GHAD RESOLUTION NO. 1-2024

A RESOLUTION APPROVING THE 2ND AMENDMENT OF THE PLAN OF CONTROL FOR THE OAKHURST GEOLOGIC HAZARD ABATEMENT DISTRICT

THE BOARD OF DIRECTORS
OAKHURST GEOLOGIC HAZARD ABATEMENT DISTRICT
Clayton, California

WHEREAS, by Resolution No. 5-89, the Clayton City Council formed the Oakhurst Geologic Hazard Abatement District (herein "GHAD"), pursuant to Division 17, Geologic Hazard Abatement Districts, of the Public Resources Code, Section 26500 et seq.; and

WHEREAS, the Board of Directors of the GHAD approved the Plan of Control in 1989 and its subsequent 1st Amendment by Resolution No. 2-90 on July 17, 1990; and

WHEREAS, the Plan of Control, prepared under the direction of a licensed geologist, provides that it will be subject to revisions and modifications, as new data or investigation warrant; and

WHEREAS, an amendment to the Plan of Control (2nd Amendment) prepared by BSK Associates has been submitted to the Board of Directors and attached hereto as Exhibit A; and

WHEREAS, the Board of Directors has reviewed and considered said proposed 2nd amendment.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the GHAD certifies and orders as follows:

1. Amendment No. 2 to the Plan of Control for the Oakhurst GHAD, which is attached hereto as Exhibit A, is hereby approved in its entirety.

2. The previously approved Plan of Control, including Amendment No. 1, for the Oakhurst GHAD is hereby superseded in its entirety, and shall be considered null and void.

PASSED, APPROVED AND ADOPTED by the Board of Directors of the GHAD at a regular public meeting thereof held on May 21, 2024, by the following vote:

AYES: Directors: Diaz, Tillman, Trupiano, and Wan; Chair Cloven

NOES: None.

ABSTAIN: None.

ABSENT: None.

THE BOARD OF DIRECTORS OF GHAD

Peter Cloven, Chairperson

ATTEST:

Stephanie Cabrera-Brown, Secretary

I hereby certify that the foregoing resolution was duly and regularly passed by the Board of Directors of the Oakhurst Geologic Hazard Abatement District at a meeting held on May 21, 2024.

Stephanie Cabrera-Brown, Secretary

EXHIBIT A

BSK ASSOCIATES®

2ND AMENDMED PLAN OF CONTROL
OAKHURST GEOLOGIC HAZARD ABATEMENT DISTRICT
CLAYTON, CALIFORNIA

PREPARED FOR:

OAKHURST GEOLOGIC HAZARD ABATEMENT DISTRICT
CLAYTON, CALIFORNIA

BSK PROJECT NO. G00001941

May 21, 2024

Richard E. Johnson, CEG #1452
Principal Engineering Geologist

PROFESSIONAL GEOLOGIST
RICHARD EDWARD JOHNSON
No. EG 1452
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

CITY OF CLAYTON
Founded 1857 . . . Incorporated 1964

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1.0 INTRODUCTION

Following a petition made by several landowners within the boundaries of the now Oakhurst Geologic Hazards Abatement District, made on December 19, 1988, petitioners asked the City of Clayton to form a Geologic Hazards Abatement District as provided for in Division 17 of the Public Resources Code, Sections 26500, et seq. Per the petition, the City Council for the City of Clayton, in their Resolution No. 5-89, ordered the formation of the Oakhurst Geological Hazards Abatement District (hereinafter the GHAD) on February 1, 1989.

A series of 11 GHAD Resolutions, between December 19, 1989, and July 21, 1998, were passed, each of which annexed additional streets, subdivisions, open space and parcels into the GHAD. Figure 1 presents a Boundary Map for the Oakhurst GHAD.

GHAD Resolution No. 2-90, passed by the GHAD Board of Directors on July 17, 1990, approved Amendment 1 to the Plan of Control for the Oakhurst GHAD. The amendment sought the authority to maintain grading and drainage facilities outside of the boundaries of the GHAD, but within easements created for the maintenance work.

As required by Section 26509 of the Public Resources Code, the Plan of Control for the Oakhurst GHAD, superseded by the First Amended Plan of Control, describes potential geologic hazards within the GHAD, properties that have actively been affected by those hazards since the formation of the District, and a plan for prevention, mitigation, abatement and/or control.

2.0 GEOLOGY

2.1 Area Geology

The GHAD is located within the northern portion of the Diablo Range, which in turn is located within the Coast Ranges Geomorphic Province of California. The Coast Ranges geomorphic province is characterized by northwest-trending mountain ranges and valleys that trend subparallel to the San Andreas Fault. The Coast Ranges are composed of thick Mesozoic and Cenozoic sedimentary strata. The northern and southern ranges are separated by a depression containing the San Francisco Bay.

The GHAD is located just to the north of Mount Diablo, which forms a prominent feature in the East Bay landscape. Mount Diablo is comprised of three main groups of rocks – Mount Diablo Ophiolite (part of the Coast Range Ophiolite), Franciscan Complex, and Great Valley Sequence. Ophiolites are thought to form along oceanic spreading centers in the middle of the oceans, associated with oceanic island chains (arcs), or in narrow oceans. Ophiolites generally form a uniform vertical rock sequence consisting, from bottom to top, of ultramafic peridotite from the top of the mantle, mafic intrusive gabbros and/or diabase that formed one or more miles below the sea floor, and mafic extrusive rocks, often in the form of pillow lava extruded beneath water.

The Franciscan Complex records over 140 million years of uninterrupted east-dipping subduction, during which the Franciscan formed as an accretionary complex. As the oceanic plate subducted beneath the continent, part of the upper section of the ocean crust and the material riding on the plate were scraped off the upper part of the subducting plate, mixed, partially subducted and accreted on and under the continental crust.

The Great Valley Sequence is composed mostly of deepwater marine shale, sandstone, and some conglomerates accumulating to a thickness of 60,000 feet near the western margin of the Great Valley.

2.2 Site Geology

According to geological maps of the Clayton area (see Figure 2, Area Geology Map), the Town of Clayton is located within an elongated valley surrounded by gently rolling hilly topography. The low-lying portion of Clayton is underlain by Holocene to Pleistocene alluvial deposits consisting of sand, gravel, silt and clay. The majority of the GHAD is located within the hilly topography which is composed of the Great Valley Sequence – interbedded shale, sandstone, and claystone. Some authors have mapped landslides within these units that are within or near the GHAD boundary.

Onsite surface materials include artificial fill (predominantly engineered fills), landslides, colluvium, and minor sediment erosional deposits from streams and surface erosion.

