

Request for Information

Contractor: Kuersten Construction
Address: 0013 Powerline Road
City, State: Rifle Colorado
Zip: 81650
Phone: 970-625-8210

A/E: Johnson & Carter Architects
Address: 136 East 3rd Street Suite B
City, State: Rifle, Colorado 81650
Zip: 81650
Phone: 970-625-0580

Project: RFPD Fire Station #3
RFI Number: 2
Date: 7/10/2009

RFI DESCRIPTION: (Fully describe the question or type of information requested.)

We are lacking a design for the foundation drain. The plans refer to the soils report for details however there is no construction specific design details in the soils report. Also how will the foundation drain tie into detail 3 on page R2.

REFERENCES: (List specific documents when seeking the information requested.)

SPECIFICATIONS:

DRAWINGS:

OTHER:

SENDER'S RECOMMENDATION:

RECEIVER'S REPLY: (Provide answer to RFI, including cost and/or schedule considerations.)

Refer to the attached document from HP Geotech on the design and location of the foundation drain.
Extend the geotextile cover (noted on sheet R2) beyond the footing so that it covers the drain pipe at the footing



Hepworth-Pawlak Geotechnical, Inc.
5020 County Road 154
Glenwood Springs, Colorado 81601
Phone: 970-945-7988

Fax: 970-945-8454
email: hpgeo@hpgeotech.com

June 11, 2009

Rifle Fire Protection District
Attn: Mike Morgan, Fire Chief
1850 Railroad Avenue
Rifle, Colorado 81650

Job No. 109 001A

Subject: Grading and Drainage Plan Review, Rifle Fire Station #3, Lot 18, Grand River Plaza, Last Chance Drive, Rifle, Colorado

Dear Mr. Morgan:

As requested by Rick Barth with Red Mountain Civil, Inc., we have reviewed the grading and drainage plans for the proposed Rifle Fire Station #3 at the subject site. Our review was performed in response to the memorandum to Nathan Linnquist (Rifle City Planner) from Jeff Simonson with Schmueser Gordon Meyer dated June 8, 2009, specifically Item Nos. 2, 7, 11 and 19. The summary of our review, responses to specific items, additional recommendations and typical details are provided in this report. Surface and subsurface drainage recommendations were provided as part of our previous subsoil study report for the project (Hepworth-Pawlak Geotechnical, 2009).

Grading and Drainage Plan (Item Nos. 2 & 19): The grading and drainage plans, Sheets C2.0 and C3.0 dated May 27, 2009, were provided to us by Red Mountain Civil, Inc. The grading plan, Sheet C2.0 shows some modification to the existing cut slope along the south side of the lot and additional cut in the south end to achieve a finished floor elevation of 5373.5 feet for the proposed building. Some fill will be needed to elevate the north end and essentially level the site. The proposed cuts along the south side will have a maximum slope of 1½ horizontal to 1 vertical. Boulder retaining walls are proposed to be constructed along the south and west lot lines where the grading cannot meet the maximum recommended slope grade. A typical boulder retaining wall detail is shown on Figure BRW-1.0. The boulder walls will be a single tier with single to multiple courses. A short concrete site wall will be constructed at the southeast corner of the building for a planned man-door.

Based on the proposed wall sections shown on Sheet C2.1, the concrete retaining wall will need to be designed for a surcharge load imposed by the boulder wall located immediately upslope. Unretained cut slopes should be protected from erosion by re-vegetation or other means as designed by the civil engineer and approved by the City of Rifle.

The drainage plan, Sheet C3.0 indicates positive slope away from the building foundation and generally meets the intent of our surface grading recommendations presented in our previous report. Shallow swales are proposed to carry surface runoff around the south and west sides of the proposed building with a highpoint at the southwest corner. The slopes from the building to the swale and along the north side of the building range between about 10% and 30%. The hardscape and pavement areas at the east side will be graded between about 0.5% and 2%. A drop inlet will be constructed at the east end of the south swale, near the top of the short concrete wall, and drain into the valley pan at the south side of the parking area. Downspouts will collect roof runoff and divert it to a buried detention structure north of the proposed building via a buried solid pipe collection system. We understand that the roof runoff collection system will be separate from the foundation drain described in the *Underdrain System* section below.

