

**ENGINEER'S REPORT**

for

**SANTIAGO GEOLOGIC HAZARD ABATEMENT DISTRICT  
ANAHEIM, CALIFORNIA**

**June 5, 2023  
Revised June 7, 2023**

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**ENGINEER'S REPORT**

SANTIAGO  
GEOLOGIC HAZARD ABATEMENT DISTRICT  
(Pursuant to the Public Resources Code of the State of California, Section 26500 et seq.)

**CERTIFICATION OF FILING**

The GHAD provides monitoring and maintenance of improvements related to geologic hazard management within the District. The GHAD responsibilities, which are the subject of this report, are defined in the Plan of Control dated February 22, 1999, as any activity necessary, "...to mitigate risk of reactivation of the Santiago landslide, to direct and fund operation of the dewatering system, monitoring of groundwater elevations and landslide movements, and to evaluate landslide stability on a regular basis for the life of those improvements potentially impacted by any renewed landslide movement," and those additional items list in Section IV.


This report consists of six parts, as follows.


- I. INTRODUCTION AND BACKGROUND
- II. GEOLOGIC HAZARD ABATEMENT DISTRICT BOUNDARY
- III. SERVICE LEVELS
- IV. DESCRIPTION OF GHAD-MAINTAINED IMPROVEMENTS
- V. ASSESSMENT METHOD
- VI. ASSESSMENT LIMIT - BUDGET PROJECTION

The undersigned respectfully submits the enclosed Engineer's Report.

Date: June 7, 2023

By: ENGEO Incorporated

  
Uri Eliahu, GE



## ENGINEER'S REPORT

for

### SANTIAGO GEOLOGIC HAZARD ABATEMENT DISTRICT ANAHEIM, CALIFORNIA for the ESTABLISHMENT OF AN ASSESSMENT LIMIT

#### I. INTRODUCTION AND BACKGROUND

The Anaheim City Council formed the Santiago Geologic Hazard Abatement District (GHAD) on March 16, 1999, under the authority of the California Public Resources Code, Division 17, Section 26500 et seq. with the approval of City of Anaheim Resolution 99R-50. Five property owners within the GHAD serve as the Board of Directors of the Santiago GHAD.

The Anaheim City Council approved the Santiago GHAD Plan of Control (“Plan of Control”) to allow the Santiago GHAD to permanently monitor and maintain the Santiago landslide. The Santiago GHAD is funded through a settlement with the City of Anaheim (“GHAD Distribution”). The GHAD Distribution cannot be used to fund activities or facilities which do not materially and substantially promote the objective of stabilizing past, present, and future land movement of the Santiago landslide.” In 1999, the initial GHAD Distribution was approximately \$3,500,000, and as of June 1, 2023, the fund balance was approximately \$229,637.

To provide a “baseline” GHAD operating budget that would provide a minimal level of critical function, additional funding is required through a property assessment. Funding will be solicited from the Federal Emergency Management Agency (FEMA) for the design and construction of a long-term structural repair of the Santiago landslide. If funding is secured within the next 2 fiscal years, a 25-percent local match from the community and the City of Anaheim would be required by FEMA. In the event of this outcome, this proposed assessment would continue for subsequent years, until it is replaced by another assessment that would include general management duties, in addition to financing the local match. If the vote for such second assessment fails, this proposed assessment would continue indefinitely. If FEMA funding and the local match by the community and the City of Anaheim cannot be secured, this proposed assessment would expire at the end of FY 2025.

#### II. GEOLOGIC HAZARD ABATEMENT DISTRICT BOUNDARY

The boundary for the Santiago GHAD is shown in the Site Plan to Accompany Assessor’s Parcel and Assessment Limit List (Exhibit A). The parcels within the GHAD are identified on the Assessor’s Parcel Number and Assessment Limit List (Exhibit B).

#### III. SERVICE LEVELS

The GHAD’s activities are limited to critical functions that would reduce potential land movement of the Santiago landslide.

The GHAD provides for the administration and review of facilities within the budgeted limits, as described in the Plan of Control, and includes the following services.

1. Oversight of GHAD operations, including reporting to the GHAD Board of Directors.
2. Setting the annual levying of assessments on the property tax rolls.
3. Engagement of technical professionals to perform select monitoring duties, as described in the Plan of Control.
4. Performance of select GHAD maintenance activities.
5. Preparation of annual GHAD budgets and other documents and reports for consideration by the GHAD Board of Directors.

#### **IV. DESCRIPTION OF THE IMPROVEMENTS MAINTAINED BY THE GHAD**

The GHAD-maintained improvements, in general, include vertical production and observation wells, horizontal drains, and inclinometers.

#### **V. ASSESSMENT METHOD AND BENEFIT**

The improvements and GHAD responsibilities described in Section IV are distributed within the limits of the GHAD or immediately adjacent to the GHAD. The improvements described in this document allow protection from slope instability, a special benefit to the assessed parcels. As provided in Section 5 of Resolution 99R-50, Approving Formation of the Santiago GHAD, *“The GHAD boundaries are larger than the Santiago landslide. The Plan of Control identifies potential geologic hazards for areas outlying the Santiago landslide other than those defined as existing for the Santiago landslide. Inclusion of the outlying properties in the GHAD is beneficial to those properties in that residents may have concerns regarding geologic hazards due to the proximity to the Santiago landslide, and the GHAD provides a mechanism to address and mitigate such future geologic hazards.”*

The improvements and responsibilities listed in Section IV provide specific benefits to the properties within the GHAD and the improvements are constructed for the benefit of those assessed. There is no general benefit due to the unique services the GHAD provides. The subject parcels are only being assessed for the reasonable costs of the proportional specific benefits conferred on the parcels.

##### **A. Special Benefit and Proportionality**

The improvements described in this document will confer some or all of the following special benefits to the assessed parcels within the Santiago GHAD.

1. Protection from landsliding and ground deformation.
2. Protection from loss of street/transportation access.
3. Protection from loss of utilities and associated services.
4. Groundwater seepage management, providing protection for properties and improvements.
5. Consequential protection of properties and improvements from diminution of value resulting from manifestation of geologic instability.

