

March 20, 2024

D.R. Horton
9555 S. Kingston Court
Englewood, Colorado 80112

Attn: Riley Hillen, P.E.

Subject: Geologic Hazards Evaluation and Preliminary Geotechnical Investigation
Response to El Paso County Review Comments
Grandview Reserve, Phase 1, Filing 1
Eastonville Road and U.S. Highway 24
Falcon, Colorado
CTL|T Project No. CS19345-115

This letter presents our response to the El Paso County review comments dated May 9, 2023. CTL|Thompson, Inc. (CTL|T) prepared a Geologic Hazard Evaluation and Preliminary Geotechnical Investigation (CTL|T Project No. CS19345-115, dated May 9, 2022) for the proposed Grandview Reserve development located east of Eastonville Road and north of U.S. Highway 24 in El Paso County, Colorado.

El Paso County Comment

“A figure is missing depicting the various constraint and hazard mapping over the lot layout which was deferred from the prelimplan – see sample.” El Paso County requests that the subsurface conditions, site geology, and each of the geologic hazards including shallow groundwater, hard bedrock, expansive soils, flooding, seismicity, erosion, radon/radioactivity, and recoverable minerals be mapped, along with estimated heave potential.

CTLT Response:

The referenced report contains a figure titled Engineering Geologic Conditions (Fig. 2). The figure indicates areas of the mapped physiographic floodplain and areas of stable alluvium. We also revised Figure 2 (attached) to clarify our interpretation of the engineering geology and depict where flowing water may be present (in the channel) and where seasonally shallow groundwater is likely (remainder of site). A note is indicated on Figure 2 that states “Expansive soils/bedrock were found sporadically across the site. All lots may be impacted by ground heave. Total calculated ground heave ranged from less than 0.5 inches to 1 inch.” This note was included because the Dawson Formation, which underlies the site at relatively shallow depths, contains interbedded and discontinuous layers of expansive claystone bedrock. This material cannot be mapped with any reasonable degree of accuracy and it should be expected that expansive claystone may be encountered anywhere on the site. As stated in our report, lot specific soils and foundation investigations should be performed, following completion of overlot grading, to determine where expansive claystone is present and provide recommendations for mitigation.

An additional figure, titled Groundwater Conditions (Fig. 3), was included in our report that provided approximate groundwater elevation contours and heat mapping, that provides an



approximate depth to groundwater below the proposed finish grades. We also provided a figure titled Basement Construction Recommendations (Fig. 4), that depicted lots that are unsuitable for basement construction based on our groundwater data and analysis. We understand basement construction is not currently proposed. We have included a new figure attached with this letter, titled Surficial Geologic Conditions (Fig. 5), that delineates surficial geologic units across the site based on mapping and site reconnaissance. Considering the variability within the Dawson Formation, a detailed map of subsurface conditions beyond the surficial geology that is mapped in Fig. 5, cannot be produced. Additionally, the remaining geologic hazards presented in the report such as hard bedrock, seismicity, erosion, and radon/radioactivity cannot be mapped. These are generally regional hazards and it isn't possible to delineate the extents of each of the geologic hazards on every site. Attempting to do so would falsely suggest that these hazards may be possible in portions of the site and not possible in other portions of the site. A discussion of these hazards is provided in the referenced report.

El Paso County Comment

Discuss the impact of shallow groundwater on EDB design.

CTL|T Response

In the event significant groundwater flow is encountered within a detention basin at the time of site grading, we recommend installation of a geosynthetic liner to prevent groundwater from entering the basin and being lost to evaporation. Minor amounts of localized seepage within the basin would not be considered significant. An evaluation of the presence of groundwater within a basin and the need for a liner should be performed during earthwork operations. Groundwater may cause a liner to float. Provisions to prevent liners from floating could include anchoring the liner bottom into the ground, placement of a layer of fill or pea gravel over the liner, or alternative methods proposed by the liner installer.

We believe this investigation is being conducted in a manner consistent with that level of care and skill ordinarily used by geotechnical engineers practicing in this area at this time. No warranty, express or implied, is made.

If you have questions or comments concerning the discussion presented in this letter, or if we can be of further service, please call.

CTL|THOMPSON INC.