2.3 Faulting and Seismicity

The San Francisco Bay Area is seismically dominated by the active San Andreas Fault system. Movement along this fault system is distributed across a complex network of generally strike-slip, right-lateral parallel and sub-parallel faults including, among others, the San Andreas, San Gregorio, Hayward and Calaveras Faults. Although the GHAD is not located within an Alquist-Priolo Earthquake Fault Zone (AP Zone), the mapped trace of the Clayton Fault traverses the GHAD from the southeast to the northwest, as shown on Figure 3, Local Fault Map. The mapped trace of the Clayton Fault does not appear to pass through building footprints, but does potentially impact improvements within the GHAD boundaries. The Clayton Fault is considered an active Holocene fault. An active fault is commonly defined as a fault that has had surface displacement within Holocene time (the last 11,700 years).

The closest AP Zones are associated with the following faults:

- Concord Fault – located approximately 4½ miles west from the western GHAD boundary.
- Greenville Fault – located approximately 14 miles southeast from the southern boundary of the GHAD.
- Hayward Fault – located approximately 17 miles southwest from the western GHAD boundary.

Except along the mapped fault trace of the Clayton Fault, where the potential for surface fault rupture to occur is considered to be high, we consider the potential for surface fault rupture to occur within most of the GHAD to be low.

Because the GHAD is in a seismically active area of California, we expect the area to be subjected to moderate to intense ground shaking due to a significant seismic event on the active faults in the Bay Area and surrounding regions.

3.0 GEOLOGIC HAZARDS DESCRIPTION

Geologic hazards which could potentially affect the GHAD include landslides of all forms, soil creep, erosion, expansive soils, seismically induced ground shaking, liquefaction, lateral spreading, and fault rupture.

3.1 Landslide Hazards

Landslides include a range of mass-wasting processes that, in general, can be described as "a wide variety of processes that result in the downward and outward movement of slope-forming materials including rock, soil, artificial fill, or a combination of these" (USGS, 2004[1]). Landslides are typically differentiated by material type that is involved in the landslide, the rate of movement, the geometry of movement, and the water content. For the GHAD, the most likely forms of landslide that are either present, or could develop include (see Figure 4 – Landslide Types):

- Rotational landslides in artificial fills and colluvial slopes,
- Translational landslides in deep bedrock materials (as identified during preliminary geological investigations for the various developments within the GHAD, and
- Earthflows and Debris flows in native hillside draws and colluvial slopes.

Figure 5 shows areas zoned by the California Geological Survey (CGS) that have a potential for earthquake-induced landslides to develop within the GHAD.

3.2 Soil Creep

Creep is defined in the 1st Amended Plan of Control 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.

For the purposes of this Plan of Control, Creep shall not be recognized as a Geologic Hazard.

3.3 Erosion Hazards

Erosion, the mechanical and chemical loosening and downslope transport of soil particles, is generally not, in and of itself, a hazard. As erosion processes continue, though, the formation of rills and gullies does lead to increased potential for surface instability. Erosion and subsequent deposition of sediments can reduce the performance of erosion protection features such as V-ditches. Further, erosion along creek banks can remove toe support for adjacent slopes adding to the potential for larger-scale slope failures.

3.4 Expansive Soils

Near-surface soils including colluvium, artificial fills and some bedrock could exhibit moderate to high potential for shrinkage or swelling with changing moisture content. Alternate shrink and swell can cause heaving and cracking of pavements and structures founded on shallow foundations. Review documents for the original Plan of Control noted that geotechnical recommendations for the design and construction of the various developments addressed and, as such, expansive soil hazards were not made a part of the Plan of Control. Therefore, the GHAD does not have responsibility with regard to damage from expansive soils except to the extent that they cause or contribute to slope instability in the opinion of the GHAD General Manager under consultation with the GHAD's Geological and Geotechnical Engineer of Record (GGEOR).

[1] U.S Geological Survey Staff (2004), Types of Landslides and Processes: U.S. Geological Survey Fact Sheet 2004-3072

3.5 Seismically Induced Ground Shaking

Seismically induced ground motions can be caused by earthquakes on any of the faults surrounding the GHAD. Seismic hazard deaggregation yields the maximum considered earthquake hazard level, distance, and magnitude for each source that contributes to the hazard. Deaggregation of the seismic hazard was performed using the USGS Unified Hazard Tool. In reference to Table 20.3-1 of ASCE 7-16, we consider the general area of the GHAD as Site Class C (very dense soil and soft rock). Based on a probabilistic model developed by the USGS (Dynamic: Conterminous U.S. 2014 (updated) (v4.2.0)) and the consideration of the GHAD as Site Class C, deaggregation results indicate that the most extreme seismic source that contributes to the peak ground acceleration at the GHAD is from an earthquake with a moment magnitude of M7.19 on the Calaveras Fault at a distance of approximately 10 miles.

The GHAD's responsibility with regard to ground shaking is expected to be limited to response to seismically induced landslides or ground failures that impact public improvements as described in Sections 4.0 and 5.0 below.

3.6 Liquefaction and Lateral Spreading

Soil liquefaction is a condition where saturated, granular soils undergo a substantial loss of strength and deformation due to pore pressure increase resulting from cyclic stress application induced by earthquakes. In the process, the soil acquires mobility sufficient to permit both horizontal and vertical movements if the soil mass is not confined. Soils most susceptible to liquefaction are saturated, loose, clean, uniformly graded, and fine-grained sand deposits. If liquefaction occurs, foundations resting on or within the liquefiable layer may undergo settlements and/or a loss of bearing capacity. Figure 5 shows areas zoned by the CGS that have a potential for liquefaction to occur within the GHAD.

Lateral spreading is a potential hazard commonly associated with liquefaction where extensional ground cracking and settlement occur as a response to lateral migration of subsurface liquefiable material. These phenomena typically occur adjacent to free faces such as slopes and creek channels.

For the purposes of this Plan of Control, liquefaction and lateral spreading shall not be recognized as Geologic Hazards. At the GHAD General Manager's sole discretion, Services may be provided to address damage resulting from liquefaction or lateral spreading due to extenuating circumstances.

3.7 Faulting Rupture Hazard Zones in California

The purpose of the Alquist-Priolo Earthquake Fault Zoning Act, as summarized in CGS Special Publication 42 (2018)[2], is to "address the hazard of surface fault rupture through the regulation of development in areas near Holocene-active faults and prevent the construction of structures for human occupancy across traces of active faults." As indicated by Special Publication 42, "the State Geologist (Chief of the California Geological Survey) is required to delineate 'Earthquake Fault Zones (EFZ)' along known Holocene-active faults in California. The EFZs are distributed as 'Earthquake Fault Zone maps.' The zones are regulatory in nature and are one class of 'Earthquake Zones of Required Investigation', which includes other geologic hazards such as liquefaction and earthquake-induced landslides. Cities and counties affected by the zones

[2] California Geological Survey Staff (2018), Earthquake Fault Zones – A Guide for Government Agencies, Property Owners/Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California: California Geological Survey, Special Publication 42, Revised 2018.

must regulate certain development 'projects' within the zones. They must withhold development permits for sites within the zones until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting."

