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January 28, 2025 (revised 1/30/2025) BSK Project No. G24001595

Mr. Larry Theis, PE
City Engineer
City of Clayton
6000 Heritage Trail
Clayton, California 94517

SUBJECT: Annual Geological and Geotechnical Site Reconnaissance – 2024-2025
Oakhurst Geological Hazards Abatement District (GHAD)
Clayton, CA

Dear Mr. Theis:

At your request, BSK Associates (BSK) performed an annual geological and geotechnical site reconnaissance of the Oakhurst Geological Hazards Abatement District (GHAD) located in the City of Clayton (City), California (see Figure 1, Vicinity Map), as required by the 2nd Amended Plan of Control (dated May 21, 2024). BSK visited properties located within the GHAD boundaries (see Figure 2, Oakhurst GHAD Boundaries) on December 31, 2024, and January 2, 2025. This letter presents a summary of our observations, conclusions, and our recommendations.

GEOLOGICAL AND GEOTECHNICAL SITE RECONNAISSANCE

On December 31, 2024 and January 2, 2025, a project geologist from BSK visited the hilly residential portions of the GHAD to review the existing condition of slopes, drainage and erosion mitigation and control measures within the GHAD area. We also wanted to compare existing conditions to those conditions observed and noted in our May 1, 2024 letter entitled "Geological and Geotechnical Site Review, Oakhurst Geologic Hazards Abatement District (GHAD), Clayton, CA" (BSK project number G00001941). Note that our site reconnaissance was limited to only those open space areas immediately adjacent to the hilly residential areas and paved roadways within the designated area of the GHAD as described below.

Following is a summary of our observations and recommendations from our recent site reconnaissance. For ease in discussion, we have separated the GHAD into the following areas:

1. Windmill Canyon Drive Area (formerly referred to as "North Area" in our previous annual site reconnaissance letters): The first area consists of the developed portions of the GHAD including open space/slopes that is located immediately adjacent to homes in the northeastern portion of the GHAD (see Exhibit 1 below).

Exhibit 1 – Windmill Canyon Drive Area

2. Kelok Way Area: The second area is the area associated within Kelok Way and adjacent open space/slopes (see Exhibit 2 below).

Exhibit 2 – Kelok Way Area

3. Miwok Way/Blue Oak Lane Area: The third area is associated with Miwok Way, Blue Oak Lane, and Obsidian Way, including open space/slopes (see Exhibit 3 below).

Exhibit 3 – Miwok Way/Blue Oak Lane Area

4. South Area: The fourth area is associated with the Pebble Beach Drive, Peacock Creek Drive, and Peacock Creek, including slopes and known areas of instability and mitigation measures previously installed between Pebble Beach Drive and Peacock Creek (see Exhibit 4 below).

Exhibit 4 – South Area

Windmill Canyon Drive Area (formerly referred to as "North Area")

BSK walked V-ditches and boundaries between open space slopes, homes, and other improvements along the northeastern boundary of the GHAD (see Exhibit 1 above). We made cursory observations of homes and roadways and did not observe readily visible evidence of geologic hazards impacts to homes or roadways in the general area. Our site reconnaissance was primarily focused on the open space and slopes bordering the limits of the GHAD, where slopes either ascend from, or descend to yards and residences, primarily on the north and east side of Windmill Canyon Drive and areas south of Falcon Place, Windmill Canyon Place, Hummingbird Place, and Raven Place. Exhibits 5 and 6 below show the locations of our observations and photographs of conditions we encountered that should be considered for future repairs or should be watched and monitored annually before the onset of the annual storm season.

In general, we observed surface creep[1] above most V-ditches, particularly in areas where slopes are mowed (presumably for fire control) or recently saturated by annual storms. Periodic maintenance

[1] Creep is defined in the 1st Amended Plan of Control dated June 29, 1990 as the slow, gradual, more or less continuous, non-recoverable deformation sustained by soil or rock materials under gravitational body stresses. Creep is distinguished from landsliding by the slow velocity of downhill movement with Creep being limited to a maximum of three inches of movement per year.

should be sufficient to prevent soil from entering and disrupting flow in the ditches. Overall, the conditions observed remain similar to those observed and noted in our May 1, 2024 letter.

The following photographs depict the conditions documented during our site reconnaissance. The approximate photograph locations are presented on Exhibits 5 and 6 below.

