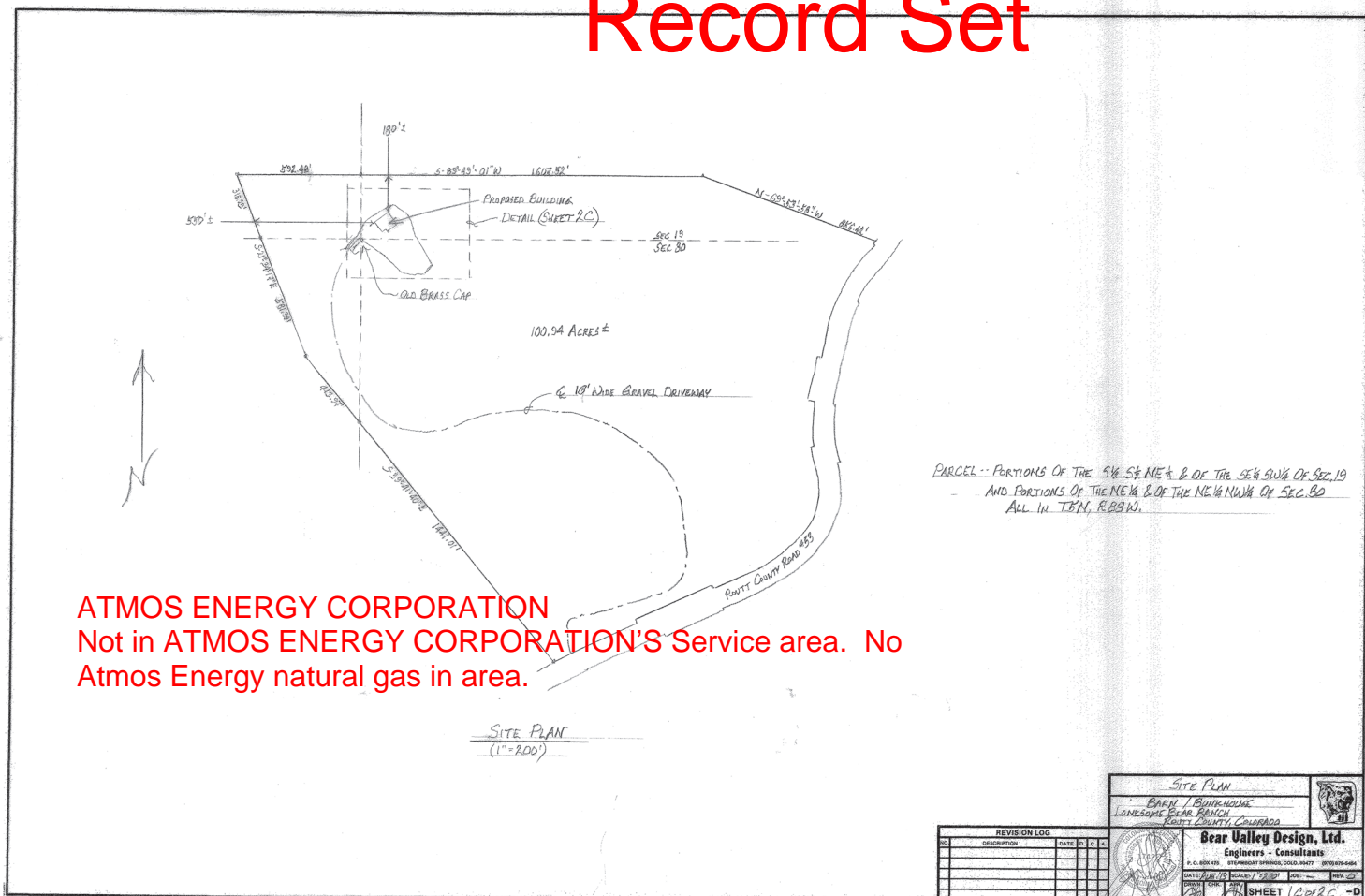


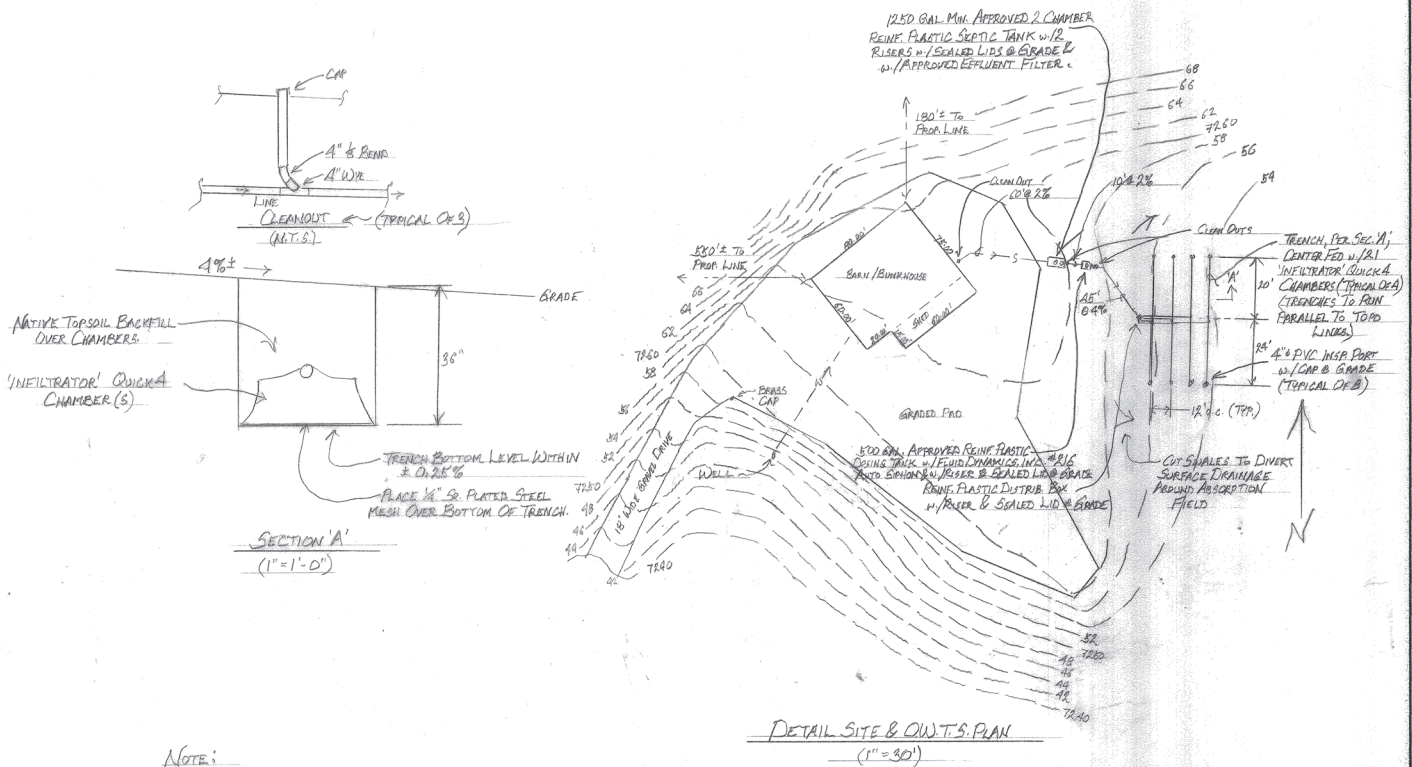
# RCRBD Record Set



Meter Location will be determined after on site visit with YVEA Craig Field Representative. Meter & meter pedestal are to be located as described by YVEA. They shall not be enclosed, covered or concealed Violation shall result in termination of service.