As previously discussed, the GHAD is not located within an AP Zone. The closest Fault-Rupture Hazard Zone is associated with Concord Fault located approximately 4½ miles west from the western GHAD boundary. We consider the potential for surface fault rupture to occur within most of the GHAD to be low. However, we consider the potential for surface fault rupture to occur along the mapped fault trace of the Clayton Fault (see Figure 3) to be high. Therefore, for any new development within the GHAD, structures for human occupancy (i.e., habitable structures) should not be built along the mapped fault trace of the Clayton Fault unless specific areas to be developed are cleared of any potential fault traces by means of literature review and/or fault trenching investigations.

4.0 GHAD RESPONSIBILITIES

Services authorized under this Plan of Control will focus on the monitoring, maintenance, repair, and mitigation of threatened or actual landslides within the GHAD boundaries. Services will fall into one of two categories:

1. Known, existing landslides with known movement at depth and existing drainage facilities. For these landslides, the GHAD will be responsible for:
    a. Monitoring and continued maintenance of in-place infrastructure intended to prevent or detect ongoing instability including piezometers, inclinometers, subsurface drainage facilities, and surface drainage facilities.
    b. Cleaning, maintaining, replacing and/or installing surface and subsurface drainage systems and monitoring instrumentation.
2. Newly discovered or renewed instability that threatens or has damaged infrastructure including roadways, sidewalks, parks, drainage systems, and potentially residential structures. Responsibility of the GHAD include, but may not be limited to:
    a. Appropriate investigation needed to define the scope of the land movement, as well as mitigation measures that are appropriate to the situation.
    b. Site grading/slope reconstruction.
    c. Installation of surface and/or subsurface drainage.
    d. Installation of retaining systems.
    e. Installation of debris catchment structures.

For all the above, the GHAD General Manager has sole discretion for prioritizing GHAD expenditures (subject to the guidance provided herein) and for the selection of repair and mitigation methods appropriate to a particular situation, within the constraints described herein.

Property owners within the GHAD boundaries should contact the GHAD management to either report a new geologic hazard incident or condition on their property or adjacent public works facilities. When contacted, the GHAD General Manager shall respond to the inquiry and indicate whether the incident or inquiry falls within the responsibilities of the GHAD, and if so, what steps may be taken to address the incident.

The GHAD is authorized to act to prevent, mitigate, abate or control geologic hazards, hereinafter referred to as "Services", in the following situations:

4.1 Emergencies

During emergency situations when a landslide presents an active or imminent threat to improved property, the GHAD may implement interim slope stabilization measures that can arrest or minimize further slope movement until long-term mitigation measures can be implemented. Interim slope stabilization measures can include, but are not limited to, the temporary installation of slope coverings or drainage infrastructure to prevent further water infiltration or erosion, installation of structural elements to prevent or arrest motion of a landslide, or grading to remove or buttress unstable slopes. Emergency preparation measures may also be taken in advance of threatening landslides; these measures may include stockpiling slope stabilization materials and/or having resources in-place ready to respond rapidly.

4.2 Preventative Mitigation and Geotechnical Investigations

The GHAD may provide Services for landslides that threaten improved property using a number of mitigation techniques. The selection of mitigation techniques depends on the type and rate of failure of landsliding, equipment accessibility, urgency, and other factors. Prevention of landslides can sometimes be achieved using surface and subsurface drains. Imminent landslides can potentially be stabilized by one or a combination of, but not limited to, 1). The construction of retaining structures, 2). Slope stich piers or soil nail anchors extending beyond the slide plane, 3). Dewatering facilities, or 4). Toe buttresses, to name a few. Landslide-damaged slopes can be reconstructed and stabilized by removal of landslide debris and rebuilding the slopes with properly compacted and drained, engineered fill. These or other appropriate techniques should be selected based on the actual site conditions and available funding. The GHAD General Manager in consultation with the GHAD's GEOR will make the final decision in determining the type of action that best fits the need of each GHAD project.

At the GHAD General Manager's sole discretion, a geotechnical investigation may be conducted for areas where unstable conditions or landslides exist or are believed to exist. The purposes of the geotechnical investigation are to evaluate the cause of the unstable slope conditions and to identify and define repair or stabilization options. Geotechnical monitoring, whether short-term as part of an active landslide investigation, or long-term, to track changes in groundwater levels and/or surface and subsurface movement, are authorized activities of the GHAD as related to the prevention, mitigation, abatement, or control of landslides within the GHAD's boundaries.

4.3 Surface and Subsurface Drainage Facilities

The GHAD may maintain, repair and/or replace those portions of surface and subsurface drainage facilities including, but not limited to, concrete V-ditches, storm sewer lateral pipes, catch basins, horizontal drains, subdrain pipes, subdrain pipe inlets and outlets when they are directly related to the repair, prevention, or control of landslides. Maintenance includes removal of sediment from ditches and hydro-cleaning of horizontal drains and subdrains.

4.4 Creeks and Retention Basins

As part of its duties to mitigate against actual or threatened landslides, the GHAD may perform the following GHAD Services in creek channels and retention basins:

- Clearing and removal of debris and/or impediments in creek channels under emergency conditions to maintain open stream flow in order to mitigate creek bank erosion.
- Removal of significant quantities of sediment and/or debris deposits in retention basins to maintain functionality.
- Reconstruct retention basin berms and standpipes as needed to maintain functionality.

5.0 GHAD LIMITATIONS

When considering whether to proceed with Services in response to a geologic hazard, the GHAD is authorized to take into consideration the following limitations and exclusions:

5.1 Funding and Risk Limitations

The GHAD Board of Directors is required to approve or not approve authorized Services based on funding limitations followed by project priorities based on risk evaluation and priorities as established in Section 6.0 below. If revenue is not sufficient, due to the failure of property owners to approve a rate increase as presented to them by the GHAD, the GHAD would be required to reduce, postpone, and/or eliminate some or all GHAD Services unless an alternative funding can be identified. This means that the GHAD may be limited in its ability to maintain, monitor, mitigate, or respond to geologic hazards due to lack of funding. Failure to provide adequate funding to the GHAD does not render the GHAD nor the City responsible or liable for any harm or damage caused by a geologic hazard.

In the event of insufficient funding to perform all of the recommended/required maintenance and monitoring within this Plan of Control due to the failure of property owners to approve a rate increase as presented to them by the GHAD, then the GHAD Board of Directors will request the GHAD General Manager to annually present a prioritized list of activities within the available budget. This means that each parcel will be at increased risk of landslide hazard, which the owner of the parcel, and not the GHAD, will be responsible for mitigating. The GHAD will annually notify the assessed property owners that the assessments currently collected is insufficient to perform the recommended/required maintenance and monitoring of the underlying land of the Oakhurst development which will lead to an increased risk of landslide hazards.

5.2 Services Only to Areas Within the GHAD Boundaries

The authority to provide Services is limited to those properties located within the GHAD boundaries, and to some degree, to offsite drainage facilities that could impact property within the GHAD boundaries. The GHAD can provide Services for a geologic hazard on property outside the GHAD boundaries when the hazard has damaged or poses an imminent threat of damage to structures or site improvements located on properties within the GHAD boundaries. Should the GHAD be required to respond to a geologic hazard outside the boundaries of the GHAD, the GHAD may take such actions as may be appropriate to recover costs incurred as a result of preventing, mitigating, abating or controlling such geologic hazard from the responsible party, if any.

