setting.

19. Expand on Board goal #5: Design structures with good opportunities for PV integration, good solar access for daylight, and operable windows.

Overview of Rapid Assessment & Site Selection Process

Given that the existing SFO is very constrained by topography and has limited buildable area, the District sought to consider additional sites that have the potential to accommodate the growing field office needs along Skyline Ridge. While the availability of sites near the existing SFO that are disturbed, relatively flat, and large enough for a new field office is very limited, District staff identified two alternative sites in addition to the existing SFO site to be studied during the Rapid Assessment process. The study sites are:

- Site Alternative 1: the existing Skyline Field Office (SFO) site at 21150 Skyline Blvd., Redwood City, CA 94062
- Site Alternative 2: the existing "Circle Lot" parking area at Skyline Ridge Open Space Preserve at 22000 Skyline Blvd., approximately 3/4 mile east of SFO. The parking area provides more parking than is used by the public, is previously disturbed former grazing land, and is relatively flat.
- Site Alternative 3: The site of the former Sherrill Winery and the northwestern portion of the Skyline Ranch Christmas Tree Farm at 1185 Skyline Blvd. and 22246 Skyline Blvd., approximately 1 mile east of SFO. This site is an active agricultural site currently leased out to a long-term tenant, is disturbed with cultivated plants, and contains a relatively flat zone. This site was suggested as a viable alternative by field staff during the process of gathering input on site selection criteria, which are outlined in greater detail in Chapter 4 of this report.

The design team took the following steps in analyzing the three alternative sites:

- Visit each alternative site
- Visit other District maintenance and administrative facilities
- Conduct needs assessment meetings with District staff and leadership
- Develop a spatial program based on space and equipment needs described by District staff and leadership
- Prepare site analysis diagrams
- Develop test fit site plan diagrams
- Estimate costs for test fits
- Evaluate the test fits against site selection criteria developed in collaboration with District staff

2. SITE ANALYSIS

Site visits

The design team conducted the following site visits between June and September 2024:

- June 6, 2024 - In-depth walkthrough of SFO facilities with District staff. Design team attendees included S&S, PGA, and SDE.
- June 7, 2024 - Overview of the District's existing South Area Office and Foothills Field Office facilities. Design team attendees included S&S and SDE.
- June 7, 2024 - Administrative Office site visit with a focus on spaces mentioned in the 2023 SFO Needs Assessment Report such as the focus rooms, board room, and locker room. Design team attendees included S&S.
- June 14, 2024 - SFO and the Skyline Ridge Preserve Open Space Parking Lots site visit to begin the site analysis and assessment process of two potential sites for the future SFO. Design team attendees included S&S, PGA, SDE, OMM, and RBC.
- September 5, 2024 -Sherrill and Christmas tree farm site visit to begin the site analysis and assessment process of this site as an additional potential site for the future SFO. Design team attendees included S&S, PGA, SDE, OMM, and RBC.

Zoning Summary

The existing SFO site (Alternative 1) is located primarily in Santa Clara County with its northwestern edge in San Mateo County. A new field office on the portion of this site in Santa Clara County would require a Use Permit amendment, which includes a public hearing and is approved by the planning commission. Additionally, the site will be subject to Design Review due to its location within the Skyline Boulevard scenic corridor.

The Skyline Ridge site (Alternative 2) is located primarily in San Mateo County with its northwestern edge in Santa Clara County. Developing a field office on this site, which would be considered an accessory to a by-right use, would require a Minor Development Review Permit. This type of permit is granted following a staff level review. Additionally, an Architectural Review (essentially design review) will be required due to the site's location within the Skyline Boulevard scenic corridor.

The Sherrill site (Alternative 3) is split between San Mateo and Santa Clara Counties with the area being proposed for development as a field office located within the City of Palo Alto in Santa Clara County. Development of the portion of the site in the City of Palo Alto will require a Conditional Use Permit for a recreational use in an Open Space zoning district. Approval of the CUP is at the discretion of the City's Planning Director, unless a public hearing is requested by a member of the public. The site will also require City of Palo Alto Design Review due to its designation as an Open Space parcel.

Site Analysis Diagrams

A thorough analysis of each of the potential sites was conducted by the design team considering factors such as boundary lines and setbacks, solar exposure, wind, climate, views, natural resources, existing trees, topography, existing utilities, defensible space, and proximity to public trails. The site and slope analysis diagrams produced are included as Appendix A.

3. PROGRAMMING

Programming Process

The goal of the programming process was to document the types, sizes, and qualities of the spaces needed for staff working out of SFO to do their work and serve the mission of the District. The process included:

- Review of the 2023 Needs Assessment Report prepared by the District.
- Review of the District's mission and the goals approved by the District Board of Directors.
- Visits to SFO and other District facilities to observe the types of spaces that are currently in use. The design team discussed with staff the deficiencies and what works well, the equipment and furnishings needed, important adjacencies between uses, and expected future growth or changes.
- A staff workshop at SFO to gather input on the current character, function, and future needs of SFO.
- Informational interviews with leadership and field staff who either work at SFO or have particular expertise that informed the programming.
- Compilation of input received into a Space Needs Table and Diagrams.

Space Needs Table

The result of the programming process is a comprehensive Space Needs Table which lists all the spaces needed, their size, functional requirements, and adjacency requirements. These spaces are organized into seven categories:

1. Office/Admin Spaces: offices, hoteling desks, focus rooms, conference rooms, storage, etc.
2. Shared Support Space and Amenities: locker rooms, showers, laundry and drying space, personal gear storage, kitchen and break room, etc.
3. Shops: general purpose shop, wood shop, welding room, chainsaw room
4. Special Storage: hazardous waste, resource management equipment, roads and trails equipment, signs and barricades, tools, electrical and plumbing supplies, patrol equipment, EMS supplies, etc.
5. Stockpile Storage: wood, riprap, base rock, boulders, culvert piping, etc.
6. Equipment Storage: tractors, trailers, excavators, ATVs, motorcycles, ebikes, etc.
7. Vehicle Parking & Amenities: employee personal cars, visitor cars, District vehicles, EV charging, vehicle fueling, vehicle wash, deliveries, etc.

The full Space Needs Table is included as Appendix B.

Programming Diagrams

The Space Needs Table was translated into a set of diagrams showing the size of existing spaces compared to the spaces needed and organized into the seven categories used in the Space Needs Table. These diagrams are included as Appendix C.

4. SITE SELECTION CRITERIA

Site Selection Criteria Development Process

In collaboration with District staff, the design team developed detailed site selection criteria against which to evaluate and score each site alternative based on how well it fulfills the criteria, providing quantitative data to support a site selection.

The site selection criteria were initially developed by the design team based on the Board of Directors' goals for the project, observations during site visits to all the alternative sites, and information shared by District staff during site visits and informational interviews. Criteria are grouped into the following categories:

- Function & Workplace Culture
- Organization, Adjacencies & Circulation
- Site Character & Public Interface
- Resilience & Sustainability
- Planning

The draft criteria and suggested weighting of the above categories were shared with District staff via an online survey for their input. The survey revealed that all levels of District staff were in general agreement that Function & Workplace Culture, and Organization, Adjacencies & Circulation are important and essential to ensure long-term effectiveness of the Field Office, and therefore were assigned a weight of 2x. Site Character & Public Interface, Resilience & Sustainability, and Planning were seen as important but less critical for long-term effectiveness. Therefore these criteria were assigned a weight of 1x.

High-level rough order of magnitude construction cost estimates were also provided for the purpose of comparison between site alternatives.

Final Criteria

Category	Proposed Specific Criteria	Weight
1 Function & Workplace Culture	1. Facilitates a great place for employees and volunteers to do their best work in furthering the District's mission. 2. Supports a healthy, comfortable, equitable workplace that attracts and retains staff. 3. Allows for multi-purpose and flexible workspaces, organized to accommodate future growth, fluctuating population, and District needs. 4. Provides for adequately sized shops and outdoor covered work areas that prioritize function, safety, efficiency, and workflow. 5. Provides for centrally located gathering areas (both indoor and outdoor) for all SFO staff to support cross- pollination and community. 6. Locates and lays out staff amenities (locker rooms, washer/dryer, break spaces) to accommodate the rhythm of the workday (start of day, breaks, end of day). 7. Allows for minimal impacts on the current SFO operations during construction.	2
2 Organization, Adjacencies & Circulation	1. Consolidates all functions of the field office and its operations. 2. Provides for clear boundaries, delineation and control between staff areas and public areas. 3. Provides for ample and safe circulation for vehicles and large equipment - including maneuvering, loading, unloading, cleaning, maintaining, fueling and charging - organized to not compromise the flow of operations. 4. Safe vehicular access to and from Skyline Blvd, with appropriate and compliant sight lines and turning radius 5. Sufficient parking for employee and District vehicles, bikes, and motorcycles. 6. Circulation that allows equipment and vehicles to pull through whenever possible, including through the workshop. 7. Minimize cross traffic between employee and/or visitor vehicles with District vehicles and equipment. 8. Safe access and onsite circulation for fire trucks and emergency vehicles 9. Appropriately sized and located storage spaces for each department, organized to allow equipment that is used together to be stored together. 10. Provides designated areas for receiving, stockpiling, storing and retrieving construction materials.	2

Category	Proposed Specific Criteria	Weight
3 Site Character & Public Interface	1. Minimizes impact of operations on open space. 2. Minimizes development in undisturbed areas. 3. Minimizes impact on views to, and from, open space, cultural/historic resources, the public right-of-way and scenic corridors. 4. Maintains a rural ranch aesthetic/character. 5. Minimizes earthwork and retaining walls. 6. Minimizes impacts to native species, riparian areas, and wildlife connectivity. 7. Minimizes spread of soilborne pathogens. 8. Minimizes watershed impacts draining to Alpine Pond and Horseshoe Lake. 9. Minimizes impacts to agricultural uses. 10. Structures, roads/paths and above-grade infrastructure fit into their surroundings and are responsive to the site topography, site context, and natural setting. 11. Minimizes overlaps between public trails and operational spaces. 12. Allows public access areas to be clearly indicated and primarily located on the edges of the Field Office.	1
4 Resiliency & Sustainability	1. Provides required utilities (water, septic, power, cellular connectivity, and data) with relatively simple expansion or new facilities; does not require major new utility connections/systems. 2. Organized to provide resiliency of operations. 3. Offers opportunities for photo voltaic integration and battery locations. 4. Resilient to wildfire; able to maintain defensible spaces. 5. Offers opportunities to maximize energy efficiency strategies in the design and use of the facility. 6. Provides good solar daylight access for workspaces. 7. Offers opportunities for natural air circulation for structures to incorporate operable windows/pull up doors. 8. Offers opportunities for protected outdoor workspaces that are sheltered from winds, rain. 9. Allows for economical and sustainable storm water management.	1

Category	Proposed Specific Criteria	Weight
5 Planning	1. Avoids substantial entitlement/planning process. 2. Well-positioned to move efficiently through design, permitting and construction. 3. Respects setbacks to parcel lines, in particular County boundary lines. 4. Consistent with Resource Management policies, including mitigation chapter. 5. Addresses local agency highway scenic corridor requirements. 6. Avoids subsequent use and management actions or decisions beyond those required of the SFO Project.	1
Cost	A rough order of magnitude cost estimate for each site is provided to compare construction costs for developing each site.	N/A

5. ALTERNATIVE SITE DESIGN AND PRICING

Test Fit Plan Diagrams

A test fit plan diagram locating building footprints, outdoor storage areas, vehicle parking, and circulation was developed for each of the three alternative sites. Additionally, a civil engineering diagram was developed for each test fit to provide information about the grading, utility and site improvement considerations for each site.

These test fit plan diagrams are preliminary and do not reflect final site designs. They are intended to test whether all the necessary program elements can fit on each of the sites in a reasonable layout. Site design options for the District's preferred site will be developed during conceptual design.

Because improvements to the existing SFO will require temporary facilities to accommodate Field Office operations during construction of that site, the report includes a preliminary temporary layout for cost estimating purposes. This layout shows office, locker, and shower trailers, Conex storage containers and a covered outdoor work area at the Equestrian Lot at Skyline Ridge Open Space Preserve.

The test fit plans are provided as Appendix D and the temporary facilities layout is shown in Appendix E.

Preliminary Design Narratives

As a supplement to the site test fit plan diagrams, the design team also prepared architectural, landscape, civil and electrical/lighting narratives to describe, at a very high level, the grading/sitework, utilities, building systems, and building material assumptions for cost estimating purposes. A geotechnical desktop study was also prepared to provide a general description of the geotechnical factors affecting each site. The purpose of the narratives and geotechnical information is to inform the predesign rough order of magnitude cost estimates. The narratives will be refined during the conceptual and schematic design phases through further study of District aesthetic and material guidelines and standards, cost, durability and maintenance, and sustainability considerations.

The preliminary design narratives and the geotechnical desktop study are provided as Appendices F and G respectively.

Predesign Rough Order of Magnitude Cost Estimates

The design team's cost planner prepared a cost estimate for each of the alternative site test fits for the District's consideration in their decision about which site to pursue as the preferred alternative. The cost estimates are based on the test fit plan diagrams, preliminary design narratives and geotechnical information. An updated cost estimate for the District's single preferred site will be prepared during the conceptual design phase.

The estimates show a range of construction costs from $28.3 to 29.1 million in 2024 dollars.

- The cost of construction of a new field office at the existing SFO site was estimated at $29 million.
- Site Alternative 2, the Circle Lot at Skyline Ridge Open Space Preserve, is estimated at $28.3 million.
- Site Alternative 3, the Sherrill site, has an estimated hard cost of construction of $29.1 million.

These costs are provided for comparison purposes only and are subject to change once a site is selected and a more detailed design is documented.

Assuming an escalation rate of 5% compounded annually, project costs may range from:

	Low	-	High
Midpoint of construction 3 years from November 2024	$32.8 million	-	$33.7 million
Midpoint of construction 5 years from November 2024	$36.1 million	-	$37.1 million

See Appendix H for the full Cost Estimates.

6. EVALUATION OF SITE ALTERNATIVES

Alternative Site Evaluation Process

Evaluation of the site alternatives by the District staff members listed below included review of: provided background information (site analysis, space needs table, and programming diagrams); the test fit plans, diagrams, and narratives; and geotechnical desktop study. Staff independently scored each alternative against the established site selection criteria on a scale from zero (or 0 for not meeting the criteria) to three (or 3 for fully meeting the criteria). The scores were collected by the District's project manager for review, compilation, and analysis. The results of the scoring process were reviewed and discussed in a meeting with members of the S&S design team and the District staff who participated in the scoring process.

Participating District staff were:

Brandon Stewart, Land & Facilities Manager
Bryan Apple, Land & Facilities Field Manager
Chris Barresi, Visitor Services Skyline Area Superintendent
Craig Beckman, Land & Facilities Skyline Area Manager
Galli Basson, Planner III, Project Manager for SFO renovation project
Kelly Hyland, Real Property Agent
Kristin Perry, Supervising Ranger
Matt Anderson, Visitor Services Manager
Omar Smith, Senior Property Management Specialist
Paul Kvam, Senior Capital Project Manager
Sophie Christel, Natural Resources Management Analyst I
Tina Hugg, Senior Planner
Tyler Smith, Planner III

Results

The average score for each criterion was calculated by averaging scores assigned by individual staff members. These average scores were then weighted and summed for each site alternative. The resulting overall scores showed SFO with the lowest score, and Skyline Ridge Circle Lot and Sherrill scoring considerably higher, with Sherrill scoring the highest. The following is an overview of the major factors influencing the scores, with three (3.0) being the highest possible score.

Skyline Field Office Site
Overall score: 1.8

- Advantages:
    - The site is already developed/impacted; development of the field office would require minimal impact to undisturbed land.
    - The site is not visible from Skyline Boulevard and has limited visibility from surrounding open space along public access trails.
    - This site requires less earthwork and retaining walls than the other sites.

- Existing well, water tank, and leach field can be used and expanded.

- Disadvantages:
  - The impact on staff and operations during construction would be costly and disruptive.
  - Site constraints lead to a dispersed field office layout with limited potential for future growth/expansion.
  - Parking is not consolidated and would require long walks (up to ¼ mile) posing a challenge at night and in inclement weather.
  - Site constraints require multiple turnaround locations for large vehicles making maneuvering a challenge.
  - Requires rerouting a public trail.
  - Poor sightlines at driveway intersection on Skyline Blvd.
  - More heavily forested site than other alternatives; most challenging to maintain defensible space.
  - Site will need to be designed to avoid impacts on Alpine Pond.
  - Requires connection to 3-phase power along Skyline Boulevard and undergrounding of existing 1-phase overhead lines.

Skyline Ridge Circle Lot Site
Overall Score: 2.2

- Advantages:
  - Efficient, compact, and flexible field office layout.
  - Lots of outdoor workspace.
  - Allows the existing SFO to continue to be operational during construction of a new field office.
  - Clear and sufficient circulation for District vehicles and emergency access.
  - Clear sightline from driveway and a center turn lane at Skyline Boulevard.
  - Occupies a previously disturbed location on the site.
  - Buildings are well-suited to passive ventilation, daylight and rooftop PV system.
  - Good defensible space.
- Disadvantages:
  - Very close to and highly visible from Skyline Boulevard.
  - Close to public trails and open space; difficult to delineate and secure.
  - Driveway shared by public and District vehicles.
  - Displaces public parking, restroom, and requires rerouting of public trails.
  - Requires extensive planting of screening vegetation.
  - Site will need to be designed to avoid impacts on Horseshoe Lake.
  - No existing utilities.
  - Does not provide a secluded location for staff to work and take breaks.

- Proximity to Skyline Boulevard poses a security challenge.
- Requires some earthwork and retaining walls.

Sherrill Site
Overall Score: 2.5

- Advantages:
  - Efficient, compact, and flexible field office layout.
  - Lots of outdoor workspace.
  - Allows the existing SFO to continue to be operational during construction of a new field office.
  - Clear and sufficient circulation for District vehicles and emergency access.
  - Occupies a previously disturbed location on the site.
  - Buildings are well-suited to passive ventilation, daylight and rooftop PV system.
  - Good defensible space.
  - Provides a secluded and scenic place for staff to work.
  - No public trails or access in the area.
  - Distance from Skyline Boulevard makes the site relatively easy to secure.
  - 3-phase power existing on site.
- Disadvantages:
  - Somewhat visible from Skyline Boulevard and trails in the Monte Bello Open Space Preserve.
  - Displaces a portion of the existing Christmas tree farm.
  - Requires the most earthwork and retaining walls of the three alternative sites.
  - Site will need to be designed to avoid impacts on Stevens Creek watershed.
  - Requires new water and septic system.

7. APPENDICIES

Appendix A - Site and Slope Analysis Diagrams

Appendix B - Space Needs Table

Appendix C - Programming Diagrams

Appendix D - Site Test Fit Plan Diagrams

Appendix E – Temporary Facilities Diagram

Appendix F - Preliminary Design Narratives

Appendix G - Geotech Desktop Study

Appendix H – Cost Estimate

Appendix A

Site and Slope Analysis Diagrams

SUMMER SOLSTICE
SUNSET 8:32 PM

SUMMER HIGH FIRE DANGER WIND DIRECTION (FROM THE NORTHEAST W/ SUSTAINED SPEEDS OF 20 MPH; GUSTS UP TO 50 MPH)

SKYLINE BLVD

ALPINE POND

NATURE CENTER

SKYLINE FIELD OFFICE

COUNTY LINE PER SAN MATEO COUNTY GIS MAP

COUNTY LINE PER SANTA CLARA COUNTY GIS MAP

APN #351-06-025 IN SANTA CLARA COUNTY

APN #351-06-017 IN SANTA CLARA COUNTY

APN #351-06-025 IN SANTA CLARA COUNTY

SUMMER SOLSTICE
SUNRISE 5:48 AM

SHERRILL WINERY SITE

SKYLINE RIDGE PARKING AREAS

APN #351-07-005 IN SANTA CLARA COUNTY

APN #803-01-010 IN SAN MATEO COUNTY

SANTA CLARA COUNTY

SAN MATEO COUNTY

WINTER SOLSTICE
SUNSET 4:54 PM

WINTER SOLSTICE
SUNRISE 7:19 AM

PROP LINE

PREVAILING HIGH SPEED WINTER WIND DIRECTION (FROM THE SOUTH W/ SUSTAINED SPEEDS OF 20 MPH; GUSTS UP TO 80 MPH)

SCENIC SETBACK PER SAN MATEO COUNTY GIS MAP DISTANCE VARIES

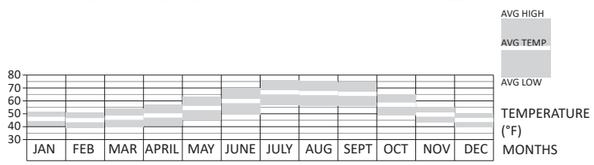
HORSESHOE LAKE

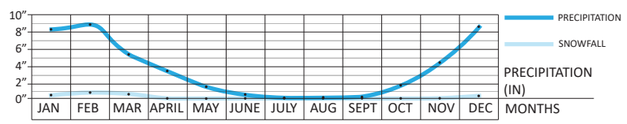
N

0’ 175’ 350’ 700’

SITE ANALYSIS

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
ALTERNATIVE SITES OVERVIEW
1/3/25





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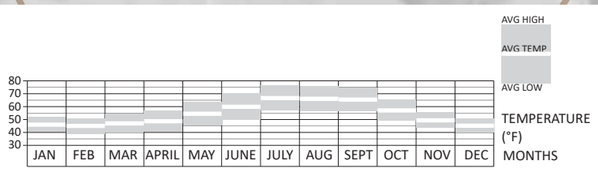
PGAdesign
SHERWOOD DESIGN ENGINEERS

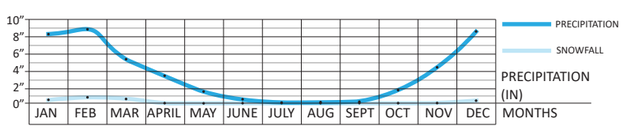
LEGEND

- SEPTIC TANK & LEACH FIELD
- WATER INFRASTRUCTURE
- OVERHEAD ELECTRICAL LINES
- POOR SIGHT LINES AT SKYLINE BLVD.
- STEEP TERRAIN (INDICATED BY ▨)
- PUBLIC TRAILS (INDICATED BY ——)
- HEAVILY WOODED - HARD TO MAINTAIN DEFENSIBLE SPACE
- 76' 76' LARGE VEHICLE TURNING DIAMETER

SITE ANALYSIS

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE FIELD OFFICE - CURRENT SITE
12/20/24





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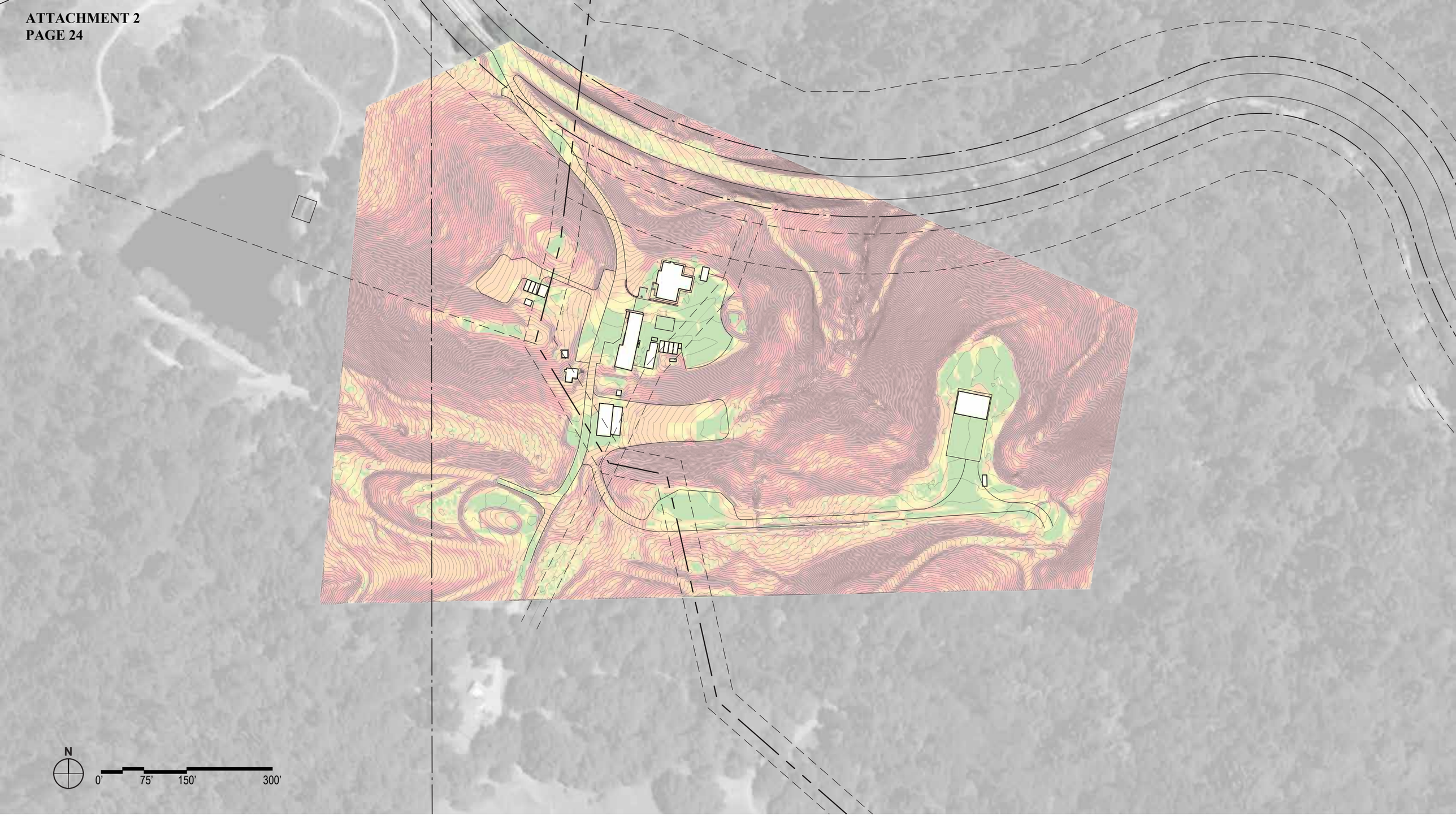

SLOPE ANALYSIS

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE FIELD OFFICE - CURRENT SITE
12/20/24

LEGEND

0-5% SLOPE
5-8% SLOPE
8-20% SLOPE
20-30% SLOPE
>30% SLOPE

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SHERWOOD DESIGN ENGINEERS

POWER POLE
POWER POLE
POWER POLE
SCENIC SETBACK
30' SETBACK (IN SANTA CLARA COUNTY)
APN #351-07-005
76'
30' SETBACK
BOUNDARY
20' SETBACK
50' SETBACK (IN SAN MATEO COUNTY)
OFF-SITE OVERHEAD ELEC LINES
SKYLINE BLVD
PREVIOUSLY DISTURBED AREA (HISTORIC GRAZING USE)
SANTA CLARA COUNTY
SAN MATEO COUNTY
APN #803-01-010
PROPERTY LINE
SCENIC SETBACK
76'
CALTRANS MITIGATION AREA
N
0' 75' 150' 300'

LEGEND

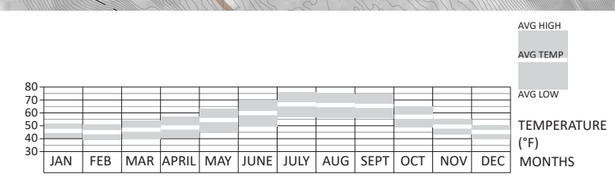
- EASY TO MAINTAIN DEFENSIBLE SPACE
- GOOD SIGHT LINES AT SKYLINE BLVD.
- 76' — 76' LARGE VEHICLE TURNING DIAMETER
- PUBLIC VIEW OF SITE FROM SKYLINE BLVD.
- STEEP TERRAIN (INDICATED BY)
- PUBLIC TRAILS (INDICATED BY)
- RIPARIAN OR SENSITIVE NATURAL COMMUNITIES (INDICATED BY)

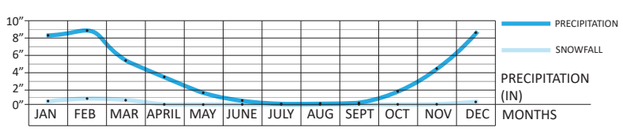
NOTES

- NO ELECTRICAL INFRASTRUCTURE ON SITE
- NO SEPTIC SYSTEM ON SITE
- NO WATER INFRASTRUCTURE ON SITE

SITE ANALYSIS

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE RIDGE PARKING AREAS
12/20/24





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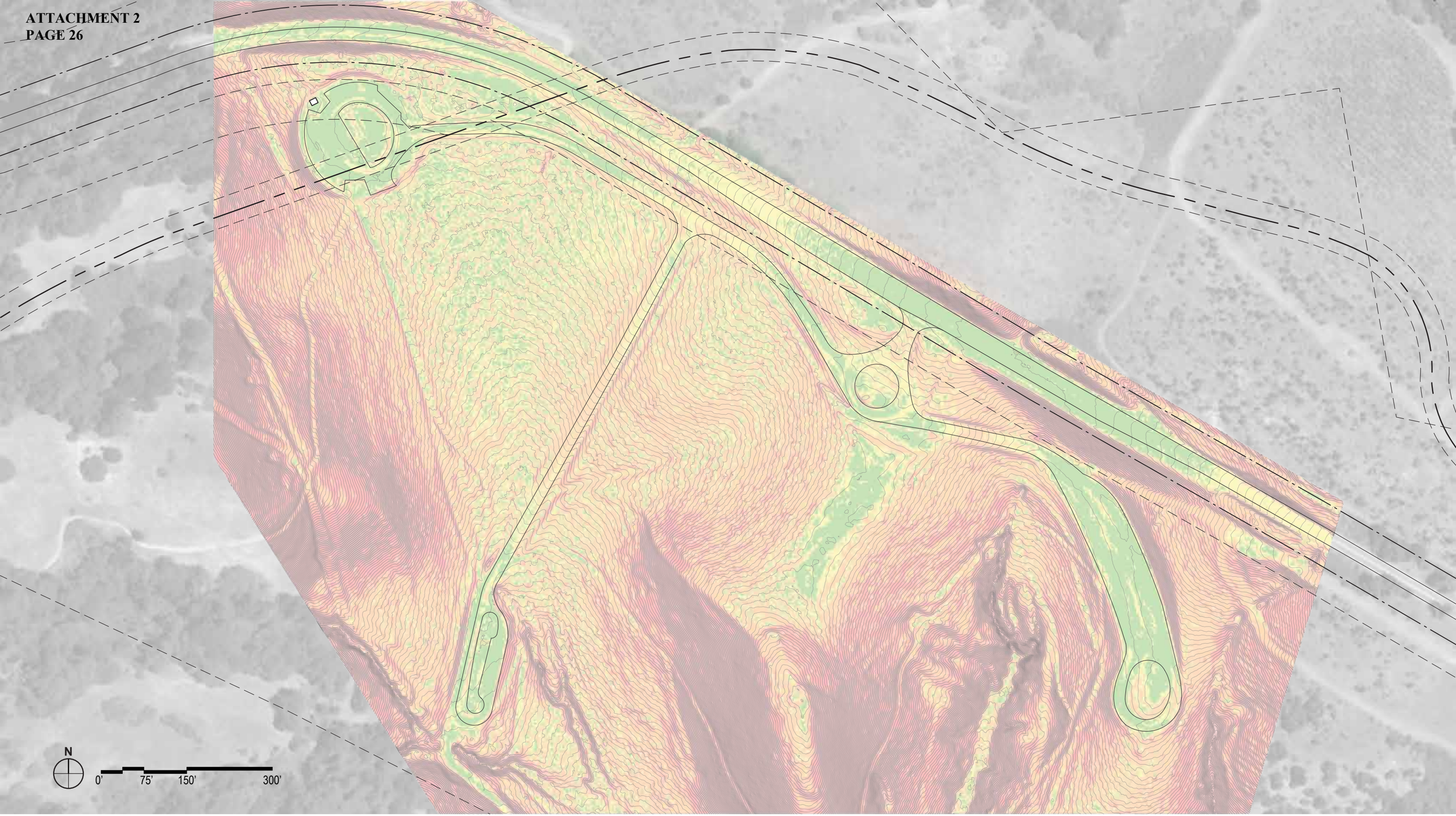


SLOPE ANALYSIS

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE RIDGE PARKING AREAS
12/20/24

LEGEND

0-5% SLOPE
5-8% SLOPE
8-20% SLOPE
20-30% SLOPE
>30% SLOPE

SIEGEL & STRAIN Architects
PGAdesign
SHERWOOD DESIGN ENGINEERS

APN #351-06-017

APN #351-06-025

APN #351-12-056

LEGEND

- DESIRABLE VIEWS TO THE NORTH AND EAST
- OVERHEAD ELECTRICAL LINES
- EASY TO MAINTAIN DEFENSIBLE SPACE
- POOR SIGHT LINES AT SKYLINE BLVD.
- STEEP TERRAIN (INDICATED BY ▨)
- HEAVILY WOODED - HARD TO MAINTAIN DEFENSIBLE SPACE
- PUBLIC VIEW OF SITE FROM SKYLINE BLVD.
- 76’ LARGE VEHICLE TURNING DIAMETER

NOTES

- NO SEPTIC SYSTEM ON SITE
- LIMITED WATER INFRASTRUCTURE ON SITE

SIGNIFICANT (E) TREES

30’ SETBACK

PROPERTY LINE

30’ SETBACK

DISTRICT-OWNED RESIDENCE

76’

DISTURBED AREA; ACTIVE AGRICULTURE USE

76’

FORMER WINERY

30’ SETBACK

BOUNDARY

20’ SETBACK

SANTA CLARA COUNTY
SAN MATEO COUNTY

OVERHEAD ELEC LINES

POWER POLES

EXISTING LOW-PERFORMING WELL & WATER TANK

SCENIC SETBACK

76’

ENTRY KIOSK

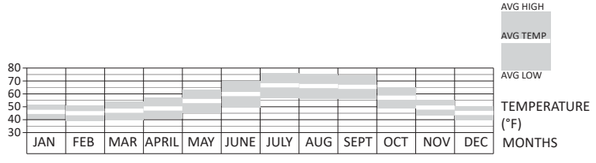
SKYLINE BLVD

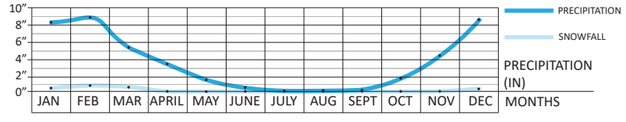
N

0’ 75’ 150’ 300’

SITE ANALYSIS

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SHERRILL WINERY SITE
12/20/24





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PGAdesign SHERWOOD DESIGN ENGINEERS

N

0' 75' 150' 300'

SLOPE ANALYSIS

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SHERRILL WINERY SITE
12/20/24

LEGEND

0-5% SLOPE

5-8% SLOPE

8-20% SLOPE

20-30% SLOPE

>30% SLOPE

SIEGEL & STRAIN Architects

PGAdesign SHERWOOD DESIGN ENGINEERS

Appendix B

Space Needs Table

Midpen Skyline Field Office Renovation
Space Needs
Siegel & Strain Architects 10/16/24

INDOOR AREAS

No.	Room/Space	Function & Requirements	Adjacency/Location	Area (SF)			
				Existing Area	Area Needed	Quantity	Total Proposed Area
1	**Office/Admin Spaces**						
1.1	Office Spaces						
	Shared Supervisor's Office	*> (E) office at SFO shared by (3)* > Provide shared supervisor offices for L&F (5) supervisors > Provide shared supervisor office for (4) supervising rangers > (2) people max in a shared office	Near focus rooms for private conversations	120	190	5	950
	Area Manager's Office (L&F)	*> (E) office at SFO is private office* > Provide space for desk, bookshelf, (2) visitor chairs		115	120	2	240
	Area Superintendent's Office (VS)	*> (E) office at SFO shared by VS Area Super and a direct report* > Direct report to move to shared supervisor office > Provide space for desk, bookshelf, (2) visitor chairs		130	120	2	240
	Administrative staff office	*> (E) cubicle in open office* > Provide small private office or cubicle in open office with sit/stand desk and filing cabinet	Need view to front door for receiving visitors, deliveries	65			90
	Hoteling Desks	*> (E) (5) desks in main space in the Admin building; (1) desk in the Conference Room* > Provide 10-12 hoteling stations (docking & computer stations) for L&F and VS staff > (2) hoteling desk for Volunteer Program Leads > (2) hoteling desks for Natural Resources staff > Stations are small, but have dividers between them for privacy		155			650
1.2	Focus rooms	> Small space for private conversations or one-on-one meeting > Need 3-4 Focus Rooms		--	60	4	240
1.3	Large Multipurpose Room	> Accommodate 30-40 seated in chairs facing a presenter for a training in the large conference room along; up to 60 when combined with small conference room > Space for training or other uses are higher priorities than having all staff fit into one room > Easy-to-use teleconference equipment > Provide floor outlets for power and data, connected to back up power for lighting, plug loads and HVAC system.	Adjacent to small conference room so that they can be combined into one room	666			600
1.4	Small Multipurpose Room	> Space for 10-person team meetings > Could be part of the Large Conf Rm if acoustical divider is provided > Flexible for use as: hoteling space, stretching area, training space > Library/bookshelf space > Used for stretching	Adjacent to large conference room so that they can be combined into one room	--			350
1.5	Restrooms	> RRs for users of office/admin/conference spaces separate from locker rooms. > Provide (3) all-gender toilet compartments with sinks in shared space	Near offices and conference rooms	--			200
1.6	Natural Resources Lab	> (2) 8' long work tables; one for wet samples, one for dry > shelving/storage (4) 48" long x 24" deep shelving units > biohazard chest freezer > refrigerator for water samples, seeds, Rolo's frozen mice > (1) industrial sink w/ counter; filtration at drain for mud/dirt > 48" clothes hanging area > 48" long x 24" deep shelf for "herbarium" and associated materials/equipment > hoteling desk > calibration/cleaning of NR equipment > (1) equipment decontamination station (if not located near main mudroom with decontamination station. > Operable windows and fume hood for ventilation	Secure location				600

1.7	Storage						
	General storage	*> (E) storage in SFO electrical/janitorial closet includes janitorial supplies, kitchen supplies, batteries, keys, server* > First-aid/PPE supplies, batteries, keys, etc.		50			30
	Office Supplies, File Storage, Mailboxes	*> (E) storage in admin area and island; (E) (24) inboxes* > general office supplies > (1) copy machine > Filing cabinets > Need work table for collating, laminating, etc. > Need (1) mailbox (or inbox of some sort) for each staff member		130			255
	File Archive	*> (E) stored in Wet Room in (2) 4-high legal width files and (1) 3-high 30" wide lateral filing cabinet; (8) file boxes of papers*		10			10
	First Aid Consumables	*> (E) stored in Wet Room; 30"x96"x48" high cabinet*		20			20
	Table/chair storage			--			80
	Personal file cabinets	(1) file drawer per staff member		15			
	Radio Storage/charging	> Radio charging and storage > Could be included in office supply storage		20			20
	Docent & Snake Supplies	> Rolo the snake & associated supplies > Brochures	should be located near front door for easy pickup by docents	15			15
	Evidence Locker	Visitor Service secure evidence locker		14			20
	Electrical Room	Electrical panel		20			20
	Server Closet	Server		--			30
	Janitor Closet	Mop/sink, cleaning supplies, paper products		35			35
	Staff emergency supplies	Water, food, etc.		--			50
	Stretching mat storage	Storage for stretching mats	adjacent to conference room	--			30
		Sub-total Office/Admin Spaces		**1,580**			**4,775**
		Gross sub-total proposed (+ 20%)					**5,730**

2	**Shared Support Space - Amenities**						
2.1	Entry			35			35
2.2	Mudroom & Decontamination						
	Outdoor Decontamination Space	> Hose bib > Boot scraper > (2) equipment/personal decontamination station, +/-3'x3' area	adjacent to mudroom	--			120
	Mudroom	> Boot rack > Coat rack > Bench > Ice machine	adjacent to locker rooms				200
2.3	Locker Room						
	Lockers	*> (E) lockers: (10) half lockers for women (36"H x 16"W x 18"D); (24) half lockers for men (36"H x 16"W x 18"D), (18) full lockers for men (60-70"H x 12-18"W x 12-18"D)* > Assuming (80) people using lockers > One male LR w/ (40) lockers; one female LR w/ (40) lockers; one all-gender LR w/ (20) lockers and changing rooms > Each person needs (2) half-height 18"Wx18"D lockers > Typical gear stored in lockers: multiple hanging uniforms, extra change of clothes, cold weather gear, protective equipment, shower supplies and towel, jackets, backpack, water bottle, overalls, rain gear, personal items (such as keys, wallet, phone), 2-3 pairs boots.		963			2,700
	Boot drying space	> Boot drying rack, similar to: https://cozywinters.com/shop/kw500-024.html > 1 pair of boots per staff member using locker room					
	Uniform hanging space	> Drying space to hang coveralls, rain jackets, coats > 12 linear inches of drying space per person					
	Showers	> (4) showers at each gendered LR; (2) at all-gender for a total of (10) showers > (1 shower per 8 is code min.)					
	Restrooms	> provide fixtures per plumbing code (+/- 1 toilet per 8 users, 1 lavatory per 12 users)					
2.4	Wellness/Privacy Room	> Privacy space; lactation space; include sink and fridge					65
2.5	Wet Room (personal storage)	*> (E) bins are split between being stored in the Wet Room and the shelving on the west wall of the shop* > Storage of personal gear (helmets, fire gear, winter gear, harness, chaps), first aid supplies > (1) bins per staff member; size 30"W x 48"L x 24"H	> near locker rooms, but not in the same space > could be stored in the mudroom if there is space	250			600
2.6	Laundry	> (4) washers, (4) dryers	adjacent to locker rooms	100			115
2.7	Kitchen/Break Room	> Fridge, sink, cabinets, microwave, cooktop or range, toaster oven, DW, coffee maker > Ice machine > Table for a group of (8) > Kitchen supplies storage		60			325
		Sub-total Shared Support Spaces		**1,408**			**4,160**
		Gross sub-total proposed (+ 20%)					**4,992**

3	**Shops**						
3.1	Main Shop	> 3-bay layout w/ one bay dedicated as a mechanic's bay - space to pull in and work on a vehicle; vehicle lift > Heating/cooling > Well ventilated > Accommodate 10-12 people working at the same time > Vehicle pull-through layout > Emergency eyewash > Utility sink and floor drains > Storage of generators, air compressors, water pumps and tubes > Refer to equipment inventory "Hand Tools" and "Power Tools" section for more detail > Space for storage of vehicles overnight when cargo cannot be unloaded at the end of the work day > Space for maintenance of equipment, ranging from small engine equipment to trucks and trailers. Associated tools need to be stored nearby > Several workbenches for small equipment service > Space for secure storage of deliveries (eg. pallet load of tools) until they are assembled and moved to their permanent storage location	Connected to other shop spaces	1,212			2,400
3.2	Wood Shop	> Heating/cooling > Well ventilated > Work benches > Dust exhaust system > Roll-up door to exterior > Table Saw, Vacuum system, shop vac, radial arm saw, thickness planer, drill press, miter/chop saw, belt sander, hand saws, clamps, saw horses, nails	Connected to other shop spaces	488			1,000
3.3	Mobile Wood Tool Storage	Storage of mobile table saw, etc.	Connected to wood shop	inc in wood shop			150
3.4	Welding Room	> Roll-up door to exterior > Ventilation > Needs to fit 2-3 people, be 2x larger than FFO > Arc welder - 1'-6" square x 3'H (50 amp, 220 v) > Oxy-Acetylene tanks - (2) 2'W x 1'-6D x 5'H (used in shop and must be secured to wall) > Oxy-Acetylene tanks - (2) 2'W x 2'D x 4'-6"H (portable for field use, must be secured to wall) > Argon and carbon-argon tanks - (2) 8"dia x 4'H MIG w/ tank - 2'W x 4'L x 5'-6"H (needs compressed air, 40 amp 220v) > (4) 22'L x 1'D cantilevered racks (for general storage of metal stock) > (2) 22'L x 1'D cantilevered racks (for project specific storage) > vertical storage (2'D x 4'W w/ 1'H stopper piece) for smaller metal stock pieces > Mobile work table - 3'D x 6'W x 3'-6"H > Floorspace for heavy items - 2'D x 36'L x 3'H > Counter space - 2'D x 16'L x 3'-6"H > (1) welder/generator, 1'-8"W x 4'L x 2'-6"H	Connected to other shop spaces	330			400
3.5	Chainsaw Room	> Storage and maintenance of brush cutters and chainsaws. > Roll-up door to exterior > Ventilation > (E) space also stores movable gantry/hoist (used occasionally), small amount of fuel storage for service containers used with small equipment. > Refer to equipment inventory "Power Tools" section for more detail	Connected to other shop spaces	689			1,000
3.6	Covered Outdoor Shop Space	> Shaded, rain protected work space > Space for hoist to be used to lift things out of truck beds.	Connected to other shop spaces	--			1,200
		Sub-total Shop Spaces		**2,719**			**6,150**

