

Project No.  
**2655.002.023**

July 1, 2024

Moraga Geologic Hazard Abatement District Board of Directors:  
Chair Teresa Onoda  
Vice Chair Steve Woehleke  
Boardmember Kerry Hillis  
Boardmember David Shapiro  
Boardmember Renata Sos

Moraga Geologic Hazard Abatement District  
329 Rheem Boulevard  
Moraga, CA 94556

Subject: Bellavista Development  
Subdivision 9330  
Moraga, California

## MORAGA GEOLOGIC HAZARD ABATEMENT DISTRICT MONITORING – SPRING 2024

Dear Chair Onoda and Boardmembers:

ENGEO is pleased to submit this monitoring report for the Bellavista (formerly Rancho Laguna) Development within the Moraga Geologic Hazard Abatement District (GHAD). As described in the Plan of Control for Bellavista Development (Reference 1), the purpose of this monitoring is to observe and report the conditions on the GHAD-accepted parcels (Reference 2) and associated improvements, as listed in Table 1 below, and shown in Figure 1, attached. The site-monitoring event was completed on April 12, 2024.

**TABLE 1: Accepted Parcels within the Bellavista Development of the Moraga GHAD**

ASSESSOR'S PARCEL NUMBER	DESCRIPTION (Subdivision 9330)	GHAD OWNERSHIP
256-040-025	Parcel A	Yes
256-040-026	Parcel B	Yes
256-470-011	Parcel C	No
256-470-012	Parcel D	Yes
256-470-013	Parcel E	No
256-040-028	Parcel G	No
256-040-027	Parcel H	No
Various	Residential Lots 1 through 27	No

While the GHAD accepted a transfer of Plan of Control responsibilities from SummerHill Homes, LLC (“Developer”) with the approval of the GHAD Board of Directors on May 24, 2021, selected responsibilities remain the responsibility of others. The Developer has not completed work required under the Wetlands Mitigation Program (Reference 4) and the Developer’s responsibilities to maintain the improvements will extend until at least October 2024.

## SCOPE

The site-monitoring event included observation and monitoring of the following improvements.

- Slopes and debris benches
- Reconstructed and unaltered creek channels
- Water quality/detention basins
- Emergency vehicle access and maintenance roads
- Concrete-lined drainage ditches
- Storm drain system improvements
- Developer constructed retaining walls
- Subdrains and subdrain outlets
- Fences and gates
- Selected Wetland Mitigation Program and Long-term Open Space Management Plan activities within the deed-restricted parcels

## SLOPES AND DEBRIS BENCHES

Slopes within the Bellavista Development appeared to be performing well with minor exceptions noted below. The open-space slopes, debris benches, and swales were observed for evidence of slope instability, including landslides, mudflows, erosion, diverted drainage, or standing water. During our site visit, we did not observe significant distress to the slopes adjacent to the site improvements. There are several unrepaired landslides within the ungraded portions of the GHAD-owned parcels. These landslides have moved in the past and will likely do so in the future when wet conditions occur. The landslides within the ungraded portion of the site do not currently threaten site improvements.

An existing landslide was observed along the Bellavista Trail (eastern boundary of Parcel A) and measured approximately 35 feet in width, 60 feet in length, and up to approximately 5 feet in depth (Site Condition A.1, Appendix A, Figure 1). The Developer constructed a 2-foot-high debris wall across the middle portion of the landslide to stabilize the earthflow. The debris wall was performing as designed at the time of this monitoring event. The GHAD will continue to monitor this earth movement and performance of the debris wall in future monitoring events.

During the Fall 2022 monitoring event, a shallow landslide was observed on the southwestern slope adjacent to the EBMUD property that measured approximately 10 feet in width, 80 feet in length, and approximately 1 to 2 feet in depth. At the time of this site-monitoring event, the shallow landslide was covered in natural vegetation and had not activated or increased in dimensions. The landslide does not threaten use of the GHAD-maintained infrastructure or adjacent EBMUD infrastructure. The GHAD will continue to monitor this area during future scheduled site monitoring events.

After the 2022-2023 winter season, we observed a surficial landslide approximately 15 feet north of Fay Hill Road that measured approximately 20 feet in width, 15 feet in length, and up to 1 foot in depth (Site Condition A.2, Appendix A, Figure 1). Since the fall 2023 monitoring event, new fencing was installed at the top of the slope above Fay Hill Road. At the time of this monitoring event, the landslide did not appear to threaten the road or other property improvements.