Yampa Valley Electric Assn. INC  
This Approval addresses only  
the meter and service location  
Approved: Scott Flowers - YVEA 10/01/19

# RCRBD Record Set



NOTE:

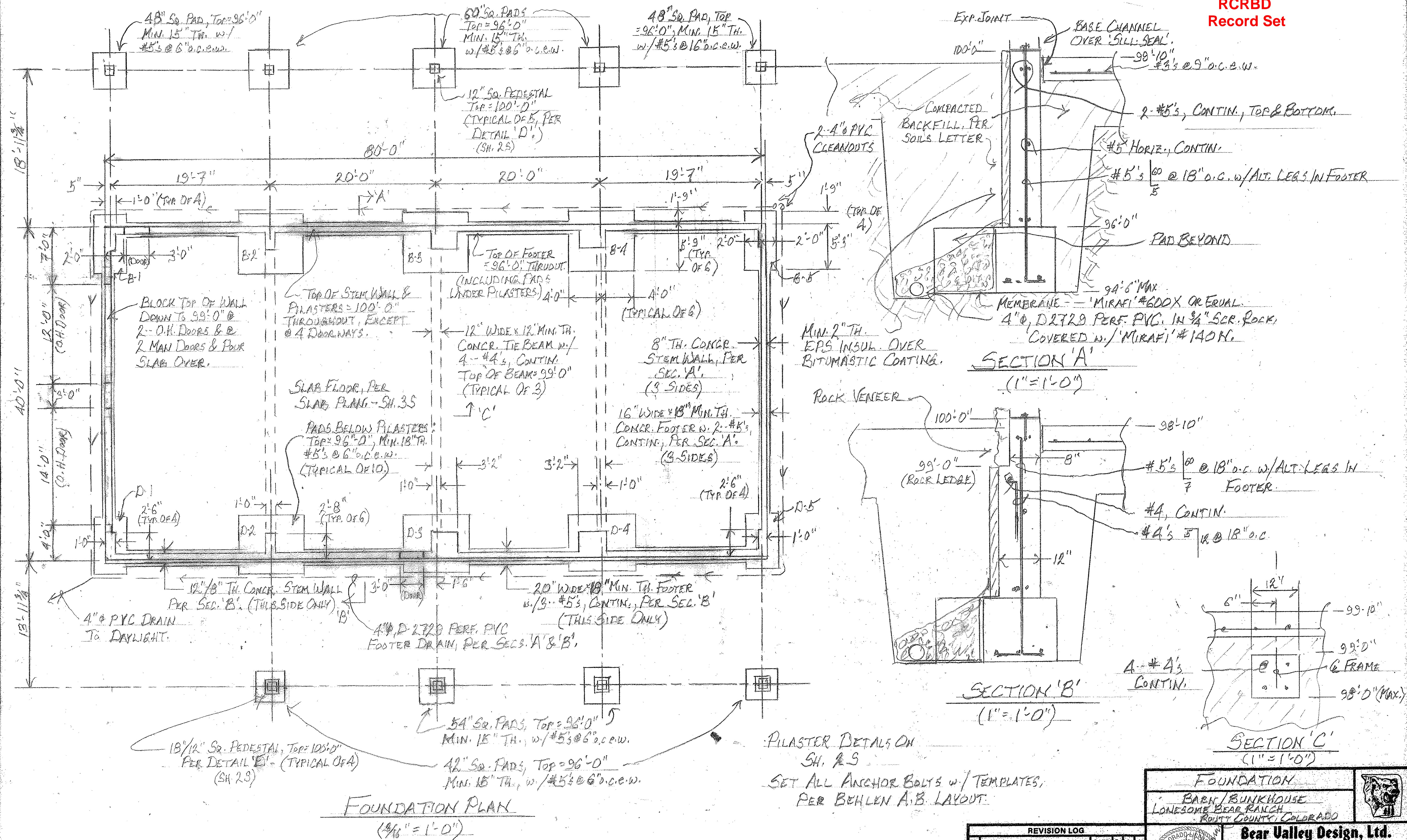
1. ALL SEWER & EFFLUENT LINES TO BE RUN IN 4", SDR 35 PVC, AS SHOWN & BEDDED IN SELECT GRANULAR MATERIAL.
2. FENCE ALL LIVESTOCK OFF OF ABSORPTION FIELD.