4	**Special Storage**						
4.1	Hazardous Waste		> Dedicated/contained storage space > Near mechanic's bay	33			35
4.2	Oil, Fuel, and Paint storage	> Paint, fuel, solvents, automotive lubricants, etc. > 50 gallon drums > Secondary containment required for service containers for fuel	> Dedicated/contained storage space > Near mechanic's bay	61			120
4.3	Herbicides	> Sprayers, eye wash equip, pesticide signs > Requires secondary containment	Dedicated/contained storage space	47			50
4.4	Dog Kennel	2 cages with shelter from weather and sun-protected	Dedicated/secure space	56			55
4.5	Resource Management Equipment storage	storage of bee hives, pond supplies, dechlorinator, seeds, tree/shrub protection equip, boat, etc.	ok in warehouse space	160			150
4.6	Roads and Trails storage	*> currently in Conex #3* > highline equip, tractor equip > (2) 5'Wx4'Dx3'H concrete mixers currently in Stable > Struct maint tools: >> 2'W x 3'L (concrete brackets) >> 2' x 4' (form stakes) >> 2' x 2' (dobies) >> 2'W x 2'D x 8'H cubby system (existing) > Need to store a small amount of explosive material in a fire-proof storage box	ok in warehouse space	160			250
4.8	South Skyline Emergency Preparedness Supply Storage		> Dedicated/secure space > Needs to be accessible to SSEPO even if Midpen staff are not present	80			80
4.9	Barricade Storage		ok in warehouse space	127			190
4.10	Sign Storage		ok in warehouse space	150			150
4.11	Hose Drying		outside	180			180
4.12	Misc. Storage	> Cement, hay bales, bridge parts, plywood, small power tools (pumps, compactors, generators), restroom cleaning supplies, small tractor/equipment parts, respirators, 2'D x 10'L x 6'H PPE cabinet > Rodent-proof	ok in warehouse space	527			550
4.13	Hand Tool Storage	> Storage of shovels, fencing, chains, work gloves > wood wall racks 4'-0" W x 24'-0" L x 12'-0" H > (2) 2'x2'-6"x3'H compactors	> Near shop and easy to load into District vehicles when departing for field work > ok in warehouse space	250			250
4.14	Electrical & Plumbing supplies	> Plumbing storage: 2'-6"D x 22'L x 6'H (shelves for parts, vertical storage for pipe with stopper ~3' - 4'W) > Electrical storage: 2'-6"D x 12'L x 6'H (shelves for parts)	ok in warehouse space	160			175
4.15	Volunteer Storage	Gloves, shade structures, ice chests, maps/info	Dedicated/secure space	160			150
4.16	Miscellaneous Hardware Storage	Nuts, bolts, parts, etc.	ok in warehouse space	160			150
4.17	Historic Objects Storage			125			125
4.18	Toter Storage	*> currently located in Stable* > (6) toters 500-800 lbs.	ok in warehouse space	72			100
4.19	Janitorial Supply Storage	> Toilet Paper: up to (10) boxes 1.5'W x 2'L x 1'H each	ok in warehouse space	--			25
4.20	Automotive Supply Storage	6'W x 2'D x 8'H	> located in or near mechanic's bay > ok in warehouse space	24			25
4.21	Fire Protection Equipment storage	*> currently in Conex #1 and 2* > pumpers, hoses, brass, PPE	> Dedicated/secure space > Near gantry crane; located near VS Storage > Accessible by forklift	320			300

4.22	Visitor Services Storage						
	Patrol Equipment	batons, pepper spray, etc. - needs to be secure	> Dedicated/secure space	--			100
	EMS supply storage	> Secure, clean space with storage cabinets > Rodent-proof	> Located together and in a location that's easy to get to when departing for an emergency; located near fire gear	--			100
	Lost and Found Storage	> Secure locker storage for lost and found items > Large enough for bikes	> Dedicated/secure space	--			200
		Sub-total Special Storage Spaces		**2,852**			**3,510**
		Gross sub-total proposed (+ 20%)					**4,212**
	Totals Indoor Areas						
		Total Estimated Indoor SF - Net		**8,559**			**18,595**
		Grossing Factor (for circulation/structure, +/- 20%, or as noted)		varies			see above
		Total Estimated Indoor Gross SF		**13,700**			**21,084**

OUTDOOR & OUTDOOR COVERED AREAS

No.	Room/Space	Function & Requirements	Adjacency	Area (SF)			
				Existing Area	Area Needed	Quantity	Total Proposed Area
5	**Stockpile Storage**						
5.1	Wood and Lumber	*(E) wood/lumber spread out in many locations on site*	Located for easy delivery access	2,250			2,000
5.2	Covered Lumber Storage	*Currently in (E) Chicken Coop*		298			300
5.3	Riprap, base rock, boulders	*> (E) material is not stored in bins* > (4) bins that each hold (4) cubic yards (16'x16'x4')	Located for easy delivery access	2,000	4	256	1,024
5.4	Culvert Pipe			300			300
5.5	Fencing/gates			1,000			1,000
5.6	Water Tanks			1,500			1,500
5.7	Metal Road Plates			100			100
5.8	Mulch	Per NR staff, mulch should not be stored on site unless it is produced on site		1,000			0
		Sub-total Stockpile Storage		**8,448**			**6,224**
		Gross sub-total proposed (+ 5%)					**6,535**
6	**Equipment Storage**						
6.1	Covered Equipment Storage	*> (E) covered equipment storage spaces are at the stable bldg, next to wood shop and in/near quonset hut.*	> Adjacent to pull-through or large turnaround space > Adjacent to space where trailer can maneuver/pull up to equipment to load	3,778			
	Electric Bikes	> covered 4'x6' parking spaces > bike repair equipment > access to power for charging	Located near VS Storage		4	24	96
	Off-road Motorcycles (Rokon)	covered 4'x8' parking spaces	Located near VS Storage		3	32	96
	Motorcycles	covered 4'x8' parking spaces	Located near VS Storage		3	32	96
	Mowing Tractors & Brush Mowers	covered 4'x8' parking spaces			5	32	160
	ATV spaces	covered 6'x10' parking spaces			9	60	540
	Patrol UTV space	covered 5'x10' parking spaces	Located near VS Storage		1	50	50
	Small Excavators	covered 5'x10' parking spaces			2	50	100
	Bulldozer	covered 6'x12' parking space			1	72	72
	Tractor/Loader	covered 10'x20' parking spaces			6	200	1,200
	Chippers	covered 10'x20' parking spaces			2	200	400
	Large Excavators	covered 10'x20' parking spaces			2	200	400
	Water Truck	covered 10'x25' parking space			1	250	250
6.2	Uncovered Heavy Equipment at Quonset Hut			3,559			
	Small Trailers	8'x12' parking spaces			8	96	768
	Dump trucks	10'x30' parking spaces			2	300	600
	Large Trailers	10'x24' parking spaces			5	240	1,200
	X-large Trailers	10'x40' parking spaces			3	400	1,200
		Sub-total Equipment Storage		**7,337**			**7,228**
		Gross sub-total proposed (+ 25%)					**9,035**
7	**Vehicle Parking & Amenities & Miscellaneous**						
7.1	Passenger Vehicle Parking						
	Employee parking spaces	*> (23) (E) employee parking spaces* > (60) employee parking spaces needed for future		3,726	60	162	9,720
	Visitor parking spaces	9'x18' parking spaces	Locate near admin building main entry	--	10	162	1,620
	District Maintenance and Patrol Vehicles - Standard	> (50) 9'x18' parking spaces needed for future	Locate patrol trucks for easy departure from the site in an emergency	4,698	50	162	8,100
	District Maintenance and Patrol Vehicles - Large	> (10) 10'x20' parking spaces needed for future	Locate patrol trucks for easy departure from the site in an emergency	972	10	200	2,000
	Historic District Truck (VW Thing)	covered 9'x18' parking space		--	1	162	162
7.2	Fueling Station	*> (E) 500 gal diesel; 1000 gal gasoline* > Located to allow functional circulation around tanks; or pull-through configuration > Configuration that allows use of diesel and gasoline pumps at the same time > Need 2,000 gallon diesel tank and 1,500 gallon gas tank	Locate for easy pull-through or around	300			400
7.3	Vehicle/Equipment Washing Station	> carbon filtration system - oil and seed catchment > paved area		--			450

7.4	EV Charging		Locate throughout the site at parking areas	--			--
7.5	Smoking Area			150			150
7.6	Employee Gathering Area	*> (E) deck on north side of Admin bldg* > needs shade > table for 8-10		340			350
7.7	Electrical			80			100
7.8	Trash/Recycle Dumpsters	> Space for trash, recycle and compost dumpsters for Admin spaces > Up to (3) high-capacity material waste dumpsters > Covered > with power and hot/cold water		125			750
		Sub-total Vehicle Parking & Amenities		**9,696**			**22,452**
		Gross sub-total proposed (+ 20%)					**26,942**
	Total Outdoor Areas						
		Total Estimated Outdoor SF - Net		**25,481**			**35,904**
	Grossing Factor (for circulation/structure, +/- 20%, or as noted above)			5,096			see above
		Total Estimated Outdoor Gross SF		**30,577**			**42,513**

Appendix C
Program Diagrams

	SHARED SUPPORT SPACES - AMENITIES	OFFICES/ADMIN SPACES	SHOPS	SPECIAL STORAGE
EXISTING	**1,408 SF** Locker Rooms Wet Rm (personal stor) Laundry Kitchenette	**1,580 SF** Private Offices Shared Office Hoteling Desks Conference Room Storage	**2,719 SF** Main Shop Wood Shop Welding Room Chainsaw Room	**2,952 SF** Hazmat, Herbicides, Fire Protection Equipment, Patrol Equipment, Resource Management, Roads & Trails, Barricades, Signs, Electrical/Plumbing Supplies, Volunteer Supplies, Etc.
NEEDED	**4,392 SF** **Mud Room** Locker Rooms Wet Room (personal stor) Laundry & **Hang-drying Space** **Kitchen & Break Room** **Wellness/privacy Room**	**4,242 SF** Private Offices Shared Office Hoteling Desks **Large & Small** Conference Rms Storage **Focus/huddle Rooms** **Restrooms**	**6,540 SF** Main Shop Wood Shop Welding Room Chainsaw Room **Outdoor Covered Shop Space**	**4,152 SF** Hazmat, Herbicides, Fire Protection Equipment, Patrol Equipment, Resource Management, Roads & Trails, Barricades, Signs, Electrical/Plumbing Supplies, Volunteer Supplies, Etc.

Notes:
- Boxes are to scale relative to one another
- **Bold text** indicates a new type of space that is not currently provided at the existing SFO

GRAPHIC PROGRAM DIAGRAM - INTERIOR SPACES

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE FIELD OFFICE
7/23/24

SIEGEL & STRAIN Architects

0 8 16 32 ft.
Scale

	STOCKPILE STORAGE	EQUIPMENT STORAGE	VEHICLE PARKING & AMENITIES; MISCELLANEOUS
EXISTING	**8,348 SF** Wood & Lumber Riprap, Base Rock, Boulders Culvert Pipe Fencing & Gates Water Tanks Mulch	**7,337 SF** Electric Bikes Motorcycles Mowers ATVs Excavators Bulldozer Tractors / Loaders Chippers Water Truck Trailers Dumptrucks	**9,696 SF** Employee Personal Vehicles District Vehicles Fueling Station Vehicle Wash-down EV Charging Employee Gathering Smoking Area Electrical Trash/Recycle
NEEDED	**7,469 SF** Wood & Lumber Riprap, Base Rock, Boulders Culvert Pipe Fencing & Gates Water Tanks Mulch	**8,674 SF** Electric Bikes Motorcycles Mowers ATVs Excavators Bulldozer Tractors / Loaders Chippers Water Truck Trailers Dumptrucks	**26,942 SF** **Employee Personal Vehicles** **District Vehicles** Fueling Station Vehicle Wash-down EV Charging **Employee Gathering** Smoking Area Electrical Trash/Recycle

Notes:
- Boxes are to scale relative to one another
- **Bold text** indicates a new type of space that is not currently provided at the existing SFO

GRAPHIC PROGRAM DIAGRAM - EXTERIOR SPACES

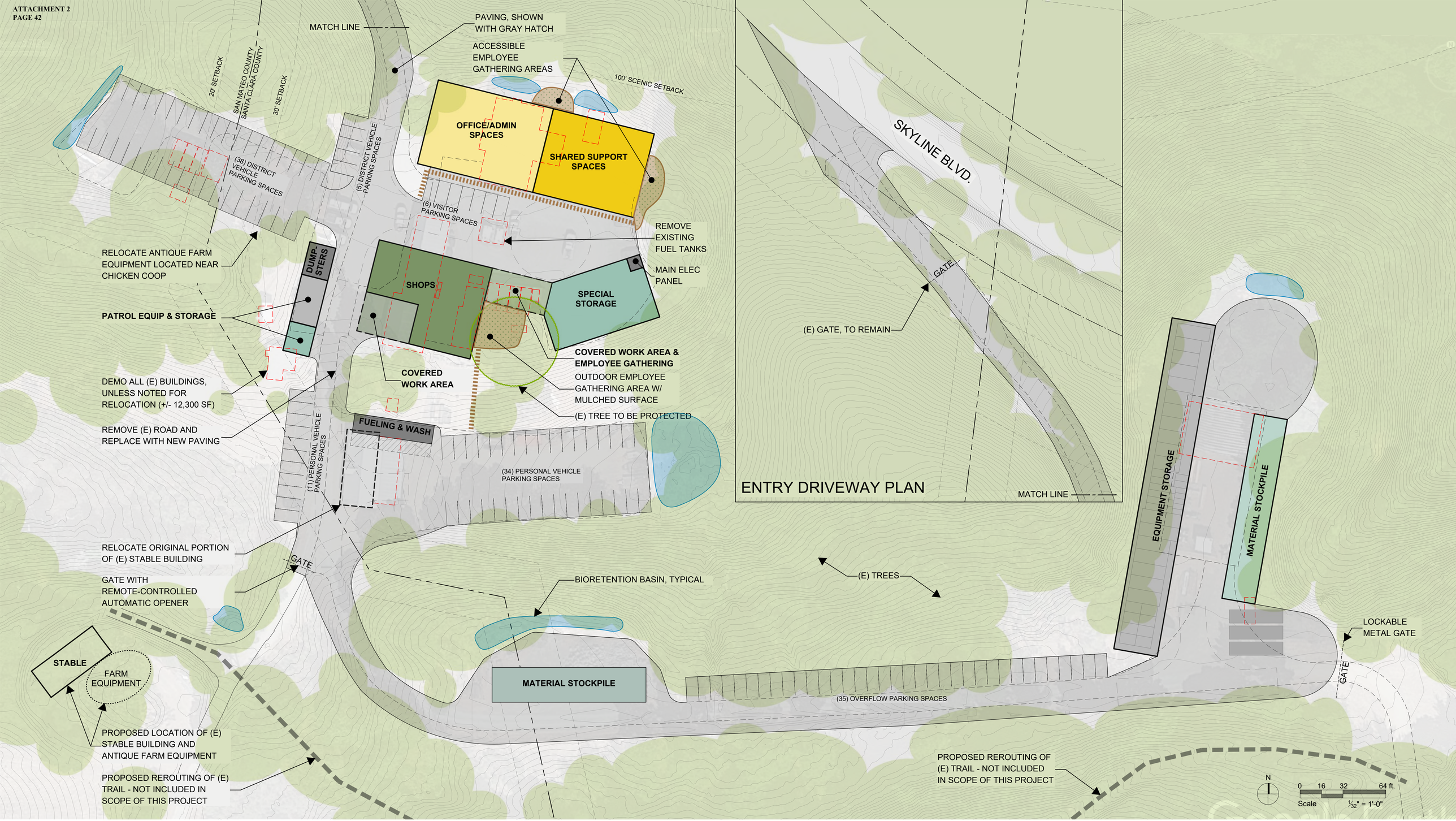
MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE FIELD OFFICE
7/23/24

SIEGEL & STRAIN Architects

0 8 16 32 ft.
Scale

Appendix D

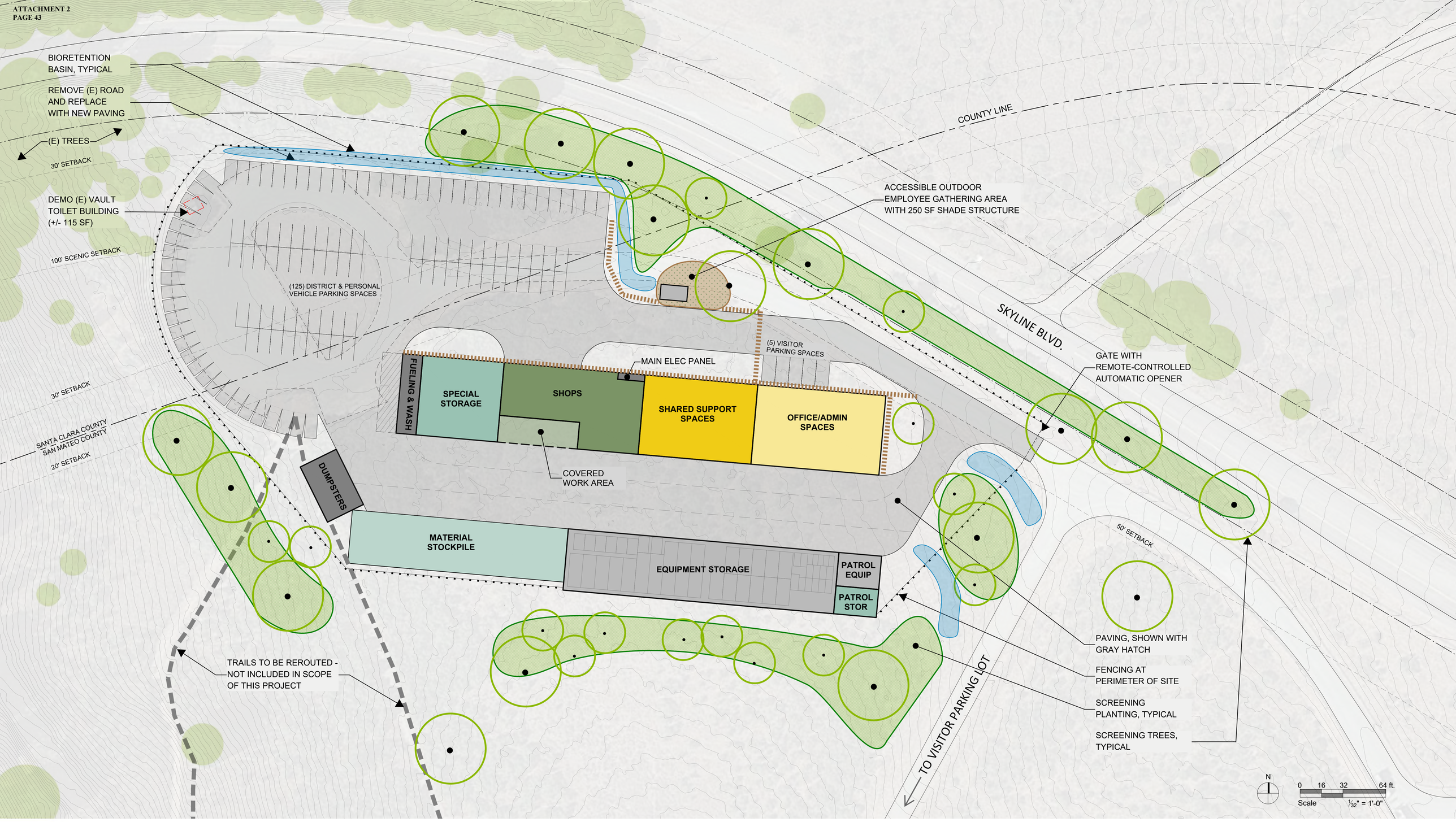
Site Test Fit Plan Diagrams



SITE TEST FIT ALT. 1 - EXISTING SFO SITE

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE FIELD OFFICE
10/16/24

SIEGEL & STRAIN Architects
PGAdesign
SHERWOOD DESIGN ENGINEERS



SITE TEST FIT ALT. 2 - SKYLINE RIDGE CIRCLE LOT SITE

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE FIELD OFFICE
10/16/24

SIEGEL & STRAIN Architects
PGAdesign
SHERWOOD DESIGN ENGINEERS

SITE TEST FIT ALT. 3 - SHERRILL SITE

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE FIELD OFFICE
12/11/24

SIEGEL & STRAIN Architects
PGAdesign SHERWOOD DESIGN ENGINEERS

(E) TREES

(E) DISTRICT RESIDENCE, TO REMAIN

PATROL EQUIP & STORAGE

SHARED SUPPORT SPACES

DUMPSTERS

(104) DISTRICT & PERSONAL VEHICLE PARKING SPACES

OFFICE/ADMIN SPACES

(26) VISITOR & PATROL PARKING SPACES

GATE WITH REMOTE-CONTROLLED AUTOMATIC OPENER

20' SETBACK

PROPERTY LINE

20' SETBACK

N

0 16 32 64 ft.

Scale 1/32" = 1'-0"

SITE TEST FIT ALT. 3 - SHERRILL SITE DRIVEWAY PLAN

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE FIELD OFFICE
12/11/24

SIEGEL & STRAIN Architects

PGAdesign SHERWOOD DESIGN ENGINEERS

SITE TEST FIT ALT. 1
(E) SFO SITE
GRADING & UTILITIES
10/17/24

SHERWOOD DESIGN ENGINEERS

(P) 150' HOSE LAY
(P) ARMORED ROADSIDE SWALES ON BOTH SIDES (4-6 INCH ANGULAR ROCKS, 6 INCHES DEEP)
(P) HYDRANT
20' SETBACK
30' SETBACK
SAN MATEO COUNTY SANTA CLARA COUNTY
100' SCENIC SETBACK
(38) DISTRICT VEHICLE PARKING SPACES
(5) DISTRICT VEHICLE PARKING SPACES
(6) VISITOR PARKING SPACES
OFFICE/ADMIN SPACES
SHARED SUPPORT SPACES
REMOVE EXISTING FUEL TANKS
ELECTRICAL
DUMPSTERS
SHOPS
SPECIAL STORAGE
PATROL EQUIP & STORAGE
(P) SEPTIC ADVANCE TREATMENT TANKS
COVERED WORK AREA & EMPLOYEE GATHERING
COVERED WORK AREA
USE (E) 210 LF OF SEPTIC LEACH FIELDS
(P) REPLACEMENT AREA
FUELING & WASH
(E) TREE TO BE PROTECTED
(11) PERSONAL VEHICLE PARKING SPACES
(34) PERSONAL VEHICLE PARKING SPACES
(P) 70 LF OF SEPTIC LEACH FIELDS
GATE WITH REMOTE-CONTROLLED AUTOMATIC OPENER
GATE
STABLE
FARM EQUIPMENT
(P) HYDRANT
ROUTE WATER LINE ALONG (E) ROAD FROM THE PROPOSED STORAGE TANK AT THE EXISTING TANK LOCATION
STORMWATER RETENTION OR DETENTION AREA (4% OF IMPERVIOUS SURFACE AREA)
MATERIAL STOCKPILE
(P) ROADSIDE SWALE
(P) STORM DRAIN PIPE
PROPOSED REROUTING OF (E) TRAIL - NOT INCLUDED IN SCOPE OF THIS PROJECT
(E) TREES
(P) HMA PAVED ROADWAYS
- 20' MIN WIDE
- 2' CLASS 2 AB SHOULDER
- 3' WIDE ROADSIDE SWALE ON BOTH SIDES
(35) OVERFLOW PARKING SPACES

TRAFFIC ANALYSIS REQUIRE TO DETERMINE SITE DISTANCE
SKYLINE BLVD.
GATE
(E) GATE, TO REMAIN
(P) ARMORED ROADSIDE SWALES ON BOTH SIDES (4-6 INCH ANGULAR ROCKS, 6 INCHES DEEP)
ENTRY DRIVEWAY PLAN
MATCH LINE

EQUIPMENT STORAGE
MATERIAL STOCKPILE
(P) SWALE TO (E) DRAINAGE SWALE
GATE
ROUTE W LINE ALONG THE (E) TRAIL ROUTE FROM THE PROPOSED STORAGE TANK AT THE EXISTING TANK LOCATION APPROXIMATELY 1,000 FT AWAY

N
0 16 32 64 ft.
Scale ½₃₂" = 1'-0"

LEGEND:
- (P) STORM DRAIN PIPE
- (P) SWALE
- (P) WATER LINE
- (P) 150' HOSE LINE
- (E) LEACH FIELDS
- (P) LEACH FIELDS
- (P) RETAINING WALLS
- (P) BIORETENTION BASINS
- (P) HYDRANTS

Dry Utilities:
-Refer to Electrical narrative prepared by O'Mahony & Myer Electrical Engineering & Lighting Design on October 16, 2024.

Wastewater:
-Utilize existing leach field lines

-(P) 210 LF of new leach field lines and a new advanced treatment system.

-(P) 15,600 SF of expansion area as shown.

-Sanitary sewer services from each building to (P) advanced treatment system

Water:
-Utilize existing well (11.5 gallons per minute).

-(P) 180,000 gallon fire and domatic water storage tank.

-(P) 2,700 LF 6" pipe to hydrants and 200 LF of 2" water laterals to buildings.

-(P) 5 hydrants

Civil Surfacing Materials:
- Total Hot Mix Asphalt (HMA) = 125,400 sf

Civil Surfacing Materials	(SF)
Road	88,100
Parking	21,000
Materials Storage	8,000
Vehicle Storage	8,300
Total	125,400

Earthwork and Retaining Wall:
- (P) 650 LF of retaining walls as shown with an average height of 5 FT.

- (P) 0.30 acres to be regraded, average fill depth is 2-4 FT.

Stormwater:

Impervious Surfaces:	(SF)
Roadway	88,100
Parking	21,000
XL Trailers	1,200
Storage and Equipment	17,000
Buildings	19,000
Employee Gatherings	2,020
Dumpster	500
Fueling and Vehicle Wash	840
Total	149,700
Area for Basins	6,000

Total Retention/Detention area = 4% Impervious surface area = 6,000 sf in approximate locations as shown.

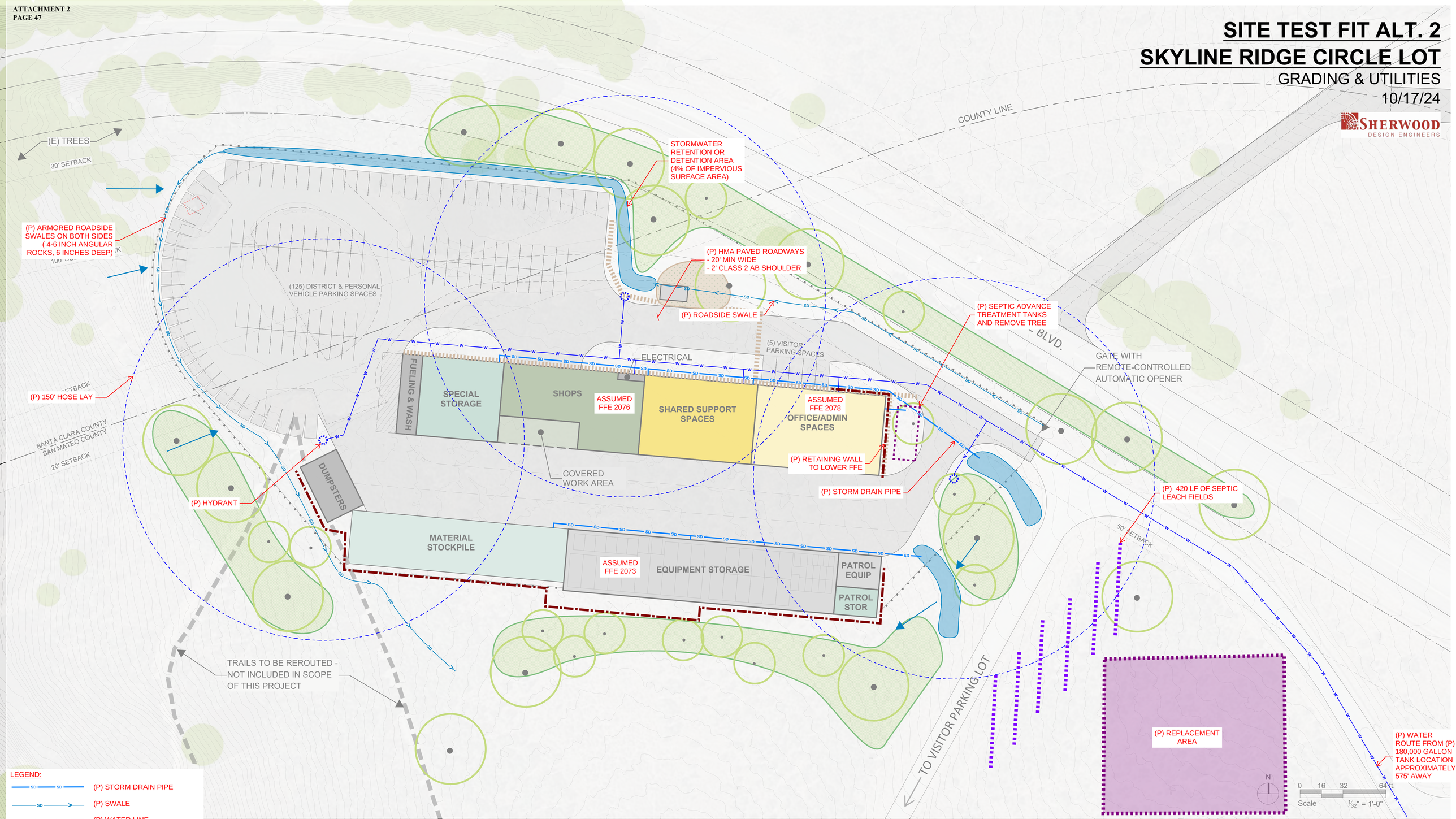
-Conveyance of stormwater by 2,500 LF of roadside swales, 750 LF of armored swales, and 700 LF of culverts or pipings.

Geotechical Notes:
- Well drained soils with high bedrock between 34 inches to 77 inches deep.

Fault Zone:
- Distance to the San Andreas Fault Zone is approximately 0.875 miles away from the site

SITE TEST FIT ALT. 2
SKYLINE RIDGE CIRCLE LOT
GRADING & UTILITIES
10/17/24

SHERWOOD DESIGN ENGINEERS



LEGEND:

- (P) STORM DRAIN PIPE
- (P) SWALE
- (P) WATER LINE
- (P) 150' HOSE LINE
- (E) LEACH FIELDS
- (P) LEACH FIELDS
- (P) RETAINING WALLS
- (P) BIORETENTION BASINS
- (P) HYDRANTS

Dry Utilities:
-Refer to Electrical narrative prepared by O'Mahony & Myer Electrical Engineering & Lighting Design on October 16, 2024.

Geotechnical Notes (Source: NRCS):
- High runoff area, well drained soils, low permeability due to shallow bedrock between 20 inches to 30 inches deep.

Wastewater:
-(P) 420 LF of new leach field lines and a new advanced treatment system.

-(P) 15,600 SF of expansion area as shown.

-Sanitary sewer services from each building to (P) advanced treatment system

-Due to shallow bedrock, consider subsurface drip system or mound systems.

Water:
-Study use of (E) well at existing SFO site approximately 1 mile away.

-(P) 180,000 gallon fire and domestic water storage tank.

-(P) 1,300 LF 6" pipe to hydrants and 100 LF of 2" water laterals to buildings.

-(P) 3 hydrants

Civil Surfacing Materials:
- Total HMA sf = 111,000 sf

Civil Surfacing Materials	(SF)
Road	67,000
Parking	21,200
Materials Storage	6,000
Vehicle Storage	16,500
Total	111,000

Earthwork and Retaining Wall:
- (P) 700 LF of retaining walls as shown with an average height of 3FT.

- (P) 2 acres to be regraded, average fill depth is 2-4 FT.

Stormwater:

Impervious Surfaces:	(SF)
Roadway	67,000
Parking	21,200
Storage and Equipment	18,000
Buildings	19,300
Employee Gatherings	1,000
Dumpster	1,380
Fueling and Vehicle Wash	1,788
Total	129,700
Area for Basins	5,200

Total Retention/Detentio area = 4% Impervious surface area = 5,200 sf i approximate locations as shown.

-Conveyance of stormwa by 800 LF of roadside swales and 680 LF of culverts or pipings.

Fault Zone:
- Distance to the San Andreas Fault Zone is approximately 0.625 miles away from the site

SITE TEST FIT ALT. 3
SHERRILL SITE
GRADING & UTILITIES
12/19/24

SHERWOOD DESIGN ENGINEERS

(P) BIORETENTION BASIN
(E) TREES TO BE PROTECTED
(P) 70 LF OF SEPTIC LEACH FIELDS
(P) REPLACEMENT AREA
(P) REPLACEMENT AREA
(E) TREES
(P) SEPTIC ADVANCE TREATMENT TANKS
FUELING & WASH
COVERED WORK AREA
APPROXIMATELY 5.5 FT HIGH RETAINING WALL
(P) HMA PAVED ROADWAYS
- 20' MIN WIDE
- 2' CLASS 2 AB SHOULDER
- 3' WIDE ROADSIDE SWALE ON BOTH SIDES
(P) ROADSIDE SWALE
SHOPS
EQUIPMENT STORAGE
MATERIAL STOCKPILE
(E) DRAINAGE COURSE
SPECIAL STORAGE
APPROXIMATELY 3FT HIGH RETAINING WALL/FOUNDATION
PATROL EQUIP & STORAGE
SHARED SUPPORT SPACES
(104) DISTRICT & PERSONAL VEHICLE PARKING SPACES
(E) DISTRICT RESIDENCE, TO REMAIN
DUMPSTERS
30' SETBACK
(P) 150 FT HOSE LAY
(P) HYDRANT
(P) BIORETENTION BASINS
SANTA CLARA COUNTY
SAN MATEO COUNTY
20' SETBACK
OFFICE/ADMIN SPACES
(P) 3:1 LANDSCAPE STRIPS (TYP)
(P) ROADSIDE SWALE
(P) HMA PAVED ROADWAYS
- 20' MIN WIDE
- 2' CLASS 2 AB SHOULDER
- 3' WIDE ROADSIDE SWALE ON BOTH SIDES
SEE SHEET 2
COUNTY LINE
(P) WATER ROUTE ALONG EXISTING ROAD FROM (P) 180,000 GALLON TANK LOCATION AT ELEVATION 2177 FT APPROXIMATELY 650' AWAY
(26) VISITOR & PATROL PARKING SPACES
(E) WATER TANK, TO REMAIN
SCENIC SETBACK
20' SETBACK
PROPERTY LINE
20' SETBACK
(P) BIORETENTION BASIN

0 16 32 64 ft
Scale 1/32" = 1'-0"

LEGEND:

- (P) STORM DRAIN PIPE
- (P) SWALE
- (P) WATER LINE
- (P) 150' HOSE LINE
- (P) LEACH FIELDS
- (P) RETAINING WALLS
- (P) BIORETENTION BASINS
- (P) HYDRANTS

Dry Utilities:
-Refer to Electrical narrative prepared by O'Mahony & Myer Electrical Engineering & Lighting Design on October 16, 2024.

Geotechical Notes (Source: NRCS):
- High runoff area, well drained soils, low permeability due to shallow bedrock between 20 inches to 30 inches deep.

Wastewater:
-(P) 420 LF of new leach field lines and a new advanced treatment system.

-(P) 15,600 SF of expansion area as shown.

-Sanitary sewer services from each building to (P) advanced treatment system

-Due to shallow bedrock, consider subsurface drip system or mound systems.

Water:
- Two (E) wells onsite with unknown yields. New wells may be required. (P) Pump and well study for additional water sources.

-Study use of (E) well at existing SFO site approximately 1 mile away.

-(E) On-site tank (size TBD) used for domestic and irrigation purposes.

-(P) 180,000 gallon fire and domatic water storage tank.

-(P) 1,647 LF 6" pipe to hydrants and 73.5 LF of 2" water laterals to buildings.
-(P) 3 hydrants

Civil Surfacing Materials:
- Total HMA (SF): 144,337

Civil Surfacing Materials	(SF)
Road	107,003
Parking	19,334
Materials/Vehicle Storage	18,000
Total	144,337

Earthwork and Retaining Wall:
- (P) 505 LF of retaining walls as shown with an average heights.

- (P) 5 acres to be regraded, average fill and cut depth is 3 FT and 5 FT respectively.

- Grading study to determine if cut/fill can balance.

Stormwater:
Total Retention/Detention area = 4% Impervious surface area = 6,954 SF in approximate locations as shown.

-Conveyance of stormwater by 1,592 LF of roadside swales, 205 LF of armored swales, and 710.5 LF of culverts or pipings.

Impervious Surfaces:	(SF)
Roadway	107,003
Parking	19,334
Storage and Equipment	18,000
Buildings	22,297
Employee Gatherings	4,174
Dumpster	2,161
Fueling and Vehicle Wash	893
Total	173,862
Area for Basins	6,954

Fault Zone:
- Distance to the San Andreas Fault Zone is approximately 0.5 miles away from the site

SITE TEST FIT ALT. 3
SHERRILL SITE
GRADING & UTILITIES
12/19/24

SHERWOOD DESIGN ENGINEERS

(E) TREES

(E) DISTRICT RESIDENCE, TO REMAIN

PATROL EQUIP & STORAGE

SHARED SUPPORT SPACES

DUMPSTERS

OFFICE/ADMIN SPACES

SEE SHEET 1

(104) DISTRICT &

(26) VISITOR & PATROL PARKING SPACES

(P) ROADSIDE SWALE

max grade 11%

(P) BIORETENTION BASIN

(P) CULVERT

(P) ARMORED ROADSIDE SWALES ON BOTH SIDES (4-6 INCH ANGULAR ROCKS, 6 INCHES DEEP)

GATE WITH REMOTE-CONTROLLED AUTOMATIC OPENER

(P) HMA PAVED ROADWAYS
- 20' MIN WIDE
- 2' CLASS 2 AB SHOULDER
- 3' WIDE ROADSIDE SWALE ON BOTH SIDES

max grade 8%

PROPERTY LINE

20' SETBACK

20' SETBACK

(P) ALTERNATIVE DRIVEWAY

TRAFFIC ANALYSIS REQUIRE TO DETERMINE SITE DISTANCE

TRAFFIC ANALYSIS REQUIRE TO DETERMINE SIGHT DISTANCE

N

0 16 32 64 ft.

Scale 1/32" = 1'-0"

LEGEND:

- (P) STORM DRAIN PIPE
- (P) SWALE
- (P) WATER LINE
- (P) 150' HOSE LINE
- (P) LEACH FIELDS
- (P) RETAINING WALLS
- (P) BIORETENTION BASINS
- (P) HYDRANTS

Dry Utilities:
-Refer to Electrical narrative prepared by O'Mahony & Myer Electrical Engineering & Lighting Design on October 16, 2024.

Geotechical Notes (Source: NRCS):
- High runoff area, well drained soils, low permeability due to shallow bedrock between 20 inches to 30 inches deep.

Wastewater:
-(P) 420 LF of new leach field lines and a new advanced treatment system.

-(P) 15,600 SF of expansion area as shown.

-Sanitary sewer services from each building to (P) advanced treatment system

-Due to shallow bedrock, consider subsurface drip system or mound systems.

Water:
- Two (E) wells onsite with unknown yields. New wells may be required. (P) Pump and well study for additional water sources.

-Study use of (E) well at existing SFO site approximately 1 mile away.

-(E) On-site tank (size TBD) used for domestic and irrigation purposes.

-(P) 180,000 gallon fire and domatic water storage tank.

-(P) 1,647 LF 6" pipe to hydrants and 73.5 LF of 2" water laterals to buildings.
-(P) 3 hydrants

Civil Surfacing Materials:
- Total HMA (SF): 144,337

Civil Surfacing Materials	(SF)
Road	107,003
Parking	19,334
Materials/Vehicle Storage	18,000
Total	144,337

Earthwork and Retaining Wall:
- (P) 505 LF of retaining walls as shown with an average heights.

- (P) 5 acres to be regraded, average fill and cut depth is 3 FT and 5 FT respectively.

- Grading study to determine if cut/fill can balance.

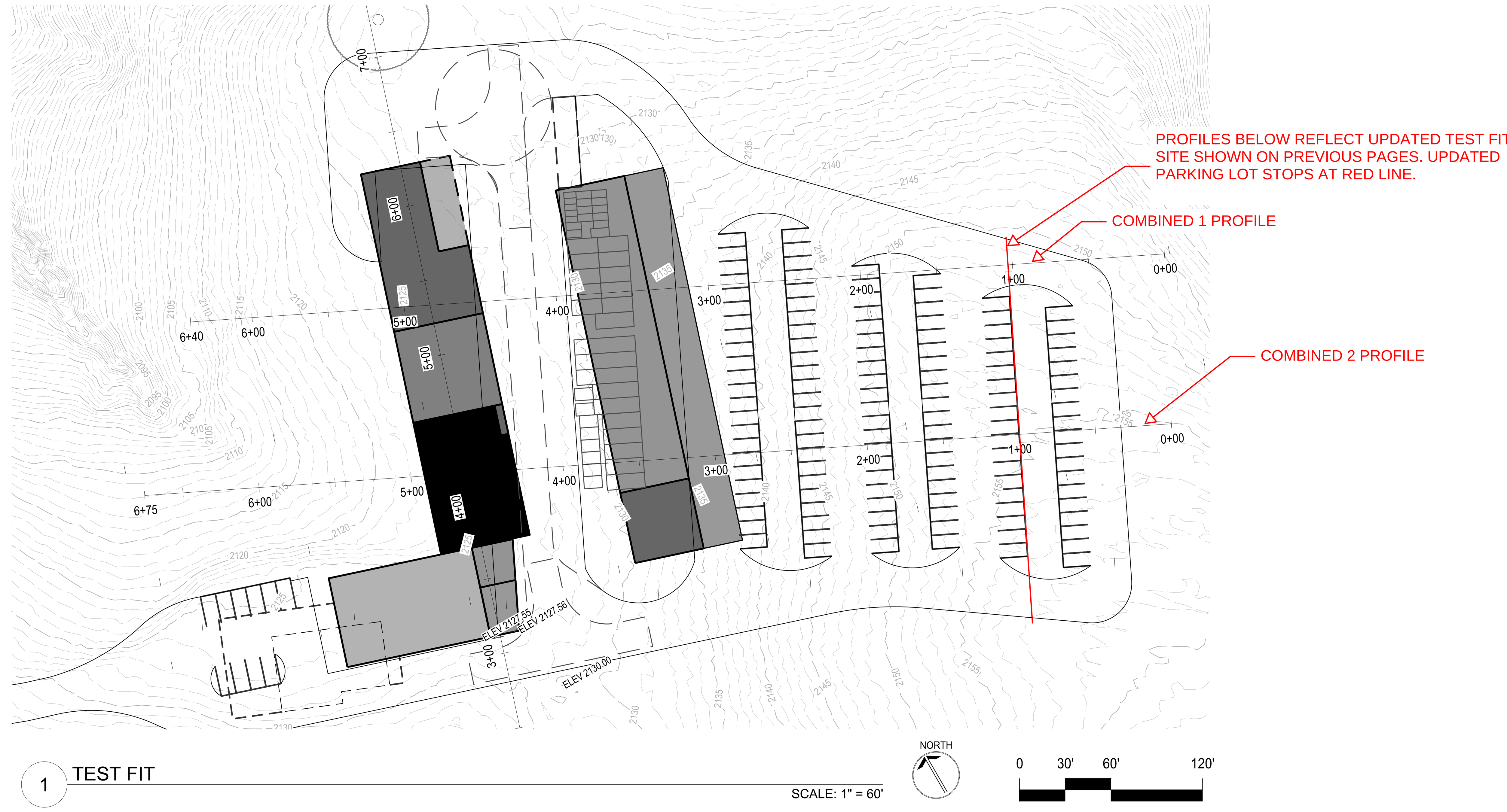
Stormwater:

Total Retention/Detention area = 4% Impervious surface area = 6,954 SF in approximate locations as shown.

-Conveyance of stormwater by 1,592 LF of roadside swales, 205 LF of armored swales, and 710.5 LF of culverts or pipings.

Impervious Surfaces:	(SF)
Roadway	107,003
Parking	19,334
Storage and Equipment	18,000
Buildings	22,297
Employee Gatherings	4,174
Dumpster	2,161
Fueling and Vehicle Wash	893
Total	173,862
Area for Basins	6,954

Fault Zone:
- Distance to the San Andreas Fault Zone is approximately 0.5 miles away from the site



1 TEST FIT

SCALE: 1" = 60'

combined 1 PROFILE
H: 1" = 20'
V: 1" = 20'

combined 2 PROFILE
H: 1" = 20'
V: 1" = 20'

SHERWOOD DESIGN ENGINEERS
2548 Mission Street
San Francisco, CA 94110
www.sherwoodengineers.com

CLIENT: SIEGEL AND STRAIN

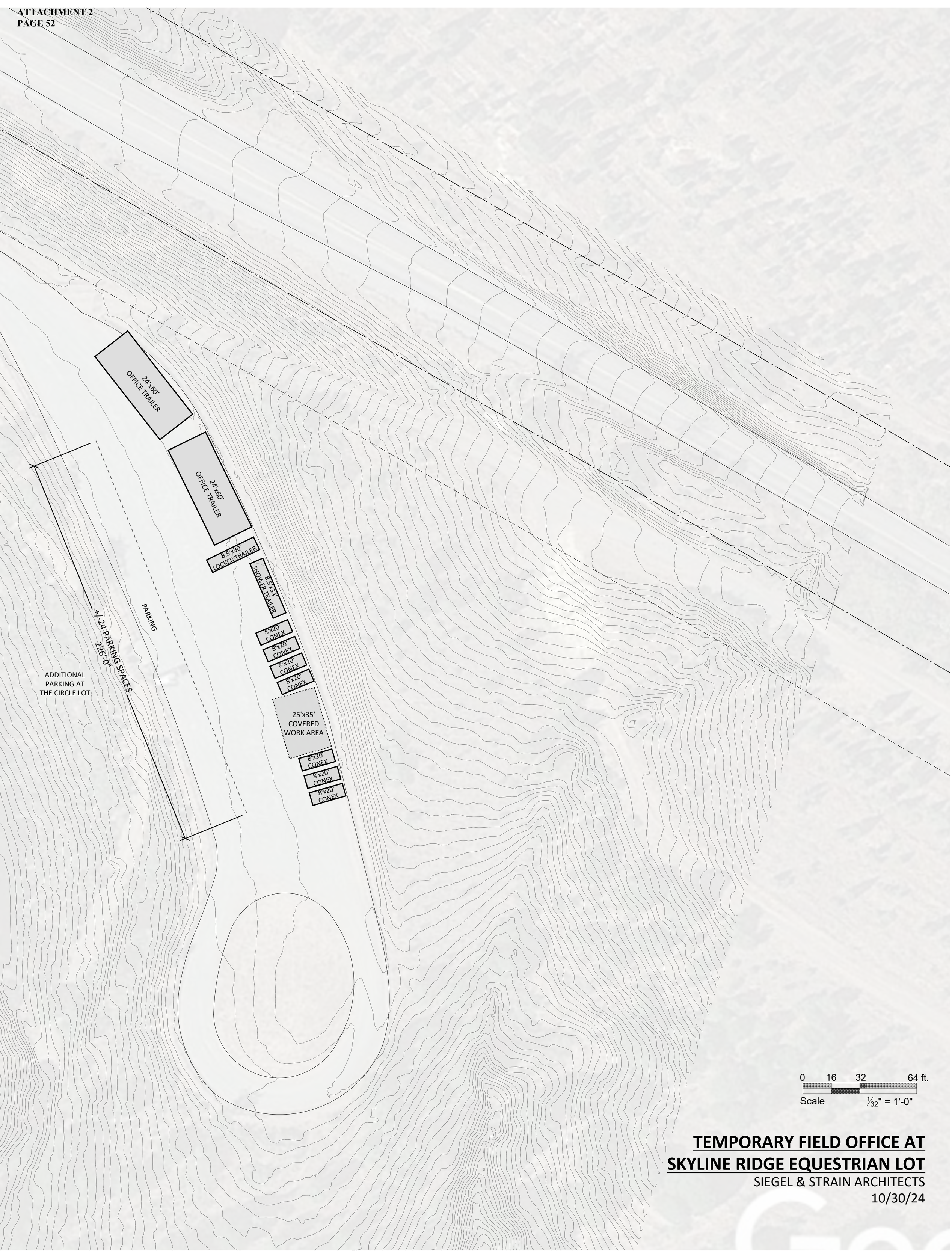
SHERRILL GRADING ANALYSIS

SKYLINE FIELD OFFICE PROJECT
LA HONDA, CA

December 17, 2024

Appendix E

Temporary Facilities Diagram



TEMPORARY FIELD OFFICE AT SKYLINE RIDGE EQUESTRIAN LOT

SIEGEL & STRAIN ARCHITECTS
10/30/24

Appendix F
Preliminary Pricing Narratives

SIEGEL & STRAIN Architects

November 8, 2024 (revised 1/2/25)

Midpeninsula Regional Open Space District

Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative

PROJECT OVERVIEW

Description of Field Office Build-out

The build-out is assumed to include the same major components on any of the three alternative sites, unless otherwise described in the following narrative. See Space Needs Table for additional detail about each space type.