The GHAD will continue to monitor this area and fence performance during scheduled site monitoring.

In the Fall 2022 monitoring event, we noted minor slope creep with significant surface desiccation and animal burrows adjacent to the EBMUD Reservoir access road (Site Condition B, Appendix A, Figure 1). At the time of this event, creep cracks and animal burrows were observed. Excessive animal burrows pose a risk to shallow slope stability in heavy rains; however, no areas of immediate concern were recognized as a threat to GHAD-maintained improvements at this time.

The debris bench above Fronteras Drive appeared to be performing well. We did not observe any significant accumulation of soil on the bench.

### **RECONSTRUCTED AND UNALTERED CREEK CHANNELS**

The creek channels for Coyote Creek and Rheem Creek (Parcel D) were checked for slope and berm integrity and proper functioning. At the time of our monitoring, the creeks appeared to be relatively free of debris and blockages and were performing as intended.

### **EMERGENCY VEHICLE ACCESS AND MAINTENANCE ROAD**

The emergency vehicle access/maintenance roadways (Figure 1) were checked for signs of distress. An erosional rill was identified along Fire Trail 42-8, up to 12" wide and 18" deep (Site Condition C, Appendix A, Figure 1). Moraga-Orinda Fire District (MOFD) will perform annual maintenance to maintain roadway access.

### **CONCRETE-LINED SURFACE DRAINAGE AND RIPRAP-LINED DITCHES**

The drainage ditches were checked for accumulation of debris/sediment and for obvious distress, such as cracking or shifting of the concrete. In general, vegetation adjacent to the ditches was maintained and observed to have been cut during GHAD routine annual maintenance. Ditches were clear of debris and standing water at the time of this monitoring event with no distress. The GHAD will continue to monitor drainage ditches in future monitoring events.

### **STORM DRAIN SYSTEM IMPROVEMENTS**

The storm drain inlets were checked for debris accumulation, distress, and proper functioning. At the time of our monitoring, storm drain facilities appeared to be relatively free of debris and blockages and were performing as intended.

### **WATER QUALITY/DETENTION BASINS**

Two water-quality basins are located within the GHAD. Detention Basin A is located east of Los Santos Court extension on Parcel B, and Detention Basin B is located south of Fronteras

Court on Parcel D, as shown in Figure 1. These basins were inspected for overgrown vegetation, erosion, and proper functioning of inlet and outlet structures. At the time of our monitoring, the basins appeared to be functioning properly and were in good condition.

At the time of this monitoring event, a flap gate on an outfall pipe into Detention Basin B was broken off from the hinge point and detached from the pipe (Site Condition D, Appendix A, Figure 1). The flap gate should be repaired to allow for proper function.

## DEVELOPER-CONSTRUCTED RETAINING WALLS

Developer-constructed retaining walls were inspected for any signs of distress. At the time of our monitoring, the retaining walls appeared to be performing well.

## SUBDRAIN OUTLETS

The following subdrain outlets were observed and monitored during the site visit. Discharge levels flowing from the subdrain outlets are summarized in Table 2. The locations of the subdrain outlets are approximately shown in Figure 1.

**TABLE 2: Subdrains**

LABEL	FLOW (GALLONS/DAY)	COMMENTS
S-1	273	
S-2A	46	
S-2B	-	Unable to locate: beneath rip rap apron
S-2C	456	
S-4	0	Wet
S-5	114	Estimate: bubbler outlet flush with riprap rock
S-6	-	Unable to monitor: outlet submerged in pond
S-EB	-	Unable to locate
RW-1	0	Dry

Some subdrain outlets were unable to be located, as noted. The GHAD will continue to search for the outlets to allow for future monitoring.

## FENCES AND GATES

The fences on the perimeter and within the GHAD-owned parcels were checked for damage. At the time of this monitoring event, the fences appeared to be in good condition.

## WETLAND MITIGATION PROGRAM

The Developer has not completed work required under the Wetlands Mitigation Program and these responsibilities will remain with the Developer until at least October 2024 (Reference 5). Monitoring of these improvements by the GHAD will occur once completion is verified by the appropriate resource agencies.

