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# **Appendix E-2**

## Geotechnical Report Update 1



# UPDATE GEOTECHNICAL REPORT

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## PASEO MONTRIL SAN DIEGO, CALIFORNIA



**GEOCON**  
INCORPORATED

GEOTECHNICAL  
ENVIRONMENTAL  
MATERIALS

PREPARED FOR

**PARDEE HOMES  
SAN DIEGO, CALIFORNIA**

**MARCH 2, 2020  
PROJECT NO. G2209-42-01**



Project No. G2209-42-01  
March 2, 2020

Pardee Homes  
13400 Sabre Springs Parkway, Suite 200  
San Diego, California 92128

Attention: Ms. April Tornillo

Subject: UPDATE GEOTECHNICAL REPORT  
PASEO MONTRIL  
SAN DIEGO, CALIFORNIA

- Reference:
1. *Geotechnical Investigation, Paseo Montril, San Diego, California*, prepared by Geocon Incorporated, dated January 5, 2017 (Project No. G2209-42-01).
  2. *Paseo Montril Vesting Tentative Map, City of San Diego*, prepared by Civil Sense, Inc., undated.

Dear Ms. Tornillo:

In accordance with your request, we prepared this update to the referenced geotechnical investigation. The building locations and proposed improvements to the site have been modified subsequent to issuing Reference 1. This update provides a revised geologic map utilizing a CAD file of reference 2 as the base map to plot boring and trench locations and geologic contacts. We are also providing updated seismic design parameters in conformance with the 2019 California Building Code (CBC).

Based on the referenced tentative map, the site will be graded to construct 6 multi-story multi-family apartment buildings. Retaining walls and slopes are planned along the perimeter of the property and in the interior of the property. Retaining walls with heights of 10 feet or less are planned. A 1.5:1 (horizontal to vertical) cut slope with a height of approximately 60 feet will be constructed in the native bedrock on the northeast side of the property. Fill slopes with an inclination of 2:1 and heights up to approximately 30 feet will be constructed on the property. An updated Geologic Map is provided on Figure 1. Updated cross-sections are provided on Figures 2 and 3.

## RECOMMENDATIONS

The recommendations of the referenced geotechnical investigation that are not specifically updated in this letter remain applicable to the design and construction of the project.

## 1.0 Seismic Design Criteria – 2019 California Building Code

1.1 Table 1.1 summarizes site-specific design criteria obtained from the 2019 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. We used the computer program *Seismic Design Maps*, provided by the Structural Engineers Association (SEA) to calculate the seismic design parameters. The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2019 CBC and Table 20.3-1 of ASCE 7-16. The values presented herein are for the risk-targeted maximum considered earthquake ( $MCE_R$ ) for Site Classes B and C. Site Class B should be used for building pads underlain by compacted fill that is 10 feet or less overlying metamorphic rock. Site Class C should be used for building pads underlain by compacted fill between 10 feet and 35 feet thick overlying metamorphic rock.

**TABLE 1.1  
2019 CBC SEISMIC DESIGN PARAMETERS**

Parameter	Value		2019 CBC Reference
	B	C	
Site Class	B	C	Section 1613.2.2
Fill Thickness, T (feet)	$0 < T \leq 10$	$10 < T \leq 35$	--
$MCE_R$ Ground Motion Spectral Response Acceleration – Class B (short), $S_S$	0.818g	0.818g	Figure 1613.2.1(1)
$MCE_R$ Ground Motion Spectral Response Acceleration – Class B (1 sec), $S_1$	0.301g	0.301g	Figure 1613.2.1(2)
Site Coefficient, $F_A$	0.900	1.200	Table 1613.2.3(1)
Site Coefficient, $F_V$	0.800	1.500	Table 1613.2.3(2)
Site Class Modified $MCE_R$ Spectral Response Acceleration (short), $S_{MS}$	0.737g	0.982g	Section 1613.2.3 (Eqn 16-36)
Site Class Modified $MCE_R$ Spectral Response Acceleration – (1 sec), $S_{M1}$	0.241g	0.452g	Section 1613.2.3 (Eqn 16-37)
5% Damped Design Spectral Response Acceleration (short), $S_{DS}$	0.491g	0.655g	Section 1613.2.4 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), $S_{D1}$	0.161g	0.301g	Section 1613.2.4 (Eqn 16-39)

1.2 The project structural engineer and architect should evaluate the appropriate Risk Category and Seismic Design Category for the planned structures. The values presented herein assume a Risk Category of II and resulting in a Seismic Design Category D.