Flatter slopes than recommended will increase the risk of moisture infiltration to the bearing soils. Graded swales should have a minimum slope of 2% in landscape areas. Additional drop inlets should be constructed such as along the west side of the building and in hardscape areas less than 1% slope.

Underdrain System (Item Nos. 7 & 11): Recommendations for underdrains at the site are provided in our previous report (Hepworth-Pawlak Geotechnical, 2009). Based on our review of the proposed grading plan, a perimeter foundation drain should be provided behind the south and west foundation walls where the interior floor slab elevation is lower than the exterior ground surface. A schematic drain alignment is shown on Figure FD-1.0 and typical drain detail is shown on Figure FD-2.0. The foundation drain should consist of 4-inch diameter, rigid PVC pipe surrounded by free-draining granular material. The drain should be placed at least 1 foot below lowest adjacent finish grade and sloped at a minimum ½% to a suitable gravity outlet. Other recommendations presented in our

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previous report (Hepworth-Pawlak Geotechnical, 2009) which are applicable should also be followed.

If you have any questions, or require further assistance, please call our office.

Sincerely,

HEPWORTH - PAWLAK GEOTECHNICAL, INC.

Trevor L. Knell, P.E.



Rev. by: SLP

TLK/ksw

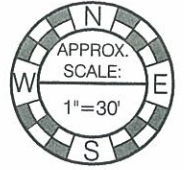
attachments Figure FD-1.0 – Proposed Schematic Foundation Drain Alignment
 Figure FD-2.0 – Typical Foundation Drain Detail
 Figure BRW-1.0 – Typical Boulder Retaining Wall Detail

cc: Red Mountain Civil, Inc. – Attn: Rick Barth, P.E. (rickrnc@sopris.net)
 Johnson-Carter Architects, P.C. – Attn: Rich Carter (richcarter@rof.net)
 Schmueser Gordon Meyer – Attn: Jeff Simonson, P.E. (jeffs@sgm-inc.com)
 Kuersten Construction – Attn: Dave Hillbrand

REFERENCE

Hepworth-Pawlak Geotechnical, Inc., 2009. *Subsoil Study for Foundation and Pavement Designs, Proposed Rifle Fire Station #3, Lot 18, Grand River Plaza, Last Chance Drive, Rifle, Colorado.* Prepared for the Rifle Fire Protection District, Dated January 30, 2009, Job No. 109 001A.

LAST CHANCE DRIVE



4" Ø RIGID PVC DRAIN PIPE SLOPED TO SUITABLE GRAVITY OUTLET

PROPOSED RIFLE FIRE STATION NO. 3

FINISHED FLOOR ELEVATION = 5373.5'

LEGEND:

- PERIMETER DRAIN PIPE
- HIGH POINT OF DRAIN; ELEV. = 5372.5'
- PROPOSED CONTOUR (INDEX)
- PROPOSED CONTOUR (INTER)

NOTES: DRAIN ELEVATION BASED ON PROPOSED FINISHED FLOOR ELEVATION SHOWN ON THE CIVIL GRADING PLAN, SHEET C2.0 PREPARED BY RED MOUNTAIN CIVIL, INC., DATED 5/27/09. DRAIN ALIGNMENT SHOWN FOR GENERAL LOCATING PURPOSES ONLY. SOME DESIGN ELEMENTS AND EXISTING FEATURES OMITTED FOR CLARITY. ACTUAL DRAIN PIPE LOCATION MAY VARY DEPENDING ON THE ACTUAL FIELD CONDITIONS.