5.3 Geologic Hazard Limited to a Single Property

The GHAD will not provide its Services for landslides that are contained within the limits of a single parcel of property. Hazards must extend across or into open space and/or at least two residential property boundaries within the GHAD before the GHAD will implement the Plan of Control as described herein. At the GHAD General Manager's sole discretion, Services may be provided to address a geologic hazard within a single property due to extenuating circumstances.

5.4 Geologic Hazard Resulting from Negligence of Property Owner

The GHAD may decline to provide Services for geologic hazards that occur due to, or result from, the negligence of the property owner and/or the property owner's contractors, agents or employees in developing, grading, constructing, maintaining, performing, or not performing, any work related to, or that may have influenced the geologic hazard on the subject property, including performing alterations to site drainage or slope configuration that adversely impact the overall existing stability of slopes. If the GHAD bears expense as the result of negligence described in this section, the GHAD may pursue reimbursement from the negligent parties.

5.5 Geologic Hazard which Requires Expenditure Amount Exceeding the Value of the Threatened or Damaged Improvement

The GHAD may elect to not provide Services where, in the GHAD General Manager's sole discretion, the anticipated expenditure required to be funded by the GHAD will exceed the value of the structure(s) and/or site improvement(s) that are threatened with damage or loss.

5.6 Geologic Processes Occurring Entirely in Open Space Areas

The GHAD will not provide its Services for landslides, creek bed erosion or deposition, etc. that occur entirely in open space areas. In the GHAD General Manager's sole discretion, geohazard impacts from open space lands that impact roadways, sidewalks, or other improvements deemed relevant by the GHAD General Manager, may receive Services.

5.7 Damage Caused by Soil Creep

The GHAD will not provide Services for damage due to soil creep. Site-specific design and construction techniques can typically be implemented by property owners to reduce the impact of creep on their properties.

5.8 Damage Due to Seismically Induced Ground Shaking

The GHAD will not fund Services or otherwise compensate for damage resulting from seismically induced ground shaking except for the following:

1. Damage to public infrastructure within the GHAD boundaries, as authorized by the GHAD General Manager and subject to the availability of funds.
2. Damage resulting from seismically induced landslides, as authorized by the GHAD General Manager and subject to the availability of funds and the other restrictions included within this Plan of Control.

5.9 Damage Due to Expansive Soils

The GHAD will not fund Services or otherwise compensate for damage due to expansive soils except for the following:

1. Damage to public infrastructure within the GHAD boundaries, as authorized by the GHAD General Manager and subject to the availability of funds.

2. Damage resulting from landslides where the presence of expansive soils may be a contributing factor to the landslide and as authorized by the GHAD General Manager and subject to the availability of funds and the other restrictions included within this Plan of Control.

5.10 GHAD Funding or Reimbursement for Damaged or Destroyed Structures or Site Improvements

Except as limited by Sections 5.3 and 5.5 above, in the event a habitable structure, site improvement, or landscaping is damaged or destroyed as a result of a geologic hazard, the GHAD may elect to fund or reimburse the property owner for the reasonable expenses necessary to repair or replace the damaged or destroyed structure, site improvement, or landscaping. Unless otherwise authorized by the GHAD Board of Directors, the dollar amount of the GHAD funding or reimbursement may not exceed ten percent (10%) of the costs incurred by the GHAD in preventing, mitigating, abating or controlling the geologic hazard responsible for the damage. The GHAD may decline to provide any funding, or reimbursement to a property owner for the repair or replacement of a structure, site improvement, or landscaping damaged by a geologic hazard where at its construction or installation, the structure, site improvement, or landscaping violated any provision of the City's building code or ordinances that was operative when the structure, site improvement, or landscaping was constructed.

5.11 No Reimbursement of Expenses Incurred by Property Owners

The GHAD will not be obligated to reimburse a property owner for expenses incurred for the prevention, mitigation, abatement, or control of a geologic hazard absent a written agreement between the property owner and the GHAD to that effect, which agreement has been executed prior to the property owner incurring said expenses, and following an investigation conducted by the GHAD.

5.12 Appeal to GHAD Board of Directors

Any determination made by the GHAD General Manager in its sole discretion may be appealed to the GHAD Board of Directors through a written letter of appeal submitted within 10 days of the GHAD General Manager's written determination to the affected party.

6.0 PRIORITIZATION OF SERVICES

Emergency response and scheduled repair, maintenance and monitoring expenditures are to be prioritized at the discretion of the GHAD General Manager, based on available funds (including reserve funds), and pursuant to paragraph II of the *DISTRICT OBLIGATIONS AND REVENUE GENERATION, Statement of Policy* (Approved May 5, 1998), amended as follows:

> "In order to make the best of available funds, a priority of expenditures has been established as follows:
>
> a) first, resources shall be used to secure public safety;
> b) second, resources shall be used to secure the safety of public and private property;
> c) third, resources shall be used for the cleanup and repair of public property to minimum standards of public safety;

d) fourth, resources shall be used for the repair of public property to like new condition;
e) fifth, resources shall be used for the cleanup and repair of private property to a level determined by the GHAD Board of Directors;
f) sixth, resources shall be used for increasing the District's reserves to levels determined by the GHAD Board of Directors.

Consistent with priorities a and b, above, and in the absence of active construction for remediation of geologic hazards' impact to public and private property, expenditures shall be prioritized as follows (in descending order of priority):

1) The prevention, mitigation, abatement or control of geologic hazards that have damaged or pose a significant threat of damage to underground water and sewer infrastructure, paved streets, habitable structures, and other critical underground utilities.
2) The prevention, mitigation, abatement or control of geologic hazards that have damaged or pose a significant threat of damage to private recreation facilities (such as pools, pool cabanas, sport courts, or the like).
3) The prevention, mitigation, abatement or control of geologic hazards that have damaged or pose a significant threat of damage to landscaping and other non-essential amenities.

7.0 MAINTENANCE AND MONITORING SCHEDULE

Geologic features, GHAD maintained facilities, and surface pavements withing the public right-of way (and particularly within known landslide areas) shall be inspected and monitoring facilities, including piezometers and inclinometers, shall be sounded and recorded at proper intervals. Inspections and monitoring should be increased in frequency during years with abnormally high frequency or high intensity rainfall events.

In general, all V-ditches, drop inlets, debris basin standpipes, subdrain clean-outs and outfall/discharge pipes should be observed during each inspection event.

The GHAD General Manager shall review and adjust the inspection and monitoring schedule annually and, based on the annual report from the GHAD's GGEOR, assess the effectiveness of its preventive maintenance program on a regular basis. The GHAD General Manager shall prepare an annual inspection report for presentation to the GHAD Board of Directors.