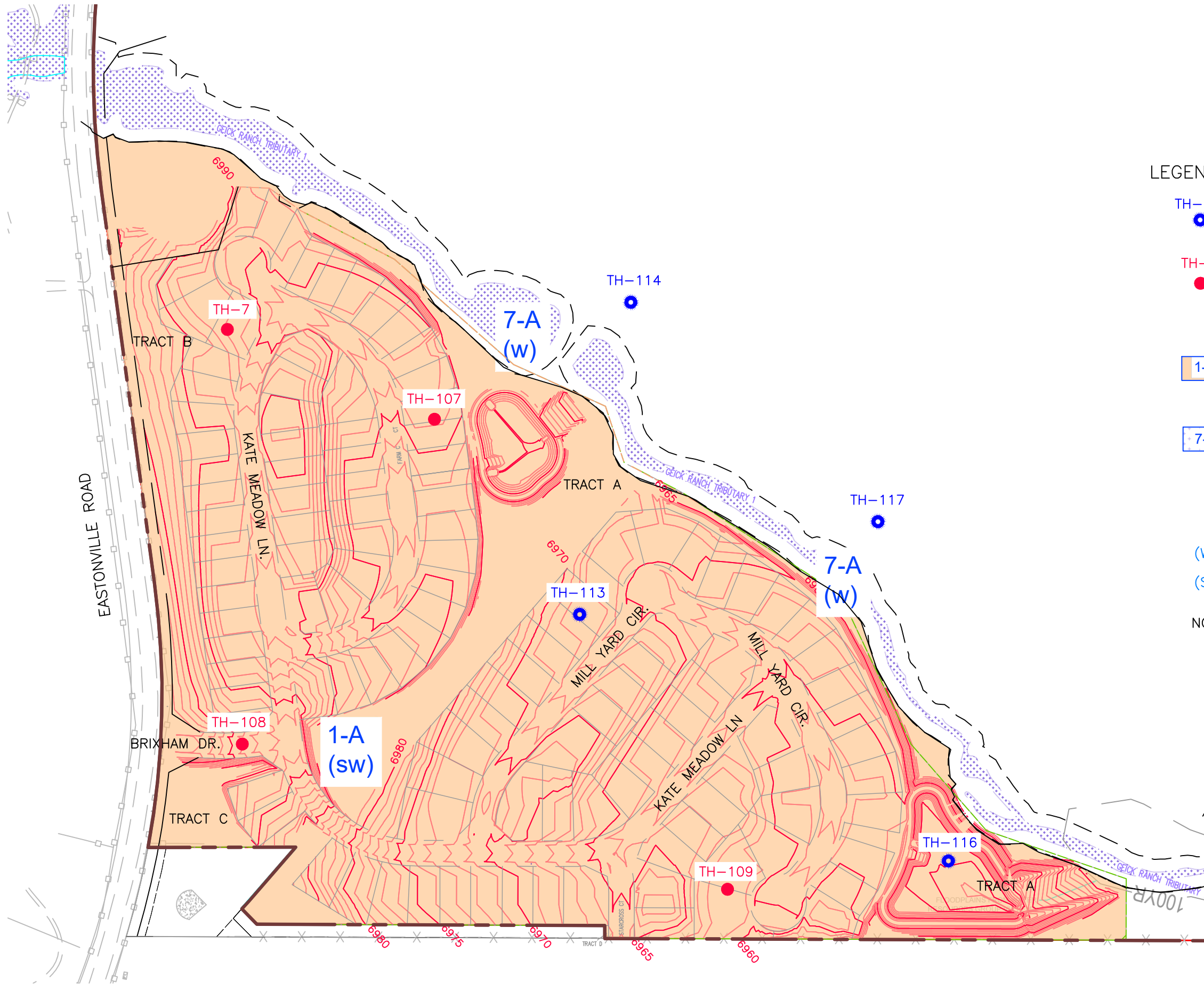
Jeffrey M. Jones, P.E.
Associate Engineer



JMJ:cw

Attachments: Fig. 2 Engineering Geologic Conditions
Fig. 5 Surficial Geologic Conditions

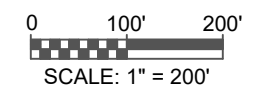
Via email: rhillen@drhorton.com; breid@drhorton.com; khuhn@hrgreen.com