Exhibit 5 – Site Plan (Windmill Canyon Drive Area). Photograph numbers shown in red.

Photograph 1 – Recent slope erosion/wash along trail access point at the end of Crow Place.

Photograph 2 – Recent slope erosion/wash north of 3027 and 3029 Windmill Canyon Drive.

Photograph 3 – Additional slope erosion immediately south of Photograph 2.

Photograph 4 – Minor slump along slope immediately north of 3061 Windmill Canyon Drive. No movement or bulging observed at toe of slope near V-ditch.

Exhibit 6 – Site Plan (southern Windmill Canyon Drive Area). Photograph numbers shown in red.

Photograph 5 – Drop inlet and V-ditch require cleaning at 321 Windmill Canyon Place.

Photograph 6 – V-ditch at 321 Windmill Canyon Place. All remaining V-ditches and drop inlets in the area should be checked and cleaned.

Kelok Way Area

BSK walked V-ditches and boundaries along open space slopes north of Kelok Way, in the open space area south of Keller Ridge Drive, and both west and east of those areas (see Exhibit 2 above). We made cursory observations of homes and roadways throughout the area, and aside from those documented below, we did not observe readily visible evidence of geologic hazards impacts to homes or roadways in the general area except for the home at 8053 Kelok Way, where conditions appear to be similar to our previous observations presented in our May 1, 2024 letter.

Our site reconnaissance focused on the open space and slopes bordering the limits of the homes along Kelok Way, Keller Ridge Drive, and east of Acorn Drive. Exhibits 7 and 8 below present locations of our photographs of conditions we encountered that should be considered for future repairs or should be watched and monitored annually before the onset of the annual storm season.

In general, we observed surface creep above most V-ditches. Periodic maintenance should be sufficient to prevent soil from entering and disrupting flow in the ditches. Significant organic debris are present in the V-ditches, especially south of Keller Ridge Drive, and should be cleaned. The drain inlet shown in Photograph 9 from our March 1, 2024 letter still has not been cleaned. Overall, conditions remain similar to those observed during our 2023/2024 reconnaissance. The following photographs depict the conditions documented during our site review.

Exhibit 7 – Site Plan (Kelok Way Area). Photograph numbers shown in red.

Photograph 7 – Drop inlet at toe of slope at North Valley Park. Pipes are draining but should be cleaned out.

Photograph 8 – Horizontal outlet drain pipes at North Valley Park. Water was discharging from the rightmost pipe only.

Photograph 9 – Property owner renovating top of slope outside parcel limits at 717 Acorn Drive.

Photograph 10 – Northeastern view of rear of 717 Acorn Drive. Note significant slope disturbance.

Miwok Way/Blue Oak Lane Area

BSK walked V-ditches and boundaries along open space slopes north of Miwok Way/Blue Oak Lane, and slopes south of Obsidian Way (see Exhibit 3 above). We made cursory observations of improvements and roadways throughout the area, and aside from those documented below, we did not observe readily visible evidence of geologic hazards impacts to homes or roadways in the general area.

Our site reconnaissance focused on the open space and slopes bordering the homes. In general, we observed surface creep above most V-ditches due to saturated soil conditions. Periodic maintenance should be sufficient to prevent soil from entering and disrupting flow in the ditches. Most of the V-ditches are full of organics in random locations and should be cleaned.

South Area

BSK walked V-ditches and boundaries along open space slopes north of Pebble Beach Drive, South of Peacock Creek Drive, and along the eastern boundary of the GHAD (see Exhibit 4 above). We made cursory observations of improvements and roadways throughout the area, and aside from those documented below, we did not observe readily visible evidence of geologic hazards impacts to homes or roadways in the general area.

Our site reconnaissance focused on the open space and slopes bordering the homes along the north side of Pebble Beach Drive, the slopes immediately south of the homes on Peacock Creek Drive, and the slopes along the eastern boundary of the GHAD. In general, we observed surface creep above most V-ditches. Periodic maintenance should be sufficient to prevent soil from entering and disrupting flow in the ditches. Overall, the conditions observed remain similar to those observed and noted in our May 1, 2024 letter. V-ditches in the area have accumulation of organics in random areas and should be cleaned. The cracks reported in our May 1, 2024 letter on the roadway along Torrey Pines Place remain open and have not expanded.