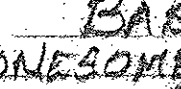
DETAIL SITE & Q.W.T.S. PLAN  
(1" = 30')

REVISION LOG			
NO.	DESCRIPTION	DATE	D

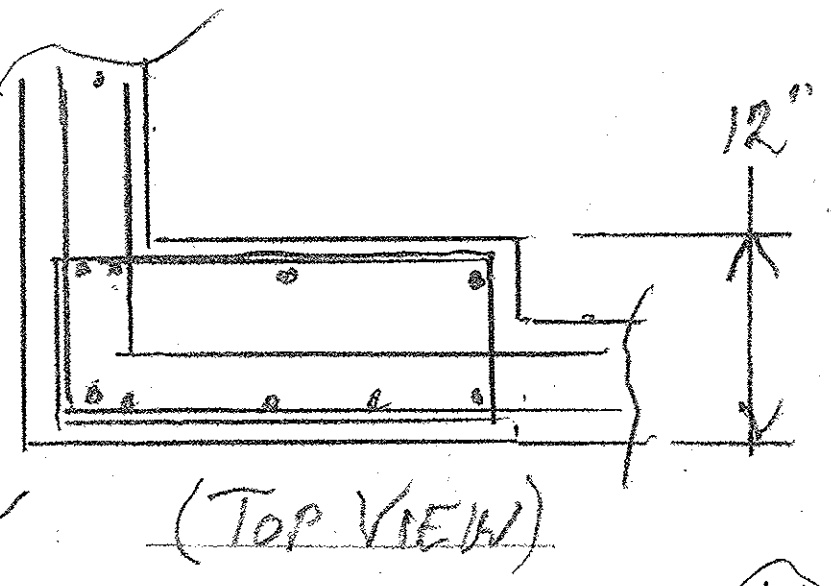
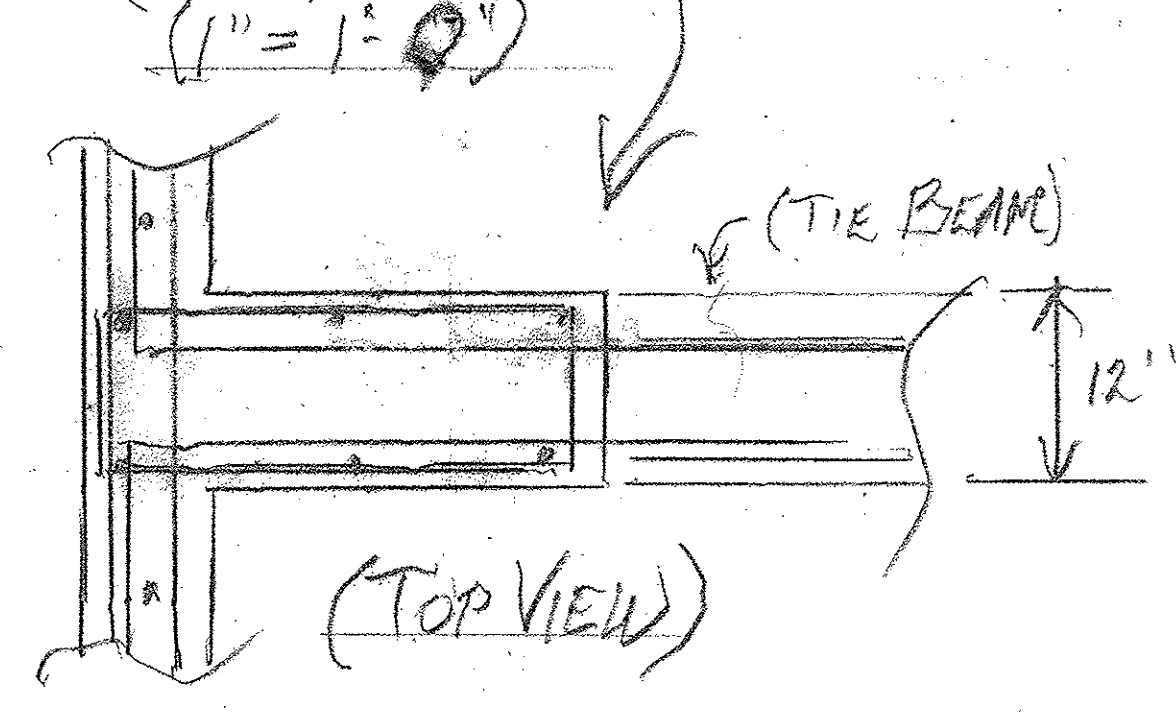