Certain real properties within the GHAD are located within the limits of the Santiago landslide. These real properties, which would suffer damage from the primary effects of movement, receive a special benefit from the activities of the GHAD, which are intended to arrest movement of the landslide. Several real properties are located near the Santiago landslide and have been determined to be at risk of the secondary effects of landslide movement or ground-surface deformation, and therefore, receive a special benefit whose degree is equal to the benefit of real properties located within the limits of the Santiago landslide. Additionally, other real properties, located in the general vicinity of the Santiago landslide, are within a hydrogeologic zone within which groundwater levels are controlled via a pump and discharge system. These properties receive a proportional special benefit through the control of groundwater levels, which reduces the potential of distress to slopes and the ground, and reduces the potential for distress to structures and both surface and subsurface improvements. Thus, control of groundwater seepage is beneficial to all parcels in the district. The degree of special benefit is lower than the special benefit to real properties proximate to the Santiago landslide or within the limits of the Santiago landslide. Real properties outside of the limits of the preceding three categories receive a degree of special benefit limited to the control of groundwater seepage. The proportion of benefit, with respect to each of these categories, is presented below in the assessment allocation formula.

The City of Anaheim owns facilities consisting of streets, sidewalks, and public utility conveyance systems (e.g., domestic potable water, wastewater sewerage, and electrical conduits). It provides easements to investor-owned-utilities in rights-of-way within SGHAD. Its streets and sidewalks protect and contain, not only its own utility infrastructure, but third-party infrastructure (i.e., natural gas lines and telecommunications systems). Accordingly, the mitigation of geologic instability provides unique special benefits to the City of Anaheim beyond those provided to residential parcels in four ways. First, the existing infrastructure facilities (which by their nature are interconnected with system-wide facilities) are preserved and protected from damage. Second, it preserves the revenue generated by City of Anaheim-owned and/or operated utilities. Third, it preserves the ability of the City of Anaheim to honor continuance of service-related contractual obligations to third-party utility providers who operate utilities in the rights-of-way. Fourth, it prevents devastating environmental damages and safety hazards (i.e., sewage spills, gas leaks).

## ***B. Assessment Method***

Each residential lot has been identified as one assessed unit. In most cases within the GHAD, residential lots consist of one parcel. In some instances, a residential lot consists of two parcels that, for the purposes of this assessment, are combined into one unit with an area of the two constituent parcels. In this document, “parcel” and “lot” are used interchangeably when referring to residential lots, whether consisting of one or two parcels.

City of Anaheim-owned rights-of-way include several transportation-related facilities and utilities (e.g., streets, sidewalks City of Anaheim-maintained utilities, third-party-maintained utilities). The network of rights-of-way is located throughout the district. For allocation of this assessment, the right-of-way grid network has been discretized into segments. These segments are generally described as right-of-way situated between intersections or points of entry/exit into the demarcated boundaries of the GHAD (“nodes”). Each segment is treated as an assessable unit, or parcel, analogous to a residential lot. In this document, “parcel” and “segment” are used interchangeably when referring to these discretized portions of City of Anaheim-owned rights-of-way.

A total of 21 discretized segments of the grid network have been designated, as follows.

- Aspenwood Circle (full length)
- Pine Canyon Circle (full length)
- Falling Leaf Circle (full length)
- Smokewood Circle (full length)
- South Rimwood Drive (full length)
- South Burlwood Drive/Leafwood Drive (portions to south/west of both intersections with Rimwood Drive)
- Leafwood Drive (portion east of intersection with Rimwood Drive)
- Georgetown Circle (full length)
- Williams Circle (full length)
- Tamarisk Drive (full length)
- Via El Estribo (full length)
- Avenida De Santiago (from Hidden Canyon Road to western intersection with Via El Estribo)
- Avenida De Santiago (from western intersection with Via El Estribo to GHAD boundary)
- Serrano Avenue (length within GHAD)
- Vassar Circle (full length)
- Michigan Circle (full length)
- Loyola Drive (between Serrano Avenue and Rutgers Drive)
- Loyola Drive (between Rutgers Drive and Kentucky Avenue)
- Kentucky Avenue (length within GHAD)
- Swarthmore Circle/Lehigh Drive (length within GHAD)
- Rutgers Drive (length within GHAD)

In some instances, parcels are located in more than one of the four siting classifications (e.g., Santiago Landslide, Potential Surface Damage, Groundwater Management Area, Seepage Control Area). In these instances, the respective parcel is assigned the “highest” classification based on the following hierarchy.

- Highest: Santiago Landslide Siting and Potential Surface Damage Siting
- 2<sup>nd</sup> Highest: Groundwater Management Area Siting
- 3<sup>rd</sup> Highest: Seepage Control Area Siting

To allocate assessment in proportion to special benefit conferred on assessed parcels, a formula has been derived that estimates the special benefit conveyed by the project. Special benefit is derived considering the following factors, and weighting has been applied to each factor to note its relative benefit received, as compared to other factors. The factors incorporated into the analysis account for a respective parcel's proximity to the delineated landslide, the potential for a parcel to experience geologic distress in the event of landslide mobilization, a landslide's proximity to the hydrogeologic watershed area that infiltrates groundwater mitigated by the pump system, and other parcels that benefit from seepage control. We applied our professional judgment to the weighting factor values presented in the formula below.

$$A_i = \left( R \left( \frac{S_i + L_i + H_i + K_i}{\sum_{i=1}^n (S_i + L_i + H_i + K_i)} \right) \right)$$

$A_i$  = Assessment at Parcel i

$R$  = Total annual assessment required to support the GHAD budget

$S_i$  = Siting Factor for Parcel i

$$L_i = \text{Lot Size Factor for Parcel } i = \left( 0.25 \left( \frac{P_i - P_{min}}{(P_{max} + 1) - P_{min}} \right) \right)$$

$P_i$  = Lot area for Parcel i (right-of-way segments each assigned value of  $P_{max} + 1$ ) (measured in square feet)

$P_{max}$  = Maximum residential lot area

$P_{min}$  = Minimum residential lot area

$$H_i = \text{Home Size Factor for Parcel } i = \left( 0.75 \left( \frac{Q_i - Q_{min}}{(Q_{max} + 1) - Q_{min}} \right) \right)$$

$Q_i$  = Home area for Parcel i (right-of-way segments each assigned value of  $Q_{max} + 1$ ) (measured in square feet)

$Q_{max}$  = Maximum home area

$Q_{min}$  = Minimum home area

$K_i$  = Infrastructure Factor Parcel i

$\sum_{i=1}^n (S_i + L_i + H_i + K_i)$  = Summation of factors for Parcels i to n

- Santiago Landslide Siting – Real properties situated within the limits of the Santiago landslide (including City of Anaheim-owned rights-of-way), that would suffer damage from the primary effects of movement, receive a special benefit from the activities of the GHAD, which are intended to arrest movement of the landslide. The mitigation activities provide the largest respective portion of special benefit to properties within the limits of the Santiago landslide. Each of these parcels (including City of Anaheim-owned rights-of-way) has been assigned a Siting Factor ( $S_i$ ) of 6.
- Potential Surface Damage Siting – As discussed, several real properties are located near the Santiago landslide and have been determined to be at risk of the effects of landslide movement or ground surface deformation, and therefore, receive a special benefit whose degree is equal to the benefit of real properties located within the limits of the Santiago landslide. Given this benefit conveyed, these parcels (including City of Anaheim-owned rights-of-way) have been combined with the Santiago Landslide parcels and each assigned a  $S_i$  of 6.



