

# soils geo V\_1.pdf Markup Summary 12-15-2020

dsdparsons (3)

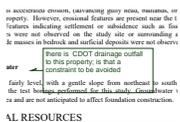


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Colorado Geological SurveyRMG identifies hydrocompactive soils (collapsible soils), steep slopes, erosion, seismicity, and radon and geologic hazards impacting the site. They have provided mitigation for each of these hazards that should be followed. However, no discussion is provided for sulfate attack on concrete (corrosion) and the provided laboratory testing has not evaluated soil density. Extent of collapse potential (hydrocompaction) is assessed in part by depositional environment of the material, and in part on measured water content and density of the soils along with consolidation tests. Where collapsible soils may occur has not been evaluated at this time. Both the alluvium and eolian deposits at the site are susceptible to collapse (hydrocompaction).

CGS agrees with RMG that site-specific soils and foundations investigations should be conducted for individual structures. The site-specific investigations are required to develop foundation recommendations based on the engineering properties of soils and/or bedrock on-site. Exploratory borings are needed to determine depth to bedrock, groundwater and to collect samples for laboratory testing. We recommend laboratory testing include tests for density, for sulfates (corrosion to concrete) and consolidation testing. These are needed to help assess collapse potential, and extent of corrosion to concrete. Water induced collapse can occur at depth below foundations and CGS recommends collapse potential be evaluated within the full zone of influence of the foundation as determined by the engineer at the time of site-specific soils and foundation investigations. RMG recommends surface and

subsurface drainage systems be considered. They also recommend exterior, perimeter foundation drains be installed around below-grade habitable or storage spaces. It would be prudent for the county to require foundation drains for all habitable or useable (storage) below grade as recommended by RMG. These types of drains require



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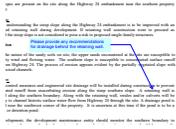
there is CDOT drainage outfall to this property; is that a constraint to be avoided



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CDOT outfall

Daniel Torres (1)



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Please provide any recommendations for drainage behind the retaining wall.