Contra Costa Water District – Seminary Reservoir and Pump Station

As requested, BSK observed the area of the recent small landslide that occurred along the northern slope at the Contra Costa Water District's (District) Seminary Reservoir and Pump Station located along the northern side of Marsh Creek Road, approximately 700 feet northwest of the intersection with Diablo Parkway. The approximate location and limits of the landslide is shown on Exhibit 8 below. At the time of our site reconnaissance on December 31, 2024, the landslide measured approximately 60 feet in length and approximately 35 feet or so in width. We understand that the District's consultant is in the process of conducting a field investigation to evaluate the landslide and provide recommendations for its repair. We also understand that the City and BSK will get an opportunity to review the geotechnical report for the landslide investigation because the upper portion (head scarp) of the landslide encroaches into the southern boundary of the Oakhurst GHAD open space, but primarily is within the District's parcel. The following photographs, 11 through 14, depict the conditions at the landslide area during our site reconnaissance on December 31, 2024.

Exhibit 8 – Approximate limits of landslide at Seminary Reservoir and Pump Station

Photograph 11

Photograph 12

Photograph 13

Photograph 14

CONCLUSIONS AND RECOMMENDATIONS

Based on our 2024-2025 site reconnaissance, it is our opinion that the conclusions and recommendations presented in our May 1, 2024, letter are valid, and that current overall conditions remain similar. Areas of concern are as follows:

- It is possible that the minor slump noted in Photograph 4 above could liquefy (i.e., become saturated and cause a mudflow downslope) during a long duration or heavy rainstorm. Therefore, we recommend that City staff or BSK visit this location during or immediately after a long duration or heavy rainstorm to check the slope condition.
- The inlet west of and adjacent to 8049 Kelok Way should be cleaned out/unclogged.
- The horizontal outlet drain pipes located along the slope at North Valley Park should be cleaned on a regular basis to remove any sludge or silt build up. We recommended that a video survey of these pipes be conducted to check if the pipes are clogged or damaged. If the pipes are found to be clogged or damaged, they should be cleaned via hydrauger or another suitable method. Otherwise, there is an increased risk that water/hydrostatic pressure could be building up behind the landslide at Kelok Way if the drains are not working properly. This could eventually reactive the landslide and cause severe damage to the surrounding properties and slope.
- Cracked and/or offset V-ditch panels, while not numerous, can result in drainage obstructions, overflow, and erosion to slopes. Patches and/or replacement of V-ditch panels should be prioritized and undertaken on a regular basis.
- V-ditch and drop inlet maintenance should be continued and inspections of the drainage system, slopes and pavements should be continued. We recommend that drainage system maintenance occur prior to the onset of the rainy season each year. Inspections should take place prior to maintenance.
- Residents going beyond their fence line, altering the existing slopes, could adversely impact the shallow and global stability of such slopes. GHAD management should consider notifying those homeowners of their potential liability for the alterations made by them.
- The landslide at the Seminary Reservoir and Pump Station is currently being addressed by the Contra Costa Water District and its consultant.
- Consideration should be given to filling the cracks noted on the roadway along Torrey Pines Place with crack filler.

LIMITATIONS

Our services were performed in a manner consistent with that level of care and skill ordinarily exercised by other members of BSK's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our findings and conclusions are based on our limited site reconnaissance of the GHAD area completed on December 31, 2024 and January 2, 2025. It is possible that conditions could vary between or beyond the data evaluated or have changed since we visited the GHAD area or that previous GHAD files not available to us could influence the findings and conclusions presented herein. BSK makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and only for the purposes stated within a reasonable time from its issuance, but in no event later than six (6) months from the date of the report, or if conditions at the

site have changed. If this report is used beyond this period, BSK should be contacted to evaluate whether site conditions have changed since the report was issued.

CLOSURE

BSK appreciates the opportunity to provide our services to you and trusts this letter report meets your needs at this time. If you have any questions concerning the information presented, please contact us at 925-315-3151.