- Groundwater Management Area Siting – Select real properties located in the general vicinity of the Santiago landslide (including City of Anaheim-owned rights-of-way) are within a hydrogeologic infiltration zone within which groundwater levels are controlled via a pump and discharge system. These properties receive a proportional special benefit through the control of groundwater levels. The degree of special benefit is diminished, as compared to the benefit of real properties located near or within the limits of the Santiago landslide. Because of the reduction of the special benefit, these parcels (including City of Anaheim-owned rights-of-way) each have been assigned a  $S_i$  of 3.
- Seepage Control Area Siting – Groundwater seepage control is a special benefit enjoyed by all parcels (including City of Anaheim-owned rights-of-way) within the district. The remaining properties within the GHAD (including City of Anaheim-owned rights-of-way) not included in other classification areas receive a degree of special benefit limited to the control of groundwater seepage. The control of groundwater seepage is beneficial as it reduces the potential for distress to structures and both surface and subsurface improvements. Because of the further reduction of the special benefit, these parcels (including City of Anaheim-owned rights-of-way) each have been assigned a  $S_i$  of 1.
- Lot Size Factor – To account for variations in residential lot size throughout the district, each parcel area (not including the City of Anaheim-owned right-of-way segments) has been recorded. To account for the intensity of improvements within the rights-of-way, each right-of-way segment was assigned an area value equal to  $P_{max} + 1$ , where  $P_{max}$  is the largest residential parcel area in the GHAD. Each individual parcel area is then normalized based on its area as a relative percentage of the minimum parcel area,  $P_{min}$ , and  $P_{max} + 1$ . The smallest parcel in the GHAD is assigned a calculated value of zero, and the right-of-way segments are each assigned a calculated value of 1. All other parcels are assigned a calculated value between 0 and 1. These parcel-specific terms are then multiplied by 0.25 to determine each parcel-specific calculated Lot Size Factor  $L_i$ , which ranges between  $L_{min}$  equal to 0 and  $L_{max}$  equal to 0.25.
- Home Size Factor – To account for variations in home size throughout the district, each home area  $Q_i$  (not including the City of Anaheim-owned right-of-way segments) has been recorded. To account for the intensity of improvements within the rights-of-way, each right-of-way segment was assigned an area value equal to  $Q_{max} + 1$ , where  $Q_{max}$  is the largest home area in the GHAD. Each individual home area is then normalized based on its area as a relative percentage of the minimum home area,  $Q_{min}$ , and  $Q_{max} + 1$ . The smallest home in the GHAD is assigned a calculated value of zero (allocated to the respective parcel), and the right-of-way segments are each assigned a calculated value of 1. Lots without homes are assigned a value of zero. All other parcels are assigned a calculated value between 0 and 1. These parcel-specific terms are then multiplied by 0.75 to determine each parcel-specific calculated Home Size Factor ( $H_i$ ), which ranges between  $H_{min}$  equal to 0 and  $H_{max}$  equal to 0.75.
- Infrastructure Factor – To account for the special benefit associated with the right-of-way improvements, which include preservation of the improvements and utilities and continuation of service of utilities, each right-of-way segment is assigned an additional Infrastructure Factor ( $K_i$ ) of 2; all residential parcels are assigned a  $K_i$  of 0.

The weighted values described above have been computed to reflect the relative importance of each factor in the judgment of the assessment engineer (ENGEO), then the resulting fractional value of the Geologic Assessment Factor is assigned to each parcel. Each fractional value is multiplied by the total annual assessment-based revenue required to support the GHAD budget to determine the respective assessment level for each parcel based on these factors. In overview, a right-of-way section within the Santiago landslide area will derive a greater special benefit and, therefore, is assessed a larger amount. A small-area residential parcel located well outside of the vicinity of the Santiago landslide receives lesser special benefit and is therefore assessed a lower amount. Other parcels will range between these extremes.

A financial analysis was performed to provide a framework for an operating budget for the ongoing abatement, mitigation, prevention, and control of geologic hazards within the GHAD. In preparation of the budget, several factors were considered, including the following.

- Site geology
- Site hydrogeology
- Proximity of geologic hazards to residences and improvements
- Improvements or structures
- Site access considerations
- Elements requiring routine maintenance

## **VI. ASSESSMENT – BUDGET**

The purpose of this Engineer's Report is to establish the assessment level and the apportionment of the assessment within the GHAD. Presuming the funding from FEMA and the local match from the community and the City of Anaheim are successfully secured within the next 2 fiscal years, it is intended that a new Engineer's Report would be prepared to reflect the GHAD's duties and corresponding budget following construction of the physical improvements. If the ballot measure associated with such new Engineer's Report fails, an annual budget would be prepared within the limits of this Engineer's Report in each subsequent fiscal year to apprise the GHAD Board of Directors of the estimated budget for the upcoming year with a recommendation of an appropriate levy to support those activities. A significant portion of the budget would be used to finance the community's contribution to the design and construction of the long-term structural repair of the Santiago landslide. Once this debt has been retired, all properties would receive some measure of groundwater seepage control, as described herein, and only the seepage-control portion of this assessment would be applied. If FEMA funding or the local match from the community and the City of Anaheim cannot be secured, the assessment proposed herein would expire at the end of FY 2025.

Based on the estimated critical baseline operational expenses, a budget was prepared for the purpose of estimating the revised assessment levels (Exhibit C).

This Engineer's Report has determined a unique assessment using the formula described above for each parcel. The assessment limits will be adjusted annually to reflect the percentage change in the Los Angeles-Long Beach-Anaheim Consumer Price Index (CPI) for All Urban Consumers. The assessment limit will be adjusted annually using an initial date of April 2023 for the CPI. An annual adjustment for FY 2025 will be calculated using the 12-month period from April to April. The assessments are to be levied beginning in the first assessment cycle of the fiscal year 2023-2024.

While the assumptions and estimated expenses listed in Exhibit C were used to determine the assessment levels for the GHAD, they do not represent the actual budget for any 1 year of the GHAD's operation. The Engineer anticipates that the projected expense amounts will be reached over time and that these amounts will be inflation-adjusted in the year that the expenses occur.