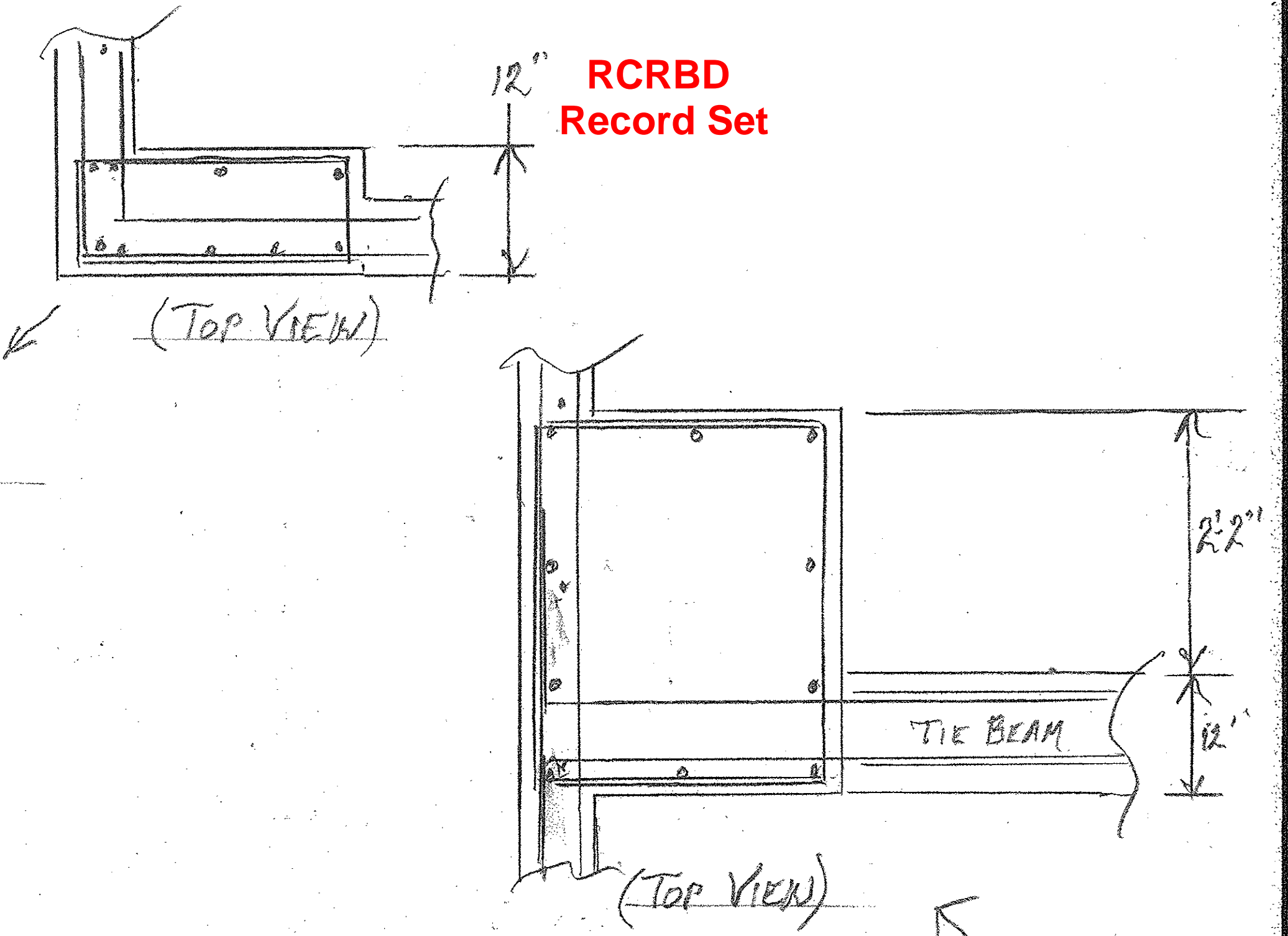
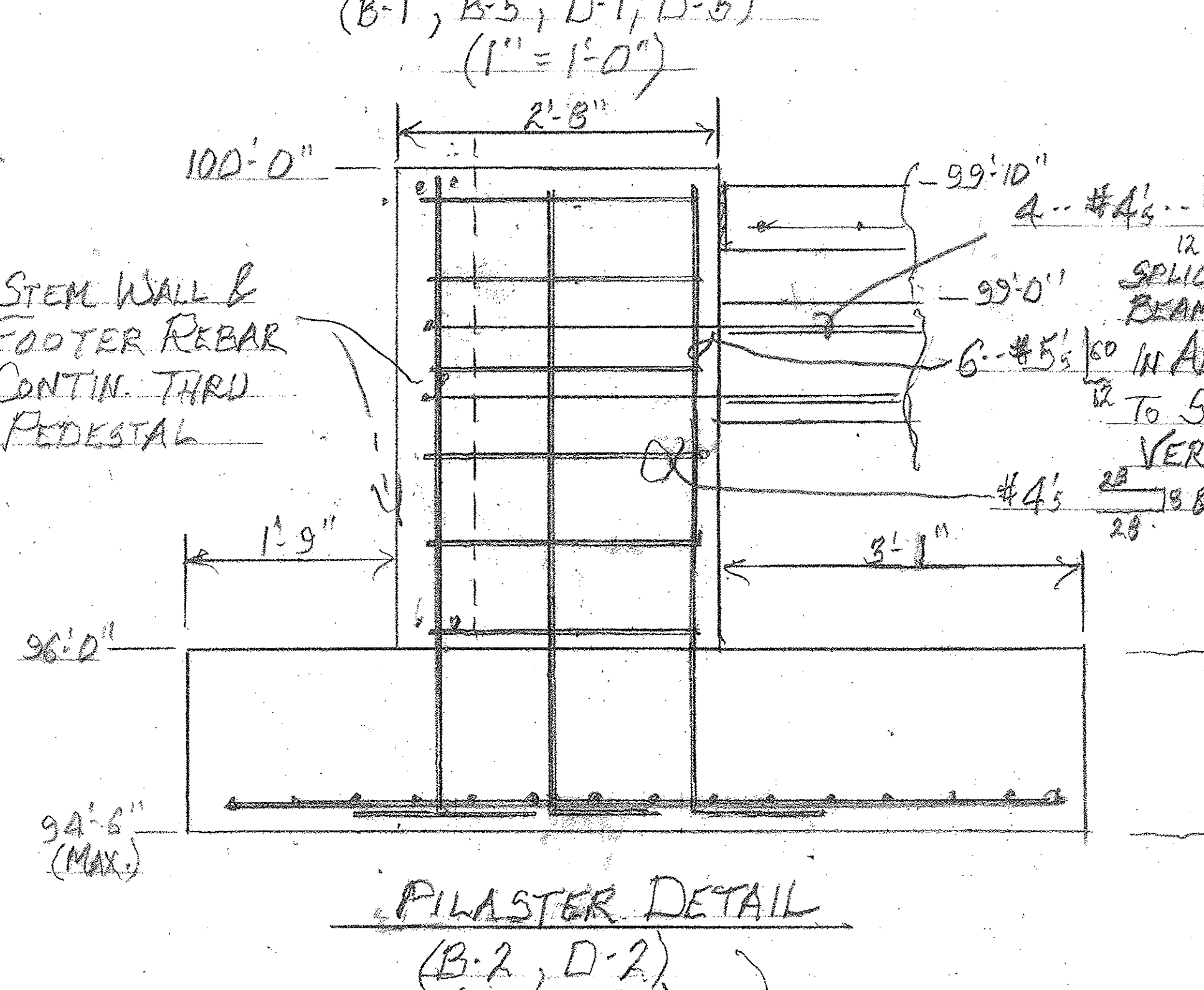
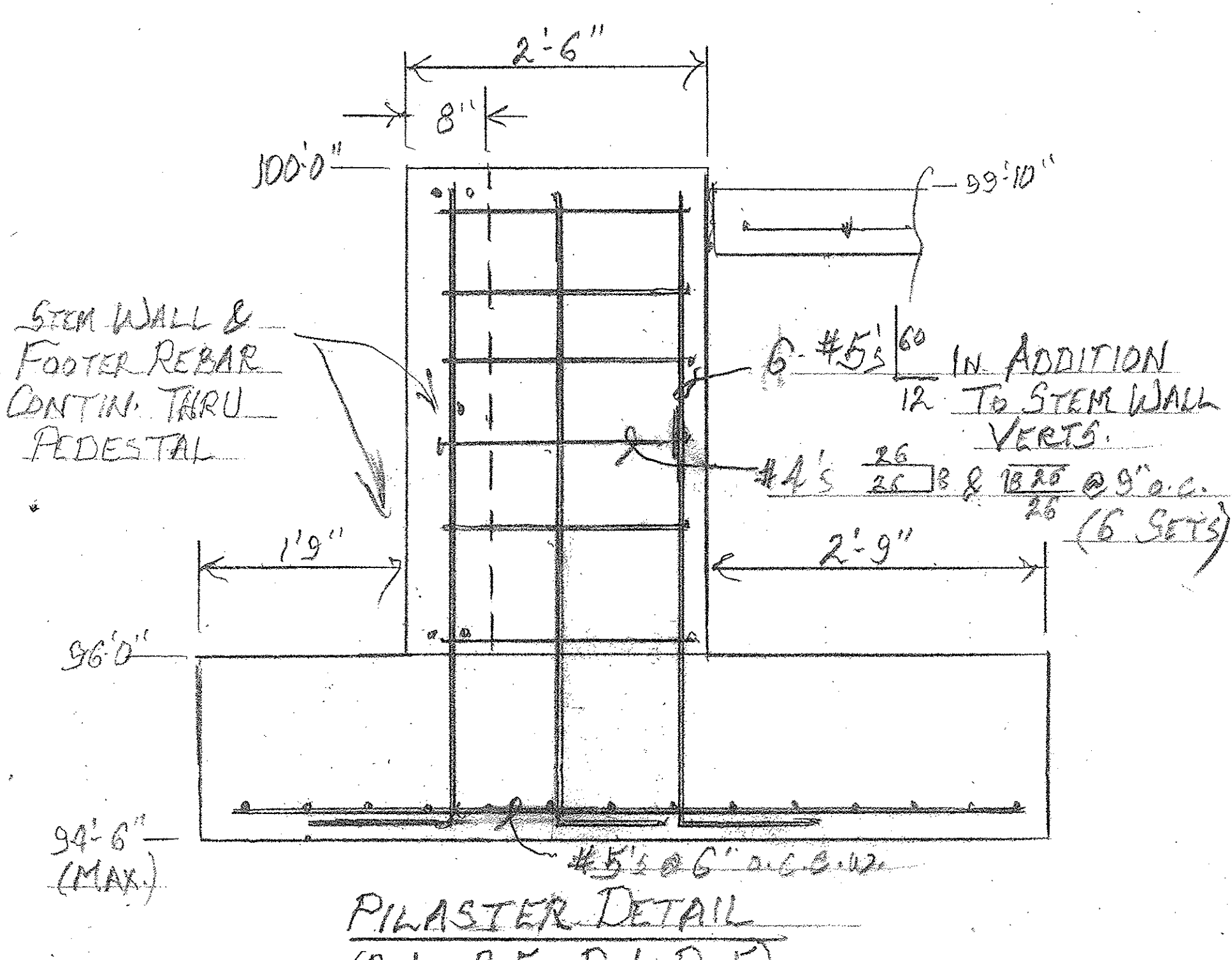
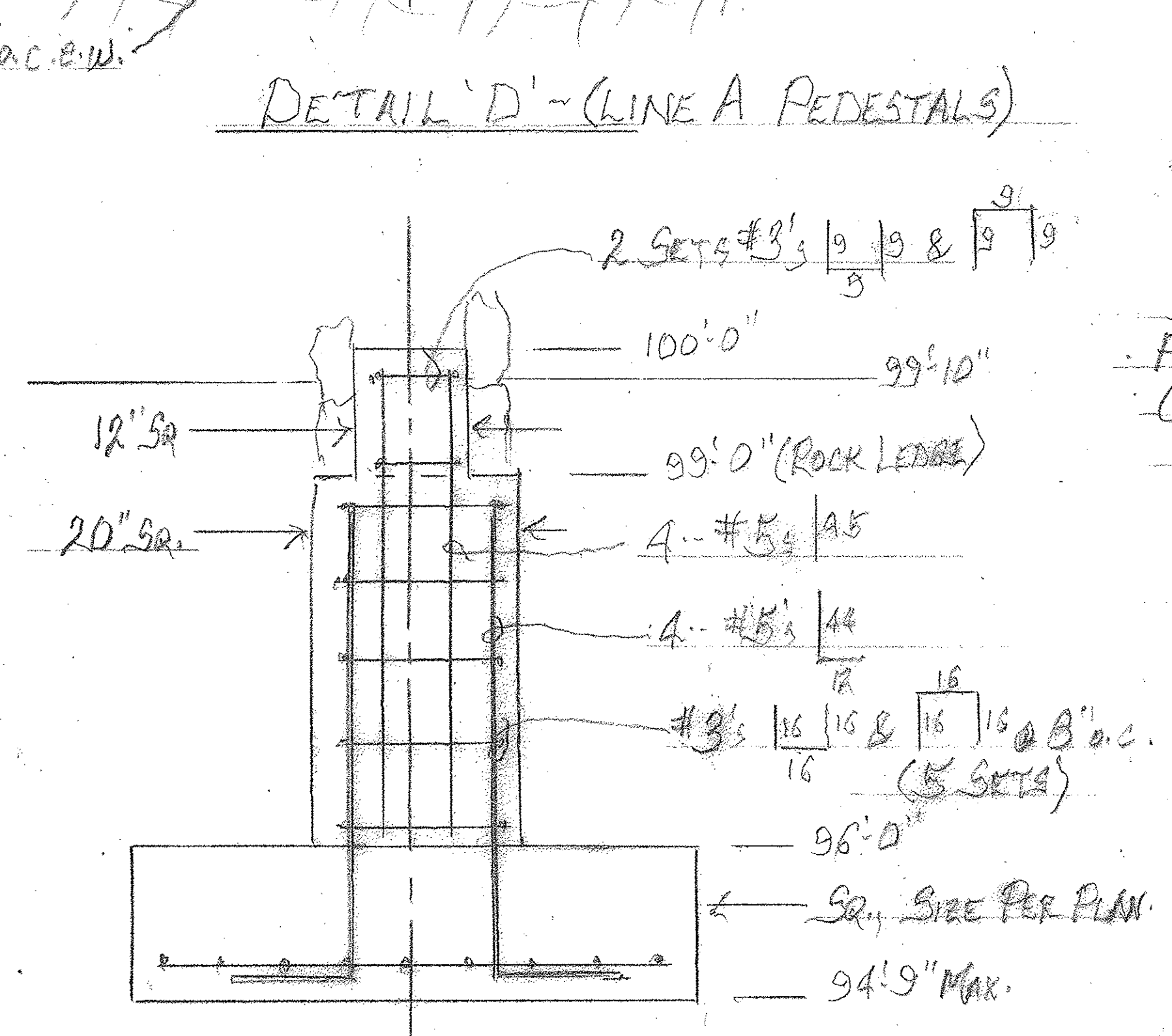