Existing Building Demolition & Relocation

At site alternative 1, there are numerous existing buildings that are currently used for field office operations. While some of these buildings are still in good or usable condition, they are undersized for the needs of SFO and occupy most of the flat, buildable areas on the site. Therefore, all existing buildings and storage structures (approximately 12,300 sf) are proposed for demolition except for the original portion of the (E) stable building. The (E) stable building is approximately 1,400 sf and is intended to be relocated to a relatively flat area of the site approximately 300 ft. southwest of the existing location. An 810 sf covered equipment storage area was added to the east side of the stable and need not be relocated. Farm equipment located west of the existing shop building is to be salvaged and relocated to the same area as the stable building. Existing fuel tanks with 500 gallons of diesel and 100 gallons of gasoline at site alternative 1 near the existing wood shop and Admin building are to be removed – see below for description of possible remediation work to be completed by the District as part of a separate project. As the project progresses into conceptual design and if the existing SFO site is selected as the preferred site, opportunities for deconstruction and material salvage will be explored.

At site alternative 2, the existing +/-115 sf vault toilet is to be demolished.

Site alternative 3 does not include any demolition of existing structures.

Temporary Facilities

Site alternative 1 will require a temporary field office to be established for a duration of 2 years. The location of the temporary field office is assumed to be the Equestrian Lot at Skyline Ridge Open Space Preserve and the cost for establishing a temporary field office with rented office, locker, and shower trailers should be included in this estimate.

Site alternatives 2 and 3 do not require temporary facilities.

Typical at All Buildings

- Ignition resistant exterior materials for wildfire protection, per Chapter 7A of the CBC
- Fire sprinklers throughout
- All-electric systems

Office/Admin Spaces – 5,700 sq ft; single-story, conditioned, wood framed building. Office/Admin spaces include:

- Private offices, shared offices and hoteling desks
- Focus/huddle rooms
- Small and Large Multipurpose rooms that can be divided with a folding partition or combined into a single large meeting room with teleconferencing equipment and power/data connections in the floor
- Natural Resources lab space
- Storage
- Restrooms

Shared Support Spaces (Amenities) – 5,000 sq ft; single-story, conditioned, wood framed building. Shared support spaces include:

- Mudroom
- Male, female, and all-gender locker room spaces with lockers, showers, toilets, lavatories, boot-drying racks, clothes hanging spaces
- Laundry Room with four washers and four dryers
- Kitchen and break room

Shops – 4,950 sq ft interior space and 1,200 sq ft exterior covered work space; single-story, conditioned, pre-engineered metal building. Shop spaces include:

- Main shop with space to pull in District trucks and work benches for repair/maintenance of small equipment and tools. Shop also includes a mechanic's bay for minor auto/equipment repair with vehicle lift.
- Wood shop
- Welding room including storage of chemicals related to welding (oxyacetylene, argon, and carbon-argon)
- Chainsaw room for repair and storage of chainsaws and brushing equipment

Special Storage – 4,200 sq ft; single-story, conditioned, pre-engineered metal warehouse building with heavy-duty storage mezzanine. Special storage items include:

- Patrol Storage (fire protection equipment, ranger patrol supplies, EMS supplies)
- Hazardous materials
- Oil, fuel and paint
- Herbicides
- Seeds and tree protection equipment
- Concrete mixers, cement

- Trail/road barricades and signs
- Tractor parts
- PPE and janitorial supplies
- Hand tools
- Electrical and plumping supplies and parts

Material Stockpile – 6,500 sq ft; unconditioned, three-sided, covered CMU structure for storage of items such as:

- Wood and lumber
- Riprap, base rock, and boulders
- Culvert piping
- Fencing and gates
- Water tanks
- Metal road plates

Equipment Storage – 9,000-10,000 sq ft (see test fits for areas); unconditioned, steel-framed, open-sided covered area for storage of equipment such as:

- Electric bikes and motorcycles
- Mowing tractors and brush mowers
- ATVs
- Excavators and bulldozer
- Tractors
- Trailers

Vehicle Parking & Miscellaneous Outdoor Spaces – area varies, see test fits.
Uncovered parking and other outdoor spaces such as:

- (60) personal vehicle parking spaces and (10) visitor parking spaces
- (60) District vehicle parking spaces
- Fueling station with 2,000 gallon diesel tank and 1,500 gallon gas tank
- Vehicle wash station with seed and contaminant collection system
- EV Charging (refer to Electrical Systems Basis of Design Report for additional details)
- Employee gathering and break areas (refer to Landscape design narrative for additional details)
- Covered space for trash/recycle dumpsters and construction waste dumpsters.

<u>Exclusions</u>

- Rerouting of trails – impacted trails are shown on the plan for reference only.
- Mitigation work associated with developing the following areas:
    - Previously-disturbed areas at the Skyline Field Office site.
    - Previously-disturbed grazing land at the Skyline Ridge Circle Lot which is likely habitat to species such as the San Francisco garter snake, Western pond turtle, Long Eared owl and Red-legged frog.

  - Previously-disturbed Sherrill Winery site and the active Christmas Tree Farm which are likely habitat to species such as Fitch's spikeweed (locally rare), stinkwort Dittrichia graveolens, San Francisco dusky-footed woodrats, and American badger.
- Soil testing and remediation work associated with existing fuel tanks at site alternative 1. Tanks are above ground level, but lack secondary containment walls therefore there may be contaminated soils in the area surrounding the tanks. The design team recommends testing soils near the fuel tanks for contamination and if positive, further testing and remediation will be required. Potential remediation work is excluded from this cost estimate due to the unknown nature of the work.

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MROSD Skyline Field Office

12/19/2024 Design Narrative – Landscape Scope

This narrative was prepared for the purpose of informing the predesign rough order of magnitude cost estimate. Landscape design will begin during the conceptual design phase and will focus on the use of natural materials with rustic techniques and simple organic forms. Landscape improvements will be designed and installed in ecologically sensitive manner, with the goal of integrating with surrounding natural landscape and harmonizing with the aesthetic of the new buildings and the existing infrastructure in the park system. Landscape scope focuses on improving staff (and visitor) experience through pedestrian connections, outdoor gathering areas and furnishings for employees, site fencing and vehicular gates as needed to regulate access. Scope also includes protection and removal of existing trees, reseeding unpaved areas impacted by construction, and limited strategic use of screening trees and shrubs in coordination with Midpeninsula Regional Open Space District.

32 01 91 - Tree Protection and Removal

At the Skyline Field Office site, there are many trees within or near the area of construction activity, including an 84” DBH oak tree to be preserved, and up to (5) 6”, (4) 12”, (2)16” and (1) 24” DBH trees that may need removal. Numerous other smaller trees may need removal and protection. At the Circle Lot site, trees within or near the area of construction impacts are located around existing parking on the north side of the site, and approximately (10-15) 12”DBH and up to (5) 18” trees that would require removal. At the Sherrill site, there are up to (5) mature trees to be protected near the outdoor gathering area, and up to (100) 3-6” trees at the Christmas tree farm that would need to be removed. The final number of trees to be removed and protected will need to be verified based on a precise survey of existing trees at the selected site.

Where perimeter areas near construction activity are wooded, a temporary tree protection fenceline will be installed 15’ offset from direct construction to prevent construction traffic and storage use. Within the construction site, temporary tree protection fencing will be provided for all trees to remain, installed at their dripline. All pruning, branch tie back, tree removal, root pruning, and work within tree protection zone of existing trees will be supervised by certified arborist.

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32 13 13 – Landscape Concrete and Soft Pedestrian Paving Surfaces

Primary pedestrian walkways between buildings, all accessible paths of travel, and accessible employee gathering area will be paved with either pedestrian-grade concrete paving or stabilized decomposed granite paving. The use of permeable concrete and natural paving materials (such as crushed stone) will be studied during design and will be evaluated based on factors such as aesthetics, cost, maintainability, and functionality.

Concrete paving will be colored concrete to complement natural colors found on site. Additional cast-in-place concrete footings, as required for site furnishing footings, will be colored concrete. Concrete curbs will be colored concrete. Concrete elements require compacted base rock suited to local soils. All colored concrete will have natural colors that complement colors found on site. Washed finishes are another alternative that can help concrete elements fit into the natural surroundings.

Soft pedestrian paving surfaces, including non-accessible paths of travel and at employee gathering area will be 3/8" decomposed granite mulch. Where stairs are necessary along decomposed granite paths, they will be achieved with 6x6 eucalyptus treads staked with rebar.

32 31 13 – Site Fencing

At the Circle Lot site, enclose the site in a durable fence with low visual impact. The intent of fencing is to delineate limits of the maintenance facility and visually indicate to visitors that the field office is not a public area, demarking rather than securing the space. The fenceline will generally run along contours and does not exactly follow the area of construction impact. Perimeter fencing may terminate at buildings in some locations, where the structure will act as the demarcation.

Fencing to be a 4' wire mesh infill with steel stake, wood post, or tube steel posts, reinforced at corners and gate openings, or a low split rail fence to match the existing on-site fencing.

Fencing is not required at Skyline Field Office or Sherril sites.

32 31 20 - Miscellaneous Metal work

At the Skyline Field Office site, 2 additional gates are needed in addition to existing front entry gate. At the Circle Lot and Sherrill sites, gates will be installed at the single vehicular points of entry.

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Lockable vehicular access gate (with remote-controlled automatic openers where noted on test fits) will be hot-dip galvanized and painted HSS steel, with embed mounted posts, which will be HSS steel.

32 92 00 – Soil Preparation, Seeding, Tree Planting

Soil preparation, seeding, and planting will be conducted in collaboration with Midpeninsula Regional Open Space District ("District"), with the goal of protecting and restoring the natural environment and providing screening in select locations.

Existing site soil will be tested for suitability of plant growth and contamination. If contaminated areas are discovered, approach to mitigation and removal and any work associated with those materials to be managed, guided, and completed by the District. Areas of construction impact and regrading that are left as bare soil will be seeded with native seed mix. Biofiltration areas to be seeded with native seed mix. Additional plantings, if needed, are to be completed in close coordination with the district. Seed will be broadcast, and the area covered with 2" straw mulch. At the Circle Lot and Sherrill sites, approximately 30 trees will be planted for shade and screening. Non-seed plant materials, including trees, will be sourced from a District-approved, pathogen-free nursery by the District.

32 93 00 – Site Furnishings

Furnishings selected will be suitable for the natural environment setting of both sites, for use by employees. A percentage of site furnishings will be accessible, in compliance with ADA requirements.

Site furnishings will be durable and designed for outdoor use. For the purposes of establishing a rough order of magnitude cost, many elements are assumed to be hot-dip galvanized. The use of other options, like painted steel, untreated steel, or wood will be evaluated during concept design based on factors such as aesthetics, durability, and cost. Benches and picnic tables will be hot-dip galvanized and painted steel and wood or recycled material. Waste receptacles will be hot-dip galvanized and painted steel. Bike racks will be hot-dip galvanized and painted steel circular or U-shaped racks. Benches (one per building entry), picnic tables (two per employee gathering area), waste receptacles (one per employee gathering area and at building entries), and bike racks (10 spaces) will be surface mounted. 25' flagpole will be embed mounted hot-dip galvanized steel. Entry sign to be routed painted wood embed mounted. Shade structure will be embed mounted hot-dip galvanized and painted HSS steel or combination of steel and wood.

A +/-250 sf shade structure will be installed at the Circle Lot site only.

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December 19, 2024

Siegel & Strain

Skyline Field Office

La Honda, CA

Site Alternative Grading and Utility Summary

Site Test Fit Alternative 1: Existing Skyline Field Office Site

The terrain at the existing Skyline Field Office will be largely preserved, although approximately 650 linear feet (LF) of retaining walls with an average height of 5 feet will be necessary to allow the field office programming to fit the site. The well located on-site, according to a yield report dated April 5, 2023, produces 11.5 gallons per minute (GPM), which may be sufficient to meet the proposed field office water demand. To ensure adequate fire and water storage, the existing water tank will need to be replaced with a new 180,000-gallon tank. It is assumed that the existing onsite wastewater disposal system's 210 LF of septic leach fields can be utilized for the proposed Field Office. Additional leach fields and expansion area will be necessary. There is an area adjacent to the existing system that may be able to accommodate this. The proposed field office will require an advanced treatment system

Site Test Fit Alternative 2: Skyline Ridge Circle Lot Site

The preliminary grading assessment indicates that approximately 2 acres of the site will need to be regraded, with fill depths ranging from 2 feet to 4 feet. Additionally, about 700 LF of retaining walls, averaging 3 feet in height, will be required to grade the sloping terrain to accommodate the field office programming. There are no existing water sources on-site. Feasibility of developing a new well onsite or conveying water to the site from the existing well at the Skyline Field Office should be studied. A new 180,000-gallon fire and domestic water storage tank is proposed. Wastewater requires an advanced treatment system at this site. Due to shallow low permeable bedrock traditional septic leach fields may be infeasible so subsurface drip or mound wastewater disposal systems will need to be considered.

Site Test Fit Alternative 3: Sherrill Site

A bench approach to grading can allow the Field Office to fit the sloping topography. This includes 3 – 5.5 feet high retaining walls and grading between levels. The total area to be regraded is approximately 5 acres with average cut fill depths 3 and 5 feet respectively. Further study is necessary to determine if a balance cut and fill is achievable.

There are 2 existing wells on-site. The yield of these wells is unknown and should be tested. A new well may be necessary at the site and the feasibility of conveying water from the well at the existing field office should be studied. A new 180,000-gallon fire and domestic water storage tank is proposed. Wastewater requires an advanced treatment system at this site. Due to shallow low permeable bedrock traditional septic leach fields may be infeasible so subsurface drip or mound wastewater disposal systems will need to be considered.

Midpeninsula Regional Open Space District

Skyline Field Office

Electrical Systems Basis of Design Report

October 16, 2024

Prepared For:

Siegel & Strain Architects

Prepared By:

O'MAHONY & MYER

ELECTRICAL ENGINEERING & LIGHTING DESIGN

SUMMARY

As part of Alternate 1 (Existing Skyline Field Office Site), the existing facility buildings will all be demolished and replaced with new, to meet current and future program requirements, with modern electrical, lighting, and telecom systems.

As part of Alternate 2 (Circle Lot Site), new buildings meeting the same program requirements as Alternate 1 will be constructed, with modern electrical, lighting, and telecom systems.

As part of Alternate 3 (Sherrill site), new buildings meeting the same program requirements as Alternate 1 will be constructed, with modern electrical, lighting, and telecom systems.

For each alternate, the new facilities will be all-electric (no gas or propane). This will entail new electric services, regardless of the chosen site.

All new electrical, lighting, and low voltage systems shall be designed in accordance with all applicable regulations, codes and standards, including the latest edition of the National Electrical Code, State of California Title 24, local Municipal Codes and Regulations, and local PG&E, Comcast, or AT&T Utility Company regulations and requirements.

These shall include, but not be limited to:

2022 California Building Code
2022 California Electric Code
2022 California Energy Code (Title 24, part 6)
2022 California Fire Code
2022 California Green Building Code
Americans with Disabilities Act (ADA)
Utility Company Standards for Power and Telecom as they may relate to new services

ELECTRIC SERVICE

Existing Conditions:

Skyline Field Office (SFO) Site:

The SFO site is served from a 1-Phase, 50 kVA pole mounted PG&E utility transformer with an underground feeder to the Maintenance Garage building. A 1-Phase overhead 12kV PG&E power line traverses the site from North to South, with the transformer pole located in the center of the site.

The electric service is rated at 600 Amps, 120/240V, 1-Phase and is metered on PG&E Smart Meter #1006730518. The service panel and meter are mounted on the exterior of the Maintenance Garage building, at the rear, within site of the pole and transformer.

The service includes a 400A automatic transfer switch and 40 kW propane back-up generator. The back-up generator has been installed in a non-code compliant manner, with the full 600A service rating running through a 400A transfer switch and cabling.

This system will be replaced as part of the Alternate 1 scope option, with a new electric service as described below.

Circle Lot Site:

The circle lot site currently has no electrical power service. If this alternative is chosen, new electric service will be required, as outlined below.

Sherrill Site:

The Sherrill site is served from a 3-Phase, Open-Delta, 30 kVA pole mounted PG&E utility transformer bank, with an overhead PG&E 3-phase, 12kV feeder from the adjacent highway. A 1-Phase overhead PG&E secondary feeder serves two meters.

The first metered panel is adjacent to the transformer pole on a 2nd pole. This metered service is for the on-site well pump and is rated at 100 Amps, 120/240V, 1-Phase on PG&E Smart Meter #1010719619.

The second overhead 1-Phase PG&E extension goes to a residence further to the North/East, outside of the proposed construction area. This service will need to be retained to continue to feed the residence.

New System:

Skyline Field Office (SFO) Site:

Based on the proposed preliminary building layouts, the footprint of several of the new buildings will be under the existing 1-Phase overhead PG&E power lines running through the site. Costs should be carried to underground the existing 1-Phase PG&E line as it transitions the new site plan area from North to South. It can return to overhead routing at the South side of the new site area. Costing would include at least (1) 4" schedule 40 PVC conduit for cables by PG&E, routed from the North side 3-Phase power pole to the South of the new construction area, to another existing PG&E pole.

Due to the all-electric and conditioned portions of the new facility buildings, as well as new EV charger requirements, the new alternative will require a new 3-Phase PG&E electric service. The nearest 3-Phase PG&E service lines are just North of the site, on the South side of Skyline Blvd., where the existing 1-Phase overhead line T's off to go South through the site.

A new underground PG&E primary line extension, with (1) 4" schedule 40 PVC radial feed service conduit, should be provided from the existing 3-Phase pole at the North of the site, and extended into the site to the new service location.

The new service will include a pad mounted utility transformer and (4) 5" underground schedule 40, PVC secondary line extension to a new metered main service switchboard (exact location TBD).

The new service switchboard will be rated 1,200A, 120/208V, 3-Phase, to support at least 20,000sf of new all-electric conditions buildings, as well as EV chargers and additional non-conditioned structures. It should ideally be located inside the Shop building in order to increase its longevity, however it can also be located outdoors in a Nema 3R enclosure.

The pad mounted transformer should be located within 50 circuit feet of the main switchboard, if at all possible.

Circle Lot Site:

As with the SFO site, due to the all-electric and conditioned portions of the new facility buildings, as well as new EV charger requirements, the new alternative will require a new 3-Phase PG&E electric service. The nearest 3-Phase PG&E service lines are on the North side of Skyline Blvd., making a service extension a little more difficult to get to the site. In order to feed this site with new electric service, a new PG&E pole and overhead Street crossing will be required, to get to the South side of Skyline Blvd, adjacent to the proposed site.

A new underground PG&E primary line extension, with (1) 4" schedule 40 PVC radial feed service conduit, should be provided from this new pole, and extended into the new site to the new service location.

The new service will include a pad mounted utility transformer and (4) 5" underground schedule 40, PVC secondary line extension to a new metered main service switchboard (exact location TBD).

The new service switchboard will be rated 1,200A, 120/208V, 3-Phase, to support at least 20,000sf of new all-electric conditions buildings, as well as EV chargers and additional non-conditioned structures. It should ideally be located inside the Shop building in order to increase its longevity. However, it can also be located outdoors in a Nema 3R enclosure (closest to the point of service from PG&E).

The pad mounted transformer should be located within 50 circuit feet of the main switchboard, if at all possible.

Sherrill Site:

As with the SFO site, due to the all-electric and conditioned portions of the new facility buildings, as well as new EV charger requirements, the new alternative will require a new 3-Phase PG&E electric service. This can be taken from the existing overhead 3-Phase PG&E service lines that exist near the well pump area.

The building locations should be chosen to avoid the existing 3-phase incoming overhead line.

Based on the proposed preliminary building layouts, the footprint of one of the new buildings will be under the existing 1-Phase overhead PG&E power lines running further North to the residence. Costs should be carried to underground the existing 1-Phase PG&E secondary line as it transitions the new site plan area from North. It can return to overhead routing past the new project area. Costing would include at least (1) 4" schedule 40 PVC conduit for cables by PG&E, routed from the existing pole to the north of the new construction area, to another existing PG&E pole.

For the new buildings, a new underground PG&E primary line extension, with (1) 4" schedule 40 PVC radial feed service conduit, should be provided from a riser at the 3-Phase pole, and extended into the site to the new service location.

The new service will include a pad mounted utility transformer and (4) 5" underground schedule 40, PVC secondary line extension to a new metered main service switchboard (exact location TBD).

The new service switchboard will be rated 1,200A, 120/208V, 3-Phase, to support at least 20,000sf of new all-electric conditions buildings, as well as EV chargers and additional non-conditioned structures. It should ideally be located inside the Admin building (closest to the point of service from PG&E) in order to increase its longevity. However, it can also be located outdoors in a Nema 3R enclosure at the same Southern portion of the site (closest to the point of service from PG&E).

The pad mounted transformer should be located within 50 circuit feet of the main switchboard, if at all possible.

BACK_UP POWER SYSTEM

All three alternative options should include a new back-up power generator system, tied to the new electric service with an automatic transfer switch for full facility back-up.

The generator can be either diesel powered with a belly tank, or propane powered from a local propane tank source.

Preliminary costing should include a 200 kW, 120/208V, 3-Phase generator, with a 1,200A fully rated transfer switch connected after the main service disconnect, for full facility back-up.

For the diesel fuel option, the belly tank should be at least 700 gallons, to allow for 48 hours of back-up at 100% load (longer at less than 100% load).

PHOTOVOLTAIC SYSTEM (PV)

All three alternative options should include a new solar photovoltaic power system.

Assuming +/- 20,000sf of new construction conditioned floor area, the new project will require a minimum of 52 kW system to be included (as required by code for new office spaces).

The system can be roof mounted on south facing roofs or ground mounted, facing south. A 52 kW system will require roughly 3,800sf of roof or ground mount array area.

The system shall be interconnected to the new electric service and the optional battery system, as described below.

BATTERY ENERGY STORAGE SYSTEM (BESS)

All three alternative options should include a new battery energy storage power system.

Assuming +/- 20,000sf of new construction conditioned floor area, the new project will require a minimum of 22 kW / 92 kWh system size to be included (as required by code for new office spaces).

The system equipment (battery and inverter) should be pad mounted and located outdoors, at least 3 feet from the side of any building or structure.

The system shall be interconnected to the new electric service and the photovoltaic system, as described above.

As an alternate pricing option, and to simplify the overall electrical system costs and complexity, as well as life cycle cost for battery maintenance, the project can pursue not installing a battery system. If the performance approach to energy compliance is used, then the energy model for the facility can include additional PV (above the minimum 40 kW required) and no battery system, to provide a compliance model in the performance approach. This typically can require about a factor of 2 for the PV system, so approximately 80 kW system (6,000sf area) instead of the 40 kW system.

This alternate compliance method and final PV system size is completely dependent on the overall efficiency of overall project (for envelope, mechanical, lighting, and equipment).

BRANCH POWER SYSTEMS

Applies to all three alternative options.

All new branch power systems shall be included throughout the new facility, to include branch panels in each building (fed from the main service switchboard).

All new feeders shall be underground between buildings.

All new wiring systems shall be conductors in conduit (no Romex or MC cable).

Misc. loads to assume for pricing shall include:

1. Convenience receptacles throughout.
2. LED lighting.
3. Electric water heaters.
4. All-electric mechanical equipment.
5. Misc. shop equipment power (i.e. welders, electric tools, washer/dryer, air comp).
6. Restroom electric hand dryers.
7. EV charger pedestals. Based on 130 parking stalls, provide (6) level 2 standard 7kW chargers, with electrical capacity for 19 future chargers (to meet CalGreen code requirements).
8. Kitchenette equipment (dishwasher, refrigerator, disposal, microwave).

LIGHTING SYSTEMS

Applies to all three alternative options.

All new lighting, both interior and exterior, shall be high efficiency LED sources. The lighting systems shall be designed in accordance with California Title 24, Part 6, architectural design criteria, and the recommendations of The Illuminating Engineering Society (IES) of North America.

All exterior lighting shall be dark-sky compliant, low glare, sharp-cutoff type, to meet Title 24 requirements.

LIGHTING CONTROLS

Applies to all three alternative options.

Multiple switching zones and dimming shall be provided for flexibility in lighting levels to accommodate various space needs (with dimming and daylight controls, per CA Title 24 requirements).

All spaces shall utilize wall or ceiling mounted dual technology (infrared and ultra-sound) digital occupancy motion sensors and daylight photo sensors to provide Title 24 required automatic lighting shut-off. These areas will not require any other connection to a central time clock or lighting control system. Each space shall be provided with local digital dimmers and lighting system digital room controllers to allow for local and Title 24 required control.

Other small offices, storage, single restrooms, and misc. use rooms (250sf and smaller) shall be provided with wall switch type occupancy sensors with dual level control per Title 24.

All exterior lighting shall be fed from an astro-dial timeclock for automatic control per CA Title 24 requirements.

EMERGENCY LIGHTING

Applies to all three alternative options.

Emergency lighting shall be provided at all required paths of egress, through selected normal area lighting fixtures on a back-up power supply with UL 924 listed control modules.

The back-up power shall be provided from a central battery back-up Inverter located at the new electric rooms, to provide 90 minutes of power back-up in the event of a normal power system failure.

Exit signs shall be provided to identify all paths of egress, as required by code. All exit signs shall be LED style with cast aluminum housings and provided with emergency power back-up from the Inverter described above.

DATA / VOICE SYSTEM

Applies to all three alternative options.

Each site shall be provided with new telecom broadband utility service from Skyline Blvd. New underground service shall include (2) 2” schedule 40 PVC underground service conduits (to allow for dual utility providers), to a new telecom backboard and MPOE in the Admin Office area.

New voice and data system infrastructure shall support voice over copper, as well as Voice over IP capabilities. Data system transmissions will be rated to handle up to 10GB data communications over 50-micron multi-mode and/or single mode fiber, with Category 6A UTP rated copper station cabling for all local wall and wi-fi jack connections.

All wi-fi equipment shall be POE (power over Ethernet) and will not require additional electrical outlets adjacent to the jack locations.

The Open Space District will furnish all active components, including hubs, routers, switches, servers, wi-fi routers, and the connection and configuration of the computers and telephone hand-sets to the voice/data system wiring infrastructure.

The entire new voice/data system infrastructure shall be installed and tested to meet EIA/TIA Category 6A UTP requirements.

New individual voice/data outlets and Category 6A station cables shall be routed from each voice/data jack location to the new telecom MPOE. All station cables to be terminated on modular Category 6A patch panels for cross-connecting to the network systems.

All data cabling to run in conduit (within walls) or above accessible ceilings on j-hangars (in concealed areas). Minimum 1" conduits to be provided from wall boxes up to nearest accessible ceilings with bushed ends.

Conduit to be provided to bridge any inaccessible locations and between spaces and buildings.

FIRE ALARM SYSTEM

Applies to all three alternative options.

Depending on the building occupancy of each structure, a fire alarm system may not be required by code. At minimum, for any sprinklered buildings, a sprinkler monitoring panel will be required.

If a fire alarm system is to be included in the scope of work, the new system would include off-site monitoring of alarm conditions and would monitor sprinkler water flow, as well as ceiling mounted smoke detectors in selected areas.

Alarm notification devices would include horn/strobe devices throughout the common areas.

Duct smoke detectors would be provided for automatic HVAC unit shut-down for any HVAC units that provide more than 2,000 cfm of air into a space.

All new Fire Alarm System components should be State and Local Fire Marshal approved. All notification wiring should be Class B throughout, with full emergency battery backup as required by code.

Appendix G
Geotechnical Desktop Study

REVISED REPORT ON

GEOTECHNICAL DESKTOP STUDY
MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE FIELD OFFICE RENOVATION PROJECT
LA HONDA, CALIFORNIA

by
Haley & Aldrich, Inc.
San Jose, California

for
Siegel & Strain Architects
Emeryville, California

File No. 0210523-000
January 2025

01 January 2025
File No. 0210523-000

Siegel & Strain Architects
6201 Doyle Street, Suite B
Emeryville, California 94608

Attention: Laura Levenberg, AIA, LEED BD+C
Associate

Subject: Geotechnical Desktop Study
Midpeninsula Regional Open Space District - Skyline Field Office Renovation Project
Skyline Field Office, Skyline Ridge Parking Area, and Sherrill Site
La Honda, California

Dear Laura Levenberg:

Haley & Aldrich, Inc. (Haley & Aldrich) is pleased to submit this Revised Geotechnical Desktop Study to support the Skyline Field Office Renovation Project in La Honda, California. Our study included reviewing available geotechnical and geological data and preparing this revised report.

Haley & Aldrich appreciates the opportunity to submit this report. If you have questions concerning the information provided herein, please do not hesitate to contact us.

Sincerely,
HALEY & ALDRICH, INC.

Kevin Loeb, P.G., C.E.G.
Engineering Geologist / Sr. Project Manager

Dan Peluso, P.E., G.E.
Principal Geotechnical Engineer

SIGNATURE PAGE FOR

REVISED REPORT ON
GEOTECHNICAL DESKTOP STUDY
MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
SKYLINE FIELD OFFICE RENOVATION PROJECT
LA HONDA, CALIFORNIA

PREPARED FOR
SIEGEL & STRAIN ARCHITECTS
EMERYVILLE, CALIFORNIA

PREPARED BY:

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Haley & Aldrich, Inc.

REVIEWED AND APPROVED BY:

Dan Peluso, P.E. 49562, G.E. 2367
Principal Geotechnical Engineer
Haley & Aldrich, Inc.

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1. Introduction

1.1 GENERAL

Haley & Aldrich, has provided preliminary geotechnical design services to Siegel & Strain Architects (Siegel & Strain) for the Skyline Field Office Renovation Project, located in La Honda, California (Figure 1). The work has been completed to provide regional geologic and soil engineering data and preliminary geotechnical recommendations for the siting and design of the new Midpeninsula Regional Open Space District (Midpen) field office.

1.2 PROJECT AND SITE DESCRIPTIONS

Midpen is planning to renovate its existing Skyline Field Office at one of three sites. The first site being considered (Site 1) is their existing Skyline Field Office site located at 21150 Skyline Boulevard in La Honda, California; the second site being considered (Site 2) is the Skyline Ridge Parking Area, located approximately 0.5 miles east of Site 1; and the third site being considered (Site 3) is the Sherrill Site, located just northeast of Site 2 (across Skyline Boulevard). The office building and associated structures have not been designed yet and proposed building locations are unknown. Haley & Aldrich is supporting Siegel & Strain in their continuing efforts by reviewing geologic conditions for each site and providing preliminary guidance with respect to geotechnical design considerations.

Site descriptions for the three alternative site locations are described in the following sections. Elevations noted in this report are referenced to the North American Vertical Datum 1988 **(NAVD88).**

1.2.1 Site 1: Existing Skyline Field Office

Site 1 is located at 21150 Skyline Boulevard in La Honda, California (Figure 2A). The site is currently occupied by the existing Skyline Field Office building along with various other site structures and paved access roads. The developed areas are concentrated at higher elevations along graded hilltops and ridges. Undeveloped portions of the site consist of steep, densely vegetated slopes with a mostly north-northeastern aspect. Much of the site topography is shaped by erosional gullies that drain surface water to the north and northeast. Site elevations range from approximately 2,190 to 2,345 feet above sea level. Natural slope inclinations range from 10° to 22°.

The proposed layout of the office building at Site 1 was not provided.

1.2.2 Site 2: Skyline Ridge Parking Area

Site 2 is located along the southwest side of Skyline Boulevard, approximately 0.5 miles east of Site 1 (Figure 2B). The site consists of grassy, rolling topography that generally slopes to the southwest. Multiple erosional gullying features that drain surface water to the southwest extend into the project area and result in steeper topography and increased vegetated areas. The site is mostly vacant except for gravel roads and parking areas for trail access that run along the northeastern end of the site and on-site ridges. Site elevations range from approximately 2,030 to 2,125 feet above sea level. Natural slope inclinations range from 3° to 22°.

The proposed layout of the office building at Site 2 was not provided.

1.2.3 Site 3: Sherrill Site

Site 3 is located on a ridge along the northeast side of Skyline Boulevard, directly northeast of Site 2 (Figure 2C). The site consists of grassy, rolling topography that generally slopes to the northeast and northwest. Multiple erosional gullying features that drain surface water to the northeast and northwest extend into the project area and result in steeper topography and increased vegetated areas along the northern boundary of the site. The site is currently occupied by rows of Christmas trees and a series of gravel roads for access most of the site. Site elevations range from approximately 2,045 to 2,177 feet above sea level. Natural slope inclinations range from 2° to 23°.

The proposed layout of the office building at Site 3 was not provided.

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this memorandum is to summarize the geotechnical data reviewed for our desktop study and to provide preliminary geotechnical design guidance for the proposed improvements.

The scope of work completed for this preliminary geotechnical design memorandum included the following:

1. Completion of an office study of available and relevant geologic and geotechnical information for the sites, including published geologic maps, soil maps, and fault maps.
2. Provide recommendations for additional geotechnical studies to provide design-level recommendations.
3. Preparation of this geotechnical desktop study memorandum.

2. Geologic Setting

2.1 REGIONAL SETTING

The project site lies in the Santa Cruz Mountains, within the Coast Ranges geomorphic province of California (Figure 1). This province is characterized by northwest-southeast trending mountain ranges and intervening valleys. The Santa Cruz Mountains are one such range, marking a mountain-range scale regional uplift southwest of the San Andreas fault, which is located approximately 0.8 miles northeast of Site 1, 0.4 miles northeast of Site 2, and 0.2 miles northeast of Site 3. This mountain range consists of steep terrain shaped by actively incised rivers and creeks, such as Lambert and Stevens Creeks, which commonly result in landsliding along the channel slopes.

2.2 SITE GEOLOGY

The geologic setting is shown in Figure 3. The distribution of geologic materials in the site vicinity has much to do with tectonic uplift and folding associated with the nearby San Andreas fault system.

The general vicinity of the proposed sites has been mapped several times, with geologic mapping having different emphases, including but not limited to Brabb and others (1998; 2000), Graymer and others (2006), and Dibblee and Minch (2007).

2.2.1 Site 1: Existing Skyline Field Office

Regional geologic mapping by Dibblee and Minch (2007) shows the project site to be underlain by a geologic contact between Vaqueros Formation sandstone and Lambert shale (both early Miocene and Oligocene in age; Figure 3). The contact between these two units runs parallel to Skyline Boulevard and is located along the central portion of the site. The Vaqueros Formation sandstone, which is mapped as underlying the northeastern part of the site is generally described as light gray, fine- to medium-grained arkosic sandstone that is interbedded with mudstone and shale (Brabb and others, 2000; Dibblee and Minch, 2007). The Lambert Shale, which is mapped as underlying the southwestern part of the site is generally described as gray to dark brown, semi-siliceous, shale, claystone, or mudstone that weathers chalky white (Dibblee and Minch, 2007). Bedding in the site vicinity regionally dips northeast at inclinations ranging from 55° to 60° (Dibblee and Minch, 2007).

2.2.2 Site 2: Skyline Ridge Parking Area

Bedrock underlying site 2 is mapped by Dibblee and Minch (2007) as Lambert shale, which was described in Section 2.2.1. Areas immediately north and south of the project site are mapped by Brabb and others (2000) as being underlain by Vaqueros Formation sandstone, which is also described in Section 2.2.1. Bedding in the site vicinity regionally dips northeast at inclinations ranging from 50° to 60° (Dibblee and Minch, 2007).

2.2.3 Site 3: Sherrill Site

Regional geologic mapping by Dibblee and Minch (2007) shows the project site to be underlain by a Lambert shale and Vaqueros Formation sandstone, which are both described in Section 2.2.1. In this area, the Lambert shale is mapped along a northwest trending hinge line of a syncline fold in the central

portion of the site. The Vaqueros Formation sandstone underlies the Lambert shale and is mapped in the southwestern and northeastern portions of the site. Due to the synclinal structure, sedimentary beds beneath the southwestern part of the site dip to the northeast at about 50° to 55°, and sedimentary beds beneath the northwestern part of the site dip to the southwest at about 40° to 48°

2.3 SURFICIAL SOILS

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Soil Survey was reviewed for the project area. The soil survey identifies general shallow soil materials that may be encountered within the upper few feet. The attached Figure 4 shows the NRCS soil survey map for the project sites. Soil descriptions for each site are listed below, and additional information on site soils is included in Appendix A. Given the development of some parts of Site 1, the influence of the native soils has been obscured by grading and imported fill in those areas.

2.3.1 Site 1: Existing Skyline Field Office

The following soils are mapped within the Site 1 project area and are listed in order with the soils covering the majority of the property listed first:

- The "Felton Fine Sandy Loam, 30 to 50 percent slopes." This map unit (525 and 525scl) is described as "slope alluvium derived from siltstone" on hillslope and mountain slope settings. In a natural state, these soils would be "well-drained," and overly a bedrock contact approximately 75 to 77 inches below the ground surface.
- The "Hugo and Josephine Sandy Loams, steep and eroded slopes." This map unit (HyE2) is described as having a parent material of sandstone and shale and is on mountain slope settings. In a natural state, these soils would be "well-drained."
- The "Ben Lomond Gravelly Sandy Loam, 15 to 30 percent slopes." This map unit (516 and 516scl) is described as "residuum weathered from sandstone" on mountain slopes. In their natural state, these soils would be "well-drained," and overly a bedrock contact approximately 47 to 51 inches below the ground surface.
- The "Lobitos silty Loam, moderately steep, eroded slopes." This map unit (LID2) is described as having a parent material of shale and is on mountain slope settings. In a natural state, these soils would be "well-drained," and overly an unweathered bedrock contact approximately 34 to 38 inches below the ground surface.

2.3.2 Site 2: Skyline Ridge Parking Area

The following soils are mapped within the Site 2 project area and are listed in order with the soils covering the majority of the property listed first:

- The "Aptos Loam, 15 to 30 percent slopes." This map unit (530scl) is described as "residuum weathered from mudstone" on mountain slope settings. In a natural state, these soils would be "well-drained," and overly a bedrock contact approximately 28 to 59 inches below the ground surface.
- The "Rough Broken Land" This map unit (Rb) is described as having a parent material of basalt, sandstone, shale, and granite" on hillslope settings. In a natural state, these soils would be "excessively drained" and range from 0 to 10 inches in thickness over "unweathered bedrock".

- The "Lobitos Fine Sandy Loam, steep, eroded slopes." This map unit (LfD2) is described as having a parent material of shale and is on mountain slope settings. In a natural state, these soils would be "well-drained," and overly a bedrock contact approximately 34 to 38 inches below the ground surface.

2.3.3 Site 3: Sherrill Site

The following soils are mapped within the Site 3 project area and are listed in order with the soils covering the majority of the property listed first:

- The "Aptos Loam, 15 to 30 percent slopes." This map unit (530 and 530scl) is described as "residuum weathered from mudstone" on mountain slope settings. In a natural state, these soils would be "well-drained," and overly a bedrock contact approximately 28 to 59 inches below the ground surface.
- The "Ben Lomond-Casrock complex, 30 to 50 percent slopes." This map unit (517) is described as "residuum weathered from sandstone" and is on mountain slope settings. In a natural state, these soils would be "well-drained," and overly a bedrock contact approximately 47 to 51 inches below the ground surface.
- The "Felton Fine Sandy Loam, 30 to 50 percent slopes." This map unit (525) is described as "slope alluvium derived from siltstone" on hillslope and mountain slope settings. In a natural state, these soils would be "well-drained," and overly a bedrock contact approximately 75 to 77 inches below the ground surface.

2.4 REGIONAL GROUNDWATER

We did not find site-specific groundwater level data for the sites. Groundwater within the hillslope areas encompassing the sites is likely variable, with the water table commonly sloping downhill toward the closest drainage axis.

2.5 SEISMICITY

The project sites are located within the greater San Francisco Bay Area, which is recognized as one of California's more seismically active regions. The seismic activity in this region results from the complex movements along the transform boundary between the Pacific Plate and the North American Plate. Along this transform boundary, the Pacific Plate is slowly moving to the northwest relative to the more stable North American Plate at approximately 40 mm/yr in the Bay Area (Page, 1992). The differential movements between the two crustal plates caused the formation of a series of active fault systems within the transform boundary. The transform boundary between the two plates extends across a broad zone of the North American Plate, within which right-lateral strike-slip faulting predominates. In this broad transform boundary, the San Andreas fault accommodates less than half of the average total relative plate motion. Much of the remainder of the motion in the North Bay Area is distributed across faults such as the Rodgers Creek, Hayward, and West Napa fault zones.

Due to the sites being located in the seismically active San Francisco Bay Area, they will likely experience strong ground shaking from a large (Moment Magnitude [Mw] 6.7) or greater earthquake along with one or more of the nearby active faults during the design lifetime of the project (WGCEP, 2003). It should be noted that the third Uniform California Earthquake Rupture Forecast (UCERF3) time-

independent model supports a magnitude-dependent methodology that accounts for historic open intervals on faults without a date of last event constraint. The exact factors influencing differences between UCERF2 and UCERF3 vary throughout the region and depend on evaluating specific seismogenic sources. For example, with the 30 yr M≥6.7 probabilities, the most significant changes from UCERF2 are a threefold increase on the Calaveras fault and a threefold decrease on the San Jacinto fault. The model also suggests that the average time between 6.7 Mw or larger events has increased. The UCERF3 model indicates that M≥6.7 probabilities may not represent other hazard or loss measures. The applicability of UCERF3 should be evaluated on a case-by-case basis if required during site-specific ground motion analyses or at the behest of the regulatory agencies (WGCEP, 2014).

Some contributors to seismic risk for the project include the San Andreas, Hayward, Calaveras, Monte Vista-Shannon, San Gregorio, and Sargent zones. A large-magnitude earthquake on any of these fault systems has the potential to cause significant ground shaking in the vicinity of the sites. The intensity of ground shaking likely to occur in the area generally depends upon the earthquake's magnitude and the distance to the epicenter.

2.6 GEOHAZARD MAPPING

2.6.1 Active Faulting and Fault Rupture

According to the California Geological Survey (CGS; 2018), a Holocene-active fault is defined as a fault that has had surface displacement within Holocene time (the last 11,700 years), and a pre-Holocene fault is defined as a fault whose recency of past movement is older than 11,700 years. The Alquist-Priolo Earthquake Fault Zoning Act only addresses the hazard of surface fault rupture for Holocene-active faults. However, pre-Holocene-active faults may also have the potential for future surface fault rupture (CGS, 2018). The Alquist-Priolo Earthquake Fault Zoning Act's primary purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. Before a new project is permitted, cities and counties require a geologic investigation to demonstrate that proposed buildings will not be constructed on active faults. According to the California Geological Survey (CGS) (2005), the project sites are not located within an Alquist-Priolo Earthquake Fault Zone. Site 3 is located approximately 0.1 miles southwest of the Alquist-Priolo Earthquake Fault Zone for the San Andreas fault.

According to the United States Geological Survey's (USGS) Quaternary Fault and Fold database, no active faults are mapped as crossing the project sites (Figure 5).

San Mateo County has developed a *Planning and Building Map viewer* that shows seismic hazard zones throughout the county. The County's hazard map also does not show active faults mapped as crossing through the project sites.

2.6.2 Liquefaction Hazards

Witter and others (2006) have generated a map showing liquefaction susceptibility for the San Francisco Bay Area with a 5-class scale that includes very low (essentially bedrock areas), low, moderate, high, and very high liquefaction susceptibility classes. Due to the presence of shallow bedrock, and the absence of mapped saturated alluvial soils, the site areas are documented as having a very low liquefaction susceptibility (Witter and others, 2006).