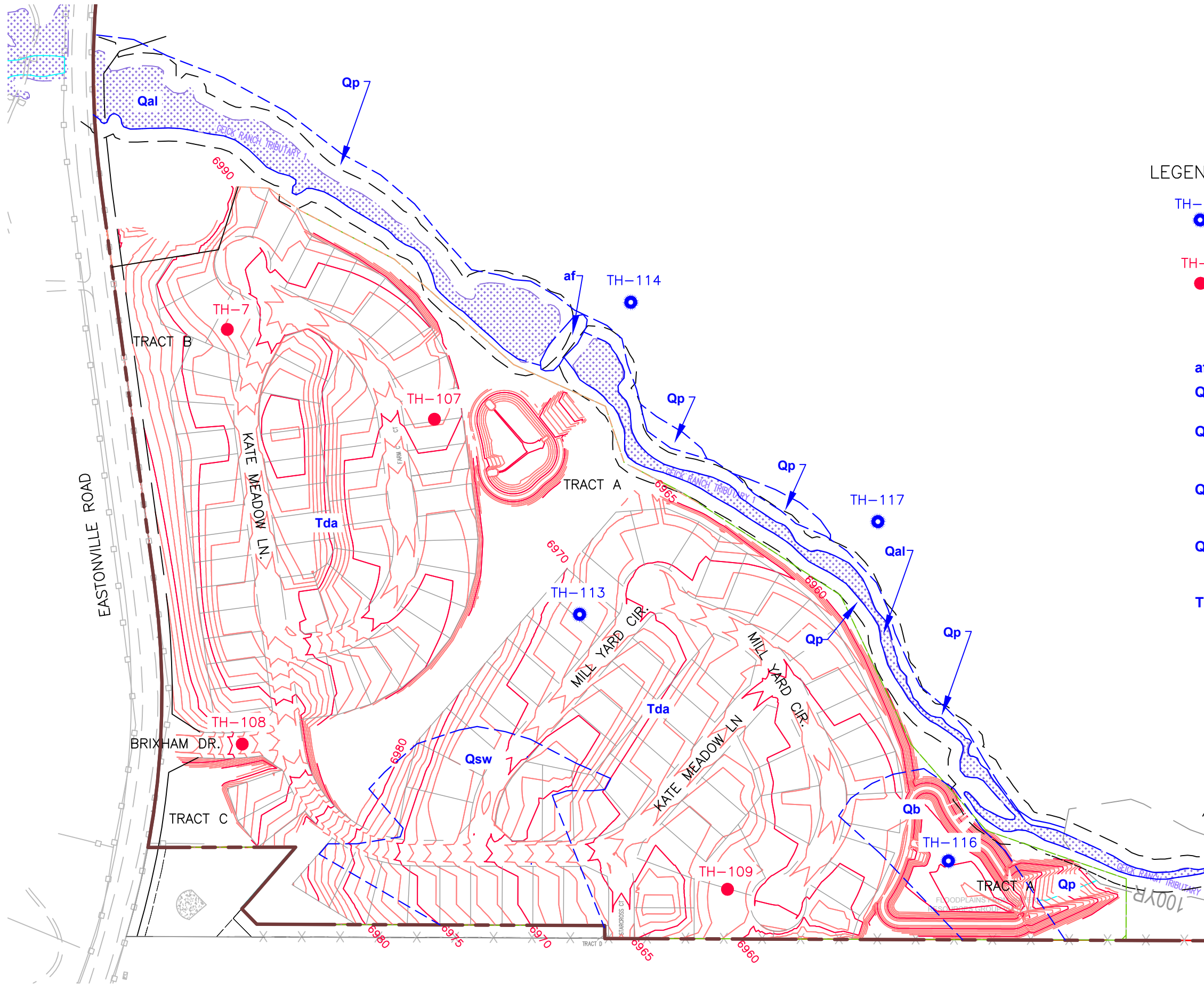


LEGEND:

- **TH-113** APPROXIMATE LOCATION OF EXPLORATORY BORING DRILLED DURING PREVIOUS INVESTIGATION DATED MAY 9, 2022.
- **TH-1** APPROXIMATE LOCATION OF EXPLORATORY BORING DRILLED DURING PREVIOUS INVESTIGATION; REPORTS DATED DECEMBER 23, 2020 AND JANUARY 6, 2022.
- 1-A STABLE ALLUVIUM, COLLUVIUM, AND BEDROCK ON FLAT TO GENTLE SLOPES (0-12%). EMPHASIS ON SURFACE AND SUBSURFACE DRAINAGE.
- 7-A PHYSIOGRAPHIC FLOODPLAIN WHERE EROSION AND DEPOSITION PRESENTLY OCCUR AND IS GENERALLY SUBJECT TO RECURRENT FLOODING. INCLUDES 100-YEAR FLOODPLAIN ALONG MAJOR STREAMS WHERE FLOODPLAIN STUDIES HAVE BEEN CONDUCTED. EMPHASIS ON FREQUENCY OF SURFACE WATER FLOW, DEPTH AND CONTROL.
- (w) FLOWING WATER
- (sw) SEASONAL SHALLOW GROUNDWATER

NOTE: EXPANSIVE SOILS/BEDROCK WERE FOUND SPORADICALLY ACROSS THE SITE. ALL LOTS MAY BE IMPACTED BY GROUND HEAVE. TOTAL CALCULATED GROUND HEAVE RANGED FROM LESS THAN 0.5 INCHES TO 1 INCH. DEPTH TO GROUNDWATER ARE PEAK LEVELS MEASURED IN MONITORING WELLS BETWEEN SEPTEMBER AND NOVEMBER 2023.





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- af** ARTIFICIAL FILL
- Qal** RECENT ALLUVIUM OF HOLOCENE AGE LOCATED IN DRAINAGE CHANNEL
- Qp** PINEY CREEK ALLUVIUM LOW STREAM TERRACE DEPOSIT ABOVE CURRENT STREAM CHANNEL
- Qb** BROADWAY ALLUVIUM STREAM TERRACE DEPOSITS APPROXIMATELY 10-20 FEET ABOVE MODERN FLOODPLAIN
- Qsw** SHEET WASH OF LATE PLEISTOCENE TO HOLOCENE AGE SILTY TO CLAYEY SAND SHEETWASH DEPOSITS
- Tkd** DAWSON FORMATION RESIDUAL SOILS OVERLYING ARKOSIC SANDSTONE INTERBEDDED WITH CLAYSTONE