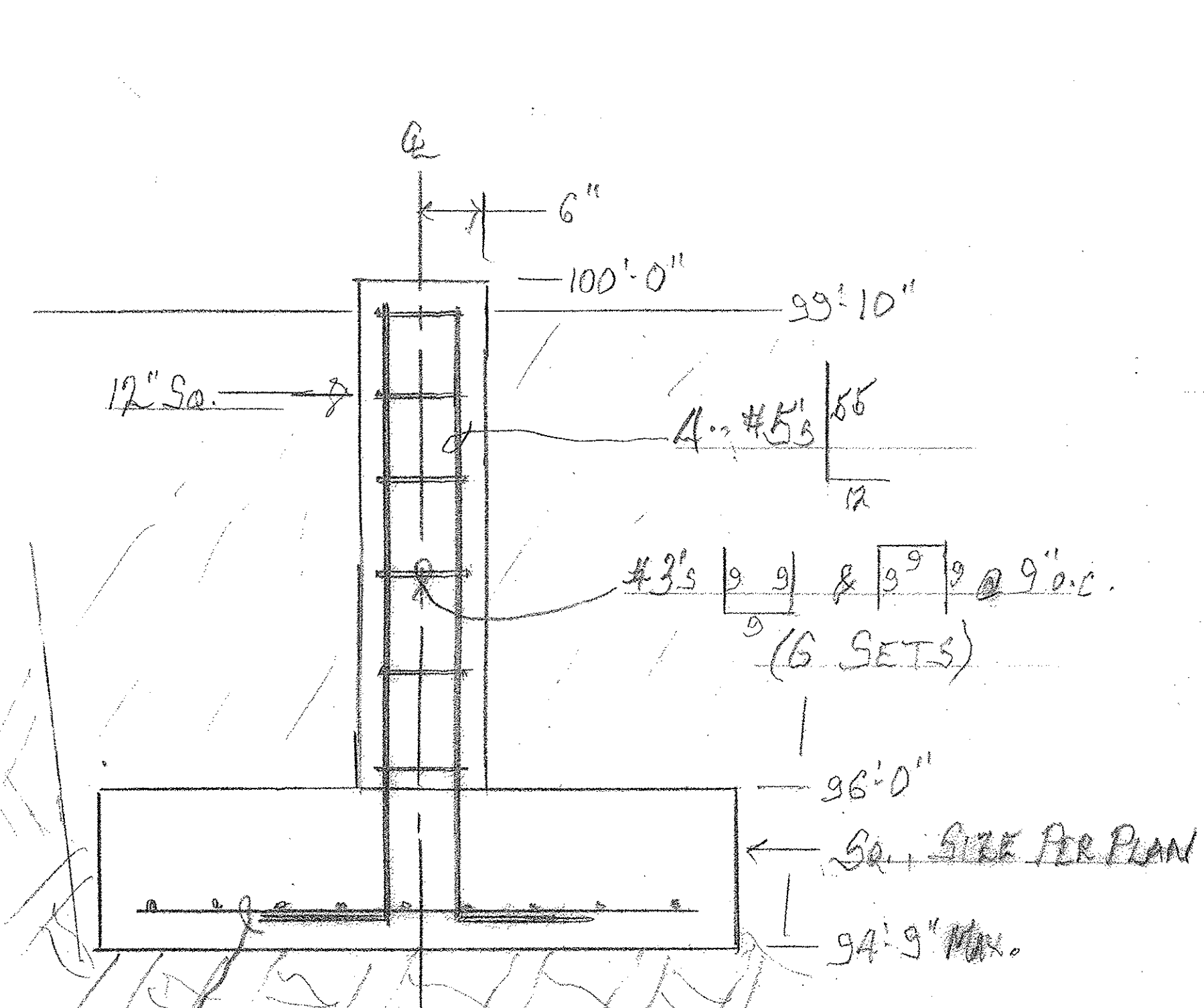
DETAIL SITE & DOWNS PLAN BARN / BUNKHOUSE LONGMONT BEAR RANCH FOUNTAIN COUNTY, COLORADO		
<b>Bear Valley Design, Ltd.</b> Engineers - Consultants P.O. BOX 418    STEARNS ST SPRING, COLO. 80477    (303) 738-6404		
	DATE: 10/15/99    SCALE: 1"=40'    SHEET: 20 OF 20    REV: 1/1 DESIGNER: CSD    CHECKER: NRP <b>SHEET 20 OF 20 - D</b>	



