July 9, 2019

Mr. Tad Hagsted
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Subject: Addendum to Geotechnical Study - 2018 Seismic Update
Proposed Challenger Pallets Building
About 1250 West 2150 North
Farr West, Utah
CMT Project Number: 12606

Mr. Hagsted,

As requested, this letter provides the 2018 International Building Code (IBC) update related to seismic parameters previously prepared for this project. The original geotechnical report was completed in April 2019[1] prior to the adoption of the 2018 IBC by the state of Utah. The following paragraphs and tables update Section **4.3 Siesmicity** of the project geotechnical report.

4.3 Seismicity

4.3.1 Site Class

Utah has adopted the International Building Code (IBC) 2018. IBC 2018 determines the seismic hazard for a site based upon 2014 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC code and are also available based on latitude and longitude coordinates (grid points). For site class definitions, IBC 2018 (Section 1613.3.2) refers to Chapter 20, Site Classification Procedure for Seismic Design, of ASCE[2] 7. Given the subsurface soils at the site, including our projection of soils within the upper 100 feet of the soil profile, it is our opinion the site best fits Site Class D – Stiff Soil Profile, which we recommend for seismic structural design.

The IBC refers to ASCE 7-16 which requires a site-specific response analysis for Site Class D if $S_1 \geq 0.2$ which includes this site unless the Fv value shown in the table below is used (which represents the exception values given in ASCE 7-16 instead of performing that analysis). Based on the above criteria, sites in general along the Wasatch Front within about 10 to 15 miles of the Wasatch Fault, would need a site-specific response analysis. CMT can provide a site-specific response analysis, if desired, but it has been our experience that the value for Sd1 is about the same as given in the table or is larger after such an analysis is preformed due to the potential magnification of seismic waves within the subsurface soils.

[1] "Geotechnical Engineering Study, Proposed Challenger Pallets Building, About 1250 West 2150 North, Farr West, Utah" CMT Project No. 12606, April 15, 2019.
[2] American Society of Civil Engineers