2.6.3 Landslide Hazards

The hillslopes in the regional vicinity are known for having shallow surficial debris slides and flows as well as large, deep-seated landslides (CGS, 2005b; Figure 6). These small and large landslides occur in most geologic units within the Mindego Hill 7.5-Minute Quadrangle, but are especially common in the Lambert shale, one of the two bedrock units that underlies both project sites (CGS, 2005b). Many of these landslides have been mapped by others and have been compiled and re-evaluated by the California Geological Survey (CGS) to develop a landslide inventory map for parts of the Mindego Hill 7.5-Minute Quadrangle. The CGS landslide inventory map classifies landsides in part by age: *Active/Historic, Dormant Young, Dormant Mature, Dormant Old/Relict, or Dormant Age Not Specified*. Mapped landslides are also classified according to confidence of interpretation: *definite, probable, or questionable*. Some of the landslides were mapped based on aerial imagery and LiDAR, without field confirmation, and this is reflected in the confidence rating. According to the California Geological Survey's landslide inventory map, there are no mapped landslides within the proposed project Sites 1 and 2; however, the upper limit of a mapped landslide scarp slightly extends into the northern end of the project site (Figure 6). This scarp feature is documented as showing evidence of recent/historic movement with definite confidence level (CGS, 2005b).

The CGS (2005a) also prepared *Seismic Hazard Zone Maps* for the Mindego Hill 7.5 Minute Quadrangle, which outlines areas where landslides may occur during a strong earthquake (*Earthquake-Induced Landslide Zones)*. According to this map, the slopes in the central and eastern portions of Site 1 are mapped as *Earthquake-Induced Landslide Zones*. The majority of Site 2 is not mapped as *Earthquake-Induced Landslide Zones,* except for an over-steepened gully near the southeastern portion of the site. The majority of Site 3 is also not mapped as *Earthquake-Induced Landslide Zones,* except for the over-steepened slopes along the northeastern and northwestern portions of the site.

San Mateo County's *Planning and Building Map viewer* also maps *Landslide Zones*, which appear to align with the same zones mapped by CGS (2005a).

2.7 REVIEW OF PREVIOUS INVESTIGATIONS (SITE 1)

Milstone Geotechnical (Milstone) previously prepared a Geotechnical Investigation Report, dated 30 March 1994, for the existing Skyline Field Office. Milstone's investigation consisted of drilling three soil borings in the area of the previously proposed field office, which at the time appeared to have been located near the central portion of the site. The exact boring locations are unclear as coordinates for the borings were not provided; therefore, we did not include the previous boring locations in Figure 2A. The borings were drilled to depths ranging from 2.4 to 12.3 feet below the ground surface using hand auger and solid flight drilling methods. Materials encountered in the borings consisted of the three geologic units listed below from top to bottom. Groundwater was not encountered in the borings by Milstone.

<u>Colluvium</u>

Approximately 1.5 to 3.5 feet of colluvium (hillslope sediments) was encountered in all three borings and was logged as dark brown to very dark grayish brown, moist, medium dense clayey sand and medium stiff to stiff sandy clay and silty clay with some gravel.

Weathered Bedrock

Weathered bedrock consisting of very stiff, high plasticity silty clay was encountered in one of the borings from 3.5 to 4 feet below the ground surface.

Lambert shale bedrock

Bedrock was encountered in all three borings at depths ranging from 1.5 to 4 feet below the ground surface. The bedrock was documented as light yellowish brown, very dense to hard, highly fractured, deeply weathered siltstone of the Lambert Shale Formation.

In addition to the geotechnical investigation, Milstone prepared a Construction Observation Letter, dated 11 April 1997. This letter includes field density test results and tabulated pier observations, which show that pier depths ranged from 8 to 12 feet below the ground surface.

For more details on the previous investigations by Milstone (1994; 1997), the Geotechnical Investigation Report is included in Appendix B, and the Construction Observation Letter is included in Appendix C.

3. Discussion, Conclusions, and Recommendations

3.1 GENERAL

The findings of our desktop study show that all three sites have similar geologic conditions (e.g., shallow sedimentary bedrock and thin colluvial slopes) and are likely to be suitable for the design and construction of a new field office building. The sites are also likely to experience similar seismic loading during future seismic events. Depending on the final location of the new field office, portions of Sites 2 and 3 will likely require more grading than Site 1 during construction, as Site 1 is currently partially developed and has undergone some grading. However, natural, undeveloped slopes on Sites 2 and 3 are gentler and will likely result in fewer siting limitations.

The primary geologic and geotechnical considerations for the design of the field office and structures include the following:

- Landsliding
- Excavatability of subsurface materials
- Shoring and dewatering
- Settlement
- Expansive Soils
- Effects of seismic loading
- Corrosion Potential

3.2 LANDSLIDING

Depending on the final location of the office building footprint, slope stability may need to be evaluated for the selected site.

3.3 EXCAVATABILITY

Excavation depths for the proposed improvements and associated utilities are currently unknown. Based on our review of available regional geologic maps, we anticipate that an appropriately sized backhoe and/or excavator will be capable of excavating within the colluvial soils and weathered bedrock. However, increased effort to excavate may be required where bedrock is less weathered and fractured.

3.4 SHORING DESIGN AND DEWATERING

The sides of vertical excavations deeper than 5 feet, such as underground utility trenches, are anticipated to require shoring. Conventional shoring systems comprised of speed shores or trench boxes may be required. Although unlikely for the three sites, if high groundwater is encountered, especially during the Winter and Spring seasons, the excavation may need to be dewatered for construction and compaction of trench backfill materials. The impact of elevated groundwater conditions on temporary shoring can be mitigated by implementing contractor-designed dewatering measures and designing the shoring to be watertight and to account for the loading imposed by the groundwater. For shoring design, the Caltrans Trenching and Shoring Manual and FHWA GEC No. 4 should be used.

3.5 SETTLEMENT OF STRUCTURES

Settlement of the proposed improvements and engineered fill depends on several factors, including structural loads, consolidation of compressible materials below the structures, and relative compaction of backfill placed within excavations. The potential for settlement of proposed improvements should be assessed during a site-specific geotechnical investigation of the project.

3.6 EXPANSIVE SOILS

Site soils should be evaluated for expansive properties due to the sites being underlain by sedimentary bedrock that may weather to high plasticity clays. High plasticity clays were encountered in one of the borings performed at Site 1 by Milstone (1994).

3.7 SEISMIC LOADING

New structures must consider the effects of strong ground shaking due to major earthquakes in the final design.

3.8 CORROSION

Corrosion testing is recommended if metal or concrete material will be used.

4. Geotechnical Investigation

Once the final site is selected, a site-specific geotechnical investigation is recommended to address the above-listed geological and geotechnical considerations. The proposed field has not yet been designed. However, it is anticipated that the geotechnical investigation will include the following:

- Exploratory borings drilled 5 to 10 feet into bedrock (estimated 10 to 20 below the ground surface) to characterize subsurface materials and confirm groundwater conditions in the vicinity of the proposed improvements.
- Perform laboratory testing on selected soil samples for engineering properties and corrosion potential.
- Engineering analysis of the information obtained during the subsurface exploration program to establish the foundation design parameters for the planned improvements.
- Prepare a geotechnical design report to provide geotechnical design recommendations for the design and construction of the planned improvements.

5. Limitations

The findings and conclusions of this report are based upon information provided to us regarding the proposed site locations, subsurface conditions represented in the references cited, the interpretation and analysis of the available information, and professional judgment.

The evaluation or identification of the potential presence of contaminated soil or groundwater at the sites was not requested and was beyond the scope of this desktop study.

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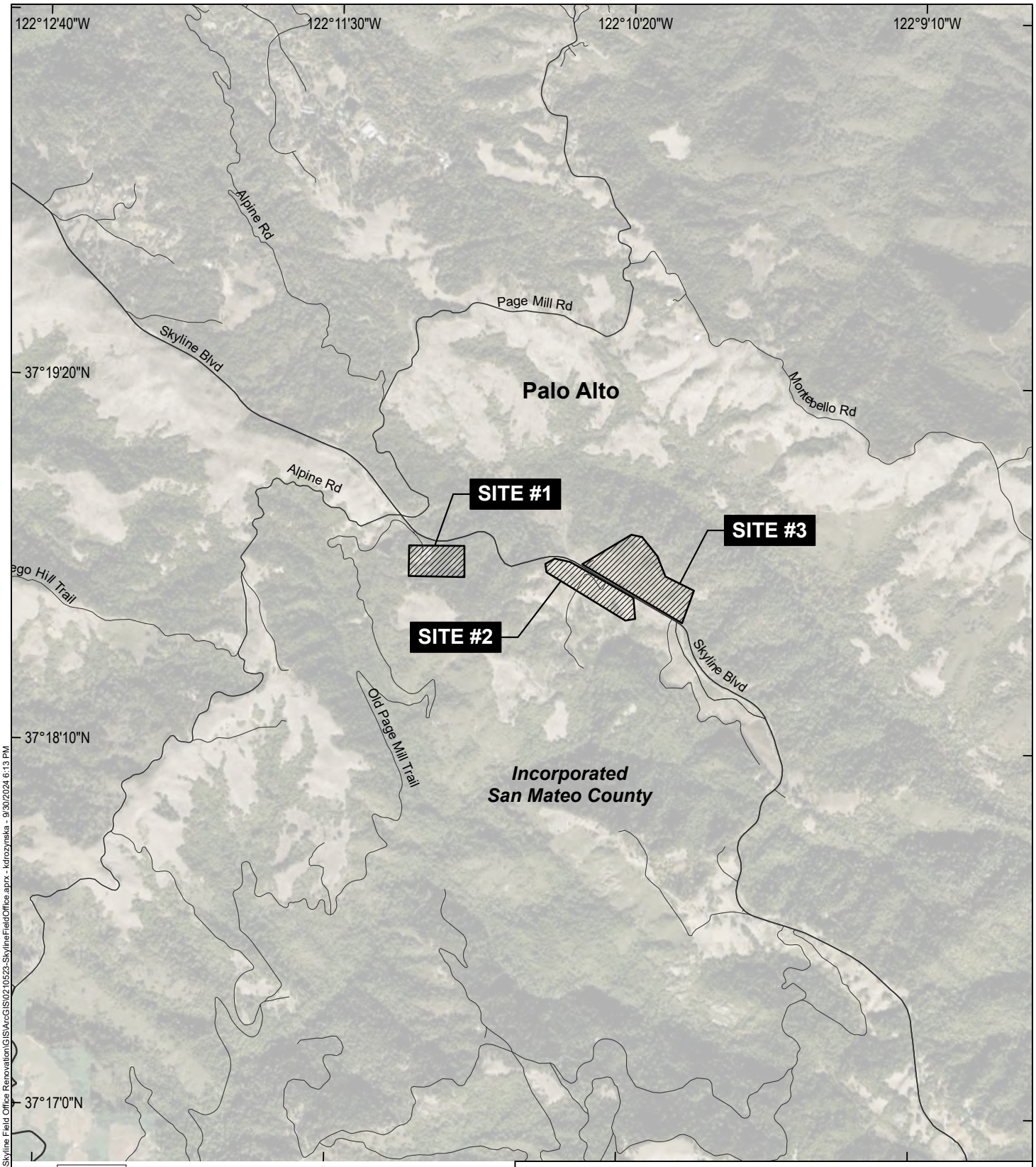
FIGURES



MAP SOURCE: ESRI
SITE COORDINATES: 37°18'47"N, 122°10'47"W

HALEY ALDRICH

SKYLINE FIELD OFFICE RENOVATION PROJECT
SKYLINE FIELD OFFICE & SKYLINE RIDGE PARKING AREA
LA HONDA, CALIFORNIA

SITE LOCATION MAP

APPROXIMATE SCALE: 1 IN = 0.5 MILE
OCTOBER 2024

FIGURE 1

GIS: \\haleyaldrich.com\share\granite\20241021\0523-Skyline Field Office Renovation\GIS\ArcGIS\021\0523-SkylineFieldOffice.aprx - kdrozynska - 9/30/2024 6:13 PM

LEGEND

PROPERTY LINES

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. CONTOURS DERIVED FROM NOAA 2020 LIDAR DEM: SANTA CLARA COUNTY (NAVD88).

3. PARCELS LINES FROM SAN MATEO COUNTY GIS ENTERPRISE DATA, ACCESSED ONLINE ON 1/19/2024.

4. ORTHOIMAGERY FROM NEARMAP, DATED 6/14/2024.

N

0 150 300
Feet

HALEY ALDRICH

SKYLINE FIELD OFFICE RENOVATION PROJECT
SKYLINE FIELD OFFICE & SKYLINE RIDGE PARKING AREA
LA HONDA, CALIFORNIA

SITE PLAN - SITE 1

OCTOBER 2024

FIGURE 2A

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LEGEND

PROPERTY LINES

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. CONTOURS DERIVED FROM NOAA 2020 LIDAR DEM: SANTA CLARA COUNTY (NAVD88).

3. PARCELS LINES FROM SAN MATEO COUNTY GIS ENTERPRISE DATA, ACCESSED ONLINE ON 1/19/2024.

4. ORTHOIMAGERY FROM NEARMAP, DATED 6/14/2024.

N

0 200 400
Feet

HALEY ALDRICH

SKYLINE FIELD OFFICE RENOVATION PROJECT
SKYLINE FIELD OFFICE & SKYLINE RIDGE PARKING AREA
LA HONDA, CALIFORNIA

SITE PLAN - SITE 2

OCTOBER 2024

FIGURE 2B

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LEGEND

PROPERTY LINES

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. CONTOURS DERIVED FROM NOAA 2020 LIDAR DEM: SANTA CLARA COUNTY (NAVD88).

3. PARCELS LINES FROM SAN MATEO COUNTY GIS ENTERPRISE DATA, ACCESSED ONLINE ON 1/19/2024.

4. ORTHOIMAGERY FROM NEARMAP, DATED 6/14/2024.

N

0 200 400
Feet

HALEY ALDRICH

SKYLINE FIELD OFFICE RENOVATION PROJECT
SKYLINE FIELD OFFICE & SKYLINE RIDGE PARKING AREA
LA HONDA, CALIFORNIA

SITE PLAN - SITE 3

OCTOBER 2024

FIGURE 2C

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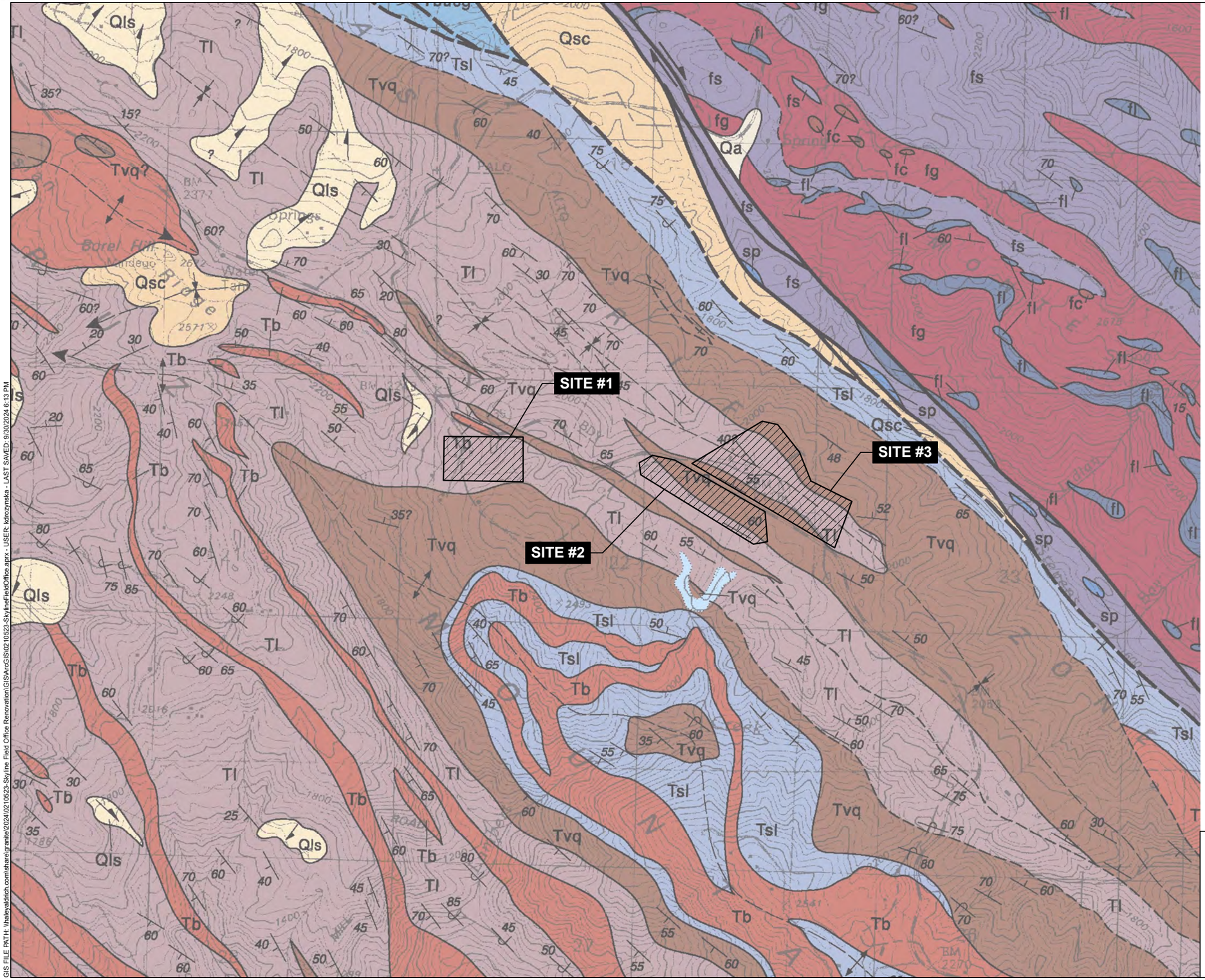

LEGEND

- FOLDS; ANTICLINE
- STRIKE AND DIP OF SEDIMENTARY ROCKS; INCLINED
- Qa — SURFICIAL SEDIMENTS
- Qls — LANDSLIDE DEBRIS
- Qsc — SANTA CLARA FORMATION
- fg / fs / fc / fl — FRANCISCAN ASSEMBLAGE:
  - fg - GREENSTONE (METABASALT)
  - fs - GRAYWACKE SANDSTONE, OR METAGRAYWACKE
  - fc - CHERT OR METACHERT
  - fl - LIMESTONE
- Tb — BASALT AND DIABASE
- Tl — LAMBERT SHALE
- Tqv — VAQUEROS FORMATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. REGIONAL GEOLOGY FROM DIBBLEE, T.W., AND MINCH, J.A., 2007.

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Miles

HALEY ALDRICH

SKYLINE FIELD OFFICE RENOVATION PROJECT
SKYLINE FIELD OFFICE & SKYLINE RIDGE PARKING AREA
LA HONDA, CALIFORNIA

REGIONAL GEOLOGY MAP

OCTOBER 2024

FIGURE 3

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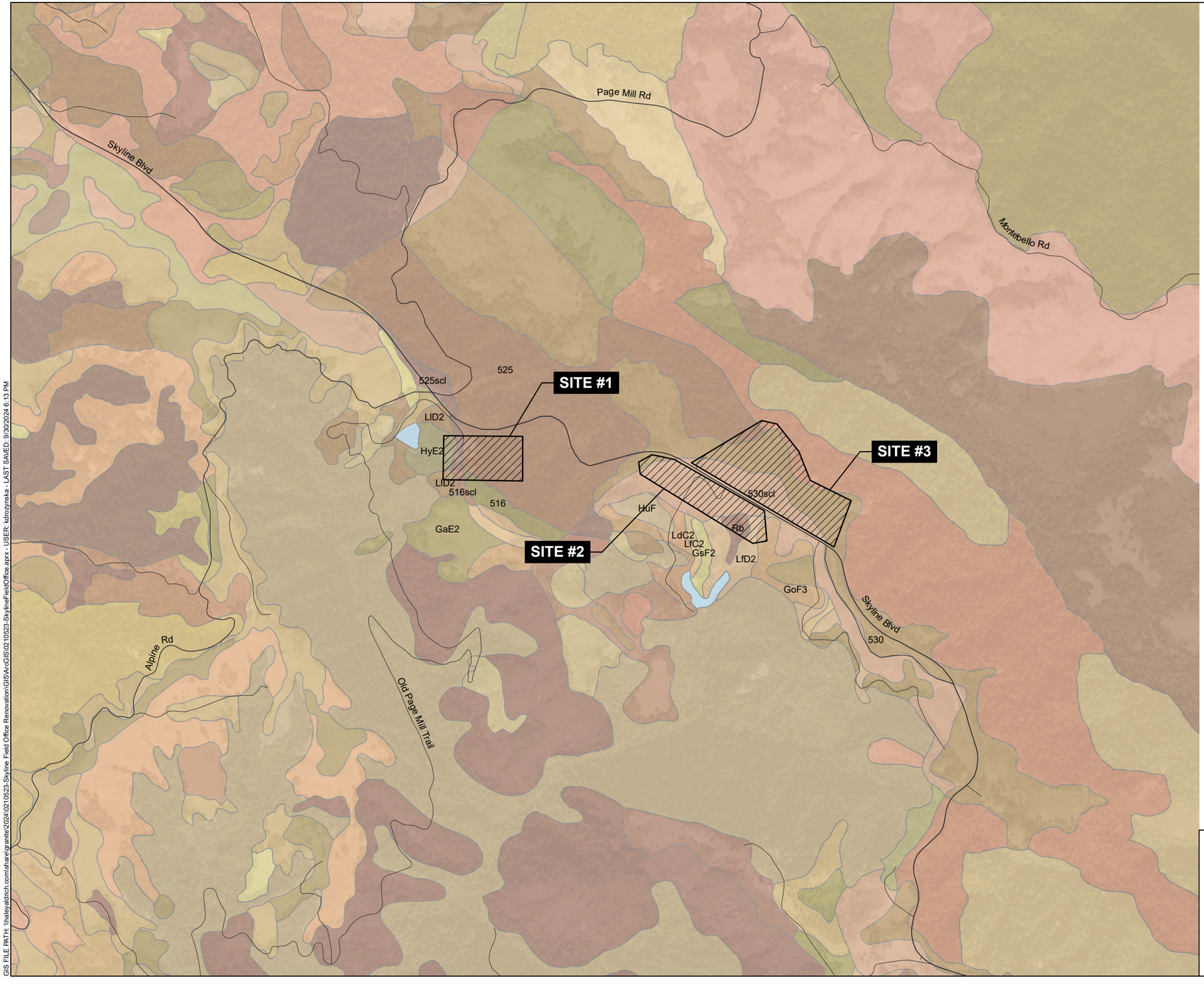

LEGEND

516	BEN LOMOND GRAVELLY SANDY LOAM, 15 TO 30 PERCENT SLOPES
516scl	BEN LOMOND GRAVELLY SANDY LOAM, 15 TO 30 PERCENT SLOPES
525	FELTON FINE SANDY LOAM, 30 TO 50 PERCENT SLOPES
525scl	FELTON FINE SANDY LOAM, 30 TO 50 PERCENT SLOPES
530	APTOS LOAM, 15 TO 30 PERCENT SLOPES
530scl	APTOS LOAM, 15 TO 30 PERCENT SLOPES
GaE2	GAZOS FINE SANDY LOAM, STEEP, ERODED
GoF3	GAZOS AND LOBITOS SOILS, STEEP AND VERY STEEP, SEVERELY ERODED
GsF2	GAZOS AND LOBITOS STONY LOAMS, VERY STEEP, ERODED
HuF	HUGO AND JOSEPHINE LOAMS, VERY STEEP
HyE2	HUGO AND JOSEPHINE SANDY LOAMS, STEEP, ERODED
LdC2	LOBITOS LOAM, DEEP, SLOPING, ERODED
LfC2	LOBITOS FINE SANDY LOAM, SLOPING, ERODED
LfD2	LOBITOS FINE SANDY LOAM, STEEP, ERODED
LID2	LOBITOS LOAM, MODERATELY STEEP, ERODED
Rb	ROUGH BROKEN LAND

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. SOIL DATA FROM NATURAL RESOURCES CONSERVATION SERVICE, US DEPARTMENT OF AGRICULTURE; WEB SOIL SURVEY, ACCESSED ONLINE ON 6/29/2020.

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HALEY ALDRICH

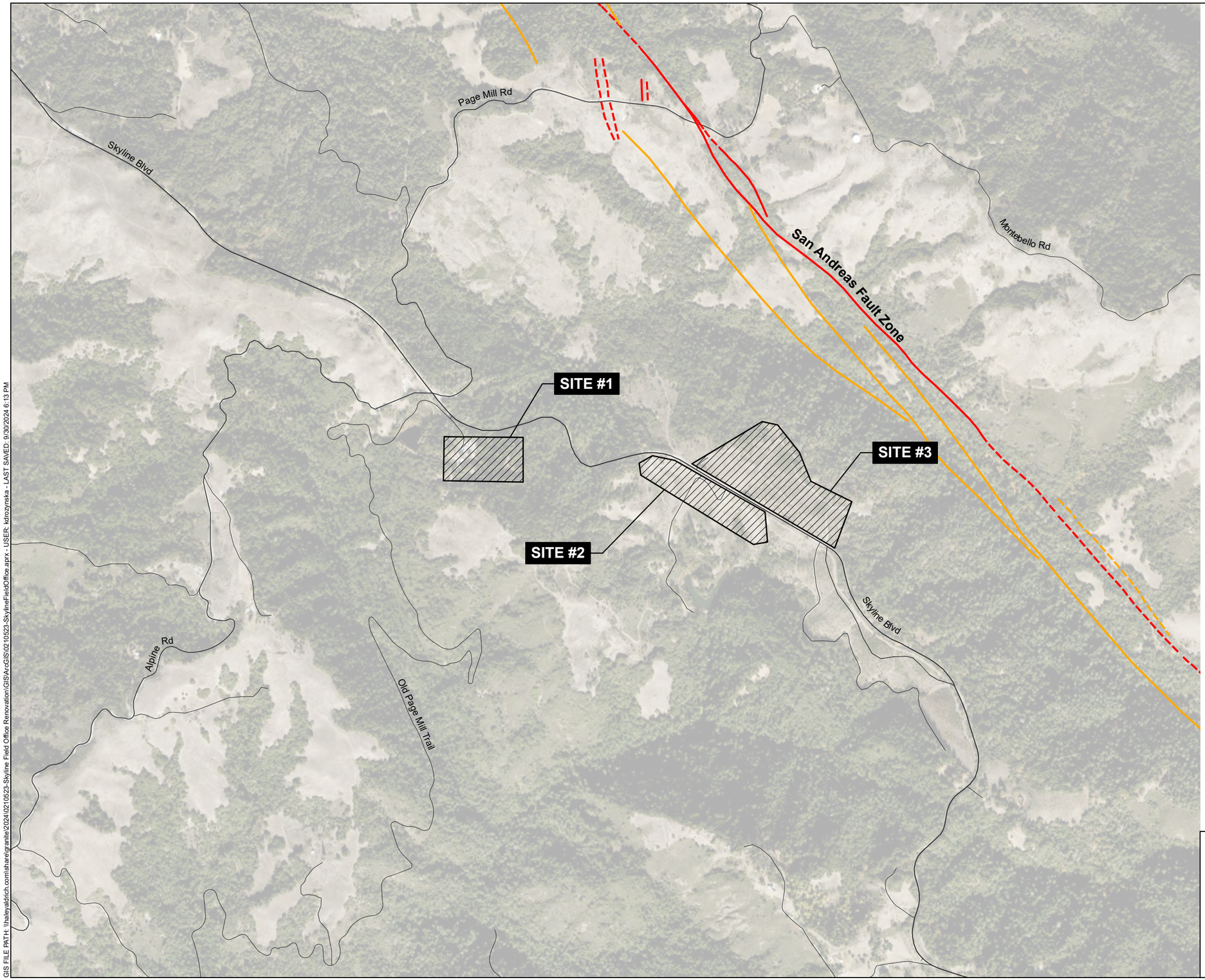
SKYLINE FIELD OFFICE RENOVATION PROJECT
SKYLINE FIELD OFFICE & SKYLINE RIDGE PARKING AREA
LA HONDA, CALIFORNIA

NRCS SOIL MAP

OCTOBER 2024

FIGURE 4

GIS FILE PATH: \\haleyaldrich.com\share\granite\2024\0210523-Skyline Field Office Renovation\GIS\ArcGIS\0210523-SkylineFieldOffice.aprx - USER: kdrozynska - LAST SAVED: 9/30/2024 6:13 PM



LEGEND

- HISTORICAL (<150 YEARS), WELL CONSTRAINED LOCATION
- HISTORICAL (<150 YEARS), MODERATELY CONSTRAINED LOCATION
- LATEST QUATERNARY (<15,000 YEARS), WELL CONSTRAINED LOCATION
- LATEST QUATERNARY (<15,000 YEARS), MODERATELY CONSTRAINED LOCATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. FAULT LOCATIONS FROM US GEOLOGICAL SURVEY QUATERNARY FAULTS AND FOLDS DATABASE, ACCESSED ONLINE ON 30 JULY 2021.

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Miles

HALEY ALDRICH

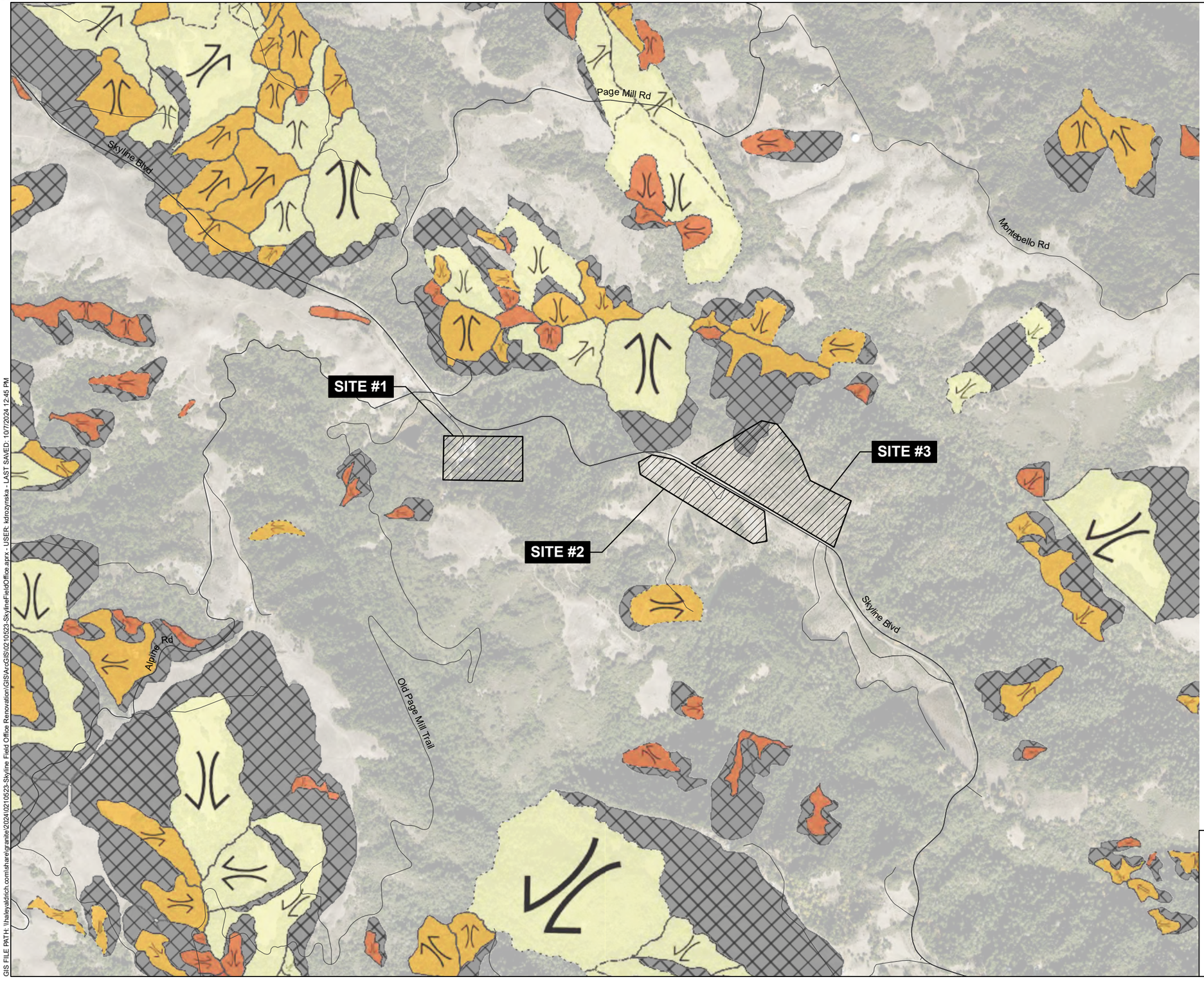
SKYLINE FIELD OFFICE RENOVATION PROJECT
SKYLINE FIELD OFFICE & SKYLINE RIDGE PARKING AREA
LA HONDA, CALIFORNIA

FAULT ACTIVITY MAP

OCTOBER 2024

FIGURE 5

GIS FILE PATH: \\haleyaldrich.com\share\granite\2024\0210523-Skyline Field Office Renovation\GIS\ArcGIS\0210523-SkylineFieldOffice.aprx - USER: kdrozynska - LAST SAVED: 9/30/2024 6:13 PM



LEGEND

LANDSLIDE ACTIVITY:

- ACTIVE/HISTORIC
- DORMANT YOUNG
- DORMANT MATURE
- DORMANT OLD/RELICT
- DORMANT AGE NOT SPECIFIED

INTERPRETATION CONFIDENCE:

- DEFINE
- PROBABLE
- QUESTIONABLE

CGS MAPPED, NEEDS REVIEW:

- LANDSLIDE SOURCE OR SCARP
- LANDSLIDE DEPOSIT

LANDSLIDE (DEPOSIT-DIRECTION OF MOVEMENT):

- ROCK SLIDE

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. LANDSLIDE INVENTORY FROM CGS, GIS ONLINE PORTAL.

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Miles

HALEY ALDRICH

SKYLINE FIELD OFFICE RENOVATION PROJECT
SKYLINE FIELD OFFICE & SKYLINE RIDGE PARKING AREA
LA HONDA, CALIFORNIA

LANDSLIDE INVENTORY

OCTOBER 2024

FIGURE 6

GIS FILE PATH: \\haleyaldrich.com\share\granite\202410210523-Skyline Field Office Renovation\GIS\A+cGIS\202410523-SkylineFieldOffice.aprx - USER: kdrozynska - LAST SAVED: 10/7/2024 12:45 PM

APPENDIX A
NRCS Unit Information

Map Unit Description

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Santa Clara Area, California, Western Part

525—Felton fine sandy loam, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: 1t6cl
Elevation: 1,790 to 2,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 200 to 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Felton and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Felton

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium derived from siltstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: fine sandy loam
ABt1 - 3 to 11 inches: silt loam
ABt2 - 11 to 19 inches: silty clay loam
Bt1 - 19 to 30 inches: silty clay loam
Bt2 - 30 to 57 inches: silty clay loam
Bw - 57 to 75 inches: silty clay loam
Cr - 75 to 77 inches: bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F004BN100CA - Fog-influenced, low elevation mountain slopes
Hydric soil rating: No

Minor Components

Aptos

Percent of map unit: 10 percent
Landform: Mountains
Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Mountaintop, mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ben lomond

Percent of map unit: 10 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 17, Sep 11, 2023

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 12, Sep 11, 2023

San Mateo Area, California

525scl—Felton fine sandy loam, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: 2pcmc
Elevation: 1,790 to 2,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 200 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Felton and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Felton

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium derived from siltstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: fine sandy loam
ABt1 - 3 to 11 inches: silt loam
ABt2 - 11 to 19 inches: silty clay loam
Bt1 - 19 to 30 inches: silty clay loam
Bt2 - 30 to 57 inches: silty clay loam
Bw - 57 to 75 inches: silty clay loam
Cr - 75 to 77 inches: bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F004BN100CA - Fog-influenced, low elevation mountain slopes
Hydric soil rating: No

Minor Components

Aptos
Percent of map unit: 10 percent
Landform: Mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ben lomond
Percent of map unit: 10 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 17, Sep 11, 2023

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 12, Sep 11, 2023

San Mateo Area, California

HyE2—Hugo and Josephine sandy loams, steep, eroded

Map Unit Setting

National map unit symbol: h9yf
Elevation: 330 to 2,380 feet
Mean annual precipitation: 30 to 70 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 100 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Hugo and similar soils: 45 percent
Josephine and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hugo

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandstone; shale

Typical profile

H1 - 0 to 4 inches: sandy loam
H2 - 4 to 41 inches: gravelly sandy loam
H3 - 41 to 45 inches: weathered bedrock

Properties and qualities

Slope: 20 to 40 percent
Depth to restrictive feature: 41 to 45 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F004BN100CA - Fog-influenced, low elevation mountain slopes

Hydric soil rating: No

Description of Josephine

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandstone; shale

Typical profile

H1 - 0 to 8 inches: sandy loam
H2 - 8 to 43 inches: loam
H3 - 43 to 47 inches: weathered bedrock

Properties and qualities

Slope: 20 to 40 percent
Depth to restrictive feature: 43 to 47 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F004BN102CA - Strongly dissected mountain slopes
Hydric soil rating: No

Minor Components

Los gatos

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

Laughlin

Percent of map unit: 10 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 17, Sep 11, 2023

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 12, Sep 11, 2023

Santa Clara Area, California, Western Part

516—Ben Lomond gravelly sandy loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 1nwzd
Elevation: 640 to 3,080 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 200 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Ben lomond and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ben Lomond

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 6 inches: gravelly sandy loam
A2 - 6 to 13 inches: sandy loam
Bw - 13 to 28 inches: sandy loam
BC - 28 to 47 inches: gravelly sandy loam
Cr - 47 to 51 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 39 to 55 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.03 to 0.28 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A
Ecological site: F004BN100CA - Fog-influenced, low elevation mountain slopes
Hydric soil rating: No

Minor Components

Felton
Percent of map unit: 10 percent
Landform: Mountains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Mountaintop
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Ultic haploxerolls
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Mountaintop
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Aptos
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 17, Sep 11, 2023

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 12, Sep 11, 2023

San Mateo Area, California

516scl—Ben Lomond gravelly sandy loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2pcm8
Elevation: 640 to 3,080 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 200 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Ben lomond and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ben Lomond

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 6 inches: gravelly sandy loam
A2 - 6 to 13 inches: sandy loam
Bw - 13 to 28 inches: sandy loam
BC - 28 to 47 inches: gravelly sandy loam
Cr - 47 to 51 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 39 to 55 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.03 to 0.28 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A
Ecological site: F004BN100CA - Fog-influenced, low elevation mountain slopes
Hydric soil rating: No

Minor Components

Felton
Percent of map unit: 10 percent
Landform: Mountains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Mountaintop
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Ultic haploxerolls
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Mountaintop
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Aptos
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 17, Sep 11, 2023

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 12, Sep 11, 2023

San Mateo Area, California

LID2—Lobitos loam, moderately steep, eroded

Map Unit Setting

National map unit symbol: h9z1
Elevation: 200 to 1,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 270 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Lobitos and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lobitos

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Shale

Typical profile

H1 - 0 to 18 inches: loam
H2 - 18 to 29 inches: channery clay loam
H3 - 29 to 34 inches: channery loam
H4 - 34 to 38 inches: unweathered bedrock

Properties and qualities

Slope: 16 to 30 percent
Depth to restrictive feature: 34 to 38 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R015XY014CA - Loamy Mountains 20-40"ppt
Hydric soil rating: No

Minor Components

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

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

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 17, Sep 11, 2023

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 12, Sep 11, 2023

San Mateo Area, California

530scl—Aptos loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2pcmd
Elevation: 1,830 to 3,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 200 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Aptos and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aptos

Setting

Landform: Mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from mudstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 4 inches: loam
Bt1 - 4 to 14 inches: loam
Bt2 - 14 to 28 inches: clay loam
Cr - 28 to 59 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.2 to 0.4 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: F004BN100CA - Fog-influenced, low elevation mountain slopes
Hydric soil rating: No

Minor Components

Felton
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop, mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Casrock
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Skyridge
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ben lomond
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 17, Sep 11, 2023

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 12, Sep 11, 2023

San Mateo Area, California

Rb—Rough broken land

Map Unit Setting

National map unit symbol: hb00
Elevation: 650 to 2,380 feet
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 110 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Rough broken land: 50 percent
Lithic xerorthents and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rough Broken Land

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Parent material: Basalt; sandstone; shale; granite

Typical profile

H1 - 0 to 10 inches: unweathered bedrock

Properties and qualities

Slope: 41 to 75 percent
Depth to restrictive feature: 0 to 10 inches to paralithic bedrock
Drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8e
Ecological site: R015XY009CA - Hills 20-40"ppt
Hydric soil rating: No

Description of Lithic Xerorthents

Setting

Parent material: Residuum

Typical profile

H1 - 0 to 4 inches: unweathered bedrock

Properties and qualities

Slope: 41 to 75 percent
Depth to restrictive feature: 0 to 4 inches to lithic bedrock

Drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Ecological site: R004BO200CA - Windy Coastal Plains
Hydric soil rating: No

Minor Components

Gazos

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

Lobitos

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

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 17, Sep 11, 2023

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 12, Sep 11, 2023

San Mateo Area, California

LfD2—Lobitos fine sandy loam, steep, eroded

Map Unit Setting

National map unit symbol: h9yy
Elevation: 200 to 1,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 270 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Lobitos and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lobitos

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Shale

Typical profile

H1 - 0 to 18 inches: fine sandy loam
H2 - 18 to 29 inches: channery clay loam
H3 - 29 to 34 inches: channery loam
H4 - 34 to 38 inches: unweathered bedrock

Properties and qualities

Slope: 11 to 21 percent
Depth to restrictive feature: 34 to 38 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R015XY014CA - Loamy Mountains 20-40"ppt
Hydric soil rating: No

Minor Components

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

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

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 17, Sep 11, 2023

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 12, Sep 11, 2023

Santa Clara Area, California, Western Part

530—Aptos loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 1t6ck
Elevation: 1,830 to 3,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 200 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Aptos and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aptos

Setting

Landform: Mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from mudstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 4 inches: loam
Bt1 - 4 to 14 inches: loam
Bt2 - 14 to 28 inches: clay loam
Cr - 28 to 59 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.2 to 0.4 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: F004BN100CA - Fog-influenced, low elevation mountain slopes
Hydric soil rating: No

Minor Components

Skyridge
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ben lomond
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Casrock
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Felton
Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop, mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 18, Sep 8, 2024

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 13, Sep 8, 2024

Santa Clara Area, California, Western Part

517—Ben Lomond-Casrock complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: 216b8
Elevation: 650 to 3,140 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 200 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Ben lomond and similar soils: 65 percent
Casrock and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ben Lomond

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 6 inches: gravelly sandy loam
A2 - 6 to 13 inches: sandy loam
Bw - 13 to 28 inches: sandy loam
BC - 28 to 47 inches: gravelly sandy loam
Cr - 47 to 51 inches: bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 39 to 55 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.03 to 0.28 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F004BN100CA - Fog-influenced, low elevation mountain slopes
Hydric soil rating: No

Description of Casrock

Setting

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

Typical profile

A1 - 0 to 5 inches: sandy loam
A2 - 5 to 11 inches: gravelly sandy clay loam
A3 - 11 to 21 inches: gravelly sandy clay loam
Bw - 21 to 32 inches: very gravelly sandy clay loam
R - 32 to 36 inches: bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F004BN103CA - Upper elevation mountain slopes
Hydric soil rating: No

Minor Components

Ultic haploxerolls

Percent of map unit: 10 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Skyridge

Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 18, Sep 8, 2024

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 13, Sep 8, 2024

APPENDIX B
Previous Geotechnical Report
(Milstone Geotechnical, 1994)

GEOTECHNICAL INVESTIGATION

FIELD OFFICE
SKYLINE RIDGE OPEN SPACE PRESERVE
Santa Clara County, California

for

Mary Gundert
Midpeninsula Regional Open Space District
330 Distel Circle
Los Altos, California 94022

March 1994
Project No. 78.01

MILSTONE
GEOTECHNICAL
17650 Old Summit Road
Los Gatos, California 95030

MILSTONE
GEOTECHNICAL

March 30, 1994
Project No. 78.01

Ms. Mary Gundert
Midpeninsula Regional Open Space District
330 Distel Circle
Los Altos, California 94022

SUBJECT: Geotechnical Investigation
RE: Proposed Field Office
Skyline Ridge Open Space Preserve
Santa Clara County, California

Dear Ms. Gundert:

In accordance with your authorization, Milstone Geotechnical has completed a geotechnical investigation for the above referenced site. The accompanying report presents the results of the investigation with conclusions and recommendations for the geotechnical aspects of the proposed construction.

It has been a pleasure providing professional services to you on this project. If you have any questions regarding the contents of this report, or require additional assistance, please phone.

Sincerely,

Barry S. Milstone

Barry S. Milstone
G.E. 2111

GEOTECHNICAL INVESTIGATION

FIELD OFFICE
SKYLINE RIDGE OPEN SPACE PRESERVE
Santa Clara County, California

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- Soil Classification Chart
- Boring Logs B1, B2, and B3

APPENDIX B - LABORATORY INVESTIGATION

- Summary of Laboratory Test Results
- Summary of Atterberg Limits Test
- Summary of Summary of R-value Test

GEOTECHNICAL INVESTIGATION

FIELD OFFICE
SKYLINE RIDGE OPEN SPACE PRESERVE
Santa Clara County, California

1.0 INTRODUCTION

This report presents the findings, conclusions, and recommendations of a geotechnical investigation related to the construction of a proposed field office to be located at the Skyline Ridge Open Space Preserve ranger facility. The ranger facility is located to the southwest of Skyline Boulevard approximately 650 southeast of Alpine Road in San Mateo and Santa Clara Counties, California (Figure 1).

Based on our review of the conceptual grading scheme prepared by Sandis and Associates (August 4, 1993), it is our understanding that the proposed field office will be an approximately 2,740 square-foot, wood-frame structure with approximately 690 square feet of adjacent patio and decking. The project will also involve grading and paving for a parking area as well as fill placement up to 6 feet thick to prepare the building pad.