[illegible]

FOUNDATION		
BARN/BUNKHOUSE LONESOME BEAR RANCH ROKITA COUNTY, COLORADO		
	<b>Bear Valley Design, Ltd.</b>	
	Engineers - Consultants	
P. O. BOX 475 STEAMBOAT SPRINGS, COLO. 80477 (870) 878-5454		
DATE: <u>SEP 11/80</u>	SCALE: <u>AS NOTED</u>	JOB: <u>—</u>
DRWN: <u>CHK.</u>	APP: <u>[Signature]</u>	REV: <u>0</u>
SHEET <u>15 OF 39-D</u>		





RCRBD  
Record Set

REVISION LOG				
NO.	DESCRIPTION	DATE	D	A

**FOUNDATION**

**BARN/BUNKHOUSE**

LONESOME BEAR RANCH  
BOULDER COUNTY, COLORADO

**Bear Valley Design, Ltd.**

Engineers - Consultants

P.O. BOX 475 STEAMBOAT SPRINGS, COLO. 80477 (970) 879-5454

DATE: 6/27/19 SCALE: 1" = 1'-0" JOB: REV: 0

DRAWN: CHK: APR: 20

**SHEET 2 OF 36-D**



Hi Ted--

Yes, the slab on the main floor will incorporate hydronic radiant heating, and insulation under the slab, between the 'Barrier' vapor barrier I specified on the drawing and the foam material (with buttons for locating the tubing) with have an R value of at least R5.