## OPEN SPACE MANAGEMENT PLAN ACTIVITIES

The GHAD has certain responsibilities under the Rancho Laguna Long-term Open Space Management Plan (LTOSMP) including:

- Implementation of the Fuel Management and Grazing Management Plan
- Trails and signage
- Wetlands Mitigation Program (discussed above)

The GHAD has a scheduled maintenance program to complete vegetation management activities annually. The Moraga-Orinda Fire District (MOFD) completed a prescribed controlled burn within the GHAD-owned open space in August of 2023 (Reference 7). The GHAD will continue to pursue these joint activities with the MODF in the future.

Trails and signage are maintained by the GHAD. Trails and signage within the GHAD-owned parcels were observed during the site monitoring event. At the time of this monitoring, the trails and signage appeared to be in good condition.

If you have any questions concerning the observations made during this reconnaissance, please do not hesitate to contact us.

Sincerely,

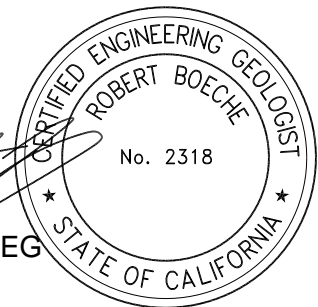
ENGEO Incorporated



Lauren Roide

lr/rhb/dt

Robert H. Boeche, CEG



Attachments: List of Selected References  
Appendix A – Site Condition Summary and Photographs  
Figure 1 – Site Plan

## LIST OF SELECTED REFERENCES

1. ENGEO. 2017. Moraga Geologic Hazard Abatement District (GHAD), Plan of Control, Rancho Laguna Development. Moraga, California. Project No. 2655.001.000. May 20, 2015; Revised March 1, 2017.
2. ENGEO. 2021. Moraga Geologic Hazard Abatement District Plan of Control Transfer Acceptance, Bellavista, Subdivision 9330. Moraga, California. Project No. 2655.002.020. April 16, 2021.
3. ENGEO. 2020. Pavement Repair Recommendations, Tract 9330, Rancho Laguna II, Moraga, California. Project No. 2655.200.000. July 23, 2020; Revised August 18, 2020.
4. Zentner and Zentner. 2016. Rancho Laguna II Wetland Mitigation Program, Project No. 980 SHH. Date issued: June 2014; Revised December 2015, and February 2016.
5. Zentner and Zentner. 2016. Rancho Laguna Long-term Open Space Management Plan (LTOSMP) Ranch Laguna II. Project No. 980 SHH. Date issued: June 2015; Revised February 2016.
6. ENGEO. 2022. Moraga Geologic Hazard Abatement District Monitoring - Spring 2023, Bellavista Development, Subdivision 9330. Moraga, California. Project No. 2655.002.021. May 16, 2023.
7. Moraga-Orinda Fire District. Painted Rock Burn Plan, Fay Hill Rd. Moraga, California. August 2023.
8. ENGEO. 2022. Moraga Geologic Hazard Abatement District Monitoring - Fall 2023, Bellavista Development, Subdivision 9330. Moraga, California. Project No. 2655.002.023. September 1, 2023.

**APPENDIX A**

**Site Condition Summary and Photographs**

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Site Condition: A.1  
Observation Date: 04/12/2024  
Description: Shallow landslide along Trail (35 feet wide by 60 feet long with an estimated depth of up to 5 feet). Debris fence performing well.  
Recommendation: Continue to monitor.  
Field Representative: LR



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Site Condition: A.2  
Observation Date: 04/12/2024  
Description: Surficial landslide measuring approximately 20' wide, 15' long and 1' deep.  
Recommendation: Continue to monitor.  
Field Representative: LR



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Site Condition: B  
Observation Date: 04/12/2024  
Description: Minor slope creep with surface desiccation and animal burrows adjacent to EBMUD Reservoir access road.  
Recommendation: Continue to monitor slope performance.  
Field Representative: LR



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Site Condition: C  
Observation Date: 04/12/2024  
Description: Erosional rill on Fire Trail 42-8. 12" wide by 18" deep.  
Recommendation: Repair during annual maintenance.  
Field Representative: None