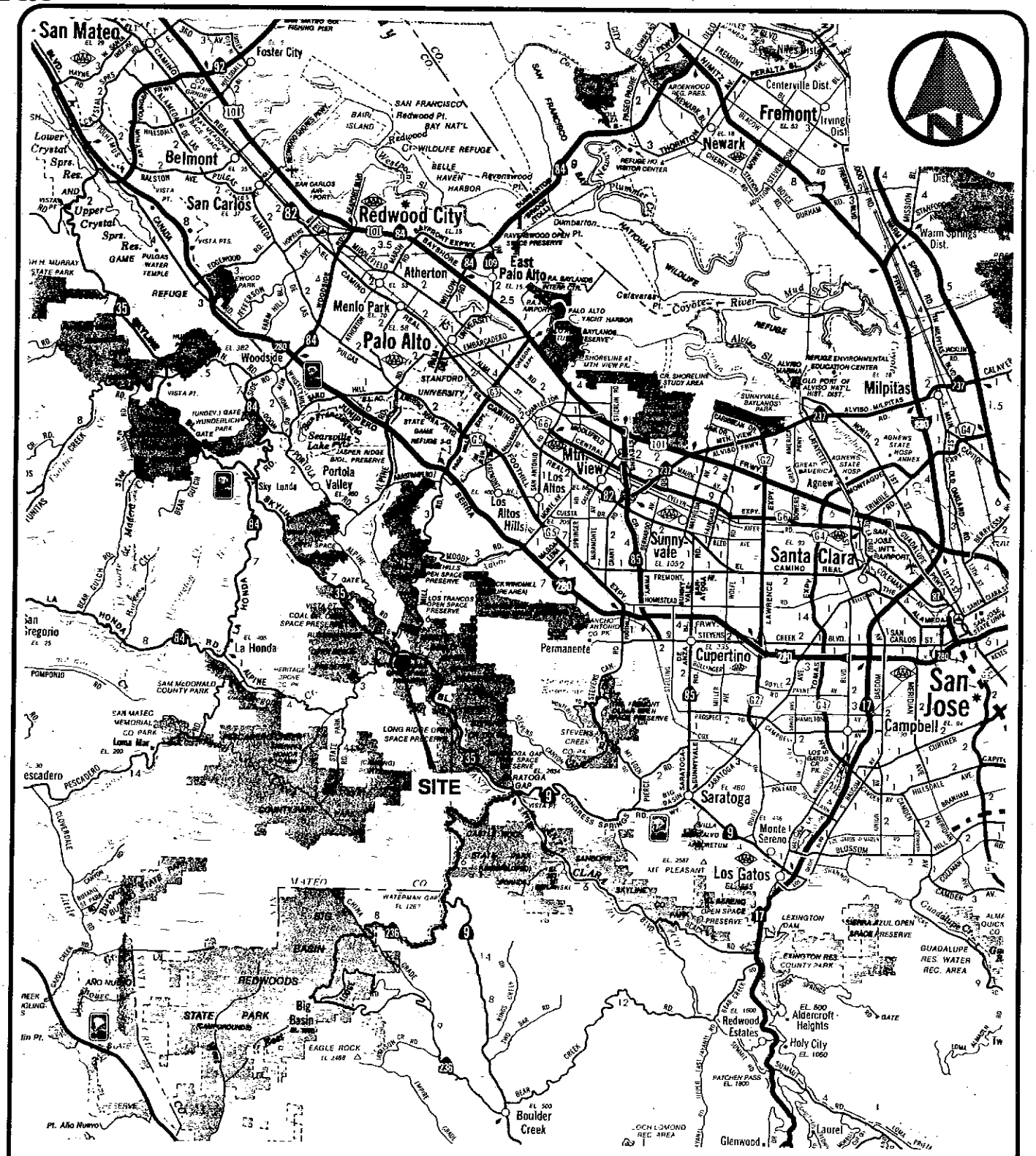
The investigation was conducted according to the confirming agreement dated November 12, 1993 and authorized November 18, 1993.

2.0 PURPOSE AND SCOPE OF INVESTIGATION

The primary purposes of this investigation were to determine the geotechnical site conditions and to provide specific recommendations pertinent to site development and foundation design and construction.

The scope of work performed for this investigation included the following tasks:

- compilation and review of available engineering and geologic data relevant to site development;
- geotechnical site reconnaissance;
- drilling, logging, in-situ testing, and sampling of three exploratory test borings ranging in depth from 2.4 to 12.3 feet;



Reference: Peninsula Points Map, CSAA, 1991.

MILSTONE GEOTECHNICAL

SITE LOCATION MAP

FIELD OFFICE
SKYLINE RIDGE OPEN SPACE PRESERVE
San Mateo County, California

DATE	SCALE	FIGURE
March 1994	1 inch = 4 miles	1

- laboratory testing of representative soil samples;
- discussion with Jim Berkland, Santa Clara County geologist regarding findings, conclusions, and recommendations;
- engineering analysis of the resulting data and formulation of geotechnical design criteria;
- preparation of this report and the accompanying illustrations.

3.0 GENERAL SITE CONDITIONS

The site is located near the north end of the Skyline Ridge Open Space Preserve Ranger Facility. In the vicinity of the proposed field office, the ground surface slopes gently toward the north with an average inclination of about 11 percent. Generally, the building site is comprised of two nearly level benches created by earlier grading operations. Grading has resulted in a 3 to 4 feet high cut slope and three fill slopes approximately 1 to 3 feet in maximum thickness.

The southeast quadrant of the proposed building site is currently occupied by a wood-frame garage that will be removed prior to the proposed construction. The remainder of the building site serves as a driveway and storage area. The site is surrounded by a number of mature trees including pine and oak with trunks ranging from 18 to 36 inches in diameter. Stockpiling of soil and debris to the immediate east of the building site has resulted in an approximately 4 feet high fill slope.

The proposed parking area to the south and southeast of the building site is a nearly level pad created by previous grading at the top of a knoll with side slopes approaching an inclination of 50 percent. The area is currently used for staging and storage.

4.0 REGIONAL GEOLOGY AND SEISMICITY

The field office site is located on the north-facing flank of a minor knoll near the crest of Skyline Ridge within the rugged and geologically complex Santa Cruz Mountains. This mountain range forms the central spine of the San Francisco Peninsula. Regionally, the area is characterized by northwest-trending structures and faults.

Dibblee (1966) indicates that the project area is underlain by older tertiary age Lambert Shale deposits that strike generally north-northwest with a 50 to 60 degree dip toward the northeast. Regionally, the Lambert Shale consists of interbedded siltstone, claystone, and shale bedrock. At the project location, the Lambert Shale is probably greater than 1500 feet in thickness and overlies, in turn, Vaqueros Sandstone, San Lorenzo Formation and Butano Sandstone.

Leighton (1976) indicated that, in general, the local soil materials demonstrate poor to fair slope stability and good earthquake stability and that they present good foundation conditions. Wieczorek, et. al. (1985) suggest that this area has a moderate susceptibility to earthquake induced landsliding. Available geologic maps do not indicate a history of landsliding in this area; this observation is supported by the gentle topography and presence of mature trees.

The regional tectonic setting is dominated by the active San Andreas fault system, which includes the San Andreas fault and the associated Hayward and Calavares faults. These faults have been the source of numerous moderate, and several large earthquakes throughout recorded history. It is our understanding that smaller faults previously identified in the vicinity of this project (i.e., Devils Canyon, Coal Creek and Skyline faults) are considered to be inactive. Seismicity associated with the San Andreas fault system would be the most likely source for generating strong ground motions along Skyline Ridge. The active San Andreas fault zone is located approximately 0.9 miles northeast of the site. Consequently, strong to violent ground shaking can be expected to occur at the site during the economic life of the proposed field office.

Based on their analysis of various fault parameters such as historic activity and slip rate, the United States Geologic Survey (1990) reported that, during the next 30 years, the expected Richter magnitude earthquake on the Peninsula segment of the San Andreas fault is 7.0. (It should be noted that the San Andreas Fault is considered by some to be capable of generating a repeat of the 1906 magnitude 8.3 earthquake.) Various ground motion attenuation relationships such as those developed by Joyner and Boore (1988) and Campbell (1987) are commonly used to estimate bedrock accelerations at points distant from an earthquake source. It is estimated by these relationships, that if a magnitude 7.0 earthquake were to occur at the point on the fault nearest the site, mean peak horizontal ground accelerations could exceed 0.75 g, with strong ground motion lasting several tens of seconds.

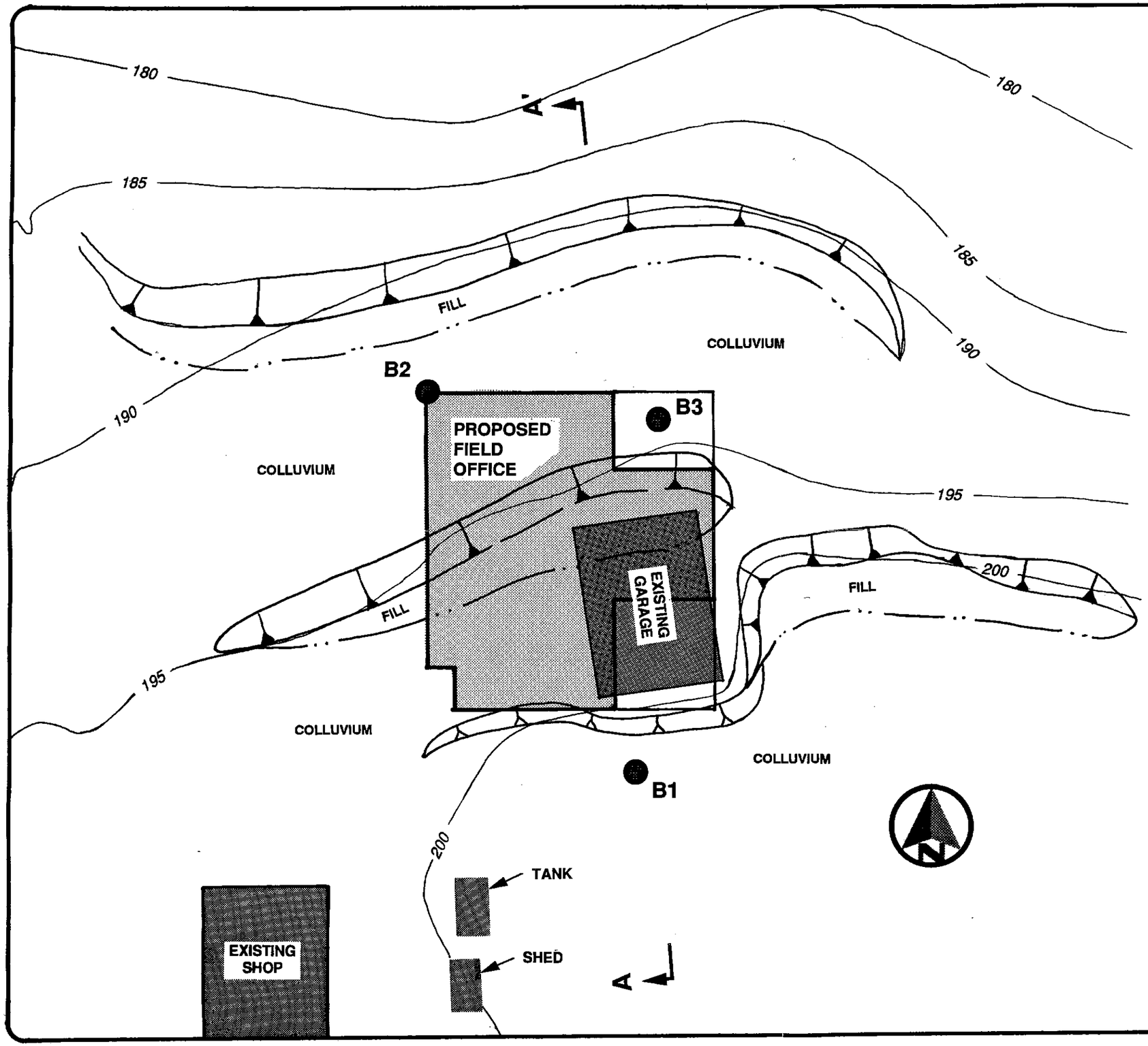
The area is predicted by Borchert, et. al. (1975) to experience grade B or "violent" earthquake intensity on a scale of A to E. Borchert presents a correlation of "violent" shaking to a Modified Mercalli intensity of IX to X. This is a qualitative measure of ground motion intensity (based in part on observations made during the 1906 San Francisco earthquake) which is described as:

"Comprises fairly general collapse of brick and frame buildings when not unusually strong; serious cracking of brickwork and masonry in excellent structures; the formation of fissures, step faults, sharp compression anticlines, and broad, wavelike folds in paved and asphalt-coated streets, accompanied by the ragged fissuring of asphalt; the destruction of foundation walls and underpinning structures by the undulation of the ground; the breaking of sewers and water mains; the lateral displacement of streets; and the compression, distension, and lateral waving or displacement of well-ballasted streetcar tracks."

5.0 SUBSURFACE CONDITIONS

The subsurface investigation was conducted on February 10 and 22, 1994 and consisted of three exploratory test borings advanced to depths of 2.4, 4.4 and 12.3 feet. Additionally, a grab sample of near surface soils was obtained from the proposed driveway area for testing related to pavement design. The boring locations are depicted on the Site Plan and Exploration Map (Figure 2). The 12.3-foot boring was drilled with a 3 1/2-inch diameter, continuous flight auger powered by a CME-75 drill rig. Disturbed and undisturbed soil samples were retrieved for subsequent classification and laboratory testing by driving a Standard split-spoon sampler and a Modified California sampler with a 140-pound hammer falling 30 inches. The shallower borings were advanced to refusal with a 3-inch diameter hand auger with undisturbed samples obtained by driving a 2 1/2-inch diameter, lined core barrel with a slide hammer. All drill cuttings and samples were logged and visually classified by a registered geotechnical engineer or geologist. Boring logs are presented in Appendix A and include subsurface material descriptions, Unified Soil Classification, blowcounts (which were converted from field data to represent Standard Penetration Test results), and selected laboratory test results.

The proposed office site appears to be underlain by a total of 2 1/2 to 4 feet of residual soil, colluvium, and fill (up to 1 1/2 feet thick) that was probably derived from the native soils. These materials are similar in nature and consist of medium plasticity clayey silt and silty clay with sand. The surficial soil is moist to wet and firm to stiff with stiffness generally increasing with depth. The average moisture content and dry density of these materials is 24 percent and 97 pounds per cubic foot (pcf), respectively. One Atterberg Limits test on a colluvium sample yielded a liquid limit of 41 and a plasticity index of 15. A representative sample of the colluvium demonstrated an R-value of 25 at an exudation pressure of 300 psi.



LEGEND

B3 — Approximate location of exploratory boring by Milstone Geotechnical (February 10 and 22, 1994).

A — A' — Approximate location of idealized subsurface cross section shown on Figure 3.

200 — Elevation contour in feet. (see note below)

Contact between earth materials.

Face of fill slope.

Face of cut slope.

scale: 0 10 20 feet

NOTE: Base map used is "Conceptual Grading Scheme #3 by Sandis and Associates, Inc. (August 4, 1993). All field measurements were made using tape, compass, and hand level techniques and shouldbe considered accureate only to the level implied by these techniques.

MILSTONE GEOTECHNICAL

SITE PLAN AND EXPLORATION MAP
FIELD OFFICE
SKYLINE RIDGE OPEN SPACE PRESERVE
San Mateo County, California

ENG./GEO.	DATE	SCALE	FIGURE
BH	March 1994	1 inch = 10 feet	2

To the depths explored, the surficial soils are underlain by very dense to hard, damp to moist, friable, highly fractured siltstone. It should be noted that this siltstone is generally stronger and less susceptible to slope instability that are the claystone and shale constituents of the Lambert Shale. In boring B1, the upper 7 inches of siltstone had weathered to a soft to firm veneer of moderately to highly plastic silty clay. This weathering was not observed in the other exploratory borings. The siltstone demonstrated moisture contents ranging from 13 to 23 percent and an average dry density of 104 pcf. An idealized subsurface cross section that transects the building site is presented on Figure 3.

6.0 GROUNDWATER

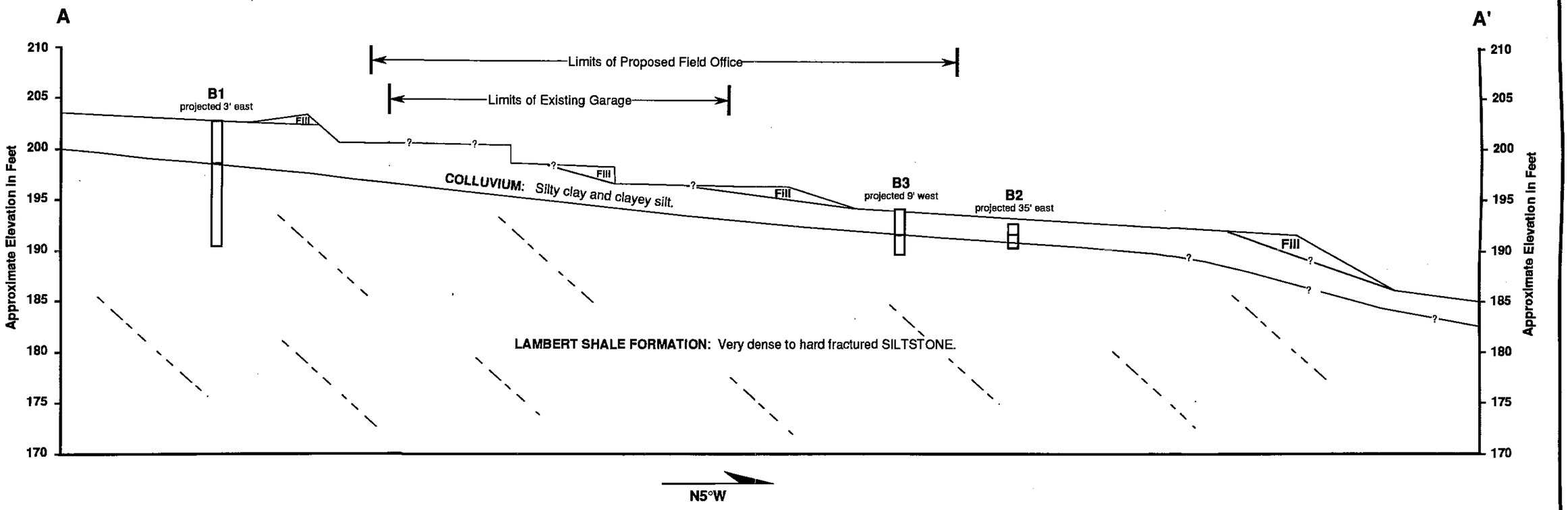
Groundwater was not encountered in the exploratory borings. It should be noted that higher groundwater could be encountered on the site at other times and locations. Nevertheless, due to the position of the building site relative to the lower surrounding land, groundwater is not expected to be encountered during construction.

7.0 CONCLUSIONS AND GEOTECHNICAL DESIGN CRITERIA

Based on the findings of this investigation, we are pleased to report that the geotechnical conditions of the site are suitable for the proposed construction. However, the building site can be expected to undergo violent seismic shaking during the economic life of the structure. Additionally, following site grading for the building pad, the thickness of fill and native soil beneath the proposed structure will vary from about 1 to 7 feet presenting the potential for differential settlement. Existing colluvial soils that are not removed may be subject to downslope creep and settlement and are therefore not considered suitable for foundation support. Consequently, it is recommended that the foundation be supported on drilled, cast-in-place, friction pier and grade beam foundations bearing in dense siltstone bedrock.

It is our opinion that the proposed structures will perform satisfactorily, provided that the following recommendations are incorporated into the design and construction. As a minimum, the proposed structure should be designed in accordance with the current Uniform Building Code (UBC) standards for static and seismic design.

IDEALIZED SUBSURFACE CROSS SECTION A-A'



NOTE: These elevations are consistent with the conceptual grading scheme prepared by Sandis and Associates, Inc. (August 4, 1993) wherein the elevation of the finished floor of the field office was assumed to be 200.00'.

MILSTONE GEOTECHNICAL

IDEALIZED SUBSURFACE CROSS SECTION A-A'
FIELD OFFICE
SKYLINE RIDGE OPEN SPACE PRESERVE
San Mateo County, California

ENG./GEO.	DATE	SCALE	FIGURE
BH	March 1994	1 inch = 10 feet	3

7.1 Engineered Fill

Areas to receive fill should be stripped of all construction debris, vegetation, topsoil, and existing fill. Construction debris and organic matter should be removed from the site for proper disposal. Topsoil may be stockpiled for use in landscaping areas. Existing fill materials may be stockpiled for use as engineered fill upon approval from the geotechnical engineer at the time of construction. Holes created by the removal of root balls should be backfilled with engineered fill as described below.

The exposed grade should be scarified to a depth of 6 inches, moisture conditioned to within 2 percent of optimum, and recompacted to a minimum of 90 percent of the maximum dry density as determined by the ASTM D1557-91 test method.

All fills placed on slopes steeper than 5 (horizontal) to 1 (vertical) should be benched into the siltstone bedrock. All fill should be keyed into native materials and placed on horizontal benches. The depth of keys should be determined by the geotechnical consultant at the time of construction but is anticipated to be approximately 18 inches.

Any fill to be placed at the site should not contain rocks or lumps greater than 4 inches in greatest dimension and should not contain greater than 15 percent larger than 2.5 inches. Fill material should have a maximum plasticity index of 15. A minimum 30 pound sample of any on-site or import soil proposed for use as engineered fill should be provided to the project geotechnical engineer for approval and compaction testing a minimum of 36 hours prior to placement.

Fill should be moisture conditioned to within 2 percent of optimum, spread in lifts not exceeding 8 inches in loose thickness, and compacted with an approved mechanical compactor to a minimum of 95 percent of the maximum dry density as determined by the ASTM D1557-91 test method. While much of the soil generated from the proposed grading in the parking lot area is expected to be suitable for use as engineered fill in the building and patio areas, it is anticipated that stripped material as well as some of the on-site debris contaminated fill will not be suitable.

Permanent fill slopes should not be constructed at inclinations steeper than 3 (horizontal) to 1 (vertical). Unsupported cut slopes in colluvium should not be constructed at inclinations steeper than 3 (h) to 1 (v). Unsupported cut slopes in siltstone bedrock should not be constructed at inclinations steeper than 1 1/2 (h) to 1 (v). Final grading should provide a minimum 2 percent positive slope away from structures for a minimum distance of 6 feet.

7.2 Foundations

As described above, it is recommended that the proposed structure be founded on a drilled pier and grade beam foundation that derives support in competent siltstone bedrock. It is anticipated that total vertical distortion of a foundation constructed in accordance with the following recommendations will not exceed 1 inch and that differential settlements will not exceed 3/4 inch during the economic life of the structure:

Minimum Pier Diameter:	16 inches.
Minimum Pier Depth:	8 feet into competent bedrock (as determined by the geotechnical consultant at the time of construction).
Allowable Skin Friction: (in competent bedrock)	650 psf.
Lateral Resistance: (in competent bedrock)	400 pcf/f equivalent fluid pressure; Neglect fill and colluvial soils when determining lateral pier resistance.
Lateral Pressure: (due to colluvial creep)	65 pcf/f equivalent fluid pressure.
Minimum Reinforcement:	4 - vertical No. 5 bars with No. 3 spiral or No. 3 ties at 12 inch spacings. Reinforcing to be provided with a minimum of 3 inches concrete cover.
Grade Beams:	Perimeter grade beams should be embedded a minimum of 12 inches below the lowest adjacent grade. All grade beams should be provided with sufficient top and bottom steel reinforcement to span between piers.

Pier holes should be cleared of all loose debris and dry prior to pouring of concrete. If standing water collects in the pier excavations, the water should be pumped out or the concrete should be placed by the tremie method with the concrete displacing the water from the bottom up. If casing is required to maintain excavation stability, the casings shall be removed during placement of the concrete so that the concrete will cure in contact with the alluvium. All pier excavations should be inspected and approved by the project geotechnical engineer prior to the placement of reinforcing steel.

7.3 Slabs

Due to the potential for differential fill settlement beneath the proposed structure, the use of slabs-on-grade is not considered to be prudent for the interior of the structure. Similarly, if differential settlement of the adjacent patio is intolerable, it is suggested that the patio be constructed as a structural slab supported by drilled piers and grade beams as described in Section 7.2 - Foundations.

Exterior slabs (such as patios) may be constructed on grade in accordance with the following recommendations if a minor amount of differential settlement is acceptable. The slabs-on-grade should be a minimum of 4 inches thick, underlain by a minimum of 6 inches of compacted Caltrans Class 2 aggregate base, and reinforced with a minimum of No. 4 bars on 18 inch spacings in both directions. The slabs should be structurally isolated from adjacent structures. Slab moisture can be limited with a moisture barrier consisting of a continuous 6-mil thick plastic membrane such as "visquene" protected by a 2-inch layer of sand. Engineered fill below slabs should be placed in accordance with the recommendations presented in Section 7.1.

7.4 Retaining Walls

Retaining wall foundations may be designed in accordance with the recommendations provided in Section 7.2 above. Retaining walls supporting colluvium or fill should be designed to withstand lateral pressures of 65 pounds per cubic foot (pcf) equivalent fluid pressure. Alternatively, retaining walls designed as cantilevered structures bearing on competent siltstone should be designed based on an allowable bearing pressure of 2000 pounds per square foot. It is our understanding that retaining walls in excess of 5 feet are not anticipated for this project.

Positive drainage to daylight must be provided behind all retaining walls exceeding 18 inches in height. The drain should consist of a minimum 12-inch wide vertical blanket of Caltrans Class 2 permeable material (or approved functional equivalent). Alternatively, clean, 1/2- to 3/4-inch drainrock may be used if completely enveloped by filter fabric such as Mirafi 140N. A minimum 4-inch diameter, perforated, "Hancor" co-extruded smoothwall drain pipe (or approved functional equivalent such as PVC) shall be placed near the bottom of the drainrock (perforations down) on a minimum 1-inch thick drainrock layer and sloped to drain at a minimum inclination of 2 percent. The top 1-foot of retaining wall backfill should consist of compacted, low permeability material separated from the drainrock by a double layer of filter fabric. Clean, on-site colluvium is considered to be suitable for use as the low permeability cap.

7.5 Drainage

Positive surface drainage must be provided away from the structure for a minimum distance of 6 feet to prevent surface water from ponding against the foundations. All roof sections should be provided with roof gutters connected via downspouts to minimum 4-inch diameter tightline drainpipes that are sloped at a minimum inclination of 2 percent to discharge at an appropriate location downgradient of the proposed site improvements. No downspout water should be discharged upslope or immediately downslope of the building foundations or fill prisms. Drainpipes conveying collected surface and subsurface water should remain isolated.

7.6 Utility Trenches

On-site inorganic soil or other suitable import material may be used as backfill in trenches. Backfill material should not contain rocks or lumps greater than 3 inches in size. The backfill should be moisture conditioned to within 2 percent of optimum, placed in maximum 8-inch horizontal layers and compacted by mechanical means 90 percent of the maximum dry density as determined by the ASTM D1557-78 test method. Trenches underlying structural improvements such as walkways, slabs, and driveways should be compacted to 95 percent of the maximum dry density. Compaction of trenches backfill by flooding, jetting, or other non-mechanical means shall not be permitted.

7.7 Pavement

The colluvial soils indicate a resistance or R-value of 25. Based on discussions with MROSD personnel regarding the anticipated vehicular traffic in the driveway and parking area, we have estimated a traffic index of 6.0 assuming a design life of 20 years. Consequently, it is recommended that the pavement section consist of either 7 inches of asphalt over compacted subgrade or 3 inches of asphalt over 9 inches of Class 2 Aggregate Base over compacted subgrade. The subgrade should be sloped a minimum of 2 percent to drain (in directions similar to the existing drainage patterns) and compacted to 95 percent of the maximum dry density in accordance with the design and construction criteria presented in Section 7.1 - Engineered Fill.

8.0 GENERAL CONSIDERATIONS

This report should be reviewed by the project engineer and contractor prior to the next stage of development. A copy of this report should also be provided to the general contractor for reference during construction. Any questions or discrepancies should be brought to the attention of a representative of Milstone Geotechnical prior to the start of construction. We request an opportunity to review the final plans, design calculations, and specifications prior to construction to confirm that these recommendations have been incorporated and, if necessary, to provide supplemental recommendations.

Site grading, foundation excavations, and placement of engineered fill should be inspected by the project geotechnical engineer (prior to placement of steel, pouring of concrete, and backfilling) to verify that the encountered site conditions are the same as those anticipated by this investigation and to verify conformance with our recommendations. A minimum of three working days notification prior to construction activities requiring observation services is essential. The cost of these services will be charged on a time-and-expenses basis.

9.0 LIMITATIONS

These services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices in the San Francisco Bay Area at the time this report was written. No warranty, express or implied, or merchantability of fitness, is made or intended in connection with this work, by the proposal for consulting or other services, or by the furnishing of oral or written reports or findings.

This report is issued with the understanding that the owner chooses the risk he/she wishes to bear by the expenditures and savings involved with the chosen construction alternatives. The recommendations and design criteria presented in this report are contingent upon a representative of Milstone Geotechnical being retained to review the final plans and specifications and to provide testing and inspection services for all earthwork and construction operations. Unanticipated soils and geologic conditions are commonly encountered during construction and cannot be fully determined from existing exposures. If conditions encountered in the field are different than those anticipated by this report, our firm should be contacted immediately to provide any necessary revisions to the recommendations.

This report is issued with the understanding that it is the responsibility of the owner or of his/her representative to see that all parties to this project including designers, engineers, contractors, subcontractors, etc. are made aware of this report and to see that the contractor and subcontractors carry out such recommendations in the field. The recommendations contained herein are valid for one year, after which time they must be reviewed by a representative of Milstone Geotechnical to determine whether they are still applicable.

10.0 REFERENCES

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APPENDIX A
FIELD INVESTIGATION

Soil Classification Chart
Boring Logs B1, B2, and B3

CRITERIA FOR ASSIGNING GROUP SYMBOLS AND GROUP NAMES			SOIL CLASSIFICATION		
			GRAPHIC SYMBOL	USCS GROUP SYMBOL	TYPICAL NAMES
COARSE-GRAINED SOILS (MORE THAN HALF IS LARGER THAN NO. 200 SIEVE)	**GRAVELS** MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES		GW	Well graded gravel
				GP	Poorly graded gravel
		GRAVELS WITH MORE THAN 15% FINES		GM	Silty gravel
				GC	Clayey gravel
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES		SW	Well graded sand
				SP	Poorly graded sand
		SANDS WITH MORE THAN 15% FINES		SM	Silty sand
				SC	Clayey sand
FINE-GRAINED SOILS (MORE THAN HALF IS SMALLER THAN NO. 200 SIEVE)	**SILTS AND CLAYS** LIQUID LIMIT LESS THAN 50%	INORGANIC		ML	Low plasticity silt
				CL	Low plasticity clay, Lean clay
		ORGANIC		OL	Low plasticity organic silt, Low plasticity oganic clay
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%	INORGANIC		MH	High plasticity silt, Elastic silt
				CH	High plasticity clay, Fat clay
		ORGANIC		OH	Medium to high plasticity organic silt or clay
	HIGHLY ORGANIC SOILS	PRIMARILY ORGANIC MATTER		PT	Peat, decomposed vegetable tissue

Note: Split-spoon samplers were driven using a 140-pound hammer falling through 30 inches. Blow-counts reported for samplers other than a Standard Penetration Split Spoon Sampler were obtained by empirically converting the number of blows required to drive the sampler through the last 12 inches of an 18-inch penetration to the equivalent number of blows using a Standard Penetration Split Spoon Sampler.

Note: The boring logs depict our interpretation of the subsurface conditions at the dates and locations indicated. It is not warranted that they are representative of subsurface conditions at other times and locations. The lines separating strata on the boring logs represent approximate boundaries only. Actual transitions may be gradual.

ABBREVIATIONS
AD: Auger Drilling
MC: Modified California Sampler
SPT: Standard Penetration Test
DR: Hand Driven Sampler (undisturbed)
T1: Tube Sample (undisturbed)
B1: Grab Sample (disturbed)

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SOIL CLASSIFICATION CHART AND KEY TO LOGS OF EXPLORATORY BORINGS

LOG OF EXPLORATORY BORING B1

PROJECT NAME Skyline Ridge OSP - Field Office
PROJECT NUMBER 78.01
LOCATION South side of proposed building
SURFACE ELEV. app. 203'*
PAGE 1 of 1
DRILLING EQUIPMENT CME75, auto-hammer
HOLE DIAMETER 3 1/2 in.
ENG/GEO BSM
DRILLING CONTRACTOR Advance Drilling
SURFACE unimproved
DATE 2/10/94

LABORATORY: DRY DENSITY (pcf)	LABORATORY: MOISTURE CONTENT (%)	TORVANE (tsf)	POCK. PEN. (tsf)	RECOVERY (in/in)	SPT (bpf)	SAMPLE OR DRILL MODE	SAMPLE DESIG-NATION	DEPTH IN FEET	GRAPHIC LOG	USCS DESIG.	GEOTECHNICAL DESCRIPTION
						AD		1		SC	**COLLUVIUM** 0.0 - 1.0' Clayey SAND: Dark brown (7.5YR4/4); 50% coarse grained sand and fine gravel; 50% moderate plasticity fines; medium dense; moist.
								2		CL/CH	1.0 - 3.5' Silty CLAY: Very dark grayish brown (7.5YR5/6); 10% fine to medium grained sand; 90% moderate to high plasticity fines; firm; moist to wet.
				18/18	64	MC		3			
104.5	21.7						T1	4		CH	**WEATHERED BEDROCK** 3.5 - 4.1' Silty CLAY: Mottled strong brown (7.5YR5/6) and pinkish gray (7.5YR7/2); 20% coarse sand; 80% high plasticity fines; very stiff; moist to wet.
						AD		5			**LAMBERT SHALE FORMATION**
111.0	13.1		4.5+	6/6	50/6"	MC	T2	6			4.1 - 12.3' Highly fractured SILTSTONE; Mottled strong brown (7.5YR5/6) and pinkish gray (7.5YR7/2); dense to very dense; moist.
						AD		7			
112.6	13.9		4.5+	4/4	50/4"	MC	T3	8		ML	
						AD		9			
								10			
								11			
			4.5+	3/3	50/3"	SPT	B1	12			Boring terminated at 12.3'. No groundwater encountered.
								13			
								14			

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Remarks: * Project datum assumed field office finished floor at elevation 200.00'.

LOG OF EXPLORATORY BORING B2

PROJECT NAME Skyline Ridge OSP - Field Office
PROJECT NUMBER 78.01
LOCATION NW corner of proposed building
SURFACE ELEV. app. 193'*
PAGE 1 of 1
DRILLING EQUIPMENT Hand auger
HOLE DIAMETER 3 inch
ENG/GEO BH
DRILLING CONTRACTOR -
SURFACE unimproved
DATE 2/22/94

LABORATORY DRY DENSITY (pcf)	LABORATORY MOISTURE CONTENT (%)	TORVANE (tsf)	POCK. PEN. (tsf)	RECOVERY (in/in)	SPT (bpf)	SAMPLE OR DRILL MODE	SAMPLE DESIG-NATION	DEPTH IN FEET	GRAPHIC LOG	USCS DESIG.	GEOTECHNICAL DESCRIPTION
97.2	23.4			6/6		DR	T1			ML	**COLLUVIUM**
						AD		1			0.0 - 1.2' Clayey SILT: Dark brown (7.5YR4/4); 15% very fine to medium grained sand (sand content increases with depth to 30% at 1.0'); 85% low to moderate plasticity fines; medium dense; moist to wet.
92.6	25.8	0.6		6/6		DR	T1			CL/ ML	
						AD		2			
											1.2 - 2.5' Silty CLAY: Dark grayish brown (10YR4/2); 25% very fine to medium grained sand; 75% moderate plasticity fines; medium stif to stiff; moist to wet (moisture decreases with depth).
97.4	20.3	0.6		6/6		DR	T1	3		ML	
						AD					
98.2	23.4		4.5+	6/6		DR	T1	4			3.5 - 4.1' **LAMBERT SHALE FORMATION** Fractured SILTSTONE: Light yellowish brown (10YR6/4); very dense to hard; deeply weathered (weathering decreases with depth); low to moderate plasticity; damp;.
								5			
								6			Boring terminated at 4.1'. Refusal to hand auger. No groundwater encountered.
								7			
								8			
								9			
								10			
								11			
								12			
								13			
								14			

MILSTONE GEOTECHNICAL

Remarks: * Project datum assumed field office finished floor at elevation 200.00'.

LOG OF EXPLORATORY BORING B3

PROJECT NAME Skyline Ridge OSP - Field Office
PROJECT NUMBER 78.01
LOCATION NE corner of proposed building
SURFACE ELEV. app. 194'*
PAGE 1 of 1
DRILLING EQUIPMENT Hand auger
HOLE DIAMETER 3 inch
ENG/GEO BH
DRILLING CONTRACTOR -
SURFACE unimproved
DATE 2/22/94

LABORATORY DRY DENSITY (psf)	LABORATORY MOISTURE CONTENT (%)	TORVANE (tsf)	POCK. PEN. (tsf)	RECOVERY (in/in)	SPT (bpf)	SAMPLE OR DRILL MODE	SAMPLE DESIG-NATION	DEPTH IN FEET	GRAPHIC LOG	USCS DESIG.	GEOTECHNICAL DESCRIPTION
100.8	20.3	1.1		6/6		DR	T1			ML	**COLLUVIUM**
						AD		1			0.0 - 1.4' Clayey SILT: Dark brown (7.5YR4/4); 15% very fine to medium grained sand; (increasing sand content with depth); 85% low to moderate plasticity fines; medium dense; moist to wet; trace gravel to 1" diameter.
100.3	21.4		4.5+	3/6		DR	T1	2		ML	3.5 - 4.1'
								3			**LAMBERT SHALE FORMATION** Highly fractured SILTSTONE: Light yellowish brown (10YR6/4); very dense to hard; moderately weathered; dry to damp;.
								4			Boring terminated at 2.3'. Refusal to hand auger. No groundwater encountered.
								5			
								6			
								7			
								8			
								9			
								10			
								11			
								12			
								13			
								14			

MILSTONE GEOTECHNICAL

Remarks: * Project datum assumed field office finished floor at elevation 200.00'.

APPENDIX B
LABORATORY INVESTIGATION

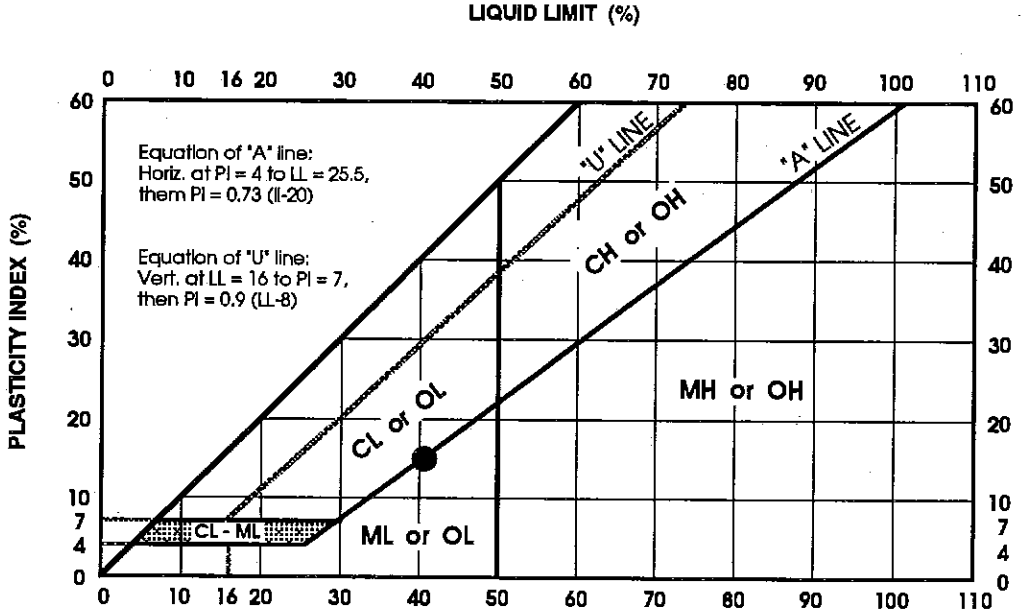
Summary of Laboratory Test Results
Summary of Atterberg Limits Test
Summary of R-value Test

TABLE B-1

SUMMARY OF LABORATORY TEST RESULTS

SKYLINE RIDGE OPEN SPACE PRESERVE
FIELD OFFICE
Skyline Boulevard
San Mateo County, California

Boring No./ Sample No.	Depth (ft)	Material Description	USCS	Moisture Content (%)	Dry Density (%)	Unconfined Compression (tsf)
B1 / T1	4.0 - 4.5	weath.sltstn.	ML	21.7	104.5	2.22
B1 / T2	6.0 - 6.5	siltstone	ML	13.1	111.0	-
B1 / T3	9.0 - 9.5	siltstone	ML	13.9	112.6	2.19
B2 / T1	0.0 - 0.5	topsoil	ML-MH	23.4	97.2	0.88
B2 / T2	1.2 - 1.7	colluvium	CL-ML	25.8	92.6	-
B2 / T3	2.7 - 3.2	siltstone	ML	20.3	97.4	0.72
B2 / T4	3.9 - 4.4	siltstone	ML	23.4	98.2	1.02
B3 / T1	3.3 - 3.8	topsoil	ML-MH	20.3	100.8	1.78
B3 / T2	5.0 - 5.3	siltstone	ML	21.4	100.3	-



SYMBOL	BORING / SAMPLE NO.	DEPTH (ft)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USC DESIGNATION
●	B2 / T2	1.2 - 1.7	41	15	CL / ML

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ATTERBERG LIMITS

FIELD OFFICE
SKYLINE RIDGE OPEN SPACE PRESERVE
San Mateo County, California

DATE	SCALE	FIGURE
March 1994	N.A.	B1

COOPER TESTING LABORATORIES

R-VALUE TEST

JOB #: 097-017
DATE: 3/28/94
CLIENT: Milstone
SAMPLE #: 78.01
SOIL TYPE: brown sandy Clay (CL-SC)

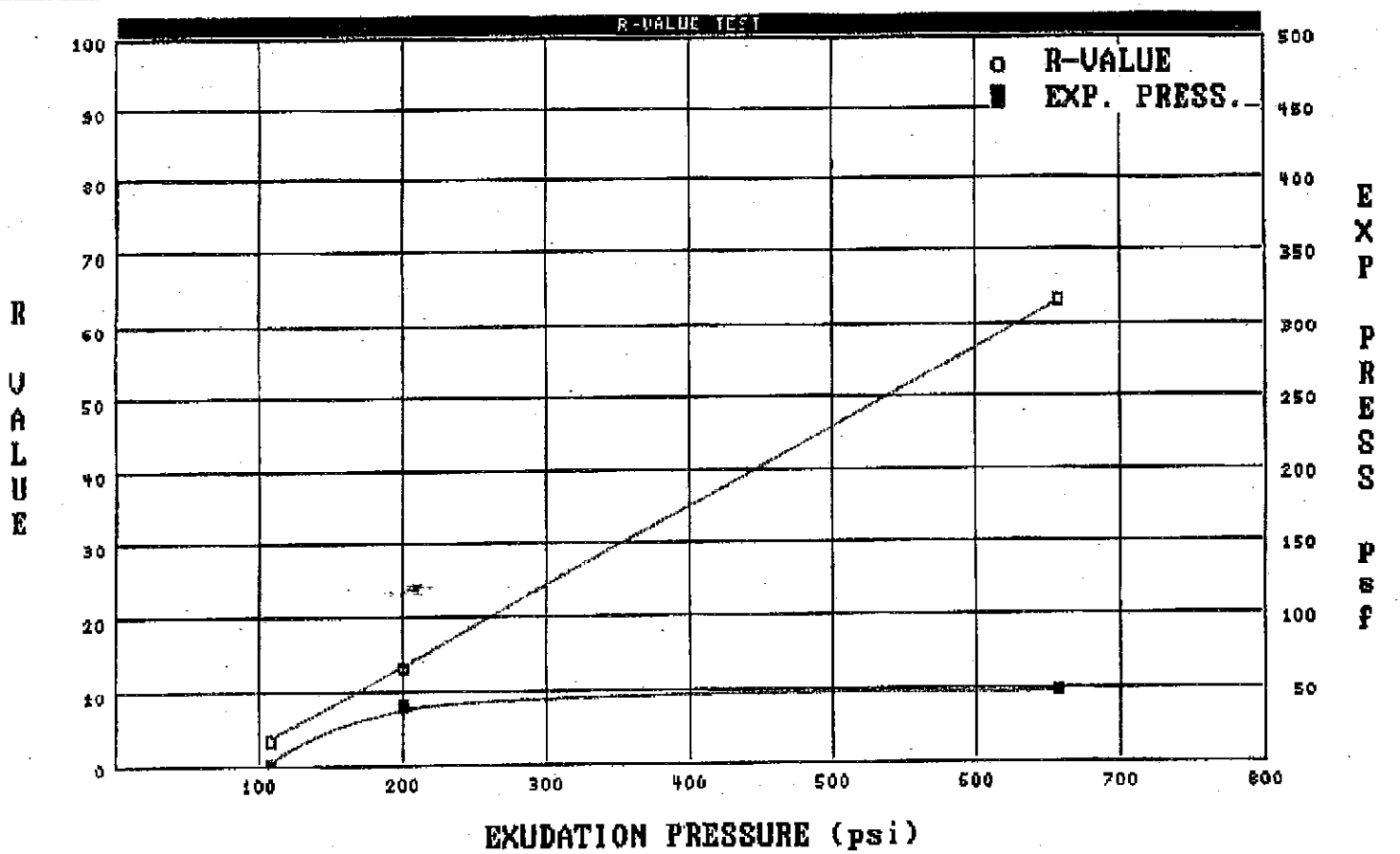
DISH WEIGHT: 166.3
WET: 322.6
DRY: 300.0
INITIAL MOISTURE: 0.1690

SPECIMEN	A	B	C	D
EXUDATION PRESSURE	108	200	658	0
PREPARED WEIGHT	1200	1200	1200	0
FINAL WATER ADDED	60	30	0	0
WEIGHT, SOIL & MOLD	3159	3067	3115	0
WEIGHT, MOLD	2103	2090	2097	0
HEIGHT	2.63	2.43	2.44	0.00
MOISTURE CONTENT	22.7	19.8	16.9	0.0
DRY DENSITY	99.0	101.6	108.1	0.0
EXPANSION DIAL	0	10	12	0
EXPANSION PRESSURE	0	43	52	0
STABILOMETER @ 2000 lb	150	130	46	0
TURNS DISPLACEMENT	4.73	3.48	3.39	0.00
R-VALUE	3	14	65	0
R-VALUE (corrected)	4	14	64	0

VALUES AT 300 EXUDATION

R-VALUE: 25
EXP. PRESSURE: 45

REMARKS:



APPENDIX C
Construction Observation Letter
(Milstone Geotechnical, 1997)

FAX TRANSMISSION

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
330 DISTEL CIRCLE
LOS ALTOS, CA 94022
TEL (415) 691-1200
FAX (415) 691-0485

To: GARY CARROL	**Date:** 04-28-97
Fax #: 408 279-8537	**Pages:** 5 Number of Pages Including this cover page.
From: MARY DE BEAUVIEGES	

Subject: SKYLINE RANGER STATION - 21150 SKYLINE BLVD.