**EXHIBIT A**

**Site Plan to Accompany Assessor's Parcel Number  
and Assessment Limit List for  
Santiago GHAD**

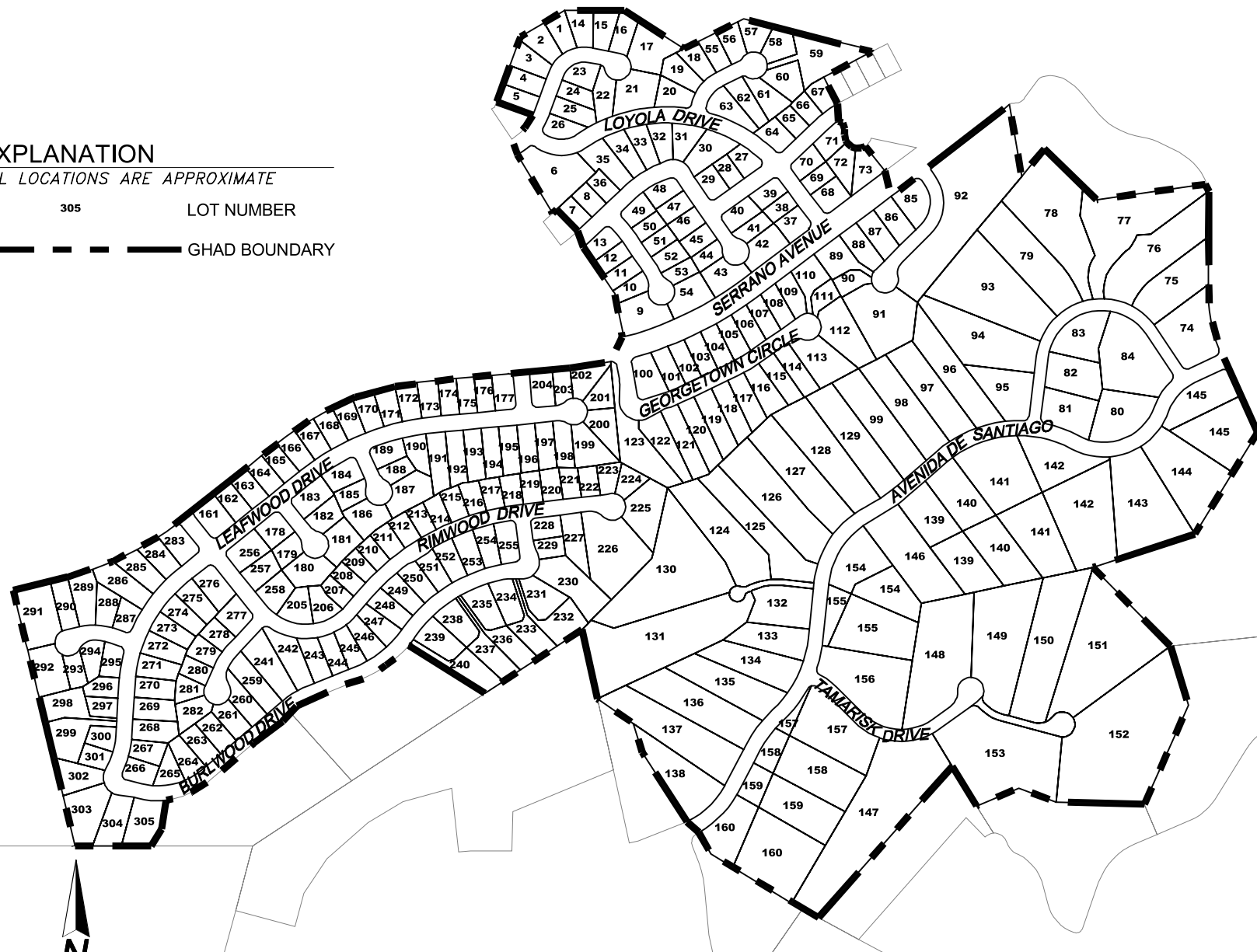
C:\Working\ORCA\IN22\_0wg\_13000\_Plan\14174.000\011519-Santiago\_APNs-000\14174000000-GHAD-1-PLAT\_APN-0119.dwg

### EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

305 LOT NUMBER

--- GHAD BOUNDARY



BASE MAP SOURCE: ORANGE COUNTY ASSESSOR'S OFFICE



SITE PLAN TO ACCOMPANY ASSESSOR'S PARCEL NUMBER AND ASSESSMENT LIMIT LIST  
SANTIAGO GEOLOGIC HAZARD ABATEMENT DISTRICT  
ANAHEIM, CALIFORNIA