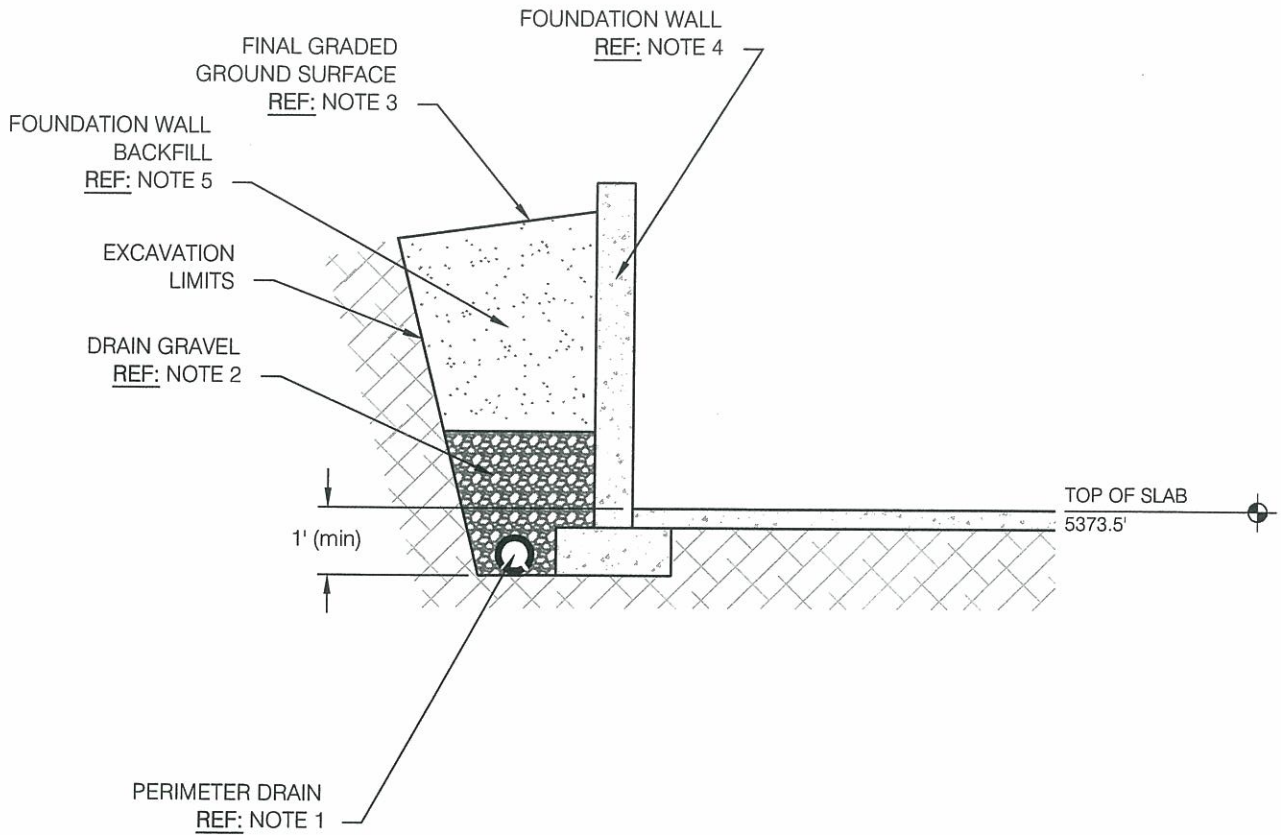
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PROPOSED SCHEMATIC DRAIN ALIGNMENT