The table below presents the inspection and monitoring schedule for the GHAD:

Elements of 2nd Amended Plan of Control	Service Description
District Obligation/Responsibilities	
Frequency	Continuous
Administration	
Geologist Site Assessment Report	Preparation and presentation of annual inspection and maintenance report by the GHAD management based on report(s) and memoranda prepared by the GGEOR
Frequency	Annually in December
Annual Maintenance Activities	
Debris removal	Clear V-Ditches and inlets
Frequency	Annually in the Fall and at other times during heavy rainfall years
Vegetation Management	Weed abatement in open spaces per fire code
Frequency	Annually in the Summer
Periodic Maintenance Activities	
Subdrain clearing	Root or jet subdrains and outfall pipes if reduced flow is observed (relative to other drains or prior observations).
Frequency	As-needed
Monitoring Activities	
Drainage Ditches	Visual inspection of lined surface drainage V-ditches by GGEOR within hillside residential areas of the GHAD and immediately adjacent open space. **Deliverable/engagement:** Letter summarizing observations.
Frequency	At least one yearly (in the Fall before rain season starts) or at least twice yearly (in the Fall and in the Winter) during heavy rainfall years
Risers and outlets	Visual inspection of risers and outlets to storm drains from debris barriers.
Frequency	Annually in the Fall
Existing slope Inclinometers and piezometers - Locate and Identify	Field locate and determine inclinometer and piezometer ID from previous studies. Differentiate, if possible, dual-purpose inclinometer/piezometers. **Deliverable:** memorandum and site plan.
Frequency	One time - As soon as possible
Locate subdrainage clean-outs and subdrain outfalls	Field locate. **Deliverable:** memorandum and site plan.
Frequency	One time - As soon as possible
Delineators/Markers	Check delineators/markers are present at all outlets of subsurface drains, all piezometers, all inclinometers, and all de-watering wells - replace as needed
Frequency	Included w/ "Subsurface Drain Discharge" and "Slope inclinometers - Ongoing Monitoring" inspections
Subsurface Drain Discharge	Visual inspection of outlets of all subsurface drain outlets, measure flowrate. **Deliverable:** memorandum.
Frequency	At least twice yearly (Fall and Spring)

Elements of 2nd Amended Plan of Control	Service Description
Slope Inclinometers - Ongoing Monitoring	For select inclinometers, measure inclinometer offsets across the entire casing. Measure depth to groundwater for dual purpose inclinometers/piezometers. **Deliverable:** memorandum.
Frequency	Early Fall, mid-Winter, and late Spring
Piezometers	Measure groundwater level in piezometers (if done separately of "Slope Inclinometers - Ongoing Monitoring" inspections). **Deliverable:** memorandum.
Frequency	Early Fall, mid-Winter, and late Spring
Open and Public Space Land	Visual inspection of roadways, sidewalks, and facilities (if done separately of "Drainage Ditches" inspections) within hillside residential areas of the GHAD and immediately adjacent open space. **Deliverable:** memorandum.
Frequency	Annually in the Spring
Minor Repairs	
Debris Basins	Restore debris basins to pre-mudslide elevations
Frequency	As-needed
V-Ditches	Repair cracks/gaps in drainage ditches. Replace significantly distressed/damaged drainage ditch panels.
Frequency	As-needed
Drainage pipes/risers	Repair/Replace risers, pipes, and outlets
Frequency	As-needed
Inclinometer Replacements	Replace 2 sheared inclinometer casings - One at Kelok Way and one at Pebble Beach Drive Landslide area. **Deliverable:** two new inclinometers.
Frequency	As soon as possible

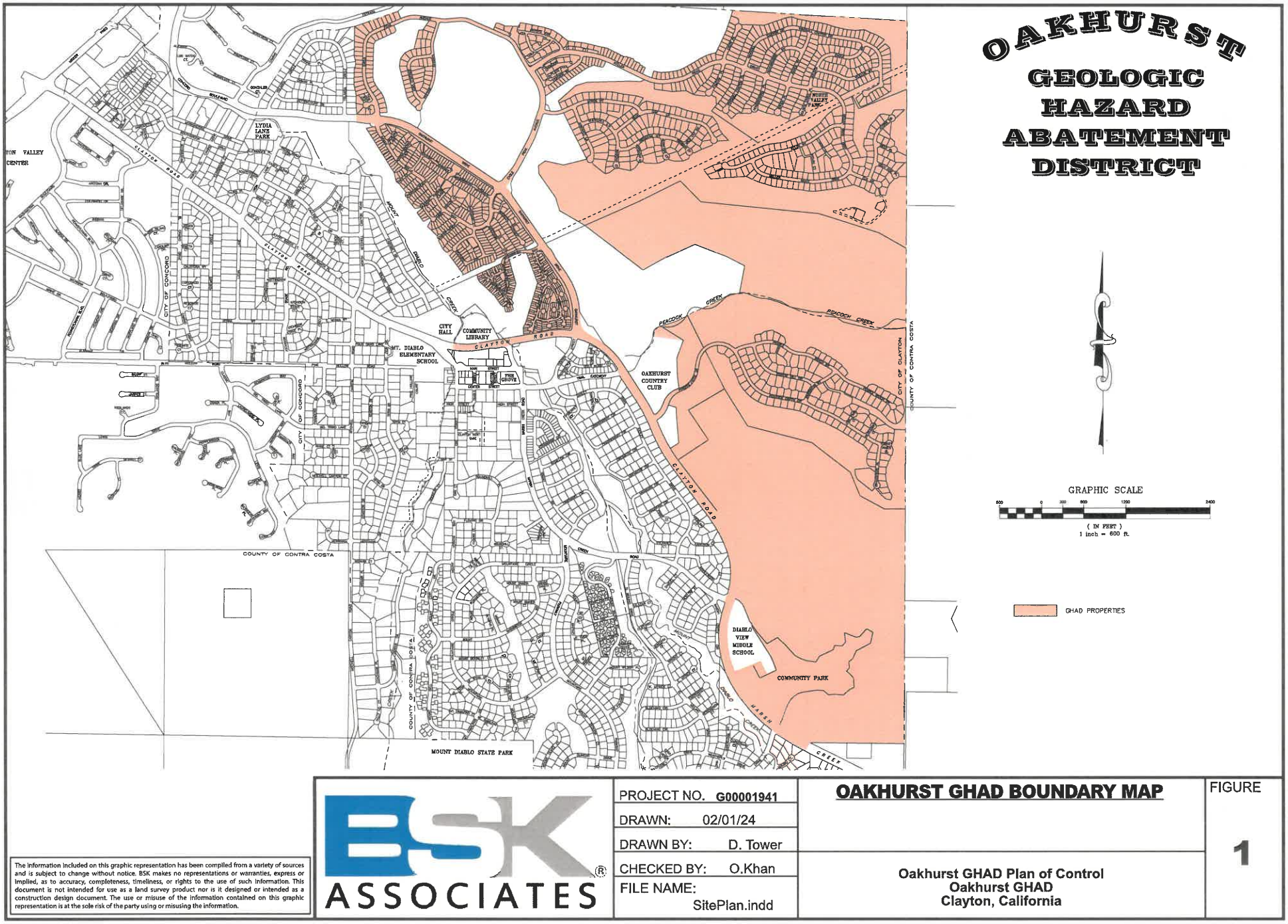
Infrastructure Renewal	
V-Ditches	Replace facilities at the end of service life
Frequency	As determined by the GHAD General Manager
Drainage pipes/risers	Replace facilities at the end of service life
Frequency	As determined by the GHAD General Manager
Inlets/Manholes	Replace facilities at the end of service life
Frequency	As determined by the GHAD General Manager
Access Road Surfaces	Replace facilities at end of services life
Frequency	As determined by the GHAD General Manager