Comments: Here's the geotech. report. (Thanks for the call) Project is complete & we'd like to schedule your visit to the site as soon as possible. Thanks.

IF TRANSMISSION IS INCOMPLETE OR ILLEGIBLE FOR ANY REASON, CALL (415) 691-1200.

SENT BY: MAB DATE AND TIME: 4/28

MILSTONE
GEOTECHNICAL

April 11, 1997
Project No. 78.04

Ms. Mary de Beauvieres
Midpeninsula Regional Open Space District
330 Distel Circle
Los Altos, California 94022

SUBJECT: **Construction Observation**
Field Office - Skyline Ridge Open Space Preserve
San Mateo County, California

Dear Ms. de Beauvieres:

We have performed construction observation services related to grading and foundation construction of the referenced project. As you are aware, we conducted a geotechnical investigation of the site and provided specific recommendations regarding the geotechnical aspects of the project in a report dated March 1994. The report included recommendations for design and construction of foundations for the proposed structure as well as for engineered fill to be placed for grading of the building pad and driveways. The purpose of our field services was to verify that the encountered site conditions are the same as those anticipated by the investigation and that construction was performed in accordance with our recommendations.

The observed efforts include site clearing, grading of the building pad, drilling, preparation of driveway subgrades and placement of baserock. Based on our observations, these permanent improvements are considered to be in satisfactory compliance with the recommendations presented in the geotechnical report. A summary of field density test results and tabulated pier observations are included for reference. Daily field logs and site maps with approximate test locations will be maintained in our files.

The provided services were performed in accordance with generally accepted geotechnical engineering principles and practices. Under no circumstances is any warranty, express or implied, or merchantability of fitness made or intended in connection with the providing of geotechnical engineering services or by the furnishing of oral or written reports or findings.

If you have any questions regarding this letter, or need additional assistance, please phone.

3 attached pages

Sincerely,
MILSTONE GEOTECHNICAL

Barry S. Milstone

Barry S. Milstone
G.E. 2111

17020 Melody Lane • Los Gatos, California 95030 • fax 408.353.9690 • phone 408.353.5528

TABLE A
SUMMARY OF FIELD DENSITY TESTS

Skyline Ridge Open Space Preserve - Field Office
San Mateo County, California

TEST NO.	DATE OF TEST	APPROX. FILL DEPTH (feet)	LOCATION	DEPTH BELOW FINISH PAD (feet)	FIELD		RELATIVE COMP. (%)	RECOMM. REL. COMP. (%)	CURVE NO.	RETEST OF TEST NO.
					DRY DENSITY (psf)	WATER CONTENT (%)				
1	5/24/96	2.0	Keyway	4.0	103.1	18.1	96	95	1	
2	"	0.8	"	4.0	104.4	20.2	97	"	"	
3	"	2.0	"	4.0	98.8	20.0	95	"	"	
4	"	1.5	"	4.0	103.3	19.3	96	"	"	
5	5/28/96	0.0	Building Pad	0.0	103.7	17.0	96	"	"	
6	"	1.0	"	1.0	103.8	15.8	96	"	"	
7	"	2.0	"	2.0	103.8	20.1	97	"	"	
8	"	3.0	"	1.0	102.8	18.0	96	"	"	
9	"	2.0	"	1.0	105.4	14.6	98	"	"	
10	5/29/96	2.0	"	0.0	105.8	18.2	98	"	"	
11	"	2.5	"	0.0	103.7	15.9	96	"	"	
12	"	1.5	"	0.0	102.3	20.2	95	"	"	
13	5/31/96	0.0	Slope Face	0.0	104.4	14.7	97	"	"	
14	"	0.0	"	0.0	103.0	16.8	96	"	"	

CURVE NO.	MATERIAL SOURCE	MAXIMUM DRY DENSITY (pcf)	OPTIMUM WATER CONTENT (%)
1	On-site	107.6	18.7
2	Pilarcitos Quarry	135.8	7.6

TEST NO.	DATE OF TEST	APPROX. FILL DEPTH (feet)	LOCATION	DEPTH BELOW FINISH PAD (feet)	FIELD		RELATIVE COMP. (%)	RECOMM. REL. COMP. (%)	CURVE NO.	RETEST OF TEST NO.
					DRY DENSITY (psf)	WATER CONTENT (%)				
15	10/23/96	0.0	Driveway	0.5	102.0	14.2	94.0	"	"	
16	"	0.0	"	0.5	97.9	12.6	91.0	"	"	
17	"	1.0	HP parking	0.5	104.6	20.3	97.0	"	"	
18	"	1.0	"	0.5	103.9	19.7	96.0	"	"	
19	"	0.0	Parking	0.5	103.7	13.3	96.0	"	"	
20	"	0.0	"	0.5	102.8	13.7	95.0	"	"	
21	"	0.0	Driveway	0.5	104.1	17.5	96.0	"	"	15
22	"	0.0	"	0.5	102.2	16.7	95.0	"	"	
23	"	0.0	"	0.5	106.4	15.3	99.0	"	"	16
24	"	0.0	Turn-out	0.5	107.0	17.8	99.0	"	"	
25	3/26/97	0.0	Access Road	0.5	106.5	13.9	99.0	"	"	
26	"	0.0	"	0.5	104.8	19.4	97.0	"	"	
27	"	0.0	"	0.5	102.1	20.0	95.0	"	"	
28	"	0.0	"	0.5	103.3	20.4	95.0	"	"	
29	4/1/97	0.8	Access Road	0.0	129.6	5.4	95.0	"	2	
30	"	"	"	0.0	128.5	6.2	95.0	"	"	
31	"	"	"	0.0	131.9	6.5	97.0	"	"	
32	"	"	"	0.0	128.5	4.0	95.0	"	"	

CURVE NO.	MATERIAL SOURCE	MAXIMUM DRY DENSITY (pcf)	OPTIMUM WATER CONTENT (%)
1	On-site	107.6	18.7
2	Pilarcitos Quarry	135.8	7.6

TABLE B
SUMMARY OF PIER DEPTHS

Skyline Ridge Open Space Preserve - Field Office
San Mateo County, California

LOCATION	HOLE DEPTH (feet)	CAGE LENGTH (feet)	LOCATION	HOLE DEPTH (feet)	CAGE LENGTH (feet)	LOCATION	HOLE DEPTH (feet)	CAGE LENGTH (feet)
A/1	9' 6"	9' 0"	B/3	12' 0"	12' 0"	C/2+30	11' 0"	10' 0"
A/1+7.3	9' 10"	9' 0"	B/4	12' 7"	12' 0"	C/3	9' 9"	10' 0"
A/1+14	9' 6"	9' 0"	B+7.9/1	11' 2"	9' 0"	C/4	11' 0"	10' 0"
A/2	10' 0"	9' 0"	B+7.9/1+7.3	11' 4"	9' 0"	C/4+3.8	10' 7"	10' 0"
A/2+6	10' 6"	10' 6"	B+7.9/1+14	11' 2"	9' 0"	C+7.3/2	10' 7"	8' 0"
A/2+12	10' 6"	10' 6"	B+7.9/2	10' 10"	9' 0"	C+7.3/2+5.5	11' 3"	8' 0"
A/2+18	11' 0"	10' 6"	B+7.9/2+6	10' 6"	9' 0"	C+7.3/2+12	10' 10"	8' 0"
A/2+24	10' 6"	10' 6"	B+7.9/2+12	9' 6"	9' 0"	C+7.3/2+18	10' 1"	8' 0"
A/2+30	9' 5"	10' 6"	B+7.9/2+18	10' 6"	9' 0"	C+7.3/2+24	11' 5"	8' 0"
A/3	10' 6"	10' 6"	B+7.9/2+24	9' 3"	9' 0"	C+7.3/2+30	10' 5"	10' 0"
A+6.8/1	10' 5"	9' 0"	B+7.9/2+30	13' 0"	12' 0"	C+7.3/3	11' 2"	10' 0"
A+6.8/1+7.3	9' 3"	9' 0"	B+7.9/3	12' 8"	12' 0"	C+9/4+3.8	10' 0"	10' 0"
A+6.8/1+14	9' 0"	9' 0"	B+7.9/4	13' 0"	12' 0"	C+11.32+18	9' 7"	8' 0"
A+8.7/2	8' 0"	10' 6"	B+15.2/1	10' 6"	9' 0"	C+11.3/2+24	9' 8"	8' 0"
A+8.7/2+6	9' 6"	10' 6"	B+15.2/1+7.3	11' 0"	9' 0"	C+12.5/3+2.1	11' 5"	10' 0"
A+8.7/2+12	11' 0"	10' 6"	B+15.2/1+14	10' 6"	9' 0"	C+15.3/2	9' 3"	8' 0"
A+8.7/2+18	10' 4"	10' 6"	B+15.2/2	10' 0"	9' 0"	C+15.3/2+5.5	9' 7"	8' 0"
A+8.7/2+24	10' 6"	10' 6"	B+15.2/2+6	11' 1"	9' 0"	C+15.3/2+12	9' 6"	8' 0"
A+8.7/2+30	10' 8"	10' 6"	B+15.2/2+12	10' 6"	9' 0"	C+15.3/2+18	8' 9"	8' 0"
A+8.7/3	11' 0"	10' 6"	B+15.2/2+18	9' 10"	9' 0"	C+15.3/2+25.5	11' 0"	8' 0"
A+12.9/1	9' 11"	9' 0"	B+15.2/2+24	10' 1"	9' 0"	C+715.3.3/2+30	9' 4"	10' 0"
A+12.9/1+7.3	10' 0"	9' 0"	B+15.2/2+30	12' 2"	12' 0"	C+15.3/3	11' 6"	10' 0"
A+12.9/1+14	10' 2"	9' 0"	B+15.2/3	11' 6"	12' 0"	C+15.3/3+4.3	11' 3"	10' 0"
A+16.7/2	10' 9"	10' 6"	B+15.2/4	12' 0"	12' 0"	C+15.3/4+3.8	10' 6"	10' 0"
A+16.7/2+6	11' 5"	10' 6"	C/1	10' 10"	8' 0"	D/2	6' 8"	8' 0"
A+16.7/2+12	11' 0"	10' 6"	C/1+7.3	11' 0"	8' 0"	D/2+5.5	6' 8"	8' 0"
A+16.7/2+18	10' 1"	10' 6"	C/1+14	10' 2"	8' 0"	D/2+12	10' 0"	8' 0"
A+16.7/2+24	13' 3"	12' 0"	C/2	11' 3"	8' 0"	D/2+18	9' 8"	8' 0"
B/1	11' 2"	9' 0"	C/2+5.5	10' 7"	8' 0"	D/2+24	10' 9"	8' 0"
B/1+7.3	10' 9"	9' 0"	C/2+12	9' 10"	8' 0"	D/2+30	11' 7"	10' 0"
B/1+14	11' 2"	9' 0"	C/2+18	11' 3"	8' 0"	D/3	11' 2"	10' 0"
B/2	11' 0"	9' 0"	C/2+24	10' 9"	8' 0"	D/4+3.8	10' 10"	10' 0"

Appendix H
Cost Estimate

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Budget Estimate Report

Rapid Site Assessment
Rough Order of Magnitude Budgets

Midpeninsula Regional Open Space District
Skyline Field Office Site Alternatives

San Mateo County, CA

Report Date:
Revised (v.3)
12/12/24

Prepared for:
Siegel & Strain Architects

Prepared by:
Robert Borinstein
R. Borinstein Company

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS
Rough Order of Magnitude Estimate

EXECUTIVE SUMMARY REPORT
Draft Date 12/12/24
Submission Revised3

Project: Midpeninsula Regional Open Space District
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

SCHEME DESCRIPTION	NET COST OF HARD CONSTRUCTION - ESCALATION NOT APPLIED SITE ALT 1 - EXISTING SFO SITE	SITE ALT 2 - SKYLINE RIDGE CIRCLE LOT	SITE ALT 3 - SHERRILL SITE
I. BUILDINGS			
1. OFFICE / ADMINISTRATION BUILDING	$ 4,629,000	$ 4,629,000	$ 4,629,000
2. SHARED SUPPORT BUILDING	$ 3,976,000	$ 3,976,000	$ 3,976,000
3. SHOPS BUILDING - ENCLOSED & CONDITIONED	$ 3,782,000	$ 3,782,000	$ 3,782,000
4. SPECIAL STORAGE BUILDING - ENCLOSED & CONDITIONED	$ 2,583,000	$ 2,583,000	$ 2,583,000
5. MATERIAL STOCKPILE BUILDING - 3 SIDED CMU	$ 1,797,000	$ 1,797,000	$ 1,797,000
6. EQUIPMENT STORAGE BUILDING - OPEN SIDED	$ 1,965,000	$ 1,965,000	$ 1,965,000
SUBTOTAL	$ 18,732,000	$ 18,732,000	$ 18,732,000
II. INFRASTRUCTURE - UTILITIES			
1. STORM DRAINAGE	$ 856,000	$ 568,000	$ 877,000
2. WATER - DOMESTIC & FIRE	$ 1,541,000	$ 1,897,000	$ 1,741,000
3. SANITARY SEPTIC SYSTEM	$ 389,000	$ 537,000	$ 537,000
4. FUELING & WASH STATIONS	$ 293,000	$ 293,000	$ 293,000
5. ELECTRICAL SERVICE	$ 314,000	$ 283,000	$ 312,000
6. SOLAR & BATTERY SYSTEM	$ 444,000	$ 444,000	$ 444,000
7. BACK-UP GENERATOR	$ 332,000	$ 332,000	$ 332,000
8. EV CHARGING	$ 59,000	$ 59,000	$ 59,000
9. SITE LIGHTING	$ 126,000	$ 126,000	$ 126,000
10. DATA & COMMUNICATION SERVICE	$ 38,000	$ 20,000	$ 20,000
SUBTOTAL	$ 4,392,000	$ 4,559,000	$ 4,741,000
III. SITEWORK - HARDSCAPE & LANDSCAPE			
1. ROUGH GRADING & RETAINING WALLS	$ 626,000	$ 1,535,000	$ 1,192,000
2. PAVING - VEHICULAR / WORK YARD	$ 2,586,000	$ 2,193,000	$ 3,096,000
3. PAVING - PEDESTRIAN SIDEWALKS	$ 95,000	$ 97,000	$ 185,000
4. PAVING - EMPLOYEE GATHERING AREAS	$ 54,000	$ 65,000	$ 114,000
5. SITE FURNISHINGS & AMENITIES	$ 91,000	$ 76,000	$ 81,000
6. COVERED DUMPSTER PAD	$ 192,000	$ 192,000	$ 192,000
7. FENCING	$ 86,000	$ 212,000	$ 67,000
8. LANDSCAPE	$ 94,000	$ 169,000	$ 242,000
SUBTOTAL	$ 3,824,000	$ 4,539,000	$ 5,169,000
IV. MOBILIZATION, SITE PREP, & DEMOLITION			
1. MOBILIZATION & SITE PREPARATION	$ 452,000	$ 452,000	$ 452,000
2. BUILDING DEMOLITION	$ 373,000	$ 5,000	$ -
3. BUILDING RELOCATION	$ 238,000	$ -	$ -
4. MISCELLANEOUS SITE DEMOLITION	$ 55,000	$ 8,000	$ 11,000
5. HAZARDOUS WASTE REMOVAL ALLOWANCE	$ 126,000	$ -	$ -
SUBTOTAL	$ 1,118,000	$ 465,000	$ 463,000
V. TEMPORARY MROSD FACILITIES - ALT 1 ONLY			
1. SITE PREPARATION & SITE REPAIR	$ 18,000	$ -	$ -
2. OFFICE, RESTROOM, & SHOWER/LAUNDRY TRAILERS - RENTAL	$ 693,000	$ -	$ -
3. CONEX STORAGE CONTAINERS - RENTAL	$ 51,000	$ -	$ -
4. COVERED SHOP STRUCTURE - CONSTRUCT & REMOVE	$ 145,000	$ -	$ -
5. ELECTRICAL SERVICE FEED FOR TEMP FACILITIES	$ 59,000	$ -	$ -
SUBTOTAL	$ 966,000	$ -	$ -
TOTAL BUDGET ESTIMATE	$ 29,032,000	$ 28,295,000	$ 29,105,000

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS
Rough Order of Magnitude Estimate

EXECUTIVE SUMMARY REPORT
Draft Date 12/12/24
Submission Revised3

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

MARK-UP FACTORS APPLIED TO DIRECT COSTS TO DERIVE NET

(Mark-up factors progressively compounded)		
General Expenses		10.00%
Site Remoteness Premium Factor		10.00%
Contractor's Fee (OH & Profit)		15.00%
Contractor Insurance		1.00%
Building Permit	Excluded - in owner budget	0.00%
Design & Est Contingency		20.00%
Cost Escalation - Not Applied This Exercise		0.00%
	Effective Mark-up Total (after compounding)	**68.65%**

ESTIMATE SUMMARY EXCLUSIONS

1 FF&E (Furnishings, Fixtures, & Equipment - Non Built-in)
2 Planning or permit fees.
3 The cost of performance and payment bonds
4 The cost to remove hazardous materials as well as the cost to work in the presence of hazardous materials except at the Alt 1 site
5 Project soft costs (A&E Fees, Owner's Management Expenses, Builder's Risk Insurance, Capital Campaign Costs, etc)
6 Project course of construction contingency. (This is not to be confused with the pre-construction design contingency included in the estimate)

Refer to attached estimate detail

ESTIMATE NOTES, QUALIFICATIONS, AND ASSUMPTIONS

Project: Midpeninsula Regional Open Space District
Skyline Field Office Rapid Site Assessment
Alternatives Rough Order of Magnitude Cost Estimates

Location: Skyline Ridge
San Mateo County, CA

Report Date: 12/12/24 Rev3

The following is meant to clarify select assumptions used in this rapid assessment concept design budget estimate and serves as a supplement to the design documents upon which this estimate is based. It does not necessarily constitute a complete narrative of all assumptions included in the estimate.

PROJECT DOCUMENTS

This estimate report is based on the following documents:

- Midpeninsula Regional Open Space District, Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative dated 11/8/24 as prepared by Siegel & Strain Architects
- Supplemental Drawing: Temporary Field Office at Skyline Ridge Equestrian Lot dated 10/30/24 as prepared by Siegel & Strain Architects
- Siegel & Strain email correspondence between 10/9/24 and 10/30/24 clarifying scope assumptions as well as comments from internal draft review on 11/8/24

ESTIMATE BASIS

1. This budget estimate report represents the probable cost of "hard construction" as understood at the concept design phase and is assembled using empirical market data and input from industry professionals. It is also to be understood as a rough order of magnitude estimate based on the initial concept designs at the earliest stages of project planning. It is not a guarantee of final project cost, which is dependent upon the development of details for the final design as well as upon the methodology of bid solicitation and the bidding climate at the time of award.

2. Mobilization. The estimate has been prepared assuming a single-phase mobilization for the full scope of the proposed project at this time.

3. Inflation Escalation. Inflation escalation has **not** been applied to the estimate. It is not clear at this point when construction may be performed so the estimate is based on an understanding of present-day costs. As an exercise to understand the impact of inflation escalation on the project estimate, it is recommended that a rate of 5% compounded annually be applied to the estimate total for each year between now and the anticipated year of construction.

4. Mark-up Factors. Mark-up factors are added to direct costs for labor, material, and equipment calculated in the estimate detail to capture the general or prime contractor's overhead and profit and general field expenses necessary to manage subcontractors and the site. A design/estimating contingency is also captured in this mark-up structure, which is structured and described as listed below. These factors are progressively applied meaning each factor is applied to the sum of the direct costs and the preceding mark-up factors:

General Expenses:	10.00%
Site Remoteness Factor:	15.00%

Contractor's Fee (OH & PR)	15.00%
Contractor's Insurance:	1.00%
Design/Estimating Contingency:	20.00%
Escalation:	Not Applied

a. Contractor's General Expenses. A budget has been applied for the general contractor's field expenses and temporary construction required to manage and supervise subcontractors, vendors, and on-site construction activities. This budget is presently factored as a percentage of the cost of construction.

b. Site Remoteness Premium Factor. A mark-up factor has been applied to account for the added cost for transporting equipment, material, and labor to and from the site due to its distance from the urban center via winding access roads.

c. General Contractor's Fee. General contractor's overhead and profit has been included as a combined fee factored as a percentage of cost including the general contractor's expenses.

d. General Contractor's Insurance. A budget for contractor's insurance is applied as a percentage of cost plus fees.

e. Contingency. A design and estimating contingency has been factored as a percentage of cost plus fees and insurance and has been applied to reflect the phase of design documents. As noted in the Exclusions section below, this does not include the owner's course of construction contingency, which is assumed to be carried in a separate owner's budget.

f. Inflation Escalation. Not applied at this time as noted above.

PROJECT NOTES & QUALIFICATIONS

1. Program Buildings: The buildings as priced in the estimating exercise are assumed to be same across all three site alternatives. The Administration and Shared Support buildings are priced to be wood framed buildings with budgets for varying finish materials on the building façade and roof. All other program buildings are priced to be steel buildings with metal siding and metal roofs.

2. Phylophthora Control: The estimate includes budgets to provide water and labor required to wash down equipment entering and leaving the sites as part of an effort to control the spread of Phylophthora.

3. Hazardous Materials Allowance. The estimate includes a direct cost allowance of $75,000 (NET $126,000) for possible encounter of hazardous materials at the existing Skyline Field Office site (Alt 1) only. Excludes the cost of hazardous waste removal or mitigation at either the Ridge Circle (Alt 2) or the **Sherrill Winery** (Alt 3) sites. Neither of these two sites are expected to have hazardous materials.

4. PG&E Budgets. Placeholder budgets have been included for PG&E fees to provide new electrical service as well as relocate overhead lines that conflict with new building layouts. It is difficult to anticipate the amount of these fees because the circumstances by which PG&E calculates their fees can vary greatly between projects.

5. Specific Exclusions.

   a. Furnishings, Fixtures, & Equipment (FF&E): Excludes the cost for purchasing, installing, relocating, or storing furnishings, fixtures, & equipment.

b. Bonds & Permits. Excludes the cost of bonds, if required, and the cost of building or planning permits are assumed to be carried in a separate owner's budget.

c. Owner Soft and Direct Costs. Excludes anticipated "owner soft and direct project costs" meant to represent all costs and expenses, additional to the net cost of hard construction, the project owner will likely incur throughout the entire duration of project planning and delivery. This category of costs is comprised of, but not necessarily limited to, architectural and engineering design fees, miscellaneous professional consultant fees, special inspections and testing during both pre-construction and construction phases, industrial hygienist investigations and inspections, hazardous materials abatement, planning & building permit fees, utility service connection and meter fees, project owner legal fees, builder's risk insurance or other project owner insurance expenses, legal fees, finance costs, capital campaign expenses, project owner project management and administration expenditures, etc.

d. Course of Construction Contingency. Excludes the cost of course of construction contingency. The owner should carry a separate course of construction contingency in anticipation of construction phase change orders resulting from discovery of unknown site conditions, design conflicts, and owner generated discretionary changes. Typically, this contingency is meant to cover not only claims from the contractor but add service claims by the design team. It is recommended that a factor of 2% to 5% of the total project cost (hard plus soft costs) be carried by the owner. The course of construction contingency is separate from the design and estimating contingency carried in the estimate to account for the conceptual nature of the design documents.

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 1 - EXISTING SFO SITE
I. BUILDINGS

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals		quals & assumptions
1. OFFICE / ADMINISTRATION BUILDING		**5,700**	**gsf**						
F1020	**Integrated Construction**								
	Pad preparation	5,700.00	gsf	0.50	2,850				
	Foundation & slab-on-grade	5,700.00	gsf	35.00	199,500				
	Structure above grade - wood framed site built - simple geometry - 10'0 high	5,700.00	gsf	50.00	285,000				
	Vertical envelope - façade, windows, & doors	5,700.00	gsf	75.00	427,500				
	Horizontal envelope - roof	5,700.00	gsf	15.00	85,500				
	Interior white shell - drywall & interior doors	5,700.00	gsf	40.00	228,000				
	Interior buildout & finishes	5,700.00	gsf	100.00	570,000				
	Plumbing	5,700.00	gsf	15.00	85,500				
	Fire sprinkers	5,700.00	gsf	9.00	51,300				
	HVAC	5,700.00	gsf	60.00	342,000				
	Electrical distribution	5,700.00	gsf	40.00	228,000				
	Lighting	5,700.00	gsf	30.00	171,000				
	Fire alarm	5,700.00	gsf	4.00	22,800				
	Data/com	5,700.00	gsf	3.00	17,100				
	Security & access control	5,700.00	gsf	5.00	28,500				
	Subtotal					**2,744,550**			
TOTAL:	**1. OFFICE / ADMINISTRATION BUILDING**						**2,744,550**		*$482 /gsf - direct cost*
	Net Total Incl Mark-up							$4,629,000	*$812 /gsf - net const*
2. SHARED SUPPORT BUILDING		**5,000**	**gsf**						
F1020	**Integrated Construction**								
	Pad preparation	5,000.00	gsf	0.50	2,500				
	Foundation & slab-on-grade	5,000.00	gsf	35.00	175,000				
	Structure above grade - wood framed site built - simple geometry - 10'0 high	5,000.00	gsf	50.00	250,000				
	Vertical envelope - façade, windows, & doors	5,000.00	gsf	75.00	375,000				
	Horizontal envelope - roof	5,000.00	gsf	15.00	75,000				
	Interior white shell - drywall & interior doors	5,000.00	gsf	40.00	200,000				
	Interior buildout & finishes	5,000.00	gsf	80.00	400,000				
	Plumbing	5,000.00	gsf	25.00	125,000				
	Fire sprinkers	5,000.00	gsf	9.00	45,000				
	HVAC	5,000.00	gsf	60.00	300,000				
	Electrical distribution	5,000.00	gsf	40.00	200,000				
	Lighting	5,000.00	gsf	30.00	150,000				
	Fire alarm	5,000.00	gsf	4.00	20,000				
	Data/com	5,000.00	gsf	3.00	15,000				
	Security & access control	5,000.00	gsf	5.00	25,000				
	Subtotal					**2,357,500**			
TOTAL:	**2. SHARED SUPPORT BUILDING**						**2,357,500**		*$472 /gsf - direct cost*
	Net Total Incl Mark-up							$3,976,000	*$795 /gsf - net const*
3. SHOPS BUILDING - ENCLOSED & CONDITIONED		**6,150**	**gsf main shops bldg + covered work space**						
F1020	**Integrated Construction** **Main Shops Bldg**	**4,950**	**gsf**						
	Pad preparation	4,950.00	gsf	0.50	2,475				
	Foundation & slab-on-grade	4,950.00	gsf	35.00	173,250				
	Pre-engineered steel building including structure, metal siding, & metal roofing - 15'0 high	4,950.00	gsf	75.00	371,250				
	Interior white shell - drywall & interior doors	4,950.00	gsf	10.00	49,500				

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I. BUILDINGS

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals		quals & assumptions
	Interior buildout & maintenance lifts & overhead hoist	4,950.00	gsf	100.00	495,000				
	Plumbing - drains incl sand/grease separator, hose bibs, & wash sinks	4,950.00	gsf	25.00	123,750				
	Fire sprinkers	4,950.00	gsf	9.00	44,550				
	HVAC including work bay exhaust system	4,950.00	gsf	75.00	371,250				
	Electrical distribution	4,950.00	gsf	60.00	297,000				
	Lighting	4,950.00	gsf	20.00	99,000				
	Fire alarm	4,950.00	gsf	4.00	19,800				
	Data/com	4,950.00	gsf	1.50	7,425				
	Security & access control	4,950.00	gsf	2.00	9,900				
	Subtotal					**2,064,150**			*$417 /gsf - direct cost*
									$703 /gsf - net const
F1020	**Integrated Construction** **Covered Work Space**	**1,200**	**gsf**						
	Pad preparation	1,200.00	gsf	0.50	600				
	Foundation & slab-on-grade	1,200.00	gsf	35.00	42,000				
	Pre-engineered steel building including structure & metal roofing	1,200.00	gsf	50.00	60,000				
	Plumbing - drains & hose bibs (tied into Shops Bldg system	1,200.00	gsf	5.00	6,000				
	Fire sprinkers	1,200.00	gsf	9.00	10,800				
	Electrical distribution	1,200.00	gsf	30.00	36,000				
	Lighting	1,200.00	gsf	15.00	18,000				
	Fire alarm	1,200.00	gsf	4.00	4,800				
	Subtotal					**178,200**			*$149 /gsf - direct cost*
									$250 /gsf - net const
	TOTAL: 3. SHOPS BUILDING - ENCLOSED & CONDITIONED						**2,242,350**		*$365 /gsf - direct cost*
	Net Total Incl Mark-up							$3,782,000	*$615 /gsf - net const*
4. SPECIAL STORAGE BUILDING - ENCLOSED & CONDITIONED		**4,200**	**gsf**						
F1020	**Integrated Construction**								
	Pad preparation	4,200.00	gsf	0.50	2,100				
	Foundation & slab-on-grade	4,200.00	gsf	35.00	147,000				
	Pre-engineered steel building including structure, metal siding, & metal roofing - 18'0 high	4,200.00	gsf	80.00	336,000				
	Mezzanine - use 30% of footprint - pre-engineered structure	1,400.00	gsf	35.00	49,000				
	Interior white shell - drywall & interior doors	5,600.00	gsf	10.00	56,000				
	Interior buildout & finishes - incl specal storage construction	5,000.00	gsf	50.00	250,000				
	Plumbing - drains incl sand/grease separator, hose bibs, & wash sinks	4,200.00	gsf	25.00	105,000				
	Fire sprinkers	5,600.00	gsf	9.00	50,400				
	HVAC including specialed exhaust system	5,600.00	gsf	50.00	280,000				
	Electrical distribution	4,200.00	gsf	35.00	147,000				
	Lighting	4,200.00	gsf	20.00	84,000				
	Fire alarm	4,200.00	gsf	4.00	16,800				
	Security & access control	4,200.00	gsf	2.00	8,400				
	Subtotal					**1,531,700**			
	TOTAL: 4. SPECIAL STORAGE BUILDING - ENCLOSED & CONDITIONED						**1,531,700**		*$365 /gsf - direct cost*
	Net Total Incl Mark-up							$2,583,000	*$615 /gsf - net const*
5. MATERIAL STOCKPILE BUILDING - 3 SIDED CMU		**6,500**	**gsf**						
F1020	**Integrated Construction**								
	Pad preparation	6,500.00	gsf	0.50	3,250				
	Foundation & slab-on-grade	6,500.00	gsf	35.00	227,500				
	CMU perimeter walls - 3 sides - use 15'0 high	3,600.00	sfwl	30.00	108,000				
	CMU interior bay walls - use 5 ea 40'0 x 15'0 high	3,000.00	sfwl	30.00	90,000				
	Pre-engineered roof structure & metal roofing	6,500.00	gsf	25.00	162,500				
	Plumbing - drains incl sand/grease separator, hose bibs, & wash sinks	6,500.00	gsf	25.00	162,500				
	Fire sprinkers	6,500.00	gsf	9.00	58,500				
	Electrical distribution	6,500.00	gsf	20.00	130,000				
	Lighting	6,500.00	gsf	15.00	97,500				

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I. BUILDINGS

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions		
	Fire alarm	6,500.00	gsf	4.00	26,000					
	Subtotal					**1,065,750**				
	TOTAL: 5. MATERIAL STOCKPILE BUILDING - 3 SIDED CMU						**1,065,750**		*$164*	*/gsf - direct cost*
	Net Total Incl Mark-up							$1,797,000	*$276*	*/gsf - net const*
6. EQUIPMENT STORAGE BUILDING - OPEN SIDED		**10,000**	**gsf**							
F1020	**Integrated Construction**									
	Pad preparation	10,000.00	gsf	0.50	5,000					
	Foundation & slab-on-grade	10,000.00	gsf	35.00	350,000					
	Pre-engineered steel building including structure & metal roofing - use 18'0 high	10,000.00	gsf	50.00	500,000					
	Plumbing - drains, sand/grease trap & hose bibs	10,000.00	gsf	5.00	50,000					
	Fire sprinkers	10,000.00	gsf	9.00	90,000					
	Electrical distribution	10,000.00	gsf	5.00	50,000					
	Lighting	10,000.00	gsf	8.00	80,000					
	Fire alarm	10,000.00	gsf	4.00	40,000					
	Subtotal					**1,165,000**				
	TOTAL: 6. EQUIPMENT STORAGE BUILDING - OPEN SIDED						**1,165,000**		*$117*	*/gsf - direct cost*
	Net Total Incl Mark-up							$1,965,000	*$197*	*/gsf - net const*

Raw Cost of Work			**11,106,850**	
(Mark-up factors progressively compounded)				
General Expenses	10.00%	1,110,685		
Site Remoteness Premium Factor	10.00%	1,221,754		
Contractor's Fee (OH & Profit)	15.00%	2,015,893		
Contractor Insurance	1.00%	154,552		
Building Permit	0.00%	-		*excluded - in owner budget*
Design & Est Contingency	20.00%	3,121,947		
Cost Escalation - Not Applied This Exercise	0.00%	-		*present cost of constr.*
Total Budget Estimate - Hard Construction	68.65%	7,624,830	**18,731,680**	

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 1 - EXISTING SFO SITE
II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	*trade* ***subtotals***	*assembly* *totals*	*quals & assumptions*
1. STORM DRAINAGE								
G3030	**Storm Sewer**							
	Storm drain piping - use 18" ABS	700.00	lf	65.00	45,500			
	Storm drain tie-ins to building foundation drains (see buildings for foundation drains)	6.00	ea	10,000.00	60,000			
	Storm drain clean-outs	20.00	ea	750.00	15,000			
	Culverts - use 36" complete with headwalls	3.00	ea	25,000.00	75,000			
	Drainage swale - earthen w/coir mat & wattles for temp erosion control	2,500.00	lf	20.00	50,000			
	Drainage swale - armored	750.00	lf	50.00	37,500			
	Storm drain & swale discharge dissipators	12.00	ea	1,200.00	14,400			
	Retention / detention basins (7 locations of various sizes) - assume bioswale function - complete with drainage rock and loam layers	6,000.00	sf	35.00	210,000			
	Subtotal					**507,400**		
	TOTAL: 1. STORM DRAINAGE						**507,400**	
	Net Total Incl Mark-up - Rounded							$856,000
2. WATER - DOMESTIC & FIRE								
F1020	**Integrated Construction** **Utility Bldg for Booster Pump**							
	Shed building for fire booster pump - not required this site		excl	0.00	-			
	Subtotal					**-**		
G1030	**Site Earthwork** **Storage Tank Pads**							
	Prep pad for new tank footprint pad and perimeter access - incl grub, clear, & off-haul and cut, fill, & grading - assume balanced	7,500.00	sf	3.00	22,500			
	Domestic water tank: Prep pad for new tank footprint pad and perimeter access - incl grub, clear, & off-haul and cut, fill, & grading - assume balanced	500.00	sf	3.00	1,500			
	Subtotal					**24,000**		
G2040	**Site Development** **Storage Tank Pads**							
	Fire water tank: Concrete pad for tank - use 40'0 diameter - 1'0 thick concrete over 9" section of base	1,260.00	sf	35.00	44,100			
	Fire water tank: Gravel surfacing around perimeter of tank - 3" gravel tread on 9" base - 15'0 wide surfacing around tank	2,600.00	sf	3.75	9,750			
	Domestic water tank: Concrete pad for tank - use 12'0 diameter - 6" thick concrete over 9" section of base	150.00	sf	25.00	3,750			
	Domestic water tank: Gravel surfacing around perimeter of tank - 3" gravel tread on 9" base - 10'0 wide surfacing around tank	230.00	sf	3.75	863			
	Subtotal					**58,463**		
G3010	**Water Supply** **Well & Water Treatment Facilities**							
	Well - existing - allow for minor maintenance and upgrades	1.00	bgt	10,000.00	10,000			
	Wellhead filtration - assume	1.00	ls	7,500.00	7,500			
	Domestic water treatment system - assume in-line downstream of domestic storage tank - located within one of the buildingss	1.00	ls	15,000.00	15,000			
	Fill pipe from wellhead/treatment to water tanks - use 3" PVC	450.00	lf	35.00	15,750			
	Valve assembly - split fire/domestic fill & bypass	1.00	bgt	15,000.00	15,000			
	Subtotal					**63,250**		
G3010	**Water Supply** **Storage Tanks**							
	Fire water storage tank - 180k gallon - use bolted galvanized steel , full set of appurtenances, and overflow & discharge piping.	1.00	ls	350,000.00	350,000			

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
	Fire water storage tank mixer & treatment - manually operated	1.00	bgt	15,000.00	15,000			
	Fill level monitor and transponder	1.00	bgt	2,000.00	2,000			
	Domestic water storage tank - 10k gallon - use bolted galvanized steel , full set of appurtenances, and overflow & discharge piping. Located adjacent to fire water tank.	1.00	ls	25,000.00	25,000			
	Subtotal					**392,000**		
G3010	**Water Supply** **Conveyance**							
	Fire water main from tank - 6". Use PVC C900 Class 150	2,500.00	lf	65.00	162,500			
	Domestic water main from tank - 4". Use PVC C900 Class 150	2,500.00	lf	55.00	137,500			
	Water main valving & appurtenances	1.00	bgt	35,000.00	35,000			
	Service laterals to buildings - 2" PVC	250.00	lf	25.00	6,250			
	Service lateral curb stops & meter boxes - assume	1.00	bgt	2,500.00	2,500			
	Subtotal					**343,750**		
G3010	**Water Supply** **Fire Hydrants**							
	Fire hydrants complete with valving, surge blocks, & lateral	5.00	ea	6,500.00	32,500			
	Subtotal					**32,500**		
G3010	**Water Supply** **Booster Pump**							
	Booster pump - not required this site		excl		-			
	Subtotal					**-**		
	TOTAL: 2. WATER - DOMESTIC & FIRE						**913,963**	
	Net Total Incl Mark-up							$1,541,000
3. SANITARY SEPTIC SYSTEM								
G3020	**Sanitary Sewer** **Conveyance**							
	Sanitary main - use 6" - assume quantity	600.00	lf	50.00	30,000			
	Sanitary laterals - use 4" - assume quantity	350.00	lf	40.00	14,000			
	Manholes - assume	4.00	ea	5,500.00	22,000			
	Clean-outs - assume 2 way at lateral connections to buildings	4.00	ea	800.00	3,200			
	Clean-outs - assume 2 way at lateral connections to wash station & dumpster slab	2.00	ea	800.00	1,600			
	Sand/grease separator - see buildings, wash station, & dumpster area		ea		-			
	Subtotal					**70,800**		
G3020	**Sanitary Sewer** **Treatment**							
	Advanced treatment - assume Orenco Advantex type system complete including control panel & start-up	1.00	ls	125,000.00	125,000			
	Existing leach lines - misc maint to valving & flow dispersal system	1.00	ls	10,000.00	10,000			
	New leach lines complete with shut-off & controls valving and boxes and general site clearing and repairs	70.00	lf	225.00	15,750			
	New leach line clean-outs & monitoring wells - per each line run	3.00	ea	3,000.00	9,000			
	Subtotal					**159,750**		
	TOTAL: 3. SANITARY SEPTIC SYSTEM						**230,550**	
	Net Total Incl Mark-up							$389,000
4. FUELING & WASH STATIONS								
D20	**Plumbing**							
	Wash station water station	1.00	bgt	1,000.00	1,000			
	Wash station drain	1.00	bgt	1,500.00	1,500			
	Wash station sand/grease trap	1.00	bgt	10,000.00	10,000			
	Subtotal					**12,500**		
F1020	**Integrated Construction**							
	Shade structure over fueling & wash stations complete	1,000.00	sf	50.00	50,000			
	Storage closet or shelving for wash supplies	1.00	bgt	5,000.00	5,000			
	Subtotal					**55,000**		
G2040	**Site Development**							
	Concrete mat slab - under fueling & wash stations	1,000.00	sf	30.00	30,000			
	Concrete house keeping pad for fueling tank	1.00	bgt	3,500.00	3,500			
	Concrete containment around fueling station	100.00	lf	50.00	5,000			

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
	Subtotal					**38,500**		
G3060	**Fuel Distribution**							
	Split fuel tank - assume 1,500 gal gas & 2,000 gal diesel - complete w/pumps, hose, & nozzle	1.00	bgt	60,000.00	60,000			
	Card lock vending system	1.00	bgt	7,500.00	7,500			
	Power feeder - see Electrical Service below				-			
	Subtotal					**67,500**		
	TOTAL: 4. FUELING & WASH STATIONS						**173,500**	
	Net Total Incl Mark-up							$293,000
5. ELECTRICAL SERVICE								
G1030	**Site Earthwork** **New 3Ph Service to Site**							
	Clear & grub woods for new underground feeder route from pole at the highway to the site	200.00	lf	10.00	2,000			
	Subtotal					**2,000**		
G2040	**Site Development** **New 3Ph Service to Site**							
	Landscape repair for underground feeder route from pole at the highway to the site	200.00	lf	8.00	1,600			
	Concrete pad for PG&E transformer - inlcude grounding	1.00	ea	3,500.00	3,500			
	Subtotal					**5,100**		
G40	**Electrical Site Utilities** **Relocate Existing OH Power (Relocate with underground - 1Ph overhead line cutting through site)**							
	UG conduit 4" - from pole at NE corner of site to pole near residence at south west of main facility - follow roadway	600.00	lf	35.00	21,000			
	Conduit sweeps at poles	2.00	ea	750.00	1,500			
	Subtotal					**22,500**		
G40	**Electrical Site Utilities** **New 3Ph Service to Site**							
	UG conduit 4" - from pole at south side of highway just north of the site to new transformer pad. Route through wooded hillside - conductor by PG&E (see PG&E fees below)	200.00	lf	45.00	9,000			
	UG conduit (4) 5" - from transformer pad to new metered main switchboard. Assume switchboard in building electrical closet - assume distance - Conductors transformer to meter by PG&E	50.00	lf	110.00	5,500			
	Conduit sweeps at pole by highway	1.00	ea	750.00	750			
	Conduit sweeps at transformer pad & switchboard	9.00	ea	600.00	5,400			
	Pad mounted transformer - by PG&E (see PG&E Fees below)		excl		-			
	Main metered switchboard - 1,200A, 120.208V, 3-PH	1.00	bgt	25,000.00	25,000			
	Branch feeders from switchboard to building main panels - assume quantity	400.00	lf	80.00	32,000			
	Electrical distribution in buildings - see building estimates			0.00	-			
	Subtotal					**77,650**		
G40	**Electrical Site Utilities** **Utility & Misc Equipment Feeds**							
	Wellhead pump - existing - assume power feed upgrades	1.00	bgt	2,000.00	2,000			
	Fire water booster pumps - power feed & panel - not required this site		excl		-			
	Domestic water booster pumps - power feed & panel - not required this site		excl		-			
	Water treatment system - power feed & panel	1.00	bgt	2,500.00	2,500			
	Advanced treatment equipment - power feed & panel	1.00	bgt	10,000.00	10,000			
	Fueling station - feeder and panel	1.00	bgt	2,500.00	2,500			
	Automatic vehicular gate - feeder & shut-off	1.00	bgt	2,000.00	2,000			
	Subtotal					**19,000**		
G40	**Electrical Site Utilities** **PG&E Fees - Place Holder Budgets**							
	Relocate 1PH line + demolition of overhead and 1 pole	1.00	allow	10,000.00	10,000			
	New service feeder & pad mounted transformer	1.00	allow	50,000.00	50,000			
	Subtotal					**60,000**		
	TOTAL: 5. ELECTRICAL SERVICE						**186,250**	
	Net Total Incl Mark-up							$314,000