Respectfully submitted,
BSK Associates

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Project Professional II

Cristiano Melo, PE, GE #2756
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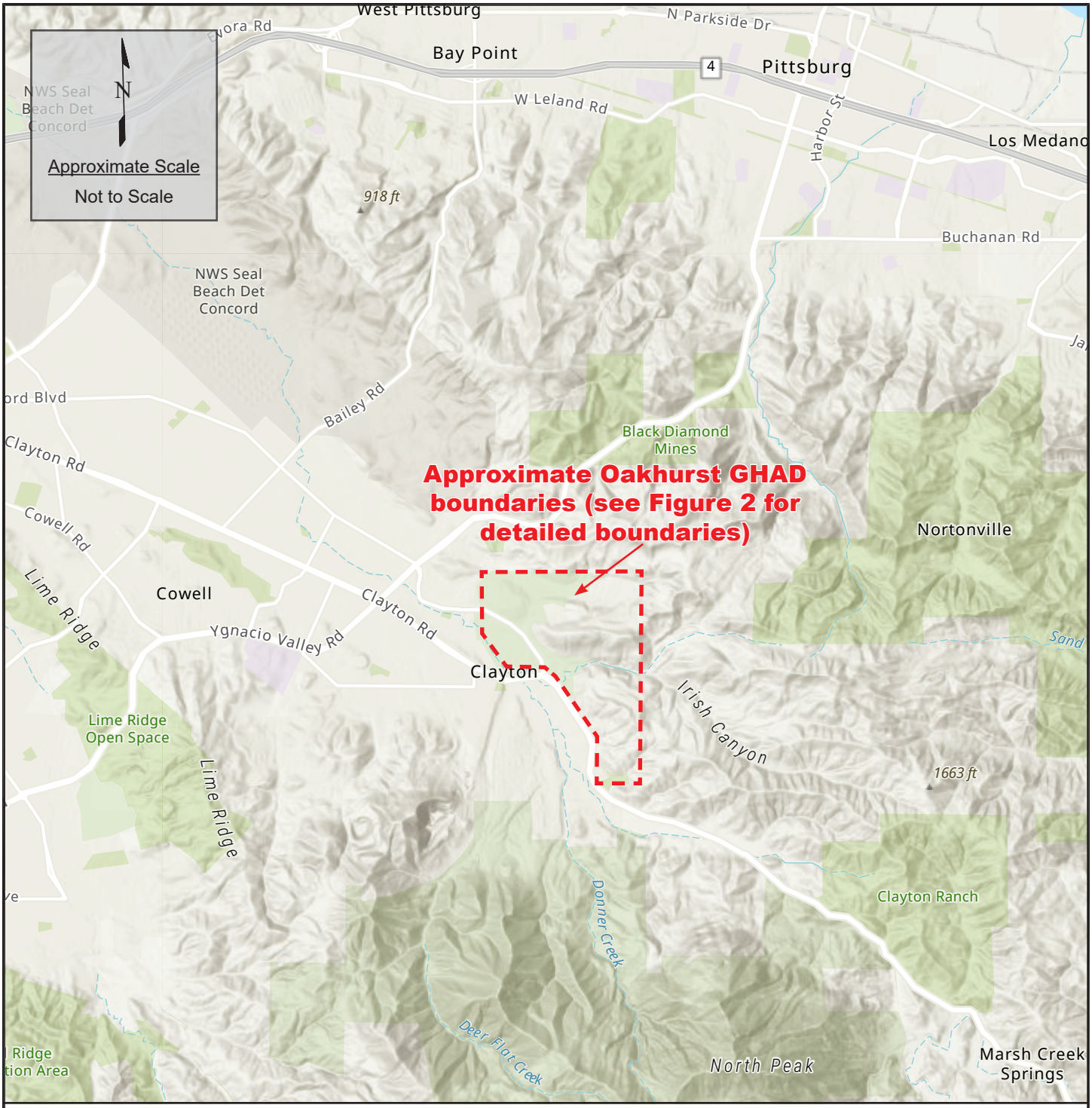
ATTACHMENTS: Figure 1 – Vicinity Map
Figure 2 – Oakhurst GHAD Boundaries