8.0 RIGHT OF ENTRY

GHAD officers, employees, consultants, contractors, agents, and representatives shall have the right to enter upon all lands within the GHAD boundary for the purpose of performing the activities described in this Plan of Control. Such activities include, but are not limited to, 1). the inspection, maintenance and monitoring of site improvements including, drainage ditches, storm drains, outfalls and pipelines, 2). the monitoring, maintenance and repair of slopes, including repaired or partially repaired landslides, and 3). the management of erosion and geologic hazards within open space. Should the GHAD need to access private residential lots to fulfill its duties under the Plan of Control, the GHAD shall provide the affected property owner with 72 hours advanced notice unless, in the reasonable judgment of the GHAD General Manager, an emergency situation exists which makes immediate access necessary to protect the public health and safety, in which case no advanced notice is required, but the GHAD shall inform the property owner as soon as reasonably possible.

FIGURES

EXHIBIT A



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PROJECT NO.	G00001941
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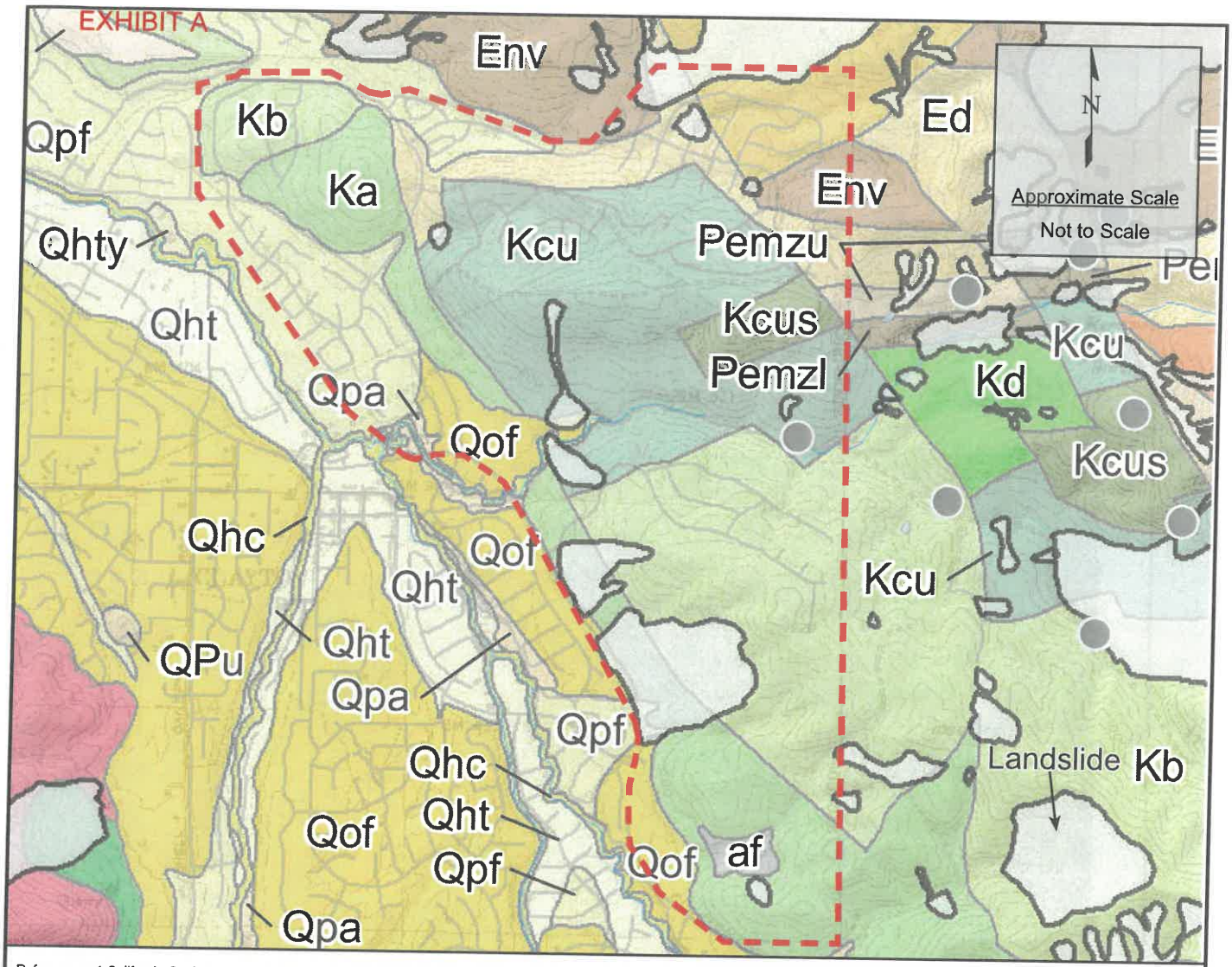
DRAWN BY:	D. Tower
CHECKED BY:	O.Khan
FILE NAME:	SitePlan.indd

OAKHURST GHAD BOUNDARY MAP

Oakhurst GHAD Plan of Control
Oakhurst GHAD
Clayton, California

FIGURE
1



References: 1.California Geological Survey Staff (2021), Seismic Hazard Zone Report for the Clayton 7.5-Minute Quadrangle, Contra Costa County, California: California Geological Survey, Seismic Hazard Zone Report 130.