1.3 Table 1.2 presents the mapped maximum considered geometric mean ( $MCE_G$ ) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

**TABLE 1.2**  
**ASCE 7-16 PEAK GROUND ACCELERATION**

Parameter	Value		ASCE 7-16 Reference
	B	C	
Site Class	B	C	Section 1613.2.2 (2019 CBC)
Mapped $MCE_G$ Peak Ground Acceleration, $PGA$	0.351g	0.351g	Figure 22-7
Site Coefficient, $F_{PGA}$	0.900	1.200	Table 11.8-1
Site Class Modified $MCE_G$ Peak Ground Acceleration, $PGA_M$	0.316g	0.422g	Section 11.8.3 (Eqn 11.8-1)

1.4 Conformance to the criteria in Tables 1.1 and 1.2 for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

## **2.0 Seismic Load on Retaining Walls**

2.1 The structural engineer should determine the seismic design category for the project in accordance with Section 1613 of the CBC. If the project possesses a seismic design category of D, E, or F, retaining walls that support more than 6 feet of backfill should be designed with seismic lateral pressure in accordance with Section 18.3.5.12 of the 2016 CBC. The seismic load is dependent on the retained height where  $H$  is the height of the wall, in feet, and the calculated loads result in pounds per square foot (psf) exerted at the base of the wall and zero at the top of the wall. A seismic load of  $15H$  should be used for design. We used the peak ground acceleration adjusted for Site Class effects,  $PGA_M$ , of 0.422g calculated from ASCE 7-10 Section 11.8.3 and applied a pseudo-static coefficient of 0.33.

## **3.0 Site Drainage and Moisture Protection**

3.1 Adequate site drainage is critical to reduce the potential for differential soil movement, erosion and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2019 CBC 1804.4 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into conduits that carry runoff away from the proposed structure.

3.2 In the case of basement walls or building walls retaining landscaping areas, a water-proofing system should be used on the wall and joints, and a Miradrain drainage panel (or similar) should be placed over the waterproofing. The project architect or civil engineer should provide detailed specifications on the plans for all waterproofing and drainage.

- 3.3 Underground utilities should be leak free. Utility and irrigation lines should be checked periodically for leaks, and detected leaks should be repaired promptly. Detrimental soil movement could occur if water is allowed to infiltrate the soil for prolonged periods of time.
- 3.4 Landscaping planters adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. We recommend that subdrains to collect excess irrigation water and transmit it to drainage structures or impervious above-grade planter boxes be used. In addition, where landscaping is planned adjacent to the pavement, we recommend construction of a cutoff wall along the edge of the pavement that extends at least 6 inches below the bottom of the base material.

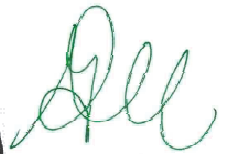
Should you have any questions regarding this letter, or if we may be of further service, please contact the undersigned at your convenience.