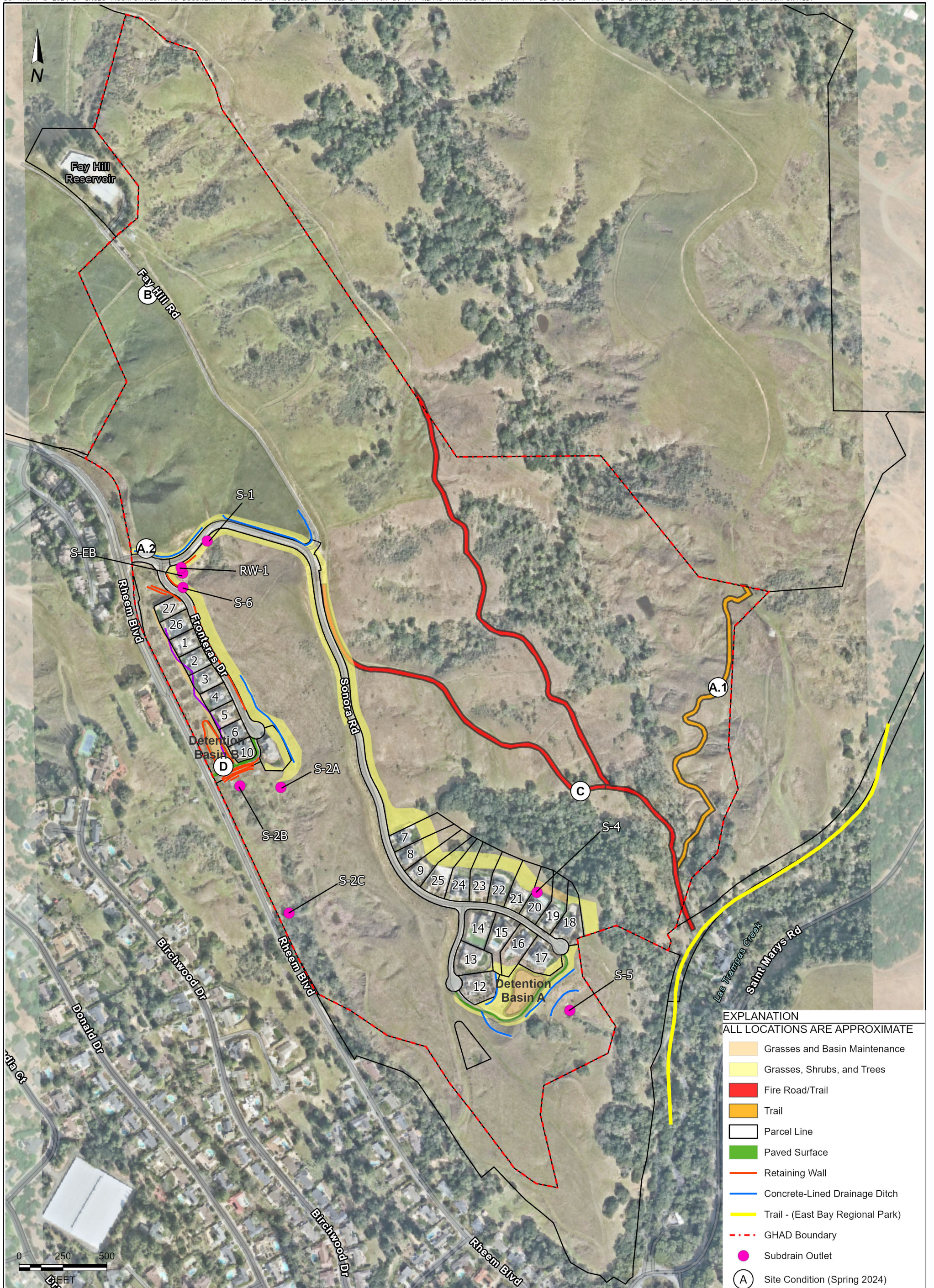
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Site Condition: D  
Observation Date: 04/12/2024  
Description: Broken flap gate on outfall pipe in Detention Basin B.  
Recommendation: Repair.  
Field Representative: LR



**FIGURE 1**

**Site Plan**



EXPLANATION	
ALL LOCATIONS ARE APPROXIMATE	
	Grasses and Basin Maintenance
	Grasses, Shrubs, and Trees
	Fire Road/Trail
	Trail
	Parcel Line
	Paved Surface
	Retaining Wall
	Concrete-Lined Drainage Ditch
	Trail - (East Bay Regional Park)
	GHAD Boundary
	Subdrain Outlet
	Site Condition (Spring 2024)



**SITE PLAN**  
 MORAGA GHAD  
 MORAGA, CALIFORNIA

PROJECT NO. : 2655.002.023  
 SCALE: AS SHOWN  
 DRAWN BY: NWC | CHECKED BY: RHB

FIGURE NO.  
**1**