Approximate GHAD boundary
(see Figure 1 for actual GHAD boundary)

af - Artificial Fill (Historical)
Qhty - Stream Terrace Deposits (Latest Holocene)
Qhc - Stream Channel Deposits (Holocene)
Qha - Alluvium, Undifferentiated (Holocene)
Qhf - Alluvial Fan Deposits (Holocene)
Qht - Stream Terrace Deposits (Holocene)
Qpf - Alluvial Fan Deposits (Latest Pleistocene)
Qpa - Alluvium, Undifferentiated (Latest Pleistocene)
Qof - Alluvial Fan Deposits (Pleistocene)
Qoa - Alluvium, Undifferentiated (Pleistocene)
Env - Nortonville Shale (Tertiary)
Ed - Domengine Formation (Eocene)
Pemzu/Pemzl - Meganos Formation (Paleocene)

Great Valley Sequence:
Kcu - Shale and Siltstone (Late Cretaceous)
Kcus - Sandstone (Late Cretaceous)
Kb - Sandstone and Shale (Early/Late Cretaceous)
Ka - Shale (Late and Early Cretaceous)

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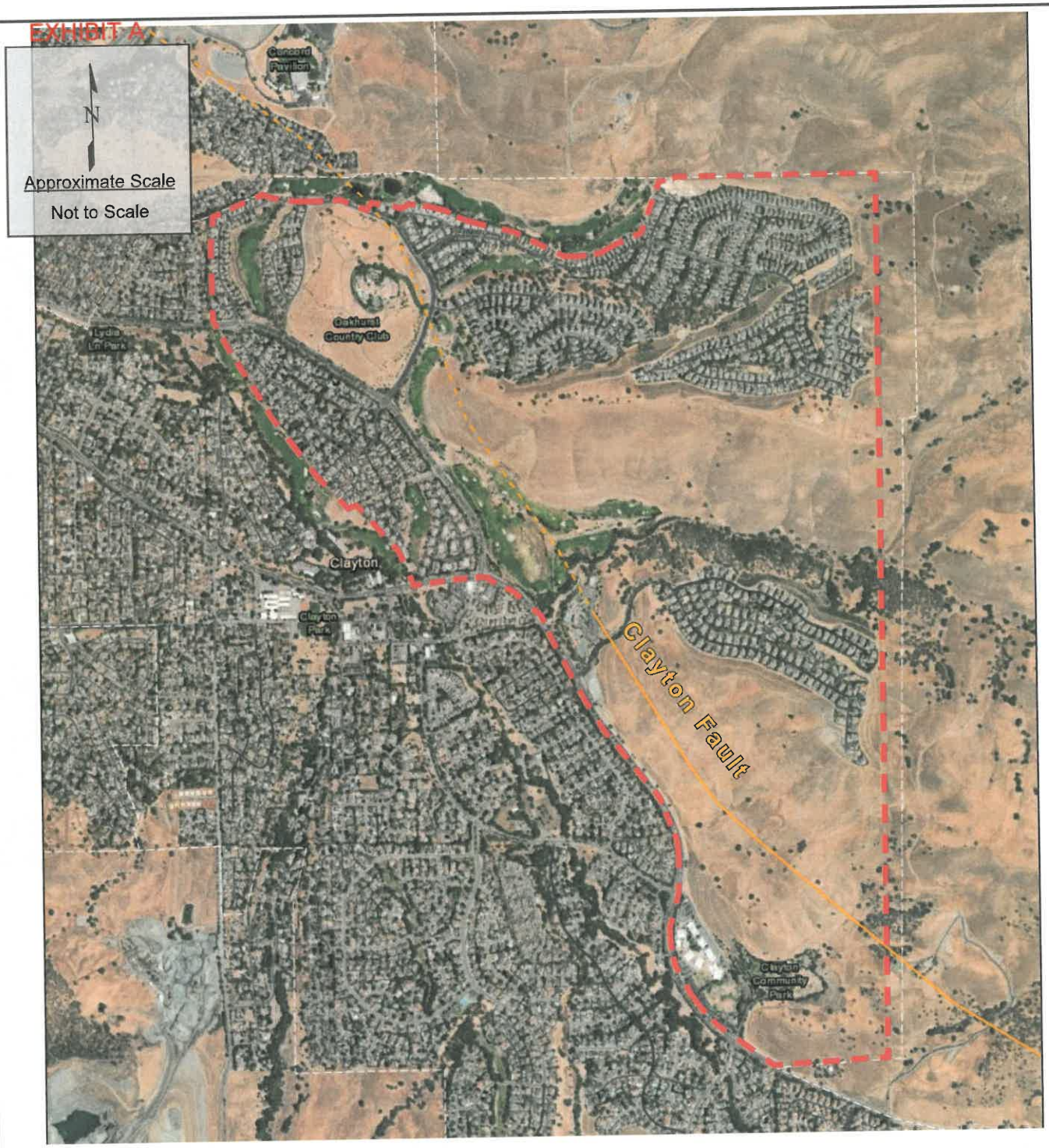
CHECKED BY: O. Khan	
FILE NAME: Figures.indd	

AREA GEOLOGY MAP

Oakhurst GHAD Plan of Control
Oakhurst GHAD
Clayton, California

FIGURE
2

EXHIBIT A



References: 1. USGS Interactive Quaternary Fault Map (https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a`9b0aadf88412fcf)

Latest Quaternary (<15,000 years), well constrained location

Latest Quaternary (<15,000 years), moderately constrained location

Latest Quaternary (<15,000 years), inferred location

Approximate GHAD boundary
(see Figure 1 for actual GHAD boundary)

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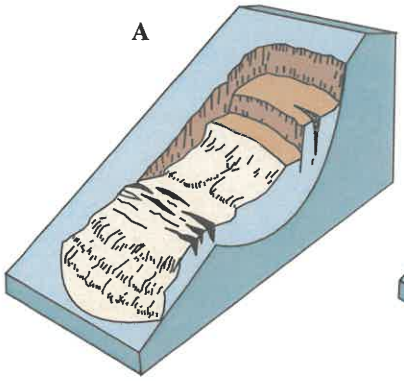
PROJECT NO. G00001941	**LOCAL FAULT MAP**
DRAWN: 02/01/24	
DRAWN BY: D. Tower	
CHECKED BY: O. Khan	**Oakhurst GHAD Plan of Control** **Oakhurst GHAD** **Clayton, California**
FILE NAME: Figures.indd	