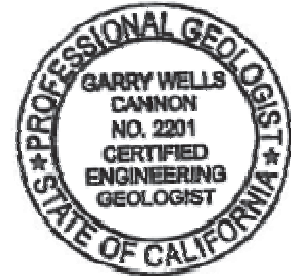
Very truly yours,

GEOCON INCORPORATED

  
Rodney C. Mikesell  
GE 2533



  
Garry W. Cannon  
CEG 2201  
RCE 56468

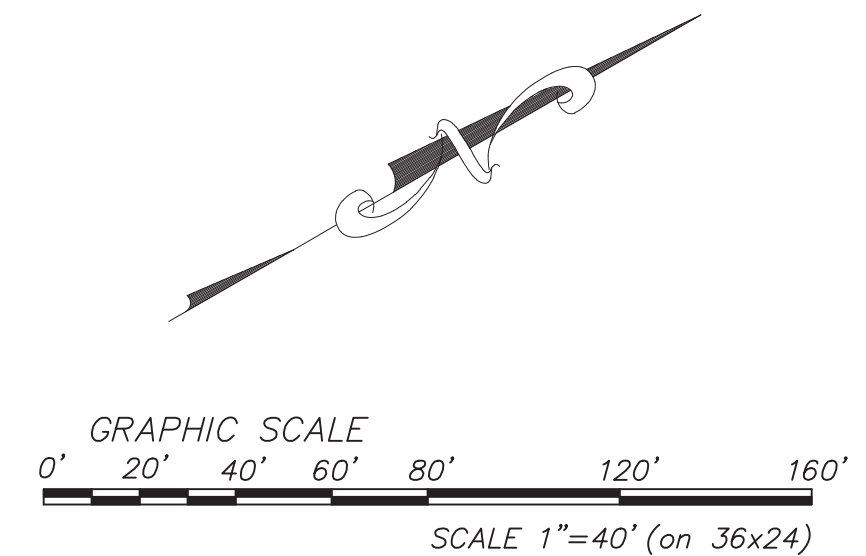


RCM:GWC:arm

(e-mail) Addressee  
(e-mail) Civil Sense, Inc.  
Attention: Ms. Maykia Vang



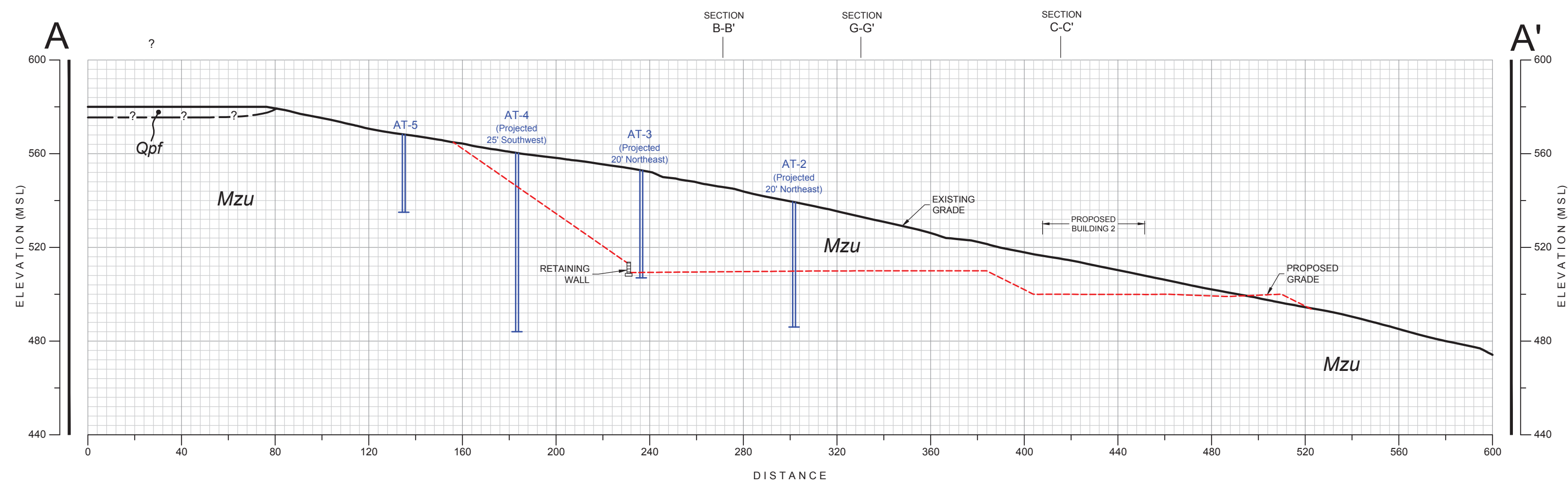




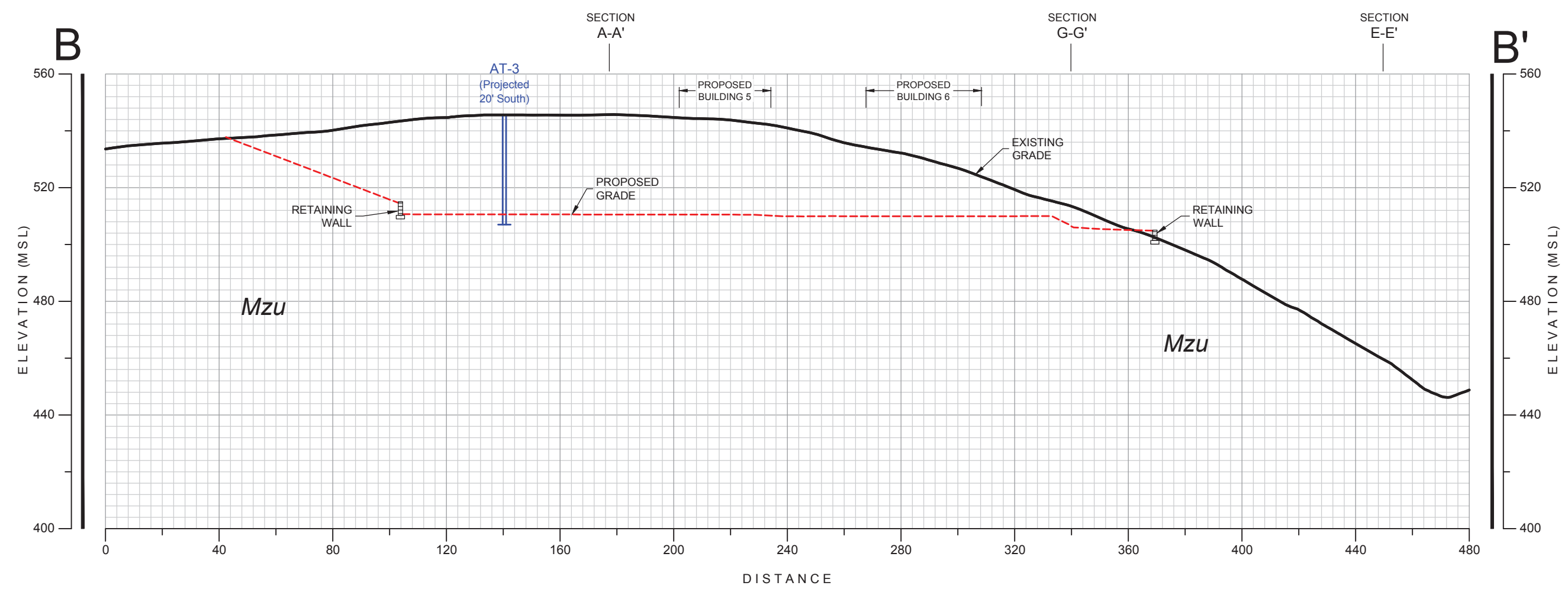
- GEOCON LEGEND**
- Qpf .....PREVIOUSLY PLACED FILL
  - Qal .....ALLUVIUM
  - Qudf .....UNDOCUMENTED FILL
  - Mzu .....METAMORPHIC ROCK
  - ~ ..... APPROX. LOCATION OF GEOLOGIC CONTACT  
(Queried Where Uncertain)
  - T-4 ..... APPROX. LOCATION OF TRENCH
  - AT-6 ..... APPROX. LOCATION OF AIR TRACK BORING
  - (+17) ..... APPROX. DEPTH TO BEDROCK
  - [15] ..... APPROX. DEPTH OF RIPPABLE MATERIAL BASED ON  
PENETRATION RATE OF 20 SPF
  - 6 ..... APPROX. LOCATION OF GEOLOGIC CROSS SECTION

<b>GEOLOGIC MAP</b>		
PASEO MONTRIL SAN DIEGO, CALIFORNIA		
<b>GEOCON</b> INCORPORATED <small>GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS 6940 SANDERS DRIVE ■ SAN DIEGO, CALIFORNIA 92121-2974 PHONE 858.558.4900 ■ FAX 858.558.4159</small>	SCALE 1" = 40" PROJECT NO. G2209 - 42 - 01 SHEET 1 OF 1	DATE 03 - 02 - 2020 FIGURE 1