PROJECT NO.: 14174.000.000

SCALE: AS SHOWN

DRAWN BY: GLJ

CHECKED BY: EWH

EXHIBIT

**A**

**EXHIBIT B**

**Assessor's Parcel Number and Assessment Limit List  
for Santiago GHAD**

			TOTAL ASSESSMENT
			\$ 306,800.00
			ASSESSMENT PER PARCEL
<b>APN</b>	<b>Lot No.</b>	<b>Site Address</b>	<b>2023</b>
CITY STREET	STREET	ASPENWOOD	\$ 1,463.02
CITY STREET	STREET	PINE CANYON	\$ 1,463.02
CITY STREET	STREET	FALLING LEAF	\$ 1,463.02
CITY STREET	STREET	SMOKEWOOD	\$ 1,463.02
CITY STREET	STREET	RIMWOOD	\$ 3,291.78
CITY STREET	STREET	BURLWOOD	\$ 1,463.02
CITY STREET	STREET	LEAFWOOD	\$ 1,463.02
CITY STREET	STREET	SERRANO	\$ 1,463.02
CITY STREET	STREET	LOYOLA #1	\$ 1,463.02
CITY STREET	STREET	LOYOLA #2	\$ 1,463.02
CITY STREET	STREET	KENTUCKY	\$ 1,463.02
CITY STREET	STREET	MICHIGAN	\$ 1,463.02
CITY STREET	STREET	VASSAR	\$ 1,463.02
CITY STREET	STREET	SWARTHMORE/LEHIGH	\$ 1,463.02
CITY STREET	STREET	RUTGERS	\$ 1,463.02
CITY STREET	STREET	GEORGETOWN	\$ 3,291.78
CITY STREET	STREET	WILLIAMS	\$ 2,194.52
CITY STREET	STREET	TAMARISK	\$ 2,194.52
CITY STREET	STREET	VIA EL ESTRIBO	\$ 2,194.52
CITY STREET	STREET	AVENIDA DE SANTIAGO #1	\$ 2,194.52
CITY STREET	STREET	AVENIDA DE SANTIAGO #2	\$ 3,291.78
365-101-01	1	6841 E KENTUCKY AVE	\$ 381.49
365-101-02	2	6831 E KENTUCKY AVE	\$ 426.82
365-101-03	3	6821 E KENTUCKY AVE	\$ 382.33
365-101-04	4	6811 E KENTUCKY AVE	\$ 397.62
365-101-05	5	6801 E KENTUCKY AVE	\$ 388.97
365-102-01	6	6796 E KENTUCKY AVE	\$ 413.24
365-102-20	7	6825 E SWARTHMORE DR	\$ 397.88
365-102-21	8	6835 E SWARTHMORE DR	\$ 378.12
365-103-01	9	993 S VASSAR CIR	\$ 403.37
365-103-02	10	983 S VASSAR CIR	\$ 394.55
365-103-03	11	973 S VASSAR CIR	\$ 372.59
365-103-04	12	963 S VASSAR CIR	\$ 406.03
365-103-05	13	953 S VASSAR CIR	\$ 381.14
365-111-01	14	6851 E KENTUCKY AVE	\$ 398.24
365-111-02	15	6871 E KENTUCKY AVE	\$ 395.19
365-111-03	16	6881 E KENTUCKY AVE	\$ 379.59
365-111-04	17	6891 E KENTUCKY AVE	\$ 419.05
365-111-05	18	6931 E MICHIGAN CIR	\$ 373.49
365-111-06	19	6911 E MICHIGAN CIR	\$ 368.44
365-111-07	20	6901 E MICHIGAN CIR	\$ 399.92
365-111-08	21	6890 E KENTUCKY AVE	\$ 422.78
365-111-09	22	6880 E KENTUCKY AVE	\$ 405.25
365-111-10	23	6850 E KENTUCKY AVE	\$ 398.82
365-111-11	24	6820 E KENTUCKY AVE	\$ 380.79

			ASSESSMENT PER PARCEL
APN	Lot No.	Site Address	2023
365-111-12	25	6810 E KENTUCKY AVE	\$ 370.89
365-111-13	26	6800 E KENTUCKY AVE	\$ 381.21
365-112-01	27	6891 E RUTGERS DR	\$ 396.89
365-112-02	28	6881 E RUTGERS DR	\$ 405.40
365-112-03	29	6871 E RUTGERS DR	\$ 372.88
365-112-04	30	934 S LEHIGH DR	\$ 399.53
365-112-05	31	914 S LEHIGH DR	\$ 395.27
365-112-06	32	6885 E SWARTHMORE DR	\$ 381.66
365-112-07	33	6875 E SWARTHMORE DR	\$ 407.49
365-112-08	34	6865 E SWARTHMORE DR	\$ 395.87
365-112-09	35	6855 E SWARTHMORE DR	\$ 415.86
365-112-10	36	6845 E SWARTHMORE DR	\$ 397.66
365-113-01	37	997 S LOYOLA DR	\$ 373.60
365-113-02	38	987 S LOYOLA DR	\$ 380.01
365-113-03	39	977 S LOYOLA DR	\$ 406.30
365-113-04	40	974 S LEHIGH DR	\$ 388.40
365-113-05	41	984 S LEHIGH DR	\$ 393.51
365-113-06	42	994 S LEHIGH DR	\$ 379.21
365-113-07	43	995 S LEHIGH DR	\$ 414.71
365-113-08	44	985 S LEHIGH DR	\$ 393.07
365-113-09	45	975 S LEHIGH DR	\$ 374.78
365-113-10	46	965 S LEHIGH DR	\$ 395.15
365-113-11	47	955 S LEHIGH DR	\$ 396.84
365-113-12	48	945 S LEHIGH DR	\$ 394.03
365-113-13	49	952 S VASSAR CIR	\$ 398.31
365-113-14	50	962 S VASSAR CIR	\$ 405.41
365-113-15	51	972 S VASSAR CIR	\$ 371.90
365-113-16	52	982 S VASSAR CIR	\$ 374.60
365-113-17	53	992 S VASSAR CIR	\$ 380.10
365-113-18	54	998 S VASSAR CIR	\$ 401.16
365-121-01	55	6941 E MICHIGAN CIR	\$ 381.07
365-121-02	56	6961 E MICHIGAN CIR	\$ 397.59
365-121-03	57	6971 E MICHIGAN CIR	\$ 412.40
365-121-04	58	6981 E MICHIGAN CIR	\$ 399.92
365-121-05	59	6990 E MICHIGAN CIR	\$ 409.95
365-121-06	60	6970 E MICHIGAN CIR	\$ 414.54
365-121-07	61	6960 E MICHIGAN CIR	\$ 369.03
365-121-08	62	6930 E MICHIGAN CIR	\$ 382.70
365-121-09	63	6910 E MICHIGAN CIR	\$ 401.05
365-121-10	64	6901 E RUTGERS DR	\$ 412.41
365-121-11	65	6909 E RUTGERS DR	\$ 404.97
365-121-12	66	6915 E RUTGERS DR	\$ 394.86
365-121-13	67	6923 E RUTGERS DR	\$ 378.22
365-122-01	68	990 S LOYOLA DR	\$ 373.74
365-122-02	69	980 S LOYOLA DR	\$ 380.27
365-122-03	70	970 S LOYOLA DR	\$ 372.63
365-122-04	71	971 S SCRIPPS CIR	\$ 412.13
365-122-05	72	981 S SCRIPPS CIR	\$ 399.51
365-122-06	73	991 S SCRIPPS CIR	\$ 407.92
365-201-01	74	6991 E VIA EL ESTRIBO	\$ 1,262.86