FIGURE

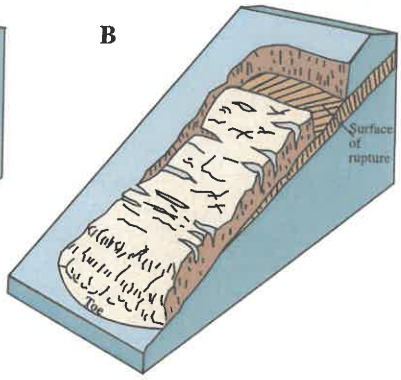
3

EXHIBIT A



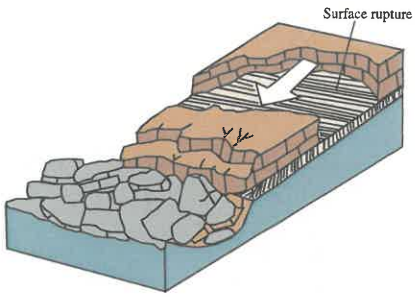
A

Rotational landslide



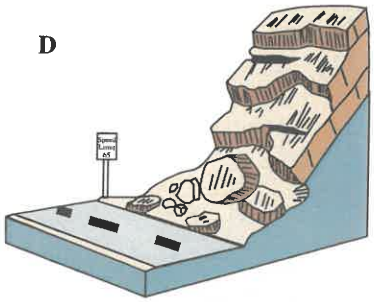
B

Translational landslide



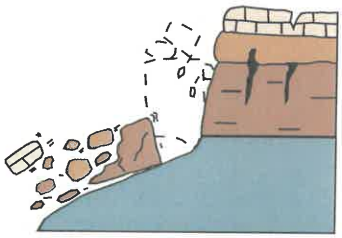
C

Block slide



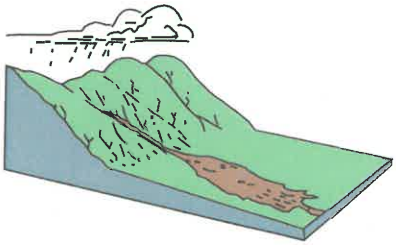
D

Rockfall



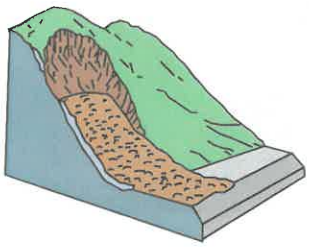
E

Topple



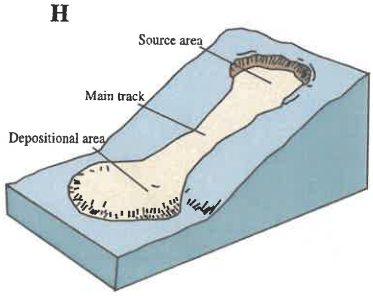
F

Debris flow



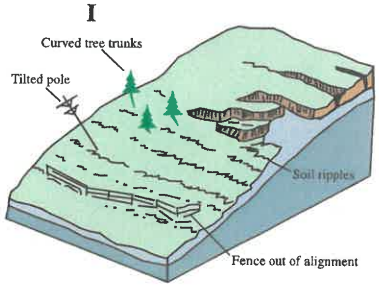
G

Debris avalanche



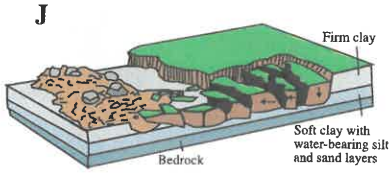
H

Earthflow



I

Creep



J

Lateral spread

References: 1. U.S. Geological Survey Staff (2004), Types of Lanslides and Processes: U.S. Geological Survey, Fact Sheet 2004-3072

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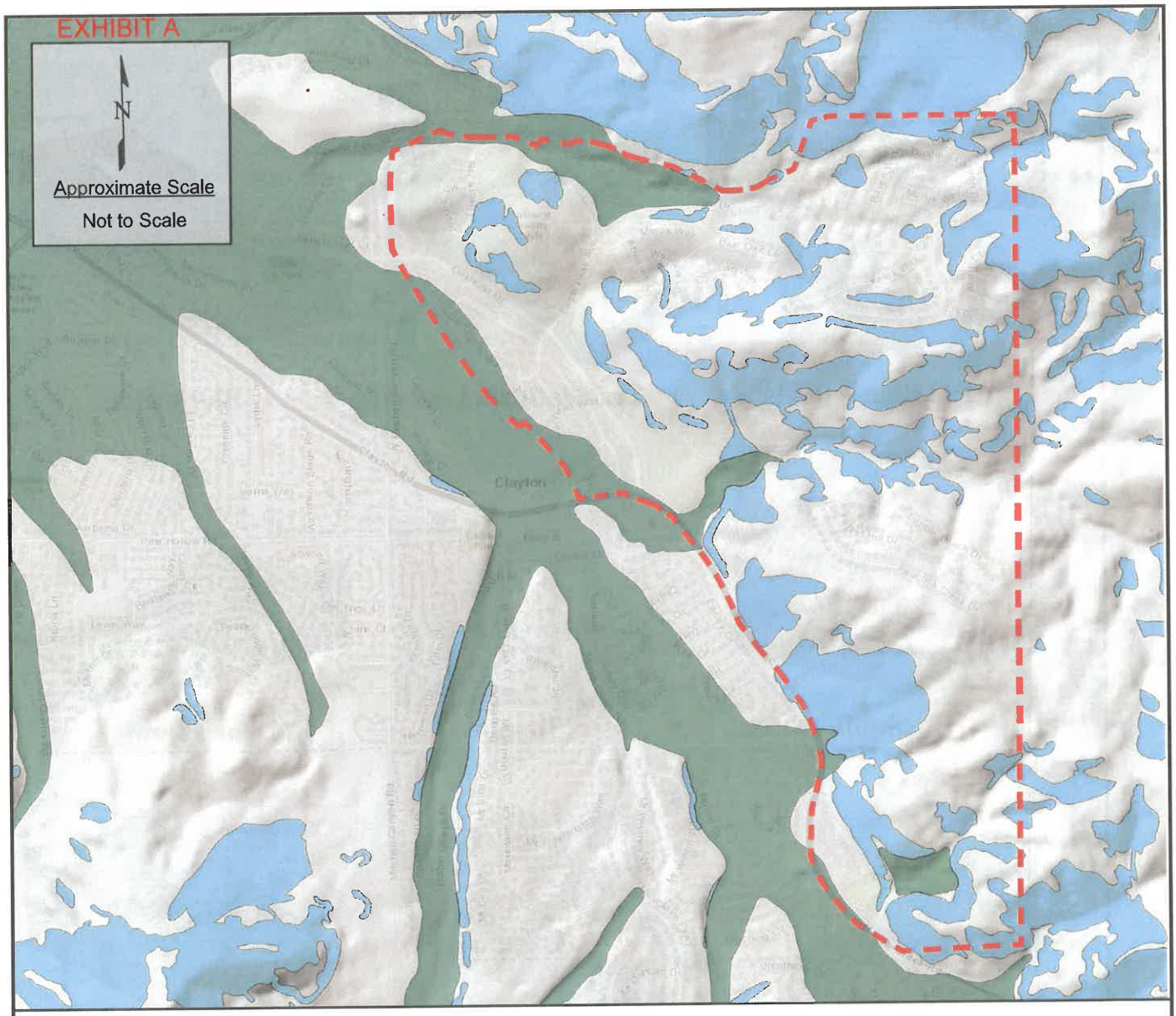
PROJECT NO. G00001941	**LANDSLIDE TYPES**
DRAWN: 02/01/24	
DRAWN BY: D. Tower	
CHECKED BY: O. Khan	**Oakhurst GHAD Plan of Control** **Oakhurst GHAD** **Clayton, California**
FILE NAME: Figures.indd	

FIGURE

4



Reference: California Geological Survey Staff (2021), Earthquake Zones of Required Investigation, Clayton Quadrangle: California Geological Survey, Earthquake Fault Zones and Seismic Hazard Zones, Released September 23, 2021.

Approximate GHAD boundary
(see Figure 1 for actual GHAD boundary)

SEISMIC HAZARD ZONES

Liquefaction Zones

Areas where historical occurrence of liquefaction, or local geological, geotechnical and ground water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslide Zones

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

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POTENTIAL LIQUEFACTION AND EARTHQUAKE-INDUCED LANDSLIDE HAZARD ZONES

Oakhurst GHAD Plan of Control
Oakhurst GHAD
Clayton, California

FIGURE
5