ENGINEERING DESIGNWORKS, INC.

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September 26, 1995

Routt County Regional Building Dept.
P.O. Box 3840
Steamboat Springs, CO 80477

Ref: Kohl Open Hole Inspection, (EDW job #94287s)

To Whom It May Concern:

This letter is being written to summarize our findings during our site visit for the proposed home at 25325 Paradise Valley Lane, Routt County, Colorado on September 26, 1995. We found that the soils exposed by the excavation appeared similar to those described in our soils report dated August 28, 1995. All the drilled holes reached into the tan sandstone and were free of disturbed materials, therefore the recommendations in our report for 5000 psf maximum end bearing pressure for caissons are still applicable for the foundation design at this site.

If there are any further questions, please contact us.

Sincerely,
Engineering Designworks, Inc.

Peter Wiegand

by: Peter Wiegand, Geologist

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Builders Risk

Subsoil Investigation/Foundation Recommendations for proposed house at a tract in S1/2 of SW1/4 of Section 25, T4N, R86W of 6th PM Routt County, Colorado

August 28, 1995
Job #95287s

Prepared for: Randy Kohl
P.O. Box 2788
Steamboat Springs, CO 80477

GENERAL

This report presents the results of our geotechnical investigation conducted on the site of the proposed home located at a tract in S1/2 of SW1/4 of Section 25, T4N, R86W of 6th PM, Routt County, Colorado.

The investigation was performed to provide sufficient information about the supporting soil mantle to enable a suitable foundation design for the proposed home.

The conclusions and recommendations presented herein are based on the data gathered during our site and laboratory investigations and our experience with similar soil conditions. This investigation was conducted in accordance with presently accepted soils engineering procedures consistent with the proposed development and no warranty is implied. Our investigation specifically did not address any slope stability considerations.

FIELD INVESTIGATION

The subsurface soil conditions were explored on August 16, 1995 with two open test pits dug with a Case 850B backhoe. See Figure 1 for the test pit locations. The subsurface soils exposed on site are profiled in Figure 2. Laboratory soil samples were obtained with a Hand Drive Sampler. Unconfined penetrometer were performed during the digging operations. See Figure 2 for unconfined values.

LABORATORY TESTING

Laboratory testing and analysis included swell-consolidation testing and was performed at the Engineering Designworks, Inc. laboratory in Steamboat Springs, Colorado. See Figure 3 for details.

PROPOSED CONSTRUCTION

One story conventionally framed home over crawl space.

RECOMMENDATIONS

Based on our tests and the proposed construction, we feel the safest type of foundation to be drilled caissons or piers, extending down to the tan sandstone found 4' below existing grade in the test pits. Pier design should use 5000 psf end bearing and 700 psf skin friction. If a conventional foundation were to be employed we recommend soils bearing pressures of 5000 psf for the tan sandstone and 2500 psf maximum, 400 psf minimum for the tan silty clays found approximately 1.5' to 4' below existing grade in the test pits.

Suggested design at-rest equivalent fluid pressure for retained backfill: imported gravels = 45 pcf, on-site clays (not recommended adjacent to walls which rise above lowest floor or slab) = 80 pcf.

Any foundation at this site must be designed and constructed in strict conformance with the following precautions:

1. Foundation walls and grade beams should be designed and reinforced to span an unsupported distance of at least 10 feet.

2. We recommend excavating contractor verify during excavation (and before construction of any part of the foundation) that soil types and conditions uniformly match those described in the pit logs of this report. All loose or soft pockets of soil within the loaded depth of the footings should be removed and replaced with a well compacted gravel; or the footings extended to lower, more competent soils.

3. Compacted granular structural fills to be compacted in 8" lifts to a minimum of 95% Modified Proctor Density at a moisture content within 2% of optimum. Properly placed and confined 3/4" washed rock or 3/8" pea gravels may be used in lieu of compacted fills when properly vibrated in 24" maximum lifts. Typically, fills should extend out from footing edges a distance equal to below footing fill depth, (or consult with Engineer). Mirafi lining may also be required.

4. Any fill containing rock should be carefully mixed to avoid nesting and creation of voids. Remove all topsoil, organics, and other objectionable materials prior to placing fills. No concrete or fill shall be placed on muddy or frozen ground.

5. Maintain required frost depth for footings subject to frost.

6. Slab construction is not recommended, but if it is to be implemented, it should be constructed over fills, as described above. The risk of slab movement decreases with increased fill depth. A minimum of 10" - 24" of fill is recommended. Slipjoint all floor slabs at all interfaces and provide for possible slab movement under partition walls. Do not use slabs for bearing of structural components.

7. Maintain the in-situ moisture content and avoid weathering of the bearing soils at all times prior to and after placing footings.

8. Provide an adequate underdrain system from the low areas of the excavation. Slope 1/8" per foot to a daylighting drain. The underdrain system should include approved PVC pipe overlaid by washed rock, encased in Mirafi fabric. Test before and after backfill.

9. Contour the finish grading at a minimum 12:1 slope to divert all surface drainage at least 15′ away from all sides of the structure.

10. We recommend exterior backfill of granular free draining material, capped with a minimum 12" layer of water impermeable (eg. clay) material to divert surface flow. Geotextile fabric is recommended below the clay layer. Topsoil can then be placed over the clays. Foundation designer shall be responsible for final backfill selections.

Significant changes in the proposed structure or subsoil conditions different than those logged in Figure 2 may alter these recommendations and should be brought to the attention of this office.