			ASSESSMENT PER PARCEL
APN	Lot No.	Site Address	2023
365-201-02	75	6985 E VIA EL ESTRIBO	\$ 1,201.35
365-201-03	76	6981 E VIA EL ESTRIBO	\$ 1,185.54
365-201-04	77	6975 E VIA EL ESTRIBO	\$ 1,212.22
365-201-06	78	6971 E VIA EL ESTRIBO	\$ 1,198.19
365-201-07	79	6965 E VIA EL ESTRIBO	\$ 1,181.40
365-202-01	80	6975 E AVENIDA DE SANTIAGO	\$ 1,243.95
365-202-02	81	6950 E VIA EL ESTRIBO	\$ 1,216.20
365-202-03	82	6960 E VIA EL ESTRIBO	\$ 1,199.76
365-202-04	83	6970 E VIA EL ESTRIBO	\$ 1,161.97
365-202-05	84	6990 E VIA EL ESTRIBO	\$ 1,243.94
365-211-01	85	6991 E WILLIAMS CIR	\$ 1,129.15
365-211-02	86	6971 E WILLIAMS CIR	\$ 1,132.00
365-211-03	87	6951 E WILLIAMS CIR	\$ 1,145.37
365-211-04	88	6931 E WILLIAMS CIR	\$ 1,130.85
365-211-05	89	6921 E WILLIAMS CIR	\$ 2,227.69
365-211-06	90	6911 E WILLIAMS CIR	\$ 2,240.00
365-211-07	91	6901 E WILLIAMS CIR	\$ 2,243.96
365-211-08	92	6950 E WILLIAMS CIR	\$ 1,163.88
365-211-09	93	6961 E VIA EL ESTRIBO	\$ 1,292.72
365-211-10	94	6955 E VIA EL ESTRIBO	\$ 1,243.61
365-211-11	95	6951 E VIA EL ESTRIBO	\$ 1,295.21
365-211-12	96	6949 E AVENIDA DE SANTIAGO	\$ 2,302.18
365-211-13	97	6943 E AVENIDA DE SANTIAGO	\$ 2,269.08
365-211-14	98	6937 E AVENIDA DE SANTIAGO	\$ 2,269.75
365-211-15	99	6931 E AVENIDA DE SANTIAGO	\$ 2,290.42
365-221-01	100	6807 E GEORGETOWN CIR	\$ 2,243.74
365-221-02	101	6815 E GEORGETOWN CIR	\$ 2,241.06
365-221-03	102	6823 E GEORGETOWN CIR	\$ 2,222.49
365-221-04	103	6831 E GEORGETOWN CIR	\$ 2,231.60
365-221-05	104	6839 E GEORGETOWN CIR	\$ 2,240.94
365-221-06	105	6849 E GEORGETOWN CIR	\$ 2,226.53
365-221-07	106	6857 E GEORGETOWN CIR	\$ 2,240.87
365-221-08	107	6865 E GEORGETOWN CIR	\$ 2,240.78
365-221-09	108	6873 E GEORGETOWN CIR	\$ 2,226.24
365-221-10	109	6881 E GEORGETOWN CIR	\$ 2,238.44
365-221-11	110	6889 E GEORGETOWN CIR	\$ 2,226.51
365-221-12	111	6895 E GEORGETOWN CIR	\$ 2,225.56
365-221-13	112	6890 E GEORGETOWN CIR	\$ 2,220.68
365-221-14	113	6872 E GEORGETOWN CIR	\$ 2,233.24
365-221-15	114	6864 E GEORGETOWN CIR	\$ 2,209.71
365-221-16	115	6856 E GEORGETOWN CIR	\$ 2,205.46
365-221-17	116	6848 E GEORGETOWN CIR	\$ 2,230.01
365-221-18	117	6840 E GEORGETOWN CIR	\$ 2,228.46
365-221-19	118	6832 E GEORGETOWN CIR	\$ 2,246.45
365-221-20	119	6824 E GEORGETOWN CIR	\$ 2,231.70
365-221-21	120	6816 E GEORGETOWN CIR	\$ 2,212.10
365-221-22	121	6808 E GEORGETOWN CIR	\$ 2,240.33
365-221-23	122	6800 E GEORGETOWN CIR	\$ 2,231.51
365-221-24	123	NO ADDRESS	\$ 2,209.26
365-221-25	124	6899 E AVENIDA DE SANTIAGO	\$ 2,332.47

			ASSESSMENT PER PARCEL
APN	Lot No.	Site Address	2023
365-221-26	125	6901 E AVENIDA DE SANTIAGO	\$ 2,304.31
365-221-27	126	6907 E AVENIDA DE SANTIAGO	\$ 2,369.14
365-221-28	127	6913 E AVENIDA DE SANTIAGO	\$ 2,297.97
365-221-29	128	6919 E AVENIDA DE SANTIAGO	\$ 2,272.95
365-221-30	129	6925 E AVENIDA DE SANTIAGO	\$ 2,296.27
365-231-01	130	6891 E AVENIDA DE SANTIAGO	\$ 2,308.18
365-231-02	131	6881 E AVENIDA DE SANTIAGO	\$ 2,343.02
365-231-03	132	6871 E AVENIDA DE SANTIAGO	\$ 2,274.25
365-231-04	133	6861 E AVENIDA DE SANTIAGO	\$ 2,328.17
365-231-05	134	6851 E AVENIDA DE SANTIAGO	\$ 2,319.58
365-231-06	135	6841 E AVENIDA DE SANTIAGO	\$ 2,328.80
365-231-07	136	6831 E AVENIDA DE SANTIAGO	\$ 2,288.20
365-231-08	137	6821 E AVENIDA DE SANTIAGO	\$ 1,240.63
365-231-09	138	6811 E AVENIDA DE SANTIAGO	\$ 1,246.51
365-401-03; -04	139	6930 E AVE DE SANTIAGO	\$ 2,360.90
365-401-05; -06	140	6940 E AVENIDA DE SANTIAGO	\$ 1,201.09
365-401-07; -08	141	6950 E AVE DE SANTIAGO	\$ 1,270.13
365-401-09; -10	142	6960 E AVENIDA DE SANTIAGO	\$ 1,234.40
365-401-11	143	6970 E AVE DE SANTIAGO	\$ 1,249.18
365-401-12	144	6980 E AVENIDA DE SANTIAGO	\$ 1,275.42
365-401-13; -14	145	6990 E AVE DE SANTIAGO	\$ 1,185.84
365-401-16	146	6920 E AVENIDA DE SANTIAGO	\$ 2,340.90
365-431-01	147	1125 S TAMARISK DR	\$ 1,444.64
365-441-01	148	1130 S TAMARISK DR	\$ 1,254.07
365-441-02	149	1150 S TAMARISK DR	\$ 1,251.36
365-441-03	150	1160 S TAMARISK DR	\$ 1,260.45
365-441-04	151	1180 S TAMARISK DR	\$ 1,316.06
365-441-05	152	1190 S TAMARISK DR	\$ 1,320.98
365-441-06	153	1145 S TAMARISK DR	\$ 1,294.58
365-451-01; -02	154	6912 E AVENIDA DE SANTIAGO	\$ 2,369.91
365-451-03; -04	155	6906 E AVE DE SANTIAGO	\$ 2,345.63
365-451-05	156	1110 S TAMARISK DR	\$ 1,261.19
365-451-06; -07	157	6860 E AVE DE SANTIAGO	\$ 1,238.45
365-451-08; -09	158	6840 E AVE DE SANTIAGO	\$ 1,179.61
365-451-10; -11	159	6820 E AVE DE SANTIAGO	\$ 1,262.96
365-451-12; -13	160	6810 E AVE DE SANTIAGO	\$ 1,265.00
368-021-01	161	6701 E LEAFWOOD DR	\$ 382.53
368-021-02	162	6705 E LEAFWOOD DR	\$ 389.49
368-021-03	163	6709 E LEAFWOOD DR	\$ 390.99
368-021-04	164	6713 E LEAFWOOD DR	\$ 380.41
368-021-05	165	6717 E LEAFWOOD DR	\$ 389.00
368-021-06	166	6721 E LEAFWOOD DR	\$ 390.94
368-021-07	167	6725 E LEAFWOOD DR	\$ 397.71
368-021-08	168	6729 E LEAFWOOD DR	\$ 401.46
368-021-09	169	6733 E LEAFWOOD DR	\$ 401.52
368-021-10	170	6737 E LEAFWOOD DR	\$ 397.73
368-021-11	171	6741 E LEAFWOOD DR	\$ 399.91
368-021-12	172	6745 E LEAFWOOD DR	\$ 381.07
368-021-13	173	6749 E LEAFWOOD DR	\$ 401.41
368-021-14	174	6753 E LEAFWOOD DR	\$ 395.09