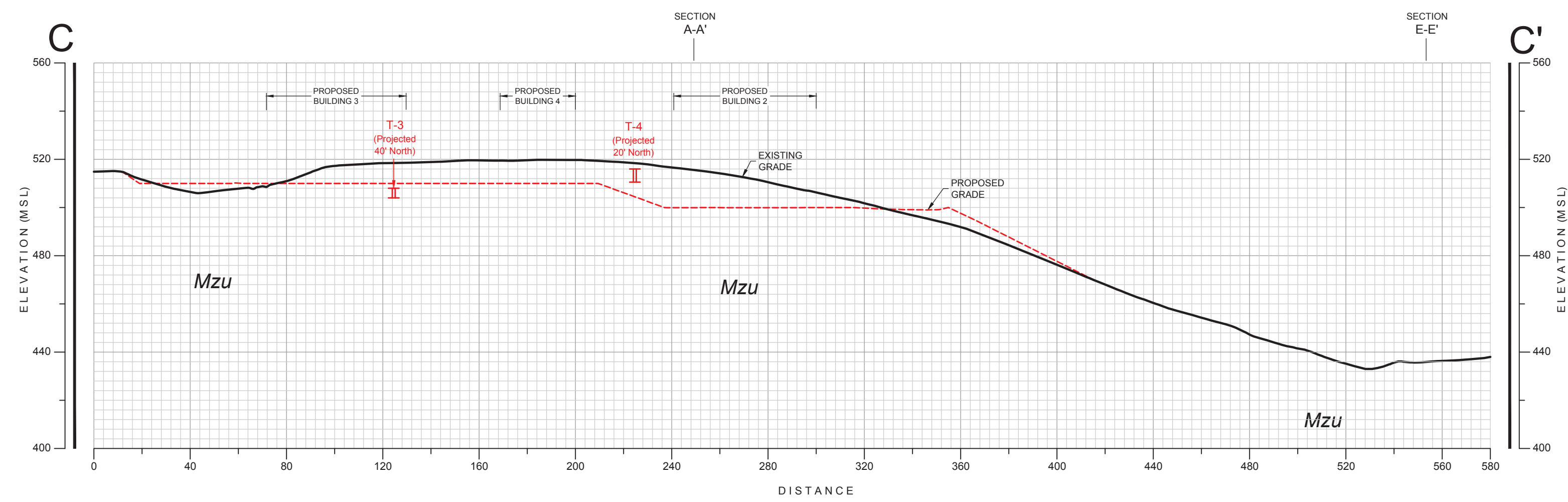




**GEOLOGIC CROSS-SECTION A-A'**  
SCALE: 1" = 40' (Vert. = Horiz.)



**GEOLOGIC CROSS-SECTION B-B'**  
SCALE: 1" = 40' (Vert. = Horiz.)



**GEOLOGIC CROSS-SECTION C-C'**  
SCALE: 1" = 40' (Vert. = Horiz.)

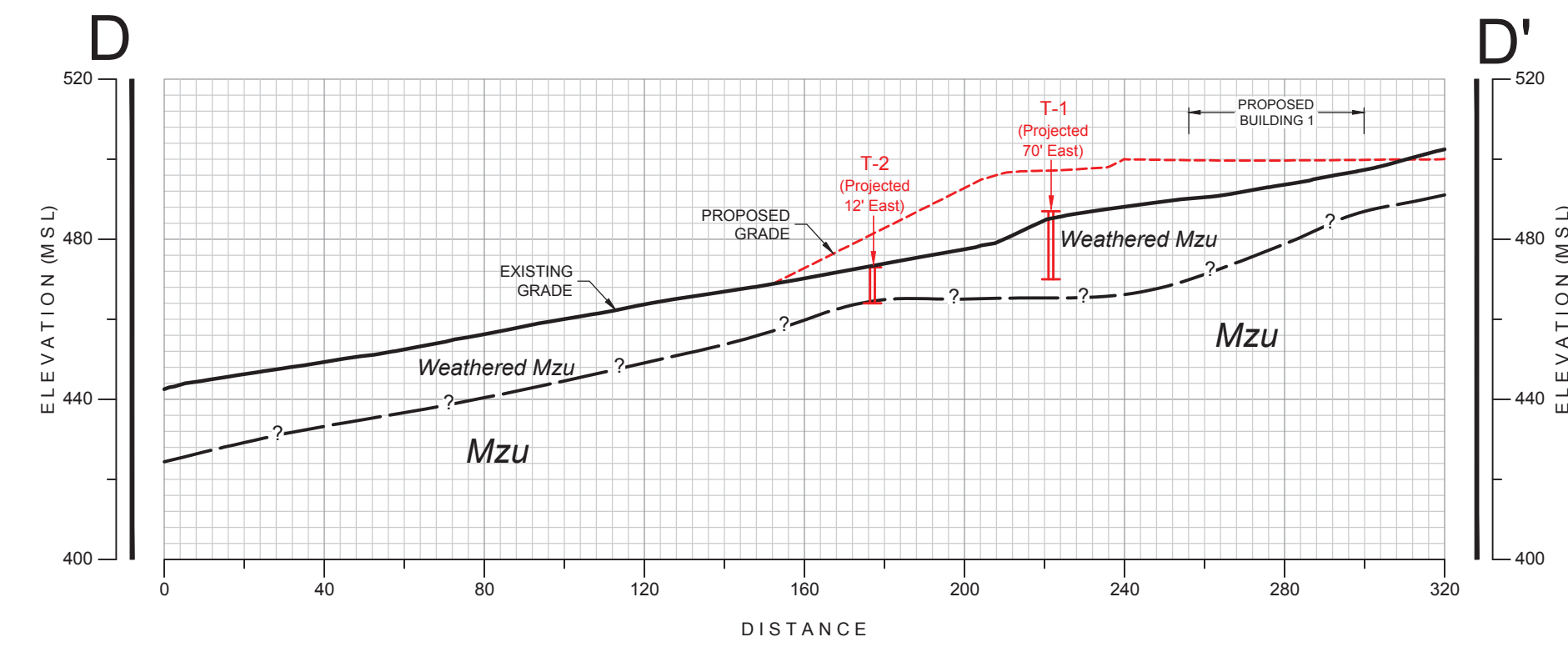
- GEOCON LEGEND**
- Qpf* ..... PREVIOUSLY PLACED FILL
  - Qal* ..... ALLUVIUM
  - Qudf* ..... UNDOCUMENTED FILL
  - Mzu* ..... METAMORPHIC ROCK
  - T-4 ..... APPROX. LOCATION OF TRENCH
  - AT-6 ..... APPROX. LOCATION OF AIR TRACK BORING
  - ~ ..... APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)