FD-1.0

NOT TO SCALE

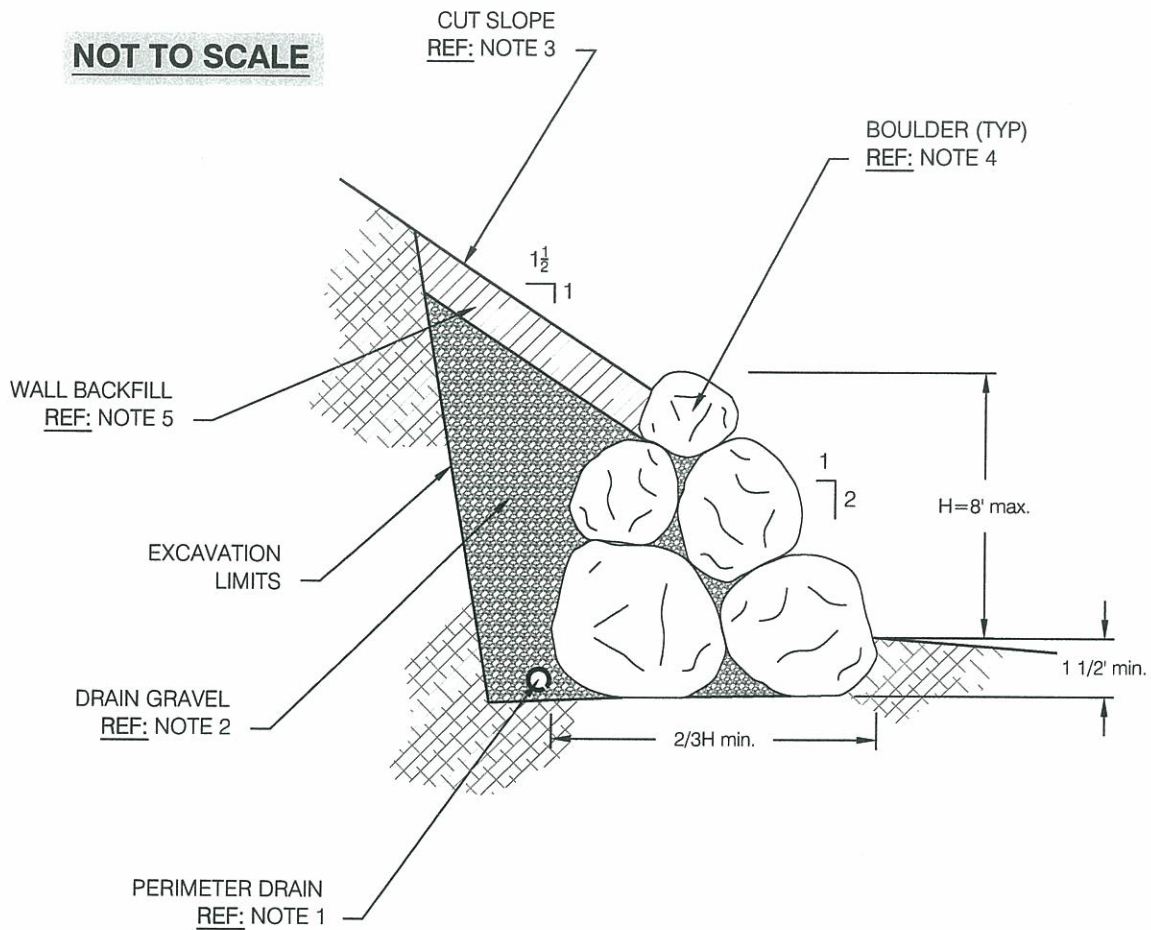


ACTUAL FIELD CONDITIONS MAY VARY

NOTES:

1. 4-INCH DIAMETER RIGID PERFORATED DRAIN PIPE WITH AN INVERT LEVEL A MINIMUM OF 1 FOOT BELOW FLOOR SLAB ELEVATION AND SLOPED AT A MINIMUM $\frac{1}{2}$ PERCENT TO GRAVITY OUTLET.
2. $\frac{3}{4}$ INCH OR $1\frac{1}{2}$ INCH SCREENED ROCK WITH TOP AND SIDES COVERED WITH FILTER FABRIC SUCH AS MIRAFI 140N OR EQUIVALENT AND A MINIMUM DEPTH OF $1\frac{1}{2}$ FEET.
3. SLOPE GROUND SURFACE TO DRAIN AWAY FROM FOUNDATION PER SOILS REPORT.
4. WATERPROOF OR DAMP-PROOF FOUNDATION WALL AS SPECIFIED BY ARCHITECT.
5. FOUNDATION WALL BACKFILL CONSISTING OF THE ON-SITE SOILS COMPACTED PER SOILS REPORT.

NOT TO SCALE



ACTUAL FIELD CONDITIONS MAY VARY

NOTES:

1. 4-INCH DIAMETER PERFORATED DRAIN PIPE SLOPED AT A MINIMUM 1 PERCENT TO SUITABLE GRAVITY OUTLET.
2. $\frac{3}{4}$ INCH OR $1\frac{1}{2}$ INCH SCREENED ROCK WITH TOP AND UPHILL SIDE COVERED WITH FILTER FABRIC SUCH AS MIRAFI 140N, OR EQUIVALENT. INFILL BOULDERS WITH SCREENED ROCK.
3. SLOPE GROUND SURFACE PER SOILS REPORT.
4. SUBROUND TO SUBANGULAR BOULDERS, 2 TO 3 FEET IN SIZE, DRY STACKED AND ARRANGED IN SUCH A MANNER TO PROMOTE POSITIVE INTERLOCKING EFFECT BETWEEN BOULDERS. BURY FIRST COURSE A MINIMUM $1\frac{1}{2}$ FEET BELOW GROUND SURFACE AT DOWNHILL SIDE.
5. CONSISTING OF ON-SITE, FINE-GRAINED SOIL COMPACTED PER SOILS REPORT.