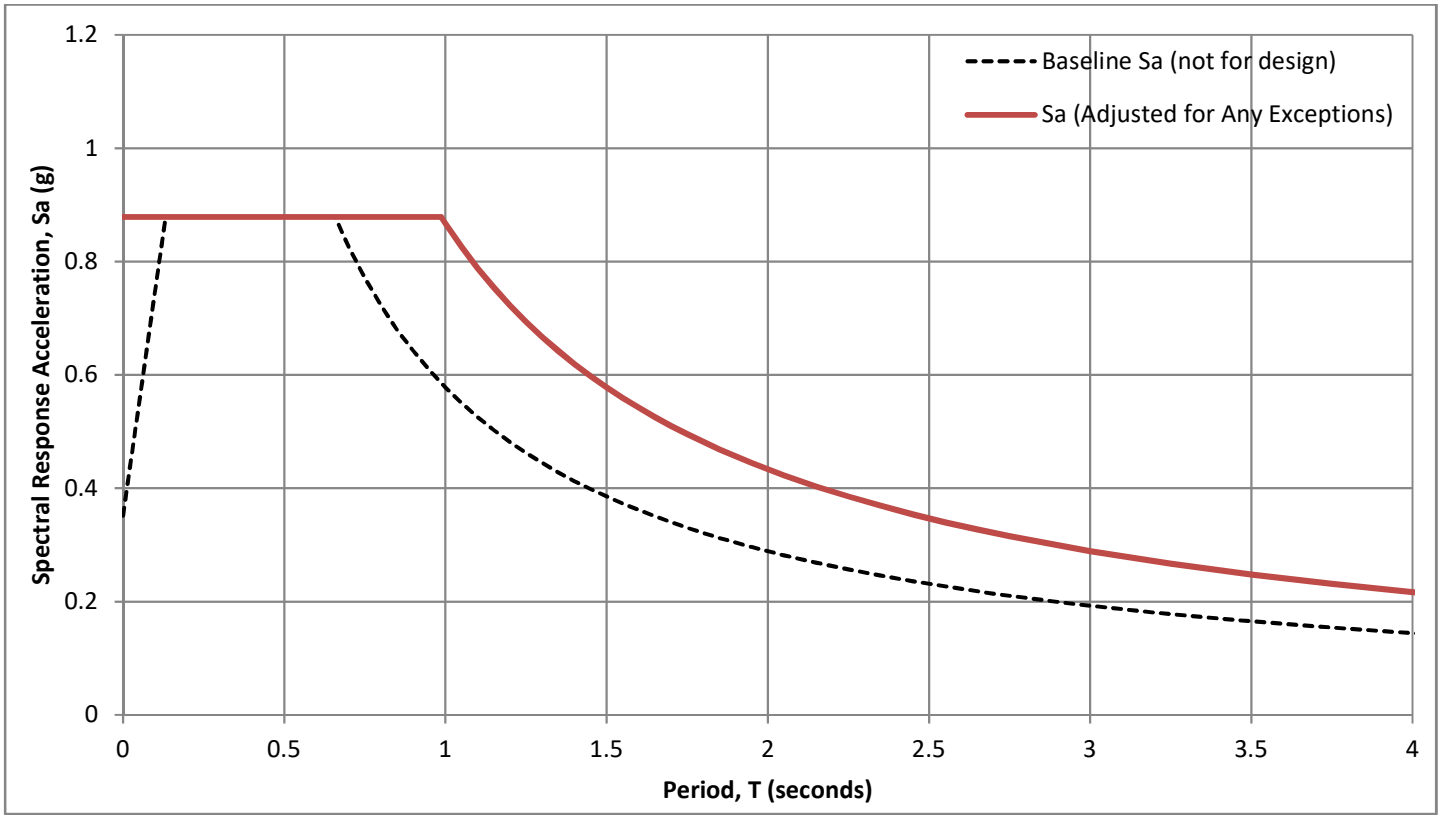
4.3.2 Ground Motions

The 2014 USGS mapping utilized by the IBC provides values of peak ground, short period and long period accelerations for the Site Class B/C boundary and the Maximum Considered Earthquake (MCE). This Site Class B/C boundary represents average bedrock values for the Western United States and must be corrected for local soil conditions. The following table summarizes the peak ground, short period and long period accelerations for the MCE event, and incorporates appropriate soil correction factors and any possible exceptions for a Site Class D soil profile at site grid coordinates of 41.29775 degrees north latitude and 112.00901 degrees west longitude (also see response spectrum below):

SPECTRAL ACCELERATION VALUE, T	SITE CLASS B/C BOUNDARY [mapped values] (g)	SITE COEFFICIENT	SITE CLASS D* [adjusted for site class effects] (g)	MULTI-PLIER	DESIGN VALUES (g)
Peak Ground Acceleration	PGA = **0.670**	F_{pga} = 1.100	PGA_M = 0.737	1.000	PGA_M = 0.737
0.2 Seconds (Long Period Acceleration)	S_S = **1.485**	F_a = 1.000	S_{MS} = 1.485	0.667	S_{DS} = 0.990
	(exceptions, if any)	F_a = (N/A)	S_{MS} = (N/A)	0.667	S_{DS} = (N/A)
1.0 Second (Long Period Acceleration)	S_1 = **0.538**	F_v = N/A	S_{M1} = N/A	0.667	S_{D1} = N/A
	(exceptions, if any)	F_v = (1.762)	S_{M1} = (0.948)	0.667	S_{D1} = (0.632)

NOTES: *** Site Class D With Data**

1. T_L = 8 seconds
2. Site Class: **D**
3. Have data to verify? **Yes**
4. **ASCE 7-16 requires Site Specific Ground Motion Hazard Analysis (S1 ≥ 0.2), OR Can Use Exception 2**



Closure

This addendum should be attached to the original geotechnical report. All other recommendations provided in the report remain applicable.

We appreciate the opportunity to work with you on this project. If we can be of further assistance or if you have any questions regarding this project, please do not hesitate to contact us at (801) 870-6730.

Sincerely,
CMT Engineering Laboratories

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