**GEOLOGIC CROSS SECTIONS**  
PASEO MONTRIL  
SAN DIEGO, CALIFORNIA

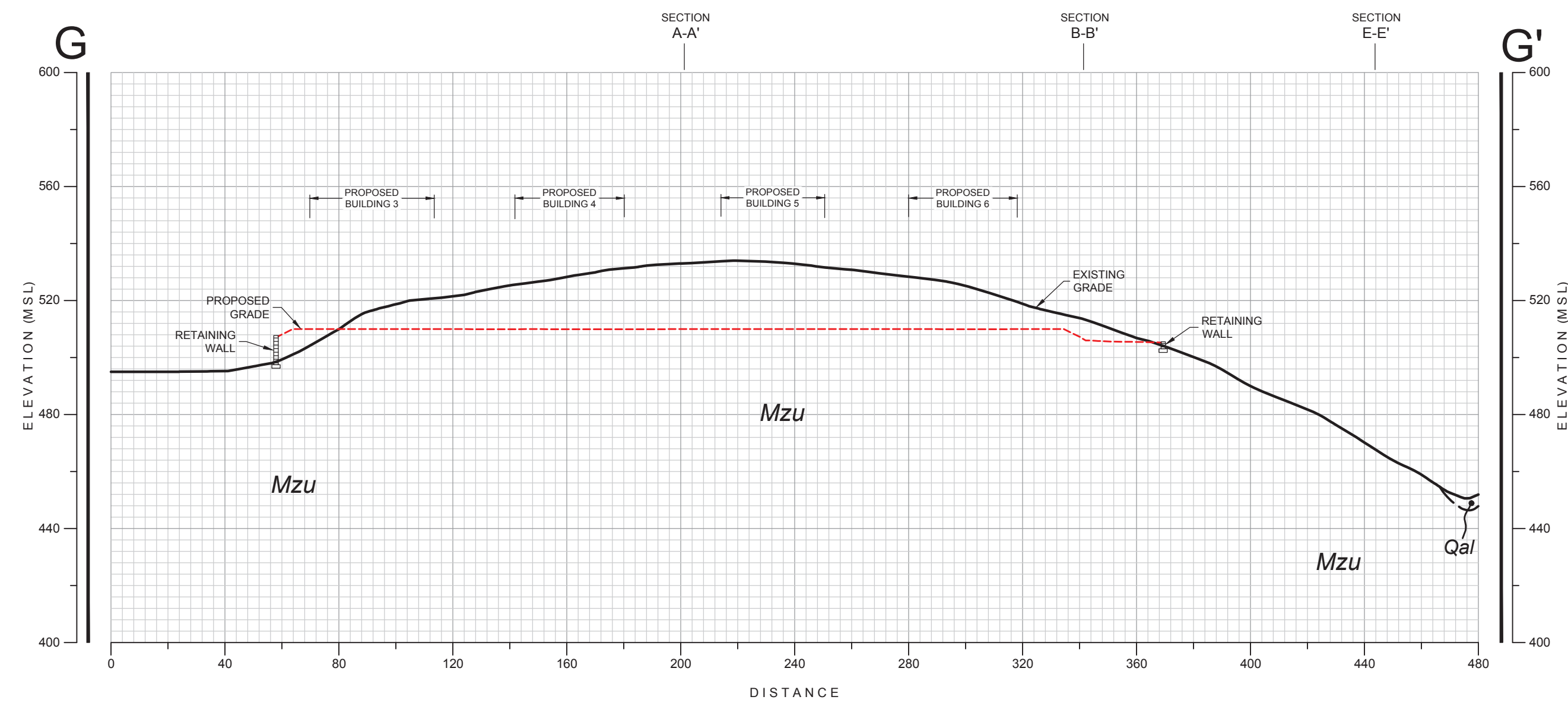
<b>GEOCON</b> INCORPORATED GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS 6940 RANDERS DRIVE ■ SAN DIEGO, CALIFORNIA 92121-2974 PHONE 858.558.4900 ■ FAX 858.558.4159	SCALE 1" = 40'	DATE 03 - 02 - 2020	FIGURE <b>2</b>
	PROJECT NO. G2209 - 42 - 01	SHEET 1 OF 2	

Plotfile: G:\2209\2020\9\05AM\1 (By: ALVIN LADRILLON) | File Location: Y:\PROJECTS\G2209-42-01 (Paseo Montril)\SHEET\G2209-42-01.XSection (2020-03-02).dgn





**GEOLOGIC CROSS-SECTION D-D'**  
SCALE: 1" = 40' (Vert. = Horiz.)



**GEOLOGIC CROSS-SECTION G-G'**  
SCALE: 1" = 40' (Vert. = Horiz.)

**GEOCON LEGEND**

- Qpf* .....PREVIOUSLY PLACED FILL
- Qal* .....ALLUVIUM
- Qudf* .....UNDOCUMENTED FILL
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- T-4 .....APPROX. LOCATION OF TRENCH
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- .....APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)

**GEOLOGIC CROSS SECTIONS**  
PASEO MONTRIL  
SAN DIEGO, CALIFORNIA

<b>GEOCON</b> INCORPORATED <small>GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS</small> <small>6940 SANDERS DRIVE ■ SAN DIEGO, CALIFORNIA 92121-2974</small> <small>PHONE 858.558.4900 ■ FAX 858.558.4159</small>	SCALE	DATE	FIGURE
	1" = 40'	03 - 02 - 2020	3
	PROJECT NO.	G2209 - 42 - 01	
SHEET	2	OF	2