			ASSESSMENT PER PARCEL
APN	Lot No.	Site Address	2023
368-021-15	175	6757 E LEAFWOOD DR	\$ 388.72
368-021-16	176	6761 E LEAFWOOD DR	\$ 406.33
368-021-17	177	6765 E LEAFWOOD DR	\$ 400.55
368-022-01	178	1041 S PINE CANYON CIR	\$ 381.16
368-022-02	179	1051 S PINE CANYON CIR	\$ 397.12
368-022-03	180	1061 S PINE CANYON CIR	\$ 401.93
368-022-04	181	1060 S PINE CANYON CIR	\$ 400.44
368-022-05	182	1050 S PINE CANYON CIR	\$ 401.94
368-022-06	183	1040 S PINE CANYON CIR	\$ 403.02
368-022-07	184	1041 S FALLING LEAF CIR	\$ 402.38
368-022-08	185	1051 S FALLING LEAF CIR	\$ 388.52
368-022-09	186	1061 S FALLING LEAF CIR	\$ 404.45
368-022-10	187	1060 S FALLING LEAF CIR	\$ 406.09
368-022-11	188	1050 S FALLING LEAF CIR	\$ 396.59
368-022-12	189	1040 S FALLING LEAF CIR	\$ 382.10
368-022-13	190	6746 E LEAFWOOD DR	\$ 397.87
368-022-14	191	6750 E LEAFWOOD DR	\$ 404.16
368-022-15	192	6754 E LEAFWOOD DR	\$ 399.45
368-022-16	193	6758 E LEAFWOOD DR	\$ 381.88
368-022-17	194	6762 E LEAFWOOD DR	\$ 402.70
368-022-18	195	6768 E LEAFWOOD DR	\$ 402.55
368-022-19	196	6774 E LEAFWOOD DR	\$ 390.30
368-022-20	197	6780 E LEAFWOOD DR	\$ 390.29
368-022-21	198	6786 E LEAFWOOD DR	\$ 398.35
368-022-22	199	6792 E LEAFWOOD DR	\$ 2,234.82
368-022-23	200	6798 E LEAFWOOD DR	\$ 2,247.64
368-022-24	201	6799 E LEAFWOOD DR	\$ 1,112.61
368-022-25	202	6793 E LEAFWOOD DR	\$ 390.45
368-022-26	203	6787 E LEAFWOOD DR	\$ 388.42
368-022-27	204	6781 E LEAFWOOD DR	\$ 381.24
368-031-01	205	1022 S RIMWOOD DR	\$ 404.80
368-031-02	206	1026 S RIMWOOD DR	\$ 380.74
368-031-03	207	1030 S RIMWOOD DR	\$ 387.83
368-031-04	208	1034 S RIMWOOD DR	\$ 396.45
368-031-05	209	1038 S RIMWOOD DR	\$ 396.40
368-031-06	210	1042 S RIMWOOD DR	\$ 388.29
368-031-07	211	1046 S RIMWOOD DR	\$ 379.86
368-031-08	212	1050 S RIMWOOD DR	\$ 401.35
368-031-09	213	1054 S RIMWOOD DR	\$ 396.36
368-031-10	214	1058 S RIMWOOD DR	\$ 396.34
368-031-11	215	1062 S RIMWOOD DR	\$ 400.72
368-031-12	216	1066 S RIMWOOD DR	\$ 379.43
368-031-13	217	1070 S RIMWOOD DR	\$ 412.01
368-031-14	218	1074 S RIMWOOD DR	\$ 379.64
368-031-15	219	1078 S RIMWOOD DR	\$ 400.56
368-031-16	220	1082 S RIMWOOD DR	\$ 400.72
368-031-17	221	1086 S RIMWOOD DR	\$ 2,217.00
368-031-18	222	1090 S RIMWOOD DR	\$ 2,223.16
368-031-19	223	1094 S RIMWOOD DR	\$ 2,229.34
368-031-20	224	1098 S RIMWOOD DR	\$ 2,229.75