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail *code*	*item description*	*quantity*		*unit cost*	*ext*	***trade subtotals***	*assembly totals*	*quals & assumptions*
6. SOLAR & BATTERY SYSTEM								
G2040	**Site Development**							
	Concrete pad for BESS structure - inlcude grounding	1.00	ea	3,500.00	3,500			
	Subtotal					**3,500**		
G4090	**Other Site Electrical Utilities**							
	PV array roof mounted panels. System complete with roof racks, optimizers, inverters, combiner boxes, & cabling	52.00	kW	2,500.00	130,000			
	BESS integrated micro-grid system - 22kW / 92kWh - complete with container, heat pump, & fire suppression - exterior pad mounted	1.00	bgt	125,000.00	125,000			
	Solar system panel & disconnect	1.00	bgt	5,000.00	5,000			
	Subtotal					**260,000**		
	TOTAL: 6. SOLAR & BATTERY SYSTEM						**263,500**	
	Net Total Incl Mark-up							$444,000
7. BACK-UP GENERATOR								
G2040	**Site Development**							
	Concrete pad for generator structure - inlcude grounding	1.00	ea	3,500.00	3,500			
	Containment curb	50.00	lf	65.00	3,250			
	Subtotal					**6,750**		
G4090	**Other Site Electrical Utilities**							
	Genset complete - 200kW, 120/208V, 3ph - diesel with 700 gal belly tank - exterior pad mount	1.00	ea	120,000.00	120,000			
	Auto transfer switch - 1,200A	1.00	ea	65,000.00	65,000			
	Underground connection generator to main electrical service - include tie-in	1.00	bgt	5,000.00	5,000			
	Subtotal					**190,000**		
	TOTAL: 7. BACK-UP GENERATOR						**196,750**	
	Net Total Incl Mark-up							$332,000
8. EV CHARGING								
G4090	**Other Site Electrical Utilities**							
	Level 2 EV charger pedestals - pair	3.00	pair	5,000.00	15,000			
	Underground feeders to EV chargers	1.00	bgt	500.00	20,000			
	Subtotal					**35,000**		
	TOTAL: 8. EV CHARGING						**35,000**	
	Net Total Incl Mark-up							$59,000
9. SITE LIGHTING								
G4020	**Site Lighting**							
	Site lighting budget - dark sky compliant - complete with controls	1.00	bgt	75,000.00	75,000			
	Subtotal					**75,000**		
	TOTAL: 9. SITE LIGHTING						**75,000**	
	Net Total Incl Mark-up							$126,000
10. DATA & COMMUNICATION SERVICE								
G4030	**Site Communications & Security**							
	Underground conduit from pole at highway to EMPOE - (2) 2" PVC - cabling by provider	500.00	lf	35.00	17,500			
	EMPOE data/com closet - see Admin Building				-			
	Service cabling & conduit between buildings	1.00	bgt	5,000.00	5,000			
	Subtotal					**22,500**		
	TOTAL: 10. DATA & COMMUNICATION SERVICE						**22,500**	
	Net Total Incl Mark-up							$38,000

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail *code*	*item description*	*quantity*	*unit cost*	*ext*	***trade subtotals***	*assembly totals*	*quals & assumptions*
Raw Cost of Work						**2,604,413**	
(Mark-up factors progressively compounded)							
General Expenses			10.00%	260,441			
Site Remoteness Premium Factor			10.00%	286,485			
Contractor's Fee (OH & Profit)			15.00%	472,701			
Contractor Insurance			1.00%	36,240			
Building Permit			0.00%	-			*excluded - in owner budget*
Design & Est Contingency			20.00%	732,056			
Cost Escalation - Not Applied This Exercise			0.00%	-			*present cost of constr.*
Total Budget Estimate - Hard Construction			68.65%	1,787,924		**4,392,336**	

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 1 - EXISTING SFO SITE
III. SITEWORK - HARDSCAPE & LANDSCAPE

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
1. ROUGH GRADING & RETAINING WALLS								
G1010	**Site Clearing**							
	Minimal grub & clear required this site	1.00	bgt	5,000.00	5,000			
	Subtotal					**5,000**		
G1020	**Site Elements Demolition and Relocations**							
	See IV. Mobilization & Demolition			0.00	-			
	Subtotal					**-**		
G1030	**Site Earthwork**							
	Fill - 13,000 sf at avg 3'0 deep - place, condition, & compact	1,445.00	cy	15.00	21,675			
	Purchase & import fill - approved source certified free of invasive seed - 1,445 cy	2,020.00	tons	50.00	101,000			
	Subtotal					**122,675**		
G2040	**Site Development**							
	Retaining walls - 650 lf at average 5'0 high	3,250.00	sf	75.00	243,750			
	Subtotal					**243,750**		
F2020	**Hazardous Components Abatement**							
	Excluded - none assumed				-			
	Subtotal					**-**		
	TOTAL: 1. ROUGH GRADING & RETAINING WALLS						**371,425**	
	Net Total Incl Mark-up							$626,000
2. PAVING - VEHICULAR / WORK YARD								
G1030	**Site Earthwork**							
	Subgrade preparation - scarify, compact, & fine grade - at AC	125,000.00	sf	0.20	25,000			
	Subgrade preparation - scarify, compact, & fine grade - at Class II shoulders - use 10% additional	12,500.00	sf	0.20	2,500			
	Subtotal					**27,500**		
G2020	**Parking Lots** **Internal Roadway & Parking Lots**							
	(Assume 4" AC over 12" Class II AB)							
	Class II AB roadbase at AC paving - use 12" section - 125k sf	9,260.00	tons	50.00	463,000			$ 3.70 /sf
	Class II AB shoulders- use 12" + 4" section for 12,500 sf	1,240.00	tons	50.00	62,000			
	Asphalt paving - 4" section - 125,000 sf	3,240.00	tons	300.00	972,000			$7.78 /sf
	Striping	1.00	bgt	7,500.00	7,500			
	Signage - accessible parking spots	1.00	bgt	1,500.00	1,500			
	Subtotal					**1,506,000**		
	TOTAL: 2. PAVING - VEHICULAR / WORK YARD						**1,533,500**	*$12.27 /sf*
	Net Total Incl Mark-up							$2,586,000
3. PAVING - PEDESTRIAN SIDEWALKS								
G1030	**Site Earthwork**							
	Subgrade preparation - scarify, compact, & fine grade - at concrete sidewalk at Admin Bldg	900.00	sf	0.50	450			
	Subgrade preparation - scarify, compact, & fine grade - stair/sidewalk slope from lower parking to Shops gathering area	325.00	sf	8.00	2,600			
	Subtotal					**3,050**		
G2030	**Pedestrian Paving**							
	Class II AB base at concrete sidewalk - use 4" section - 900 sf	22.00	tons	65.00	1,430			$ 1.59 /sf
	Class II AB base at concrete stairs - use 4" section - 325 sf	8.00	tons	125.00	1,000			$ 3.08 /sf
	Concrete paving sidewalk at Admin Bldg - use 4"	900.00	sf	18.00	16,200			
	Concrete stairs - lower parking to Shops gathering area - 17 rise	34.00	riser	500.00	17,000			
	Concrete stairs landings- lower parking to Shops gathering area	155.00	sf	25.00	3,875			

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III. SITEWORK - HARDSCAPE & LANDSCAPE

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
	Subtotal					**39,505**		
G2040	**Site Development**							
	Stair rails	80.00	lf	175.00	14,000			
	Subtotal					**14,000**		
	TOTAL: 3. PAVING - PEDESTRIAN SIDEWALKS						**56,555**	
	Net Total Incl Mark-up							$95,000
4. PAVING - EMPLOYEE GATHERING AREAS								
G1030	**Site Earthwork**							
	Subgrade preparation - scarify, compact, & fine grade - employee gathering areas	2,160.00	sf	0.50	1,080			
	Subtotal					**1,080**		
G2030	**Pedestrian Paving**							
	Class II baserock - 4" section - 2,160 sf - employee gathering areas	54.00	tons	65.00	3,510			$ 1.63 /sf
	Stabilized DG surfacing - employee gathering areas	2,160.00	sf	12.00	25,920			
	Edging around DG at open ends (not against buldings) - employee gathering areas	170.00	lf	10.00	1,700			
	Subtotal					**31,130**		
	TOTAL: 4. PAVING - EMPLOYEE GATHERING AREAS						**32,210**	
	Net Total Incl Mark-up							$54,000
5. SITE FURNISHINGS & AMENITIES								
G2040	**Site Development**							
	Benches at buildng entries - 1 ea entry	3.00	ea	2,200.00	6,600			
	Picnic tables - 2 per employee gathering areas	6.00	ea	3,000.00	18,000			
	Waste/recycling receptacles - 1 set each employee gathering area & building entry	6.00	sets	2,800.00	16,800			
	Bike racks	10.00	ea	400.00	4,000			
	Flag pole	1.00	ea	3,500.00	3,500			
	Entry sign - routed wood on base	1.00	bgt	5,000.00	5,000			
	Subtotal					**53,900**		
	TOTAL: 5. SITE FURNISHINGS & AMENITIES						**53,900**	
	Net Total Incl Mark-up							$91,000
6. COVERED DUMPSTER PAD								
D20	**Plumbing**							
	Hose bib for wash down	1.00	bgt	750.00	750			
	Drain	1.00	bgt	1,500.00	1,500			
	Drain sand/grease trap	1.00	bgt	10,000.00	10,000			
	Subtotal					**12,250**		
F1020	**Integrated Construction**							
	Shade structure over dumpster enclosure - assume same size for all sites	1,000.00	sf	50.00	50,000			
	Subtotal					**50,000**		
G2040	**Site Development**							
	Concrete mat slab - dumpster pads	1,000.00	sf	30.00	30,000			
	Curbing on 3 sides	100.00	lf	65.00	6,500			
	Screen fencing and gate	1.00	bgt	15,000.00	15,000			
	Dumpsters - exclued - by District		excl		-			
	Subtotal					**51,500**		
	TOTAL: 6. COVERED DUMPSTER PAD						**113,750**	
	Net Total Incl Mark-up							$192,000
7. FENCING								
G2040	**Site Development**							
	Fencing - none this site				-			
	Front entry gate - existing to remain - budget for misc maint	1.00	bgt	1,000.00	1,000			

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III. SITEWORK - HARDSCAPE & LANDSCAPE

Estimate Detail *code*	*item description*	*quantity*		*unit cost*	*ext*	***trade subtotals***	*assembly totals*	*quals & assumptions*
	Vehicle gate with auto operator - SW road to residences - 18 '0 wide - see Utilities, Electrical for power feed	1.00	ea	35,000.00	35,000			
	Vehicle gate - lockable & manually operated - 20'0	1.00	ea	15,000.00	15,000			
	Subtotal					**51,000**		
	TOTAL: 7. FENCING						**51,000**	
	Net Total Incl Mark-up							$86,000
8. LANDSCAPE								
G2050	**Landscaping**							
	New trees - none the site				-			
	Seeding & straw mulch at retention basins	6,000.00	sf	0.50	3,000			
	Landscape repairs, seeding, & straw mulch at perimeter impacted by construction - asume quantity	15,000.00	sf	1.50	22,500			
	Coir mat and wattles at impacted slopes - see Utilities - Storm Drainage for erosion control at drainage swales	1.00	bgt	20,000.00	20,000			
	Subtotal					**45,500**		
G2057	**Irrigation**							
	Temporary irrigation w/quick connects - none this site				-			
	Temporary watering - via truck to establish planting	1.00	bgt	10,000.00	10,000			
	Subtotal					**10,000**		
	TOTAL: 8. LANDSCAPE						**55,500**	
	Net Total Incl Mark-up							$94,000
Raw Cost of Work							**2,267,840**	**3,824,000**
	(Mark-up factors progressively compounded)							
	General Expenses			10.00%	226,784			
	Site Remoteness Premium Factor			10.00%	249,462			
	Contractor's Fee (OH & Profit)			15.00%	411,613			
	Contractor Insurance			1.00%	31,557			
	Building Permit			0.00%	-			*excluded - in owner budget*
	Design & Est Contingency			20.00%	637,451			
	Cost Escalation - Not Applied This Exercise			0.00%	-			*present cost of constr.*
Total Budget Estimate - Hard Construction				68.65%	1,556,868		**3,824,708**	

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 1 - EXISTING SFO SITE
IV. MOBILIZATION, SITE PREP, & DEMOLITION

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
1. MOBILIZATION & SITE PREPARATION								
Z1050	**Temporary Facilities and Controls**							
	Project mobilization/demobilization	1.00	bgt	50,000.00	50,000			
	Set-up central temp facilities - office, storage, etc	1.00	bgt	7,500.00	7,500			
	Temporary utilties	1.00	bgt	2,500.00	2,500			
	Erosion control & BMP measures - perim silt fence/wattles	2,500.00	lf	4.50	11,250			
	Tree protection fencing - significant perim trees	1.00	bgt	2,500.00	2,500			
	Temp site entry rock surfacing w/wash down station	1.00	bgt	5,000.00	5,000			
	Daily equip wash down procedures - phytophthora control during site work	52.00	wks	1,500.00	78,000			
	Water tank on site for wash down - phytophthora & dust control during site work	52.00	wks	1,750.00	91,000			
	Layout & stake	1.00	bgt	20,000.00	20,000			
	Subtotal					**267,750**		
	TOTAL: 1. MOBILIZATION & SITE PREPARATION						**267,750**	
	Net Total Incl Mark-up							$452,000
2. BUILDING DEMOLITION								
F3010	**Structure Demolition**							
	Building demolition complete with foundation & slab removal - combined buildings and storage structures - incl off-haul & dispose	12,300.00	gsf	18.00	221,400			
	Subtotal					**221,400**		
	TOTAL: 2. BUILDING DEMOLITION						**221,400**	
	Net Total Incl Mark-up							$373,000
3. BUILDING RELOCATION								
A10	**Foundations** **Relocate Stable Building**							
	Foundation and slab on grade for relocated stable building	1,400.00	gsf	25.00	35,000			
	Subtotal					**35,000**		
F3050	**Structure Moving** **Relocate Stable Building**							
	Cut away & remove shed addition from stable building	1.00	bgt	5,000.00	5,000			
	Cut, move, re-set, stitch & repair stable building - 300 lf to the southwest	1,400.00	gsf	40.00	56,000			
	Subtotal					**61,000**		
G1030	**Site Earthwork** **Relocate Stable Building**							
	Grade & prep pad and vehicular access for relocated stable	10,000.00	sf	1.00	10,000			
	Subtotal					**10,000**		
G2020	**Parking Lots** **Relocate Stable Building**							
	Gravel surfacing approach drive and parking - use 8,000 sf at 6" section	300.00	tons	65.00	19,500			$ 2.44 /sf
	Subtotal					**19,500**		
G2040	**Site Development** **Relocate Farm Equipment**							
	Relocate antique farm equipment	1.00	bgt	1,500.00	1,500			
	Subtotal					**1,500**		
G40	**Electrical Site Utilities** **Relocate Stable Building**							
	Underground branch feeder from switchboard to relocated stable	350.00	lf	40.00	14,000			
	Subtotal					**14,000**		
	TOTAL: 3. BUILDING RELOCATION						**141,000**	
	Net Total Incl Mark-up							$238,000

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IV. MOBILIZATION, SITE PREP, & DEMOLITION

Estimate Detail code	item description	quantity	unit cost	ext	trade subtotals	assembly totals	quals & assumptions
4. MISCELLANEOUS SITE DEMOLITION							
G1020	**Site Elements Demolition and Relocations**						
	Remove and dipose of fuel tanks & concrete pads	1.00 bgt	10,000.00	10,000			
	Removal of existing water tank	1.00 bgt	7,500.00	7,500			
	Budget for misc site elements removal	1.00 bgt	15,000.00	15,000			
	Subtotal				**32,500**		
	TOTAL: 4. MISCELLANEOUS SITE DEMOLITION					**32,500**	
	Net Total Incl Mark-up						$55,000
5. HAZARDOUS WASTE REMOVAL ALLOWANCE							
G1040	**Hazardous Waste Remediation**						
	Allowance for hazardous waste removal and disposal	1.00 allow	75,000.00	75,000			
	Subtotal				**75,000**		
	TOTAL: 5. HAZARDOUS WASTE REMOVAL ALLOWANCE					**75,000**	
	Net Total Incl Mark-up						$126,000
Raw Cost of Work						**737,650**	
	(Mark-up factors progressively compounded)						
	General Expenses		10.00%	73,765			
	Site Remoteness Premium Factor		10.00%	81,142			
	Contractor's Fee (OH & Profit)		15.00%	133,883			
	Contractor Insurance		1.00%	10,264			
	Building Permit		0.00%	-			*excluded - in owner budget*
	Design & Est Contingency		20.00%	207,341			
	Cost Escalation - Not Applied This Exercise		0.00%	-			*present cost of constr.*
Total Budget Estimate - Hard Construction			68.65%	506,395		**1,244,045**	

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 1 - EXISTING SFO SITE
V. TEMPORARY MROSD FACILITIES - ALT 1 ONLY

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
1. SITE PREPARATION & SITE REPAIR								
G2020	**Parking Lots**							
	Site preparation for rental trailers and containers - minimal work required at existing equestrian lot	15,000.00	sf	0.20	3,000			
	Repairs to equestrian lot following removal of temp facility	15,000.00	sf	1	7,500			
	Subtotal					**10,500**		
	TOTAL: 1. SITE PREPARATION & SITE REPAIR						**10,500**	
	Net Total Incl Mark-up							$18,000
2. OFFICE, RESTROOM, & SHOWER/LAUNDRY TRAILERS - RENTAL								
5020	**Temporary Faciltities**							
	Double wide 24x60 office trailer - set-up & back-end breakdown	2.00	ea	26,000.00	52,000			
	Shower & locker trailers - set-up and back-end breakdown	2.00	ea	26,000.00	52,000			
	Double wide 24x60 office trailer - rental	24.00	mo	3,200.00	76,800			
	Double wide 24x60 office trailer - rental	24.00	mo	3,200.00	76,800			
	Shower trailer 8.5 x 30' - rental (custom construction)	24.00	mo	3,200.00	76,800			
	Locker trailer 8.5 x 34' - rental (custom construction)	24.00	mo	3,200.00	76,800			
	Subtotal					**411,200**		
	TOTAL: 2. OFFICE, RESTROOM, & SHOWER/LAUNDRY TRAILERS - RENTAL						**411,200**	
	Net Total Incl Mark-up							$693,000
3. CONEX STORAGE CONTAINERS - RENTAL								
5020	**Temporary Faciltities**							
	Storage containers 8x20 - delivery & pick-up	7.00	ea	750.00	5,250			
	Storage container 8x20 - rental	24.00	mo	150.00	3,600			
	Storage container 8x20 - rental	24.00	mo	150.00	3,600			
	Storage container 8x20 - rental	24.00	mo	150.00	3,600			
	Storage container 8x20 - rental	24.00	mo	150.00	3,600			
	Storage container 8x20 - rental	24.00	mo	150.00	3,600			
	Storage container 8x20 - rental	24.00	mo	150.00	3,600			
	Storage container 8x20 - rental	24.00	mo	150.00	3,600			
	Subtotal					**30,450**		
	TOTAL: 3. CONEX STORAGE CONTAINERS - RENTAL						**30,450**	
	Net Total Incl Mark-up							$51,000
4. COVERED SHOP STRUCTURE - CONSTRUCT & REMOVE		**875**	**gsf**					
F1020	**Integrated Construction**							
	Pad preparation	875.00	gsf	0.50	438			
	Foundation & slab-on-grade	875.00	gsf	35.00	30,625			
	Pre-engineered steel building including structure & metal roofing - use 1'0 high	875.00	gsf	25.00	21,875			
	Electrical distribution	875.00	gsf	15.00	13,125			
	Lighting	875.00	gsf	5.00	4,375			
	Subtotal					**70,438**		
F30	**Demolition**							
	Dismantle and remove overhead structure	1.00	bgt	5,000.00	5,000			
	Demo and offhaul overhead structure foundation & slab	875.00	gsf	12.00	10,500			
	Subtotal					**15,500**		
	TOTAL: 4. COVERED SHOP STRUCTURE - CONSTRUCT & REMOVE						**85,938**	
	Net Total Incl Mark-up							$145,000

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V. TEMPORARY MROSD FACILITIES - ALT 1 ONLY

Estimate Detail code	item description	quantity	unit cost	ext	trade subtotals	assembly totals	quals & assumptions
5. ELECTRICAL SERVICE FEED FOR TEMP FACILITIES							
G40	**Electrical Site Utilities**	**New Temp Service to Site**					
	(Assume PG&E will provide 2 temp poles with pole mounted transformer						
	Power brought from pole across highway)						
	Rental temporary metered service/distribution panel and OH poles from PG&E transformer to office trailers and covered work area - include install and removal	1.00 bgt	10,000.00	10,000			
	Subtotal				**10,000**		
G40	**Electrical Site Utilities**	**PG&E Fees - Place Holder Budgets**					
	PG&E supplied temp pole, pole mounted transformer, and OH highway crossing - include removal	1.00 allow	25,000.00	25,000			
	Subtotal				**25,000**		
	TOTAL: 5. ELECTRICAL SERVICE FEED FOR TEMP FACILITIES					**35,000**	
	Net Total Incl Mark-up						$59,000

Raw Cost of Work			**573,088**	
(Mark-up factors progressively compounded)				
General Expenses	10.00%	57,309		
Site Remoteness Premium Factor	10.00%	63,040		
Contractor's Fee (OH & Profit)	15.00%	104,015		
Contractor Insurance	1.00%	7,975		
Building Permit	0.00%	-		*excluded - in owner budget*
Design & Est Contingency	20.00%	161,085		
Cost Escalation - Not Applied This Exercise	0.00%	-		*present cost of constr.*
Total Budget Estimate - Hard Construction	68.65%	393,423	**966,511**	

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 2 - SKYLINE RIDGE CIRCLE LOT
I. BUILDINGS

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals		quals & assumptions
1. OFFICE / ADMINISTRATION BUILDING		**5,700**	**gsf**						
F1020	**Integrated Construction**								
	Pad preparation	5,700.00	gsf	0.50	2,850				
	Foundation & slab-on-grade	5,700.00	gsf	35.00	199,500				
	Structure above grade - wood framed site built - simple geometry - 10'0 high	5,700.00	gsf	50.00	285,000				
	Vertical envelope - façade, windows, & doors	5,700.00	gsf	75.00	427,500				
	Horizontal envelope - roof	5,700.00	gsf	15.00	85,500				
	Interior white shell - drywall & interior doors	5,700.00	gsf	40.00	228,000				
	Interior buildout & finishes	5,700.00	gsf	100.00	570,000				
	Plumbing	5,700.00	gsf	15.00	85,500				
	Fire sprinkers	5,700.00	gsf	9.00	51,300				
	HVAC	5,700.00	gsf	60.00	342,000				
	Electrical distribution	5,700.00	gsf	40.00	228,000				
	Lighting	5,700.00	gsf	30.00	171,000				
	Fire alarm	5,700.00	gsf	4.00	22,800				
	Data/com	5,700.00	gsf	3.00	17,100				
	Security & access control	5,700.00	gsf	5.00	28,500				
	Subtotal					**2,744,550**			
TOTAL:	**1. OFFICE / ADMINISTRATION BUILDING**						**2,744,550**		*$482 /gsf - direct cost*
	Net Total Incl Mark-up							$4,629,000	*$812 /gsf - net const*
2. SHARED SUPPORT BUILDING		**5,000**	**gsf**						
F1020	**Integrated Construction**								
	Pad preparation	5,000.00	gsf	0.50	2,500				
	Foundation & slab-on-grade	5,000.00	gsf	35.00	175,000				
	Structure above grade - wood framed site built - simple geometry - 10'0 high	5,000.00	gsf	50.00	250,000				
	Vertical envelope - façade, windows, & doors	5,000.00	gsf	75.00	375,000				
	Horizontal envelope - roof	5,000.00	gsf	15.00	75,000				
	Interior white shell - drywall & interior doors	5,000.00	gsf	40.00	200,000				
	Interior buildout & finishes	5,000.00	gsf	80.00	400,000				
	Plumbing	5,000.00	gsf	25.00	125,000				
	Fire sprinkers	5,000.00	gsf	9.00	45,000				
	HVAC	5,000.00	gsf	60.00	300,000				
	Electrical distribution	5,000.00	gsf	40.00	200,000				
	Lighting	5,000.00	gsf	30.00	150,000				
	Fire alarm	5,000.00	gsf	4.00	20,000				
	Data/com	5,000.00	gsf	3.00	15,000				
	Security & access control	5,000.00	gsf	5.00	25,000				
	Subtotal					**2,357,500**			
TOTAL:	**2. SHARED SUPPORT BUILDING**						**2,357,500**		*$472 /gsf - direct cost*
	Net Total Incl Mark-up							$3,976,000	*$795 /gsf - net const*
3. SHOPS BUILDING - ENCLOSED & CONDITIONED		**6,150**	**gsf main shops bldg + covered work space**						
F1020	**Integrated Construction** **Main Shops Bldg**	**4,950**	**gsf**						
	Pad preparation	4,950.00	gsf	0.50	2,475				
	Foundation & slab-on-grade	4,950.00	gsf	35.00	173,250				
	Pre-engineered steel building including structure, metal siding, & metal roofing - 15'0 high	4,950.00	gsf	75.00	371,250				
	Interior white shell - drywall & interior doors	4,950.00	gsf	10.00	49,500				

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I. BUILDINGS

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals		quals & assumptions
	Interior buildout & maintenance lifts & overhead hoist	4,950.00	gsf	100.00	495,000				
	Plumbing - drains incl sand/grease separator, hose bibs, & wash sinks	4,950.00	gsf	25.00	123,750				
	Fire sprinkers	4,950.00	gsf	9.00	44,550				
	HVAC including work bay exhaust system	4,950.00	gsf	75.00	371,250				
	Electrical distribution	4,950.00	gsf	60.00	297,000				
	Lighting	4,950.00	gsf	20.00	99,000				
	Fire alarm	4,950.00	gsf	4.00	19,800				
	Data/com	4,950.00	gsf	1.50	7,425				
	Security & access control	4,950.00	gsf	2.00	9,900				
	Subtotal					**2,064,150**			*$417 /gsf - direct cost*
									$703 /gsf - net const
F1020	**Integrated Construction** **Covered Work Space**	**1,200**	**gsf**						
	Pad preparation	1,200.00	gsf	0.50	600				
	Foundation & slab-on-grade	1,200.00	gsf	35.00	42,000				
	Pre-engineered steel building including structure & metal roofing	1,200.00	gsf	50.00	60,000				
	Plumbing - drains & hose bibs (tied into Shops Bldg system	1,200.00	gsf	5.00	6,000				
	Fire sprinkers	1,200.00	gsf	9.00	10,800				
	Electrical distribution	1,200.00	gsf	30.00	36,000				
	Lighting	1,200.00	gsf	15.00	18,000				
	Fire alarm	1,200.00	gsf	4.00	4,800				
	Subtotal					**178,200**			*$149 /gsf - direct cost*
									$250 /gsf - net const
	TOTAL: 3. SHOPS BUILDING - ENCLOSED & CONDITIONED						**2,242,350**		*$365 /gsf - direct cost*
	Net Total Incl Mark-up							$3,782,000	*$615 /gsf - net const*
4. SPECIAL STORAGE BUILDING - ENCLOSED & CONDITIONED		**4,200**	**gsf**						
F1020	**Integrated Construction**								
	Pad preparation	4,200.00	gsf	0.50	2,100				
	Foundation & slab-on-grade	4,200.00	gsf	35.00	147,000				
	Pre-engineered steel building including structure, metal siding, & metal roofing - 18'0 high	4,200.00	gsf	80.00	336,000				
	Mezzanine - use 30% of footprint - pre-engineered structure	1,400.00	gsf	35.00	49,000				
	Interior white shell - drywall & interior doors	5,600.00	gsf	10.00	56,000				
	Interior buildout & finishes - incl specal storage construction	5,000.00	gsf	50.00	250,000				
	Plumbing - drains incl sand/grease separator, hose bibs, & wash sinks	4,200.00	gsf	25.00	105,000				
	Fire sprinkers	5,600.00	gsf	9.00	50,400				
	HVAC including specialed exhaust system	5,600.00	gsf	50.00	280,000				
	Electrical distribution	4,200.00	gsf	35.00	147,000				
	Lighting	4,200.00	gsf	20.00	84,000				
	Fire alarm	4,200.00	gsf	4.00	16,800				
	Security & access control	4,200.00	gsf	2.00	8,400				
	Subtotal					**1,531,700**			
	TOTAL: 4. SPECIAL STORAGE BUILDING - ENCLOSED & CONDITIONED						**1,531,700**		*$365 /gsf - direct cost*
	Net Total Incl Mark-up							$2,583,000	*$615 /gsf - net const*
5. MATERIAL STOCKPILE BUILDING - 3 SIDED CMU		**6,500**	**gsf**						
G2040	**Site Development**								
	Pad preparation	6,500.00	gsf	0.50	3,250				
	Foundation & slab-on-grade	6,500.00	gsf	35.00	227,500				
	CMU perimeter walls - 3 sides - use 15'0 high	3,600.00	sfwl	30.00	108,000				
	CMU interior bay walls - use 5 ea 40'0 x 15'0 high	3,000.00	sfwl	30.00	90,000				
	Pre-engineered roof structure & metal roofing	6,500.00	gsf	25.00	162,500				
	Plumbing - drains incl sand/grease separator, hose bibs, & wash sinks	6,500.00	gsf	25.00	162,500				
	Fire sprinkers	6,500.00	gsf	9.00	58,500				
	Electrical distribution	6,500.00	gsf	20.00	130,000				
	Lighting	6,500.00	gsf	15.00	97,500				

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I. BUILDINGS

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions		
	Fire alarm	6,500.00	gsf	4.00	26,000					
	Subtotal					**1,065,750**				
	TOTAL: 5. MATERIAL STOCKPILE BUILDING - 3 SIDED CMU						**1,065,750**		*$164*	*/gsf - direct cost*
	Net Total Incl Mark-up							$1,797,000	*$276*	*/gsf - net const*
6. EQUIPMENT STORAGE BUILDING - OPEN SIDED		**10,000**	**gsf**							
F1020	**Integrated Construction**									
	Pad preparation	10,000.00	gsf	0.50	5,000					
	Foundation & slab-on-grade	10,000.00	gsf	35.00	350,000					
	Pre-engineered steel building including structure & metal roofing - use 18'0 high	10,000.00	gsf	50.00	500,000					
	Plumbing - drains, sand/grease trap & hose bibs	10,000.00	gsf	5.00	50,000					
	Fire sprinkers	10,000.00	gsf	9.00	90,000					
	Electrical distribution	10,000.00	gsf	5.00	50,000					
	Lighting	10,000.00	gsf	8.00	80,000					
	Fire alarm	10,000.00	gsf	4.00	40,000					
	Subtotal					**1,165,000**				
	TOTAL: 6. EQUIPMENT STORAGE BUILDING - OPEN SIDED						**1,165,000**		*$117*	*/gsf - direct cost*
	Net Total Incl Mark-up							$1,965,000	*$197*	*/gsf - net const*
Raw Cost of Work							**11,106,850**			
	(Mark-up factors progressively compounded)									
	General Expenses			10.00%	1,110,685					
	Site Remoteness Premium Factor			10.00%	1,221,754					
	Contractor's Fee (OH & Profit)			15.00%	2,015,893					
	Contractor Insurance			1.00%	154,552					
	Building Permit			0.00%	-			*excluded - in owner budget*		
	Design & Est Contingency			20.00%	3,121,947					
	Cost Escalation - Not Applied This Exercise			0.00%	-			*present cost of constr.*		
Total Budget Estimate - Hard Construction				68.65%	7,624,830		**18,731,680**			

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 2 - SKYLINE RIDGE CIRCLE LOT
II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
1. STORM DRAINAGE								
G3030	**Storm Sewer**							
	Storm drain piping - use 18" ABS	680.00	lf	65.00	44,200			
	Storm drain tie-ins to building foundation drains (see buildings for foundation drains)	6.00	ea	10,000.00	60,000			
	Storm drain clean-outs	20.00	ea	750.00	15,000			
	Culverts - use 36" complete with headwalls - none this site				-			
	Drainage swale - earthen w/coir mat & wattles for temp erosion control	300.00	lf	20.00	6,000			
	Drainage swale - armored	500.00	lf	50.00	25,000			
	Storm drain & swale discharge dissipators	4.00	ea	1,200.00	4,800			
	Retention / detention basins (3 locations of various sizes) - assume bioswale function - complete with drainage rock and loam layers	5,200.00	sf	35.00	182,000			
	Subtotal					**337,000**		
	TOTAL: 1. STORM DRAINAGE						**337,000**	
	Net Total Incl Mark-up							$568,000
2. WATER - DOMESTIC & FIRE								
F1020	**Integrated Construction** **Utility Bldg for Booster Pump**							
	Shed building for fire booster pump - not required this site		excl		-			
	Subtotal					**-**		
G1030	**Site Earthwork** **Storage Tank Pads**							
	Fire water tank: Prep pad for new tank footprint pad and perimeter access - incl grub, clear, & off-haul and cut, fill, & grading - assume balanced	7,500.00	sf	3.00	22,500			
	Domestic water tank: Prep pad for new tank footprint pad and perimeter access - incl grub, clear, & off-haul and cut, fill, & grading - assume balanced	500.00	sf	3.00	1,500			
	Subtotal					**24,000**		
G2040	**Site Development** **Storage Tank Pads**							
	Fire water tank: Concrete pad for tank - use 40'0 diameter - 1'0 thick concrete over 9" section of base	1,260.00	sf	35.00	44,100			
	Fire water tank: Gravel surfacing around perimeter of tank - 3" gravel tread on 9" base - 15'0 wide surfacing around tank	2,600.00	sf	3.75	9,750			
	Domestic water tank: Concrete pad for tank - use 12'0 diameter - 6" thick concrete over 9" section of base	150.00	sf	25.00	3,750			
	Domestic water tank: Gravel surfacing around perimeter of tank - 3" gravel tread on 9" base - 10'0 wide surfacing around tank	230.00	sf	3.75	863			
	Subtotal					**58,463**		
G3010	**Water Supply** **Well & Water Treatment Facilities**							
	New well - drilled, cased, packed & sealed complete	300.00	lf	175.00	52,500			
	New well pump and pump dog house	1.00	bgt	15,000.00	15,000			
	Wellhead filtration - assume	1.00	ls	7,500.00	7,500			
	Domestic water treatment system - assume in-line downstream of domestic storage tank - located within one of the buildingss	1.00	ls	15,000.00	15,000			
	Fill pipe from wellhead/treatment to water tanks - use 3" PVC	450.00	lf	35.00	15,750			
	Valve assembly - split fire/domestic fill & bypass	1.00	bgt	15,000.00	15,000			
	Subtotal					**120,750**		
G3010	**Water Supply** **Storage Tanks**							
	(Locate tank on hill to southwest at site of removed tank)							

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
	Fire water storage tank - 180k gallon - use bolted galvanized steel , full set of appurtenances, and overflow & discharge piping.	1.00	ls	350,000.00	350,000			
	Fire water storage tank mixer & treatment - manually operated	1.00	bgt	20,000.00	20,000			
	Fill level monitor and transponder	1.00	bgt	2,000.00	2,000			
	Small solar set and battery installed on fire water tank to operate treatment, mixer, & fill monitoring signal	1.00	bgt	5,000.00	5,000			
	Domestic water storage tank - 10k gallon - use bolted galvanized steel , full set of appurtenances, and overflow & discharge piping. Located adjacent to fire water tank.	1.00	ls	25,000.00	25,000			
	Premium for difficult access to site	1.00	bgt	100,000.00	100,000			
	Subtotal					**502,000**		
G3010	**Water Supply** **Conveyance**							
	Fire water main from tank - 6". Use PVC C900 Class 150	2,500.00	lf	65.00	162,500			
	Domestic water main from tank - 4". Use PVC C900 Class 150	2,500.00	lf	55.00	137,500			
	Premium for trenching in cross country slope	2,000.00	lf	30.00	60,000			
	Water main valving & appurtenances	1.00	bgt	35,000.00	35,000			
	Service laterals to buildings - 2" PVC	100.00	lf	25.00	2,500			
	Service lateral curb stops & meter boxes - assume	1.00	bgt	2,500.00	2,500			
	Subtotal					**400,000**		
G3010	**Water Supply** **Fire Hydrants**							
	Fire hydrants complete with valving, surge blocks, & lateral	3.00	ea	6,500.00	19,500			
	Subtotal					**19,500**		
G3010	**Water Supply** **Fire Booster Pump**							
	Booster pump - not required this site		excl		-			
	Subtotal					**-**		
	TOTAL: 2. WATER - DOMESTIC & FIRE						**1,124,713**	
	Net Total Incl Mark-up							$1,897,000

3. SANITARY SEPTIC SYSTEM

G3020	**Sanitary Sewer** **Conveyance**							
	Sanitary main - use 6" - assume quantity	600.00	lf	50.00	30,000			
	Sanitary laterals - use 4" - assume quantity	350.00	lf	40.00	14,000			
	Manholes - assume	4.00	ea	5,500.00	22,000			
	Clean-outs - assume 2 way at lateral connections to buildings	4.00	ea	800.00	3,200			
	Clean-outs - assume 2 way at lateral connections to wash station & dumpster slab	2.00	ea	800.00	1,600			
	Sand/grease separator - see buildings, wash station, & dumpster area		ea		-			
	Subtotal					**70,800**		
G3020	**Sanitary Sewer** **Treatment**							
	Advanced treatment - assume Orenco Advantex type system complete including control panel & start-up	1.00	ls	125,000.00	125,000			
	New leach lines complete with shut-off & controls valving and boxes and general site clearing and repairs	420.00	lf	225.00	94,500			
	New leach line clean-outs & monitoring wells - per each line run	6.00	ea	3,000.00	18,000			
	Premium for sand mound or drip system	1.00	bgt	10,000.00	10,000			
	Subtotal					**247,500**		
	TOTAL: 3. SANITARY SEPTIC SYSTEM						**318,300**	
	Net Total Incl Mark-up							$537,000

4. FUELING & WASH STATIONS

D20	**Plumbing**							
	Wash station water station	1.00	bgt	1,000.00	1,000			
	Wash station drain	1.00	bgt	1,500.00	1,500			
	Wash station sand/grease trap	1.00	bgt	10,000.00	10,000			
	Subtotal					**12,500**		
F1020	**Integrated Construction**							
	Shade structure over fueling & wash stations complete	1,000.00	sf	50.00	50,000			

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
	Storage closet or shelving for wash supplies	1.00	bgt	5,000.00	5,000			
	Subtotal					**55,000**		
G2040	**Site Development**							
	Concrete mat slab - under fueling & wash stations	1,000.00	sf	30.00	30,000			
	Concrete house keeping pad for fueling tank	1.00	bgt	3,500.00	3,500			
	Concrete containment around fueling station	100.00	lf	50.00	5,000			
	Subtotal					**38,500**		
G3060	**Fuel Distribution**							
	Split fuel tank - assume 1,500 gal gas & 2,000 gal diesel - complete w/pumps, hose, & nozzle	1.00	bgt	60,000.00	60,000			
	Card lock vending system	1.00	bgt	7,500.00	7,500			
	Power feeder - see Electrical Service below				-			
	Subtotal					**67,500**		
	TOTAL: 4. FUELING & WASH STATIONS						**173,500**	
	Net Total Incl Mark-up							$293,000
5. ELECTRICAL SERVICE								
G1030	**Site Earthwork** **New 3Ph Service to Site**							
	Clear & grub meadow for new underground feeder route from new pole at highway to the site	200.00	lf	3.00	600			
	Subtotal					**600**		
G2040	**Site Development** **New 3Ph Service to Site**							
	Landscape repair for underground feeder route from pole at the highway to the site	200.00	lf	5.00	1,000			
	Concrete pad for PG&E transformer - inlcude grounding	1.00	ea	3,500.00	3,500			
	Subtotal					**4,500**		
G40	**Electrical Site Utilities** **New 3Ph Service to Site**							
	UG conduit 4" - from new PG&E pole to be set at south side of highway for highway crossing just north of the site to new transformer pad - conductor by PG&E (see PG&E fees below)	200.00	lf	35.00	7,000			
	UG conduit (4) 5" - from transformer pad to new metered main switchboard. Assume switchboard in building electrical closet - assume distance - Conductors transformer to meter by PG&E	50.00	lf	110.00	5,500			
	Conduit sweeps at pole by highway	1.00	ea	750.00	750			
	Conduit sweeps at transformer pad & switchboard	9.00	ea	600.00	5,400			
	Pad mounted transformer - by PG&E (see PG&E Fees below)		excl		-			
	Main metered switchboard - 1,200A, 120.208V, 3-PH	1.00	bgt	25,000.00	25,000			
	Branch feeders from switchboard to building main panels - assume quantity	400.00	lf	80.00	32,000			
	Electrical distribution in buildings - see building estimates			0.00	-			
	Subtotal					**75,650**		
G40	**Electrical Site Utilities** **Utility & Misc Equipment Feeds**							
	Wellhead pump - new power feed & panel	1.00	bgt	5,000.00	5,000			
	Fire water booster pumps - power feed & panel - not required this site		excl		-			
	Domestic water booster pumps - power feed & panel - not required this site		excl		-			
	Water treatment system - power feed & panel	1.00	bgt	2,500.00	2,500			
	Advanced treatment equipment - power feed & panel	1.00	bgt	10,000.00	10,000			
	Fueling station - feeder and panel	1.00	bgt	2,500.00	2,500			
	Automatic vehicular gate - feeder & shut-off	1.00	bgt	2,000.00	2,000			
	Subtotal					**22,000**		
G40	**Electrical Site Utilities** **PG&E Fees - Place Holder Budgets**							
	New service feeder & pad mounted transformer	1.00	allow	50,000.00	50,000			
	New pole and OH highway crossing	1.00	allow	15,000.00	15,000			
	Subtotal					**65,000**		
	TOTAL: 5. ELECTRICAL SERVICE						**167,750**	
	Net Total Incl Mark-up							$283,000

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
6. SOLAR & BATTERY SYSTEM								
G2040	**Site Development**							
	Concrete pad for BESS structure - inlcude grounding	1.00	ea	3,500.00	3,500			
	Subtotal					**3,500**		
G4090	**Other Site Electrical Utilities**							
	PV array roof mounted panels. System complete with roof racks, optimizers, inverters, combiner boxes, & cabling	52.00	kW	2,500.00	130,000			
	BESS integrated micro-grid system - 22kW / 92kWh - complete with container, heat pump, & fire suppression - exterior pad mounted	1.00	bgt	125,000.00	125,000			
	Solar system panel & disconnect	1.00	bgt	5,000.00	5,000			
	Subtotal					**260,000**		
	TOTAL: 6. SOLAR & BATTERY SYSTEM						**263,500**	
	Net Total Incl Mark-up							$444,000
7. BACK-UP GENERATOR								
G2040	**Site Development**							
	Concrete pad for generator structure - inlcude grounding	1.00	ea	3,500.00	3,500			
	Containment curb	50.00	lf	65.00	3,250			
	Subtotal					**6,750**		
G4090	**Other Site Electrical Utilities**							
	Genset complete - 200kW, 120/208V, 3ph - diesel with 700 gal belly tank - exterior pad mount	1.00	ea	120,000.00	120,000			
	Auto transfer switch - 1,200A	1.00	ea	65,000.00	65,000			
	Underground connection generator to main electrical service - include tie-in	1.00	bgt	5,000.00	5,000			
	Subtotal					**190,000**		
	TOTAL: 7. BACK-UP GENERATOR						**196,750**	
	Net Total Incl Mark-up							$332,000
8. EV CHARGING								
G4090	**Other Site Electrical Utilities**							
	Level 2 EV charger pedestals - pair	3.00	pair	5,000.00	15,000			
	Underground feeders to EV chargers	1.00	bgt	500.00	20,000			
	Subtotal					**35,000**		
	TOTAL: 8. EV CHARGING						**35,000**	
	Net Total Incl Mark-up							$59,000
9. SITE LIGHTING								
G4020	**Site Lighting**							
	Site lighting budget - dark sky compliant - complete with controls	1.00	bgt	75,000.00	75,000			
	Subtotal					**75,000**		
	TOTAL: 9. SITE LIGHTING						**75,000**	
	Net Total Incl Mark-up							$126,000
10. DATA & COMMUNICATION SERVICE								
G4030	**Site Communications & Security**							
	Underground conduit from pole at highway to EMPOE - (2) 2" PVC - cabling by provider	200.00	lf	35.00	7,000			
	EMPOE data/com closet - see Admin Building				-			
	Service cabling & conduit between buildings	1.00	bgt	5,000.00	5,000			
	Subtotal					**12,000**		
	TOTAL: 10. DATA & COMMUNICATION SERVICE						**12,000**	
	Net Total Incl Mark-up							$20,000

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail					trade	assembly	
code	*item description*	*quantity*	*unit cost*	*ext*	***subtotals***	*totals*	*quals & assumptions*
Raw Cost of Work						**2,703,513**	
(Mark-up factors progressively compounded)							
General Expenses			10.00%	270,351			
Site Remoteness Premium Factor			10.00%	297,386			
Contractor's Fee (OH & Profit)			15.00%	490,688			
Contractor Insurance			1.00%	37,619			
Building Permit			0.00%	-			*excluded - in owner budget*
Design & Est Contingency			20.00%	759,911			
Cost Escalation - Not Applied This Exercise			0.00%	-			*present cost of constr.*
Total Budget Estimate - Hard Construction			68.65%	1,855,956		**4,559,468**	

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 2 - SKYLINE RIDGE CIRCLE LOT
III. SITEWORK - HARDSCAPE & LANDSCAPE

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
1. ROUGH GRADING & RETAINING WALLS								
G1010	**Site Clearing**							
	Grub & clear including organics offhaul to stockpile in park	58,000.00	sf	0.15	8,700			
	Subtotal					**8,700**		
G1020	**Site Elements Demolition and Relocations**							
	See IV. Mobilization & Demolition			0.00	-			
	Subtotal					**-**		
G1030	**Site Earthwork**							
	Fill - 87,000 sf at avg 3'0 deep - place, condition, & compact	9,600.00	cy	7.50	72,000			
	Purchase & import fill - approved source certified free of invasive seed - 9,600 cy	13,440.00	tons	50.00	672,000			
	Subtotal					**744,000**		
G2040	**Site Development**							
	Retaining walls - 700 lf at average 3'0 high	2,100.00	sf	75.00	157,500			
	Subtotal					**157,500**		
F2020	**Hazardous Components Abatement**							
	Excluded - none assumed				-			
	Subtotal					**-**		
	TOTAL: 1. ROUGH GRADING & RETAINING WALLS						**910,200**	
	Net Total Incl Mark-up							$1,535,000
2. PAVING - VEHICULAR / WORK YARD								
G1030	**Site Earthwork**							
	Subgrade preparation - scarify, compact, & fine grade - at AC	110,000.00	sf	0.20	22,000			
	Subgrade preparation - scarify, compact, & fine grade - at Class II shoulders	1,000.00	sf	0.20	200			
	Subtotal					**22,200**		
G2020	**Parking Lots** **Internal Roadway & Parking Lots**							
	(Assume 4" AC over 12" Class II AB)							
	Class II AB roadbase at AC paving - use 12" section - 110k sf	8,150.00	tons	50.00	407,500			$ 3.70 /sf
	Class II AB shoulders- use 12" + 4" section for 1,000 sf	100.00	tons	50.00	5,000			
	Asphalt paving - 4" section - 110,000 sf	2,855.00	tons	300.00	856,500			$7.79 /sf
	Striping	1.00	bgt	7,500.00	7,500			
	Signage - accessible parking spots	1.00	bgt	1,500.00	1,500			
	Subtotal					**1,278,000**		
	TOTAL: 2. PAVING - VEHICULAR / WORK YARD						**1,300,200**	
	Net Total Incl Mark-up							$2,193,000
3. PAVING - PEDESTRIAN SIDEWALKS								
G1030	**Site Earthwork**							
	Subgrade preparation - scarify, compact, & fine grade for concrete sidewalks	2,850.00	sf	0.50	1,425			
	Subtotal					**1,425**		
G2030	**Pedestrian Paving**							
	Class II AB base at concrete sidewalk - use 4" section - 2,850 sf	71.00	tons	65.00	4,615			$ 1.62 /sf
	Concrete paving sidewalk at Admin Bldg - use 4"	2,850.00	sf	18.00	51,300			
	Subtotal					**55,915**		
	TOTAL: 3. PAVING - PEDESTRIAN SIDEWALKS						**57,340**	
	Net Total Incl Mark-up							$97,000