References: 1. https://www.arcgis.com/apps/mapviewer/index.html, 2023

Note: Locations are approximate

BSK ASSOCIATES

PROJECT NO.	G24001595
DRAWN:	01/02/25
DRAWN BY:	D. Tower
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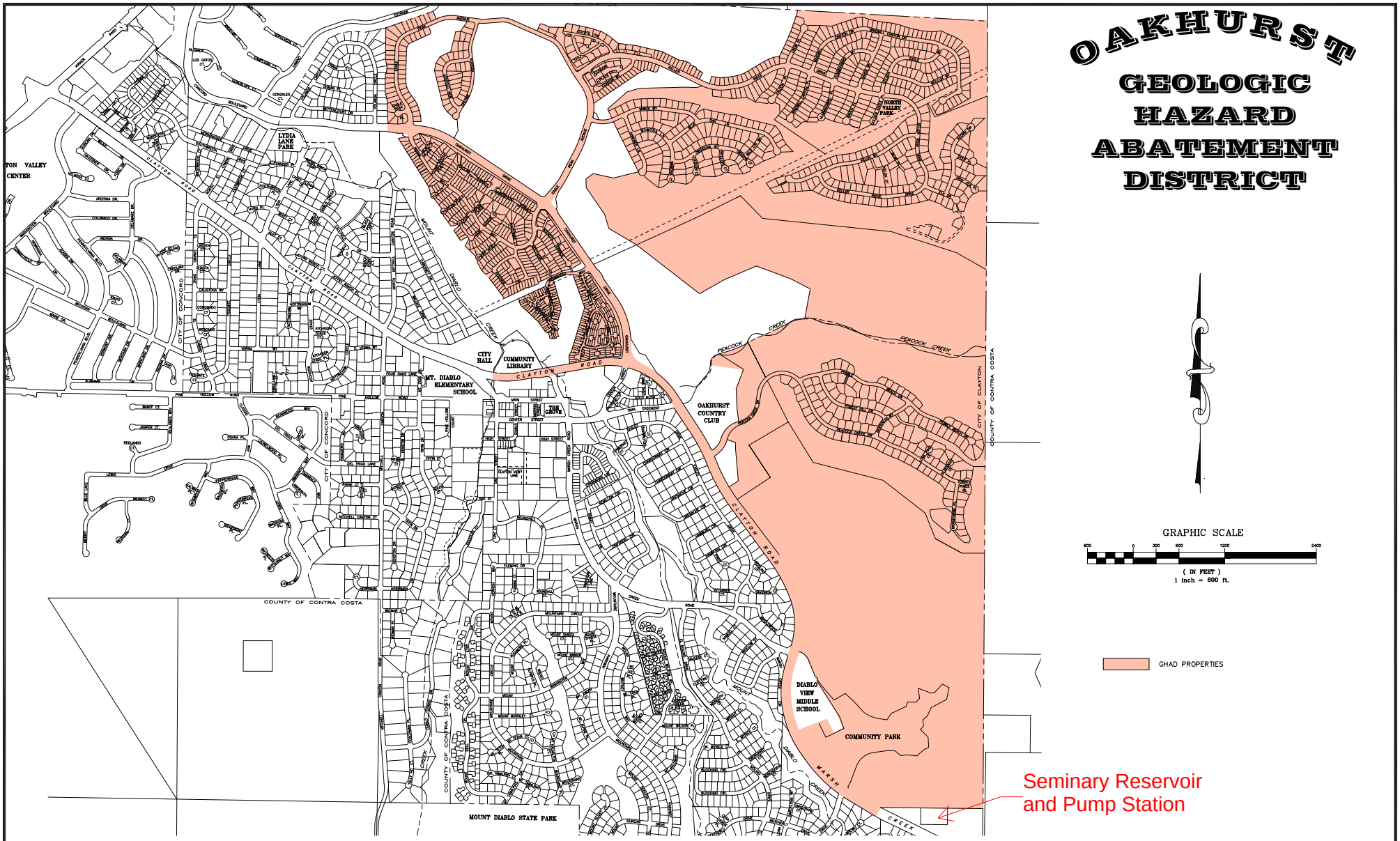
FILE NAME:	Figures.indd

VICINITY MAP

Geological and Geotechnical Site Recon
Oakhurst GHAD
Clayton, California

FIGURE
1



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PROJECT NO.	G24001595
DRAWN:	02/01/24
DRAWN BY:	D. Tower
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FILE NAME:	SitePlan.indd

OAKHURST GHAD BOUNDARY MAP

Geological and Geotechnical Site Recon
Oakhurst GHAD
Clayton, California

FIGURE

2