			ASSESSMENT PER PARCEL
APN	Lot No.	Site Address	2023
368-031-21	225	1099 S RIMWOOD DR	\$ 2,235.24
368-031-22	226	1093 S RIMWOOD DR	\$ 2,253.20
368-031-23	227	1087 S RIMWOOD DR	\$ 2,212.29
368-031-24	228	1099 S BURLWOOD DR	\$ 388.78
368-031-25	229	1097 S BURLWOOD DR	\$ 2,225.15
368-031-26	230	1095 S BURLWOOD DR	\$ 2,241.61
368-031-27	231	1093 S BURLWOOD DR	\$ 2,244.55
368-031-28	232	1091 S BURLWOOD DR	\$ 2,236.66
368-031-29	233	1089 S BURLWOOD DR	\$ 400.10
368-031-30	234	1085 S BURLWOOD DR	\$ 391.32
368-031-31	235	1081 S BURLWOOD DR	\$ 404.32
368-031-32	236	1077 S BURLWOOD DR	\$ 404.81
368-031-33	237	1075 S BURLWOOD DR	\$ 405.07
368-031-34	238	1071 S BURLWOOD DR	\$ 383.28
368-031-35	239	1063 S BURLWOOD DR	\$ 404.74
368-031-36	240	1059 S BURLWOOD DR	\$ 407.49
368-032-01	241	1036 S BURLWOOD DR	\$ 405.67
368-032-02	242	1040 S BURLWOOD DR	\$ 393.90
368-032-03	243	1044 S BURLWOOD DR	\$ 390.45
368-032-04	244	1048 S BURLWOOD DR	\$ 389.06
368-032-05	245	1052 S BURLWOOD DR	\$ 397.47
368-032-06	246	1056 S BURLWOOD DR	\$ 402.11
368-032-07	247	1060 S BURLWOOD DR	\$ 381.20
368-032-08	248	1064 S BURLWOOD DR	\$ 390.27
368-032-09	249	1068 S BURLWOOD DR	\$ 401.92
368-032-10	250	1072 S BURLWOOD DR	\$ 381.03
368-032-11	251	1076 S BURLWOOD DR	\$ 397.57
368-032-12	252	1080 S BURLWOOD DR	\$ 401.89
368-032-13	253	1084 S BURLWOOD DR	\$ 381.28
368-032-14	254	1088 S BURLWOOD DR	\$ 401.90
368-032-15	255	1090 S BURLWOOD DR	\$ 398.57
368-041-01	256	1010 S RIMWOOD DR	\$ 399.80
368-041-02	257	1014 S RIMWOOD DR	\$ 381.33
368-041-03	258	1018 S RIMWOOD DR	\$ 397.10
368-042-01	259	1032 S BURLWOOD DR	\$ 405.53
368-042-02	260	1028 S BURLWOOD DR	\$ 399.24
368-042-03	261	1024 S BURLWOOD DR	\$ 381.05
368-042-04	262	1020 S BURLWOOD DR	\$ 401.84
368-042-05	263	1016 S BURLWOOD DR	\$ 406.25
368-042-06	264	1012 S BURLWOOD DR	\$ 401.95
368-042-07	265	1008 S BURLWOOD DR	\$ 401.69
368-042-08	266	6608 E LEAFWOOD DR	\$ 397.55
368-042-09	267	6616 E LEAFWOOD DR	\$ 389.09
368-042-10	268	6624 E LEAFWOOD DR	\$ 404.39
368-042-11	269	6632 E LEAFWOOD DR	\$ 402.79
368-042-12	270	6640 E LEAFWOOD DR	\$ 415.10
368-042-13	271	6648 E LEAFWOOD DR	\$ 402.37
368-042-14	272	6656 E LEAFWOOD DR	\$ 381.59
368-042-15	273	6664 E LEAFWOOD DR	\$ 398.18
368-042-16	274	6672 E LEAFWOOD DR	\$ 402.56

			ASSESSMENT PER PARCEL
APN	Lot No.	Site Address	2023
368-042-17	275	6680 E LEAFWOOD DR	\$ 398.79
368-042-18	276	6690 E LEAFWOOD DR	\$ 391.47
368-042-19	277	6691 E SMOKEWOOD CIR	\$ 391.68
368-042-20	278	6681 E SMOKEWOOD CIR	\$ 388.67
368-042-21	279	6661 E SMOKEWOOD CIR	\$ 388.58
368-042-22	280	6651 E SMOKEWOOD CIR	\$ 396.61
368-042-23	281	6631 E SMOKEWOOD CIR	\$ 396.66
368-042-24	282	6621 E SMOKEWOOD CIR	\$ 402.21
368-043-01	283	6691 E LEAFWOOD DR	\$ 399.01
368-043-02	284	6683 E LEAFWOOD DR	\$ 381.44
368-043-03	285	6675 E LEAFWOOD DR	\$ 403.63
368-043-04	286	6667 E LEAFWOOD DR	\$ 405.74
368-043-05	287	1024 S ASPENWOOD CIR	\$ 379.68
368-043-06	288	1018 S ASPENWOOD CIR	\$ 401.99
368-043-07	289	1012 S ASPENWOOD CIR	\$ 404.97
368-043-08	290	1006 S ASPENWOOD CIR	\$ 400.20
368-043-09	291	1000 S ASPENWOOD CIR	\$ 412.81
368-043-10	292	1001 S ASPENWOOD CIR	\$ 405.70
368-043-11	293	1007 S ASPENWOOD CIR	\$ 388.41
368-043-12	294	1015 S ASPENWOOD CIR	\$ 401.46
368-043-13	295	1021 S ASPENWOOD CIR	\$ 403.86
368-043-14	296	6639 E LEAFWOOD DR	\$ 397.00
368-043-15	297	6631 E LEAFWOOD DR	\$ 396.64
368-043-16	298	6625 E LEAFWOOD DR	\$ 405.96
368-043-17	299	6623 E LEAFWOOD DR	\$ 408.14
368-043-18	300	6619 E LEAFWOOD DR	\$ 388.48
368-043-19	301	6609 E LEAFWOOD DR	\$ 388.49
368-043-20	302	6601 E LEAFWOOD DR	\$ 410.07
368-043-21	303	1001 S BURLWOOD DR	\$ 406.67
368-043-22	304	1003 S BURLWOOD DR	\$ 393.74
368-043-23	305	1005 S BURLWOOD DR	\$ 386.74
			\$ 306,800.00

**EXHIBIT C**

**Santiago GHAD Budget**

**EXHIBIT C**

**Santiago Geologic Hazard Abatement District  
Santiago Development  
Budget – June 2023**

**ASSUMPTIONS**

Total Number of Assessed Parcels/Street Units	326
Annual Adjustment in Assessment (estimated)	2%
Inflation (estimated)	2%
Investment Earnings (estimated)	1%
Frequency of Large-Scale Well Work (years)	40
Cost of Well Replacement (current \$)	\$3,217,500

**ESTIMATED ANNUAL EXPENSES IN FY 2022/23 DOLLARS**

Wells – Major Replacement (annualized)	\$0
Utilities Electric	\$18,000
Well Maintenance and Monitoring	\$154,500
Geology and Monitoring	\$25,000
Maintenance of Connector Pipes to Public Storm Drain	\$10,000
Seepage Management	\$20,000
Site Monitoring Program	\$0
Monitoring Well and Piezometer Replacement (Annualized)	\$0
Horizontal Drains (Annualized)	\$0
Inclinometer and Pedestal Replacement (Annualized)	\$0
Administration and Accounting	\$50,000
County Fees	\$1,409
Miscellaneous & Contingency (10%)	\$27,891
<b>Total</b>	<b><u>\$306,800</u></b>