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III. SITEWORK - HARDSCAPE & LANDSCAPE

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
4. PAVING - EMPLOYEE GATHERING AREAS								
G1030	**Site Earthwork**							
	Subgrade preparation - scarify, compact, & fine grade - employee gathering areas	1,765.00	sf	0.50	883			
	Subtotal					**883**		
G2030	**Pedestrian Paving**							
	Class II baserock - 4" section - 1,765 sf - employee gathering areas	44.00	tons	65.00	2,860			$ 1.62 /sf
	Stabilized DG surfacing - employee gathering areas	1,765.00	sf	12.00	21,180			
	Edging around DG at open ends employee gathering areas	110.00	lf	10.00	1,100			
	Subtotal					**25,140**		
F1020	**Integrated Construction**							
	Shade structure at employee gatheriing area	250.00	sf	50.00	12,500			
	Subtotal					**12,500**		
	TOTAL: 4. PAVING - EMPLOYEE GATHERING AREAS						**38,523**	
	Net Total Incl Mark-up							$65,000
5. SITE FURNISHINGS & AMENITIES								
G2040	**Site Development**							
	Benches at buildng entries - 1 ea entry	3.00	ea	2,200.00	6,600			
	Picnic tables - 4 per employee gathering areas	4.00	ea	3,000.00	12,000			
	Waste/recycling receptacles - 2 set each employee gathering area & 1 set eacg building entry	5.00	sets	2,800.00	14,000			
	Bike racks	10.00	ea	400.00	4,000			
	Flag pole	1.00	ea	3,500.00	3,500			
	Entry sign - routed wood on base	1.00	bgt	5,000.00	5,000			
	Subtotal					**45,100**		
	TOTAL: 5. SITE FURNISHINGS & AMENITIES						**45,100**	
	Net Total Incl Mark-up							$76,000
6. COVERED DUMPSTER PAD								
D20	**Plumbing**							
	Hose bib for wash down	1.00	bgt	750.00	750			
	Drain	1.00	bgt	1,500.00	1,500			
	Drain sand/grease trap	1.00	bgt	10,000.00	10,000			
	Subtotal					**12,250**		
F1020	**Integrated Construction**							
	Shade structure over dumpster enclosure - assume same size for all sites	1,000.00	sf	50.00	50,000			
	Subtotal					**50,000**		
G2040	**Site Development**							
	Concrete mat slab - dumpster pads	1,000.00	sf	30.00	30,000			
	Curbing on 3 sides	100.00	lf	65.00	6,500			
	Screen fencing and gate	1.00	bgt	15,000.00	15,000			
	Dumpsters - exclued - by District		excl		-			
	Subtotal					**51,500**		
	TOTAL: 6. COVERED DUMPSTER PAD						**113,750**	
	Net Total Incl Mark-up							$192,000
7. FENCING								
G2040	**Site Development**							
	Fencing - 4'0 high wire mesh with posts	1,400.00	lf	65.00	91,000			
	Vehicle gate with auto operator - 20 '0 wide - see Utilities, Electrical for power feed	1.00	ea	35,000.00	35,000			
	Subtotal					**126,000**		
	TOTAL: 7. FENCING						**126,000**	
	Net Total Incl Mark-up							$212,000

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III. SITEWORK - HARDSCAPE & LANDSCAPE

Estimate Detail *code*	*item description*	*quantity*		*unit cost*	*ext*	***trade subtotals***	*assembly totals*	*quals & assumptions*
8. LANDSCAPE								
G2050	**Landscaping**							
	New trees - assume 24" box	30.00	ea	1,250.00	37,500			
	Seeding & straw mulch at retention basins	5,200.00	sf	0.50	2,600			
	Landscape repairs, seeding, & straw mulch at perimeter impacted by construction - asume quantity	15,000.00	sf	1.50	22,500			
	Subtotal					**62,600**		
G2057	**Irrigation**							
	Temporary irrigation w/quick connects - for 30 trees - covers 50k sf area	50,000.00	sf	0.75	37,500			
	Subtotal					**37,500**		
TOTAL:	**8. LANDSCAPE**						**100,100**	
	Net Total Incl Mark-up							$169,000
Raw Cost of Work							**2,691,213**	
	(Mark-up factors progressively compounded)							
	General Expenses			10.00%	269,121			
	Site Remoteness Premium Factor			10.00%	296,033			
	Contractor's Fee (OH & Profit)			15.00%	488,455			
	Contractor Insurance			1.00%	37,448			
	Building Permit			0.00%	-			*excluded - in owner budget*
	Design & Est Contingency			20.00%	756,454			
	Cost Escalation - Not Applied This Exercise			0.00%	-			*present cost of constr.*
Total Budget Estimate - Hard Construction				68.65%	1,847,512		**4,538,724**	

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 2 - SKYLINE RIDGE CIRCLE LOT
IV. MOBILIZATION, SITE PREP, & DEMOLITION

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
1. MOBILIZATION & SITE PREPARATION								
Z1050	**Temporary Facilities and Controls**							
	Project mobilization/demobilization	1.00	bgt	50,000.00	50,000			
	Set-up central temp facilities - office, storage, etc	1.00	bgt	7,500.00	7,500			
	Temporary utilties	1.00	bgt	2,500.00	2,500			
	Erosion control & BMP measures - perim silt fence/wattles	2,500.00	lf	4.50	11,250			
	Tree protection fencing - significant perim trees	1.00	bgt	2,500.00	2,500			
	Temp site entry rock surfacing w/wash down station	1.00	bgt	5,000.00	5,000			
	Daily equip wash down procedures - phytophthora control during site work	52.00	wks	1,500.00	78,000			
	Water tank on site for wash down - phytophthora & dust control during site work	52.00	wks	1,750.00	91,000			
	Layout & stake	1.00	bgt	20,000.00	20,000			
	Subtotal					**267,750**		
	TOTAL: 1. MOBILIZATION & SITE PREPARATION						**267,750**	
	Net Total Incl Mark-up							$452,000
2. BUILDING DEMOLITION								
F3010	**Structure Demolition**							
	Remove vault toilet and off-haul	1.00	bgt	3,000.00	3,000			
	Subtotal					**3,000**		
	TOTAL: 2. BUILDING DEMOLITION						**3,000**	
	Net Total Incl Mark-up							$5,000
3. BUILDING RELOCATION								
F3050	**Structure Moving**							
	Not applicable this site				-			
	Subtotal					**-**		
	TOTAL: 3. BUILDING RELOCATION						**-**	
	Net Total Incl Mark-up							$0
4. MISCELLANEOUS SITE DEMOLITION								
G1020	**Site Elements Demolition and Relocations**							
	Budget for misc site elements removal	1.00	bgt	5,000.00	5,000			
	Subtotal					**5,000**		
	TOTAL: 4. MISCELLANEOUS SITE DEMOLITION						**5,000**	
	Net Total Incl Mark-up							$8,000
5. HAZARDOUS WASTE REMOVAL ALLOWANCE								
G1040	**Hazardous Waste Remediation**							
	None assumed this site - excluded		excl		-			
	Subtotal					**-**		
	TOTAL: 5. HAZARDOUS WASTE REMOVAL ALLOWANCE						**-**	
	Net Total Incl Mark-up							$0

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IV. MOBILIZATION, SITE PREP, & DEMOLITION

Estimate Detail code	item description	quantity	unit cost	ext	trade subtotals	assembly totals	quals & assumptions
Raw Cost of Work						**275,750**	
(Mark-up factors progressively compounded)							
General Expenses			10.00%	27,575			
Site Remoteness Premium Factor			10.00%	30,333			
Contractor's Fee (OH & Profit)			15.00%	50,049			
Contractor Insurance			1.00%	3,837			
Building Permit			0.00%	-			*excluded - in owner budget*
Design & Est Contingency			20.00%	77,509			
Cost Escalation - Not Applied This Exercise			0.00%	-			*present cost of constr.*
Total Budget Estimate - Hard Construction			68.65%	189,302		**465,052**	

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 3 - SHERRILL SITE
I. BUILDINGS

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals		quals & assumptions
1. OFFICE / ADMINISTRATION BUILDING		**5,700**	**gsf**						
F1020	**Integrated Construction**								
	Pad preparation	5,700.00	gsf	0.50	2,850				
	Foundation & slab-on-grade	5,700.00	gsf	35.00	199,500				
	Structure above grade - wood framed site built - simple geometry - 10'0 high	5,700.00	gsf	50.00	285,000				
	Vertical envelope - façade, windows, & doors	5,700.00	gsf	75.00	427,500				
	Horizontal envelope - roof	5,700.00	gsf	15.00	85,500				
	Interior white shell - drywall & interior doors	5,700.00	gsf	40.00	228,000				
	Interior buildout & finishes	5,700.00	gsf	100.00	570,000				
	Plumbing	5,700.00	gsf	15.00	85,500				
	Fire sprinkers	5,700.00	gsf	9.00	51,300				
	HVAC	5,700.00	gsf	60.00	342,000				
	Electrical distribution	5,700.00	gsf	40.00	228,000				
	Lighting	5,700.00	gsf	30.00	171,000				
	Fire alarm	5,700.00	gsf	4.00	22,800				
	Data/com	5,700.00	gsf	3.00	17,100				
	Security & access control	5,700.00	gsf	5.00	28,500				
	Subtotal					**2,744,550**			
TOTAL:	**1. OFFICE / ADMINISTRATION BUILDING**						**2,744,550**		*$482 /gsf - direct cost*
	Net Total Incl Mark-up							$4,629,000	*$812 /gsf - net const*
2. SHARED SUPPORT BUILDING		**5,000**	**gsf**						
F1020	**Integrated Construction**								
	Pad preparation	5,000.00	gsf	0.50	2,500				
	Foundation & slab-on-grade	5,000.00	gsf	35.00	175,000				
	Structure above grade - wood framed site built - simple geometry - 10'0 high	5,000.00	gsf	50.00	250,000				
	Vertical envelope - façade, windows, & doors	5,000.00	gsf	75.00	375,000				
	Horizontal envelope - roof	5,000.00	gsf	15.00	75,000				
	Interior white shell - drywall & interior doors	5,000.00	gsf	40.00	200,000				
	Interior buildout & finishes	5,000.00	gsf	80.00	400,000				
	Plumbing	5,000.00	gsf	25.00	125,000				
	Fire sprinkers	5,000.00	gsf	9.00	45,000				
	HVAC	5,000.00	gsf	60.00	300,000				
	Electrical distribution	5,000.00	gsf	40.00	200,000				
	Lighting	5,000.00	gsf	30.00	150,000				
	Fire alarm	5,000.00	gsf	4.00	20,000				
	Data/com	5,000.00	gsf	3.00	15,000				
	Security & access control	5,000.00	gsf	5.00	25,000				
	Subtotal					**2,357,500**			
TOTAL:	**2. SHARED SUPPORT BUILDING**						**2,357,500**		*$472 /gsf - direct cost*
	Net Total Incl Mark-up							$3,976,000	*$795 /gsf - net const*
3. SHOPS BUILDING - ENCLOSED & CONDITIONED		**6,150**	**gsf main shops bldg + covered work space**						
F1020	**Integrated Construction** **Main Shops Bldg**	**4,950**	**gsf**						
	Pad preparation	4,950.00	gsf	0.50	2,475				
	Foundation & slab-on-grade	4,950.00	gsf	35.00	173,250				
	Pre-engineered steel building including structure, metal siding, & metal roofing - 15'0 high	4,950.00	gsf	75.00	371,250				
	Interior white shell - drywall & interior doors	4,950.00	gsf	10.00	49,500				

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I. BUILDINGS

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals		quals & assumptions
	Interior buildout & maintenance lifts & overhead hoist	4,950.00	gsf	100.00	495,000				
	Plumbing - drains incl sand/grease separator, hose bibs, & wash sinks	4,950.00	gsf	25.00	123,750				
	Fire sprinkers	4,950.00	gsf	9.00	44,550				
	HVAC including work bay exhaust system	4,950.00	gsf	75.00	371,250				
	Electrical distribution	4,950.00	gsf	60.00	297,000				
	Lighting	4,950.00	gsf	20.00	99,000				
	Fire alarm	4,950.00	gsf	4.00	19,800				
	Data/com	4,950.00	gsf	1.50	7,425				
	Security & access control	4,950.00	gsf	2.00	9,900				
	Subtotal					**2,064,150**			*$417 /gsf - direct cost*
									$703 /gsf - net const
F1020	**Integrated Construction** **Covered Work Space**	**1,200**	**gsf**						
	Pad preparation	1,200.00	gsf	0.50	600				
	Foundation & slab-on-grade	1,200.00	gsf	35.00	42,000				
	Pre-engineered steel building including structure & metal roofing	1,200.00	gsf	50.00	60,000				
	Plumbing - drains & hose bibs (tied into Shops Bldg system	1,200.00	gsf	5.00	6,000				
	Fire sprinkers	1,200.00	gsf	9.00	10,800				
	Electrical distribution	1,200.00	gsf	30.00	36,000				
	Lighting	1,200.00	gsf	15.00	18,000				
	Fire alarm	1,200.00	gsf	4.00	4,800				
	Subtotal					**178,200**			*$149 /gsf - direct cost*
									$250 /gsf - net const
	TOTAL: 3. SHOPS BUILDING - ENCLOSED & CONDITIONED						**2,242,350**		*$365 /gsf - direct cost*
	Net Total Incl Mark-up							$3,782,000	*$615 /gsf - net const*
4. SPECIAL STORAGE BUILDING - ENCLOSED & CONDITIONED		**4,200**	**gsf**						
F1020	**Integrated Construction**								
	Pad preparation	4,200.00	gsf	0.50	2,100				
	Foundation & slab-on-grade	4,200.00	gsf	35.00	147,000				
	Pre-engineered steel building including structure, metal siding, & metal roofing - 18'0 high	4,200.00	gsf	80.00	336,000				
	Mezzanine - use 30% of footprint - pre-engineered structure	1,400.00	gsf	35.00	49,000				
	Interior white shell - drywall & interior doors	5,600.00	gsf	10.00	56,000				
	Interior buildout & finishes - incl specal storage construction	5,000.00	gsf	50.00	250,000				
	Plumbing - drains incl sand/grease separator, hose bibs, & wash sinks	4,200.00	gsf	25.00	105,000				
	Fire sprinkers	5,600.00	gsf	9.00	50,400				
	HVAC including specialed exhaust system	5,600.00	gsf	50.00	280,000				
	Electrical distribution	4,200.00	gsf	35.00	147,000				
	Lighting	4,200.00	gsf	20.00	84,000				
	Fire alarm	4,200.00	gsf	4.00	16,800				
	Security & access control	4,200.00	gsf	2.00	8,400				
	Subtotal					**1,531,700**			
	TOTAL: 4. SPECIAL STORAGE BUILDING - ENCLOSED & CONDITIONED						**1,531,700**		*$365 /gsf - direct cost*
	Net Total Incl Mark-up							$2,583,000	*$615 /gsf - net const*
5. MATERIAL STOCKPILE BUILDING - 3 SIDED CMU		**6,500**	**gsf**						
G2040	**Site Development**								
	Pad preparation	6,500.00	gsf	0.50	3,250				
	Foundation & slab-on-grade	6,500.00	gsf	35.00	227,500				
	CMU perimeter walls - 3 sides - use 15'0 high	3,600.00	sfwl	30.00	108,000				
	CMU interior bay walls - use 5 ea 40'0 x 15'0 high	3,000.00	sfwl	30.00	90,000				
	Pre-engineered roof structure & metal roofing	6,500.00	gsf	25.00	162,500				
	Plumbing - drains incl sand/grease separator, hose bibs, & wash sinks	6,500.00	gsf	25.00	162,500				
	Fire sprinkers	6,500.00	gsf	9.00	58,500				
	Electrical distribution	6,500.00	gsf	20.00	130,000				
	Lighting	6,500.00	gsf	15.00	97,500				

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I. BUILDINGS

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions		
	Fire alarm	6,500.00	gsf	4.00	26,000					
	Subtotal					**1,065,750**				
	TOTAL: 5. MATERIAL STOCKPILE BUILDING - 3 SIDED CMU						**1,065,750**		*$164*	*/gsf - direct cost*
	Net Total Incl Mark-up							$1,797,000	*$276*	*/gsf - net const*
	6. EQUIPMENT STORAGE BUILDING - OPEN SIDED	**10,000**	**gsf**							
F1020	**Integrated Construction**									
	Pad preparation	10,000.00	gsf	0.50	5,000					
	Foundation & slab-on-grade	10,000.00	gsf	35.00	350,000					
	Pre-engineered steel building including structure & metal roofing - use 18'0 high	10,000.00	gsf	50.00	500,000					
	Plumbing - drains, sand/grease trap & hose bibs	10,000.00	gsf	5.00	50,000					
	Fire sprinkers	10,000.00	gsf	9.00	90,000					
	Electrical distribution	10,000.00	gsf	5.00	50,000					
	Lighting	10,000.00	gsf	8.00	80,000					
	Fire alarm	10,000.00	gsf	4.00	40,000					
	Subtotal					**1,165,000**				
	TOTAL: 6. EQUIPMENT STORAGE BUILDING - OPEN SIDED						**1,165,000**		*$117*	*/gsf - direct cost*
	Net Total Incl Mark-up							$1,965,000	*$197*	*/gsf - net const*
	Raw Cost of Work						**11,106,850**			
	(Mark-up factors progressively compounded)									
	General Expenses			10.00%	1,110,685					
	Site Remoteness Premium Factor			10.00%	1,221,754					
	Contractor's Fee (OH & Profit)			15.00%	2,015,893					
	Contractor Insurance			1.00%	154,552					
	Building Permit			0.00%	-			*excluded - in owner budget*		
	Design & Est Contingency			20.00%	3,121,947					
	Cost Escalation - Not Applied This Exercise			0.00%	-			*present cost of constr.*		
	Total Budget Estimate - Hard Construction			68.65%	7,624,830		**18,731,680**			

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 3 - SHERRILL SITE
II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	*trade* **subtotals**	*assembly* totals	quals & assumptions
1. STORM DRAINAGE								
G3030	**Storm Sewer**							
	Storm drain piping - use 18" ABS	770.00	lf	65.00	50,050			
	Storm drain tie-ins to building foundation drains (see buildings for foundation drains)	8.00	ea	10,000.00	80,000			
	Storm drain clean-outs	20.00	ea	750.00	15,000			
	Culverts - use 36" complete with headwalls - none this site	3.00	ea	25,000.00	75,000			
	Drainage swale - earthen w/coir mat & wattles for temp erosion control	1,365.00	lf	20.00	27,300			
	Drainage swale - armored	210.00	lf	50.00	10,500			
	Storm drain & swale discharge dissipators	4.00	ea	1,200.00	4,800			
	Retention / detention basins (3 locations of various sizes) - assume bioswale function - complete with drainage rock and loam layers	7,360.00	sf	35.00	257,600			
	Subtotal					**520,250**		
	TOTAL: 1. STORM DRAINAGE						**520,250**	
	Net Total Incl Mark-up							$877,000
2. WATER - DOMESTIC & FIRE								
F1020	**Integrated Construction** **Utility Bldg for Booster Pump**							
	Pre-cast utility building 12 x 10.5 - incl insulation heater, roll-up door - based on CXT Scehweitzer	1.00	ls	85,000.00	85,000			
	Pad prepartion for slab	200.00	sf	8.00	1,600			
	Foundation & slab on-grade	150.00	sf	25.00	3,750			
	Water tie-in, hose bib, eye wash/hand sink	1.00	bgt	2,000.00	2,000			
	Floor drain	1.00	bgt	1,500.00	1,500			
	Sanitary tie-in & sand/grease trap	1.00	bgt	10,000.00	10,000			
	Bleed off drain dissipator	1.00	bgt	1,500.00	1,500			
	Electrical panel, outlets, & lights	1.00	bgt	7,500.00	7,500			
	Subtotal					**112,850**		
G1030	**Site Earthwork** **Storage Tank Pads**							
	Fire water tank: Prep pad for new tank footprint pad and perimeter access - incl grub, clear, & off-haul and cut, fill, & grading - assume balanced	7,500.00	sf	3.00	22,500			
	Domestic water tank: Prep pad for new tank footprint pad and perimeter access - incl grub, clear, & off-haul and cut, fill, & grading - assume balanced	500.00	sf	3.00	1,500			
	Subtotal					**24,000**		
G2040	**Site Development** **Storage Tank Pads**							
	Fire water tank: Concrete pad for tank - use 40'0 diameter - 1'0 thick concrete over 9" section of base	1,260.00	sf	35.00	44,100			
	Fire water tank: Gravel surfacing around perimeter of tank - 3" gravel tread on 9" base - 15'0 wide surfacing around tank	2,600.00	sf	3.75	9,750			
	Domestic water tank: Concrete pad for tank - use 12'0 diameter - 6" thick concrete over 9" section of base	150.00	sf	25.00	3,750			
	Domestic water tank: Gravel surfacing around perimeter of tank - 3" gravel tread on 9" base - 10'0 wide surfacing around tank	230.00	sf	3.75	863			
	Subtotal					**58,463**		
G3010	**Water Supply** **Well & Water Treatment Facilities**							
	New well - drilled, cased, packed & sealed complete	300.00	lf	175.00	52,500			

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
	New well pump and pump dog house	1.00	bgt	15,000.00	15,000			
	Wellhead filtration - assume	1.00	ls	7,500.00	7,500			
	Domestic water treatment system - assume in-line downstream of domestic storage tank - located within one of the buildingss	1.00	ls	15,000.00	15,000			
	Fill pipe from wellhead/treatment to water tanks - use 3" PVC	450.00	lf	35.00	15,750			
	Valve assembly - split fire/domestic fill & bypass	1.00	bgt	15,000.00	15,000			
	Subtotal					**120,750**		
G3010	**Water Supply** **Storage Tanks**							
	(Locate tank at site of existing tank - elevation does not provide necessary head pressure)							
	Fire water storage tank - 180k gallon - use bolted galvanized steel , full set of appurtenances, and overflow & discharge piping.	1.00	ls	350,000.00	350,000			
	Fire water storage tank mixer & treatment - manually operated	1.00	bgt	20,000.00	20,000			
	Fill level monitor and transponder	1.00	bgt	2,000.00	2,000			
	Small solar set and battery installed on fire water tank to operate treatment, mixer, & fill monitoring signal	1.00	bgt	5,000.00	5,000			
	Domestic water storage tank - 10k gallon - use bolted galvanized steel , full set of appurtenances, and overflow & discharge piping. Located adjacent to fire water tank.	1.00	ls	25,000.00	25,000			
	Subtotal					**402,000**		
G3010	**Water Supply** **Conveyance**							
	Fire water main from tank - 6". Use PVC C900 Class 150	1,585.00	lf	65.00	103,025			
	Domestic water main from tank - 4". Use PVC C900 Class 150	1,585.00	lf	55.00	87,175			
	Water main valving & appurtenances	1.00	bgt	35,000.00	35,000			
	Service laterals to buildings - 2" PVC	75.00	lf	25.00	1,875			
	Service lateral curb stops & meter boxes - assume	1.00	bgt	2,500.00	2,500			
	Subtotal					**229,575**		
G3010	**Water Supply** **Fire Hydrants**							
	Fire hydrants complete with valving, surge blocks, & lateral	3.00	ea	6,500.00	19,500			
	Subtotal					**19,500**		
G3010	**Water Supply** **Fire Booster Pump**							
	Fire water booster pump - electric incl associated piping and valving	1.00	ea	50,000.00	50,000			
	Subtotal					**50,000**		
G3010	**Water Supply** **Domestic Water Booster Pump**							
	Domestic water booster pump - electric incl associated piping and valving	1.00	ea	15,000.00	15,000			
	Subtotal					**15,000**		
	TOTAL: 2. WATER - DOMESTIC & FIRE						**1,032,138**	
	Net Total Incl Mark-up							$1,741,000

3. SANITARY SEPTIC SYSTEM

G3020	**Sanitary Sewer** **Conveyance**							
	Sanitary main - use 6" - assume quantity	600.00	lf	50.00	30,000			
	Sanitary laterals - use 4" - assume quantity	350.00	lf	40.00	14,000			
	Manholes - assume	4.00	ea	5,500.00	22,000			
	Clean-outs - assume 2 way at lateral connections to buildings	4.00	ea	800.00	3,200			
	Clean-outs - assume 2 way at lateral connections to wash station & dumpster slab	2.00	ea	800.00	1,600			
	Sand/grease separator - see buildings, wash station, & dumpster area		ea		-			
	Subtotal					**70,800**		
G3020	**Sanitary Sewer** **Treatment**							
	Advanced treatment - assume Orenco Advantex type system complete including control panel & start-up	1.00	ls	125,000.00	125,000			
	New leach lines complete with shut-off & controls valving and boxes and general site clearing and repairs	420.00	lf	225.00	94,500			
	New leach line clean-outs & monitoring wells - per each line run	6.00	ea	3,000.00	18,000			
	Premium for sand mound or drip system	1.00	bgt	10,000.00	10,000			

II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
	Subtotal					**247,500**		
	TOTAL: 3. SANITARY SEPTIC SYSTEM						**318,300**	
	Net Total Incl Mark-up							$537,000
4. FUELING & WASH STATIONS								
D20	**Plumbing**							
	Wash station water station	1.00	bgt	1,000.00	1,000			
	Wash station drain	1.00	bgt	1,500.00	1,500			
	Wash station sand/grease trap	1.00	bgt	10,000.00	10,000			
	Subtotal					**12,500**		
F1020	**Integrated Construction**							
	Shade structure over fueling & wash stations complete	1,000.00	sf	50.00	50,000			
	Storage closet or shelving for wash supplies	1.00	bgt	5,000.00	5,000			
	Subtotal					**55,000**		
G2040	**Site Development**							
	Concrete mat slab - under fueling & wash stations	1,000.00	sf	30.00	30,000			
	Concrete house keeping pad for fueling tank	1.00	bgt	3,500.00	3,500			
	Concrete containment around fueling station	100.00	lf	50.00	5,000			
	Subtotal					**38,500**		
G3060	**Fuel Distribution**							
	Split fuel tank - assume 1,500 gal gas & 2,000 gal diesel - complete w/pumps, hose, & nozzle	1.00	bgt	60,000.00	60,000			
	Card lock vending system	1.00	bgt	7,500.00	7,500			
	Power feeder - see Electrical Service below				-			
	Subtotal					**67,500**		
	TOTAL: 4. FUELING & WASH STATIONS						**173,500**	
	Net Total Incl Mark-up							$293,000
5. ELECTRICAL SERVICE								
G1030	**Site Earthwork** **New 3Ph Service to Site**							
	Clear & grub meadow for new underground feeder route from PG&E pole by old wellhead	200.00	lf	3.00	600			
	Subtotal					**600**		
G2040	**Site Development** **New 3Ph Service to Site**							
	Landscape repair for underground feeder route from pole at the highway to the site - mostly under improved footprint	50.00	lf	5.00	250			
	Concrete pad for PG&E transformer - inlcude grounding	1.00	ea	3,500.00	3,500			
	Subtotal					**3,750**		
G40	**Electrical Site Utilities** **Relocate Existing OH Power (Relocate with underground - 1Ph overhead line cutting through site)**							
	UG conduit 4" - bypass new building footprint - conductor by PG&E (see PG&E fees below) - assume distance	300.00	lf	35.00	10,500			
	Conduit sweeps at poles	2.00	ea	750.00	1,500			
	Subtotal					**12,000**		
G40	**Electrical Site Utilities** **New 3Ph Service to Site**							
	UG conduit 4" - from new PG&E pole to be set at south side of highway for highway crossing just north of the site to new transformer pad - conductor by PG&E (see PG&E fees below)	200.00	lf	35.00	7,000			
	UG conduit (4) 5" - from transformer pad to new metered main switchboard. Assume switchboard in building electrical closet - assume distance - Conductors transformer to meter by PG&E	50.00	lf	110.00	5,500			
	Conduit sweeps at pole by highway	1.00	ea	750.00	750			
	Conduit sweeps at transformer pad & switchboard	9.00	ea	600.00	5,400			
	Pad mounted transformer - by PG&E (see PG&E Fees below)		excl		-			
	Main metered switchboard - 1,200A, 120.208V, 3-PH	1.00	bgt	25,000.00	25,000			
	Branch feeders from switchboard to building main panels - assume quantity	400.00	lf	80.00	32,000			
	Electrical distribution in buildings - see building estimates			0.00	-			
	Subtotal					**75,650**		

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
G40	**Electrical Site Utilities**	**Utility & Misc Equipment Feeds**						
	Wellhead pump - new power feed & panel	1.00	bgt	5,000.00	5,000			
	Fire water booster pumps - power feed & panel	1.00	bgt	5,000.00	5,000			
	Domestic water booster pumps - power feed & panel	1.00	bgt	5,000.00	5,000			
	Water treatment system - power feed & panel	1.00	bgt	2,500.00	2,500			
	Advanced treatment equipment - power feed & panel	1.00	bgt	10,000.00	10,000			
	Fueling station - feeder and panel	1.00	bgt	2,500.00	2,500			
	Automatic vehicular gate - feeder & shut-off	1.00	bgt	3,000.00	3,000			
	Subtotal					**33,000**		
G40	**Electrical Site Utilities**	**PG&E Fees - Place Holder Budgets**						
	Relocate 1PH line + demolition of overhead and 1 pole	1.00	allow	10,000.00	10,000			
	New service feeder & pad mounted transformer	1.00	allow	50,000.00	50,000			
	Subtotal					**60,000**		
	TOTAL: 5. ELECTRICAL SERVICE						**185,000**	
	Net Total Incl Mark-up							$312,000
6. SOLAR & BATTERY SYSTEM								
G2040	**Site Development**							
	Concrete pad for BESS structure - inlcude grounding	1.00	ea	3,500.00	3,500			
	Subtotal					**3,500**		
G4090	**Other Site Electrical Utilities**							
	PV array roof mounted panels. System complete with roof racks, optimizers, inverters, combiner boxes, & cabling	52.00	kW	2,500.00	130,000			
	BESS integrated micro-grid system - 22kW / 92kWh - complete with container, heat pump, & fire suppression - exterior pad mounted	1.00	bgt	125,000.00	125,000			
	Solar system panel & disconnect	1.00	bgt	5,000.00	5,000			
	Subtotal					**260,000**		
	TOTAL: 6. SOLAR & BATTERY SYSTEM						**263,500**	
	Net Total Incl Mark-up							$444,000
7. BACK-UP GENERATOR								
G2040	**Site Development**							
	Concrete pad for generator structure - inlcude grounding	1.00	ea	3,500.00	3,500			
	Containment curb	50.00	lf	65.00	3,250			
	Subtotal					**6,750**		
G4090	**Other Site Electrical Utilities**							
	Genset complete - 200kW, 120/208V, 3ph - diesel with 700 gal belly tank - exterior pad mount	1.00	ea	120,000.00	120,000			
	Auto transfer switch - 1,200A	1.00	ea	65,000.00	65,000			
	Underground connection generator to main electrical service - include tie-in	1.00	bgt	5,000.00	5,000			
	Subtotal					**190,000**		
	TOTAL: 7. BACK-UP GENERATOR						**196,750**	
	Net Total Incl Mark-up							$332,000
8. EV CHARGING								
G4090	**Other Site Electrical Utilities**							
	Level 2 EV charger pedestals - pair	3.00	pair	5,000.00	15,000			
	Underground feeders to EV chargers	1.00	bgt	500.00	20,000			
	Subtotal					**35,000**		
	TOTAL: 8. EV CHARGING						**35,000**	
	Net Total Incl Mark-up							$59,000
9. SITE LIGHTING								
G4020	**Site Lighting**							
	Site lighting budget - dark sky compliant - complete with controls	1.00	bgt	75,000.00	75,000			
	Subtotal					**75,000**		
	TOTAL: 9. SITE LIGHTING						**75,000**	
	Net Total Incl Mark-up							$126,000

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II. INFRASTRUCTURE - UTILITIES

Estimate Detail					trade	assembly	
code	*item description*	*quantity*	*unit cost*	*ext*	***subtotals***	*totals*	*quals & assumptions*
10. DATA & COMMUNICATION SERVICE							
G4030	**Site Communications & Security**						
	Underground conduit from pole at highway to EMPOE - (2) 2" PVC - cabling by provider	200.00 lf	35.00	7,000			
	EMPOE data/com closet - see Admin Building			-			
	Service cabling & conduit between buildings	1.00 bgt	5,000.00	5,000			
	Subtotal				**12,000**		
	TOTAL: 10. DATA & COMMUNICATION SERVICE					**12,000**	
	Net Total Incl Mark-up						$20,000
Raw Cost of Work						**2,811,438**	
	(Mark-up factors progressively compounded)						
	General Expenses		10.00%	281,144			
	Site Remoteness Premium Factor		10.00%	309,258			
	Contractor's Fee (OH & Profit)		15.00%	510,276			
	Contractor Insurance		1.00%	39,121			
	Building Permit		0.00%	-			*excluded - in owner budget*
	Design & Est Contingency		20.00%	790,247			
	Cost Escalation - Not Applied This Exercise		0.00%	-			*present cost of constr.*
Total Budget Estimate - Hard Construction			68.65%	1,930,046		**4,741,484**	

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 3 - SHERRILL SITE
III. SITEWORK - HARDSCAPE & LANDSCAPE

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions	
1. ROUGH GRADING & RETAINING WALLS		**142,000**	**gsf full project site**						
G1010	**Site Clearing**								
	Grub & clear including organics offhaul to stockpile in park	200,000.00	sf	0.15	30,000				
	Subtotal					**30,000**			
G1020	**Site Elements Demolition and Relocations**								
	See IV. Mobilization & Demolition			0.00	-				
	Subtotal					**-**			
G1030	**Site Earthwork**								
	Cut & fill - 200,000 sf at avg 4'0 deep - place, condition, & compact	29,000.00	cy	7.50	217,500				
	Off-haul spoils - assume quantity 7,500 cy	10,000.00	tons	30.00	300,000				
	Subtotal					**517,500**			
G2040	**Site Development**								
	Retaining walls - 250 lf at average 3'0 high	750.00	sf	75.00	56,250				
	Retaining walls - 250 lf at average 5'6 high	1,375.00	sf	75.00	103,125				
	Subtotal					**159,375**			
F2020	**Hazardous Components Abatement**								
	Excluded - none assumed				-				
	Subtotal					**-**			
TOTAL:	**1. ROUGH GRADING & RETAINING WALLS**						**706,875**		
	Net Total Incl Mark-up							$1,192,000	
2. PAVING - VEHICULAR / WORK YARD									
G1030	**Site Earthwork**								
	Subgrade preparation - scarify, compact, & fine grade - at AC	152,000.00	sf	0.20	30,400				
	Subgrade preparation - scarify, compact, & fine grade - at Class II shoulders	10,000.00	sf	0.20	2,000				
	Subtotal					**32,400**			
G2020	**Parking Lots** **Internal Roadway & Parking Lots**								
	(Assume 4" AC over 12" Class II AB)								
	Class II AB roadbase at AC paving - use 12" section - 152k sf	11,260.00	tons	50.00	563,000			$ 3.70 /sf	
	Class II AB shoulders- use 12" + 4" section for 10,000 sf	990.00	tons	50.00	49,500				
	Asphalt paving - 4" section - 152,000 sf	3,940.00	tons	300.00	1,182,000			$7.78 /sf	
	Striping	1.00	bgt	7,500.00	7,500				
	Signage - accessible parking spots	1.00	bgt	1,500.00	1,500				
	Subtotal					**1,803,500**			
TOTAL:	**2. PAVING - VEHICULAR / WORK YARD**						**1,835,900**		
	Net Total Incl Mark-up							$3,096,000	
3. PAVING - PEDESTRIAN SIDEWALKS									
G1030	**Site Earthwork**								
	Subgrade preparation - scarify, compact, & fine grade for concrete sidewalks	2,850.00	sf	0.50	1,425				
	Subgrade preparation - scarify, compact, & fine grade - stair/sidewalk slope upper parking lot islands	670.00	sf	8.00	5,360				
	Subtotal					**6,785**			
G2030	**Pedestrian Paving**								
	Class II AB base at concrete sidewalk - use 4" section - 3,520 sf	88.00	tons	65.00	5,720			$ 6.36 /sf	
	Concrete paving sidewalk at Admin Bldg - use 4"	2,850.00	sf	18.00	51,300				
	Concrete stairs - upper parking levels at islands - 19 rise	38.00	riser	500.00	19,000				
	Concrete stairs landings- upper parking levels at islands	480.00	sf	25.00	12,000				

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III. SITEWORK - HARDSCAPE & LANDSCAPE

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
	Subtotal					**88,020**		
G2040	**Site Development**							
	Stair rails	84.00	lf	175.00	14,700			
	Subtotal					**14,700**		
	TOTAL: 3. PAVING - PEDESTRIAN SIDEWALKS						**109,505**	
	Net Total Incl Mark-up							$185,000
4. PAVING - EMPLOYEE GATHERING AREAS								
G1030	**Site Earthwork**							
	Subgrade preparation - scarify, compact, & fine grade - employee gathering areas	4,525.00	sf	0.50	2,263			
	Subtotal					**2,263**		
G2030	**Pedestrian Paving**							
	Class II baserock - 4" section - 4,525 sf - employee gathering areas	114.00	tons	65.00	7,410			$ 1.64 /sf
	Stabilized DG surfacing - employee gathering areas	4,525.00	sf	12.00	54,300			
	Edging around DG at open ends employee gathering areas	370.00	lf	10.00	3,700			
	Subtotal					**65,410**		
	TOTAL: 4. PAVING - EMPLOYEE GATHERING AREAS						**67,673**	
	Net Total Incl Mark-up							$114,000
5. SITE FURNISHINGS & AMENITIES								
G2040	**Site Development**							
	Benches at buildng entries - 1 ea entry	3.00	ea	2,200.00	6,600			
	Picnic tables - 2 per small employee gathering area and 3 per large employee gathering area	5.00	ea	3,000.00	15,000			
	Waste/recycling receptacles - 2 set each employee gathering area & 1 set eacg building entry	5.00	sets	2,800.00	14,000			
	Bike racks	10.00	ea	400.00	4,000			
	Flag pole	1.00	ea	3,500.00	3,500			
	Entry sign - routed wood on base	1.00	bgt	5,000.00	5,000			
	Subtotal					**48,100**		
	TOTAL: 5. SITE FURNISHINGS & AMENITIES						**48,100**	
	Net Total Incl Mark-up							$81,000
6. COVERED DUMPSTER PAD								
D20	**Plumbing**							
	Hose bib for wash down	1.00	bgt	750.00	750			
	Drain	1.00	bgt	1,500.00	1,500			
	Drain sand/grease trap	1.00	bgt	10,000.00	10,000			
	Subtotal					**12,250**		
F1020	**Integrated Construction**							
	Shade structure over dumpster enclosure - assume same size for all sites	1,000.00	sf	50.00	50,000			
	Subtotal					**50,000**		
G2040	**Site Development**							
	Concrete mat slab - dumpster pads	1,000.00	sf	30.00	30,000			
	Curbing on 3 sides	100.00	lf	65.00	6,500			
	Screen fencing and gate	1.00	bgt	15,000.00	15,000			
	Dumpsters - exclued - by District		excl		-			
	Subtotal					**51,500**		
	TOTAL: 6. COVERED DUMPSTER PAD						**113,750**	
	Net Total Incl Mark-up							$192,000
7. FENCING								
G2040	**Site Development**							
	Fencing - none this site		excl		-			
	Vehicle gate with auto operator - 30 '0 wide - see Utilities, Electrical for power feed	1.00	ea	40,000.00	40,000			

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III. SITEWORK - HARDSCAPE & LANDSCAPE

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
	Subtotal					**40,000**		
	TOTAL: 7. FENCING						**40,000**	
	Net Total Incl Mark-up							$67,000
8. LANDSCAPE		**1,150**	**lf**					
G2050	**Landscaping**							
	New trees - assume 24" box	30.00	ea	1,250.00	37,500			
	Seeding & straw mulch at retention basins	7,360.00	sf	0.50	3,680			
	Landscape repairs, seeding, & straw mulch at perimeter impacted by construction - asume quantity	30,000.00	sf	1.50	45,000			
	Coir mat and wattles at impacted slopes - see Utilities - Storm Drainage for erosion control at drainage swales	1.00	bgt	20,000.00	20,000			
	Subtotal					**106,180**		
G2057	**Irrigation**							
	Temporary irrigation w/quick connects - for 30 trees - covers 50k sf area	50,000.00	sf	0.75	37,500			
	Subtotal					**37,500**		
	TOTAL: 8. LANDSCAPE						**143,680**	
	Net Total Incl Mark-up							$242,000
Raw Cost of Work							**3,065,483**	
	(Mark-up factors progressively compounded)							
	General Expenses			10.00%	306,548			
	Site Remoteness Premium Factor			10.00%	337,203			
	Contractor's Fee (OH & Profit)			15.00%	556,385			
	Contractor Insurance			1.00%	42,656			
	Building Permit			0.00%	-			*excluded - in owner budget*
	Design & Est Contingency			20.00%	861,655			
	Cost Escalation - Not Applied This Exercise			0.00%	-			*present cost of constr.*
Total Budget Estimate - Hard Construction				68.65%	2,104,448		**5,169,930**	

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RAPID ASSESSMENT - PRELIMINARY ALTERNATIVE ANALYSIS **ESTIMATE DETAIL REPORT**

Project: **Midpeninsula Regional Open Space District**
Skyline Field Office Rapid Site Assessment Cost Estimate Project Narrative 11/8/24

Est by: RMB
Est Date: 12/12/24
Submission Revised3

SITE ALT 3 - SHERRILL SITE
IV. MOBILIZATION, SITE PREP, & DEMOLITION

Estimate Detail code	item description	quantity		unit cost	ext	trade subtotals	assembly totals	quals & assumptions
1. MOBILIZATION & SITE PREPARATION								
Z1050	**Temporary Facilities and Controls**							
	Project mobilization/demobilization	1.00	bgt	50,000.00	50,000			
	Set-up central temp facilities - office, storage, etc	1.00	bgt	7,500.00	7,500			
	Temporary utilties	1.00	bgt	2,500.00	2,500			
	Erosion control & BMP measures - perim silt fence/wattles	2,500.00	lf	4.50	11,250			
	Tree protection fencing - significant perim trees	1.00	bgt	2,500.00	2,500			
	Temp site entry rock surfacing w/wash down station	1.00	bgt	5,000.00	5,000			
	Daily equip wash down procedures - phytophthora control during site work	52.00	wks	1,500.00	78,000			
	Water tank on site for wash down - phytophthora & dust control during site work	52.00	wks	1,750.00	91,000			
	Layout & stake	1.00	bgt	20,000.00	20,000			
	Subtotal					**267,750**		
	TOTAL: 1. MOBILIZATION & SITE PREPARATION						**267,750**	
	Net Total Incl Mark-up							$452,000
2. BUILDING DEMOLITION								
F3010	**Structure Demolition**							
	Not applicable this site				-			
	Subtotal					**-**		
	TOTAL: 2. BUILDING DEMOLITION						**-**	
	Net Total Incl Mark-up							$0
3. BUILDING RELOCATION								
F3050	**Structure Moving**							
	Not applicable this site				-			
	Subtotal					**-**		
	TOTAL: 3. BUILDING RELOCATION						**-**	
	Net Total Incl Mark-up							$0
4. MISCELLANEOUS SITE DEMOLITION								
G1020	**Site Elements Demolition and Relocations**							
	Removal of existing water tank	1.00	bgt	5,000.00	5,000			
	Budget for misc site elements removal	1.00	bgt	1,500.00	1,500			
	Subtotal					**6,500**		
	TOTAL: 4. MISCELLANEOUS SITE DEMOLITION						**6,500**	
	Net Total Incl Mark-up							$11,000
5. HAZARDOUS WASTE REMOVAL ALLOWANCE								
G1040	**Hazardous Waste Remediation**							
	None assumed this site - excluded		excl		-			
	Subtotal					**-**		
	TOTAL: 5. HAZARDOUS WASTE REMOVAL ALLOWANCE						**-**	
	Net Total Incl Mark-up							$0

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IV. MOBILIZATION, SITE PREP, & DEMOLITION

Estimate Detail					***trade***	*assembly*	
code	*item description*	*quantity*	*unit cost*	*ext*	***subtotals***	*totals*	*quals & assumptions*
Raw Cost of Work						**274,250**	
	(Mark-up factors progressively compounded)						
	General Expenses		10.00%	27,425			
	Site Remoteness Premium Factor		10.00%	30,168			
	Contractor's Fee (OH & Profit)		15.00%	49,776			
	Contractor Insurance		1.00%	3,816			
	Building Permit		0.00%	-			*excluded - in owner budget*
	Design & Est Contingency		20.00%	77,087			
	Cost Escalation - Not Applied This Exercise		0.00%	-			*present cost of constr.*
Total Budget Estimate - Hard Construction			68.65%	188,272		**462,522**	