Sincerely,

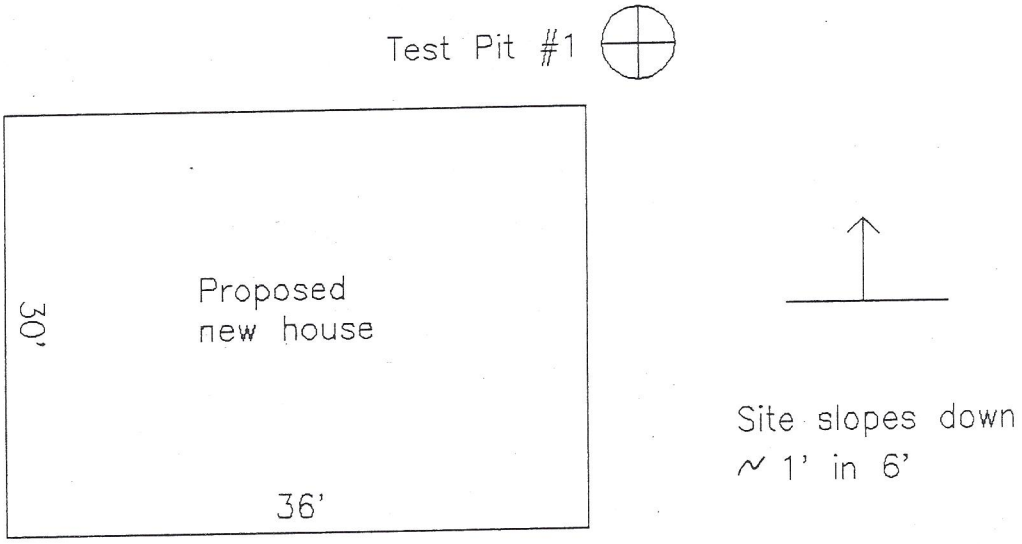
Engineering Designworks, Inc.

by: Peter Wiegand, Geologist

reviewed: Steve Lewis, P.E.

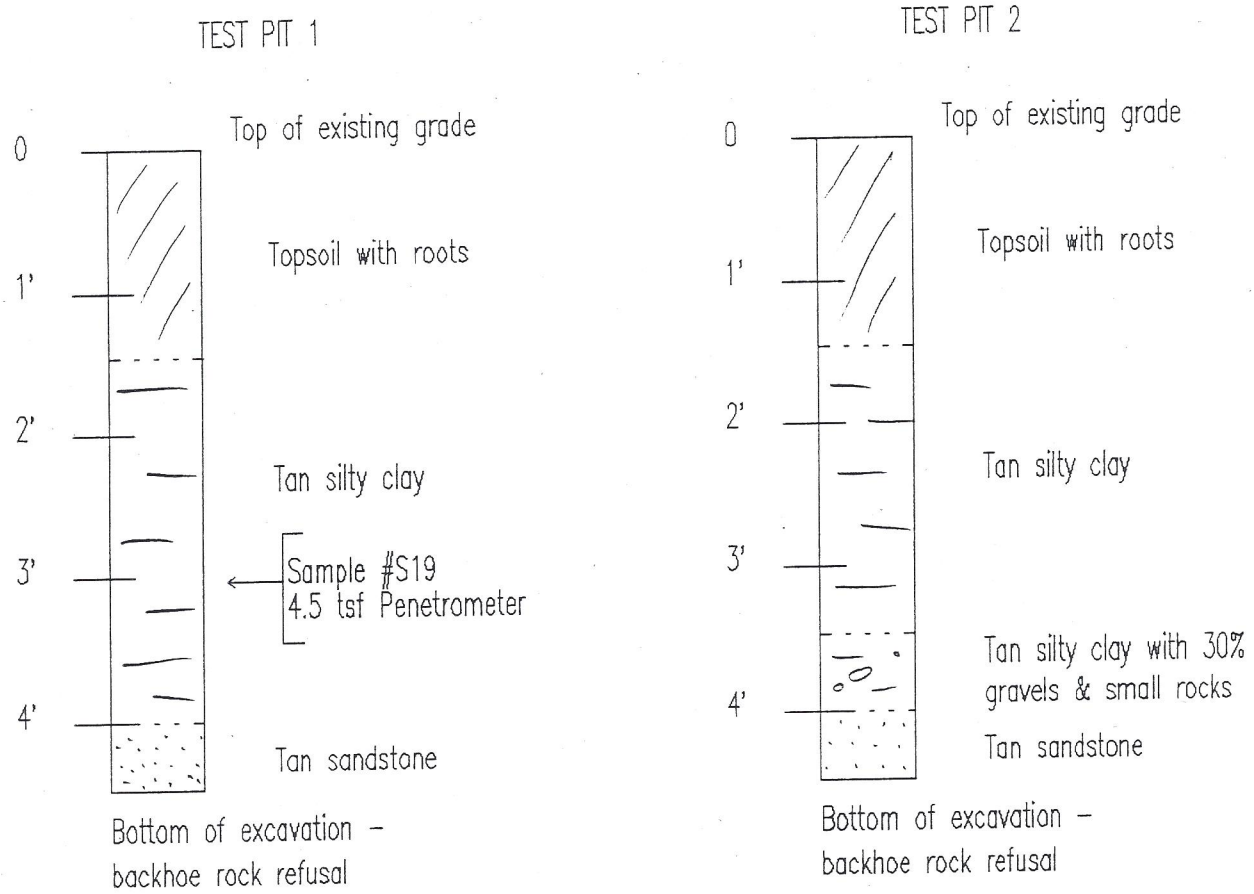
FIGURE 1

Tract in S1/2 of SW1/4
of Sect. 25, T4N, R86W of
6th PM, Routt County, CO



(Not to scale)

FIGURE 2



Note: Soil classification by geologist's judgement only.
No gradations or other classification testings were performed.

FIGURE 3

	max:	min:
S#19	2.56	0.4