The anchor bolts will be as follows:

3/4" D., imbedded in the pilasters (5 locations on each side) will be 36" long with a 4" right angle hook at the bottom and 5" length of 3/4" D. UNC thread at the top.

3/4" D. imbedded in the end walls for end wall columns will be 18" long with a 3" right angle hook at the bottom and 5" length of 3/4" D. UNC thread at the top.

All 1/2" D. bolts for miscellaneous door frame attachments may be typically available commercial drill in type cinch anchors.

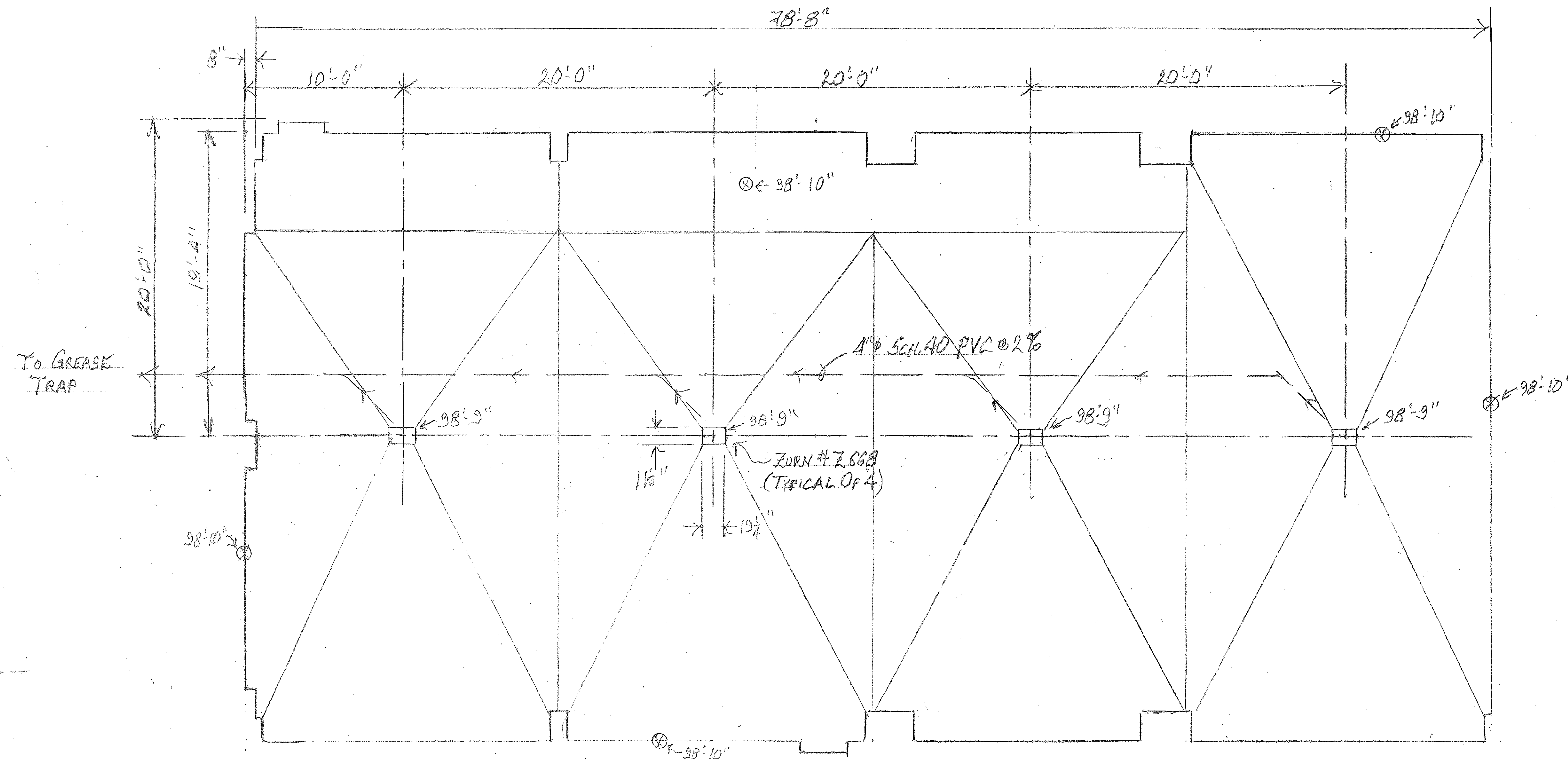
All 3/4" bolt shall be either of A-36 steel or meet the building manufacturer's noted 'F1554' spec, whichever is more stringent.

At the present time, Mike and I are discussing alternative methods for dealing with the insulation gap you pointed out where the rock veneer (which is not extend more than 4" above grade) extends below grade. We will have this detail worked out before it is time to pour the floor slab.

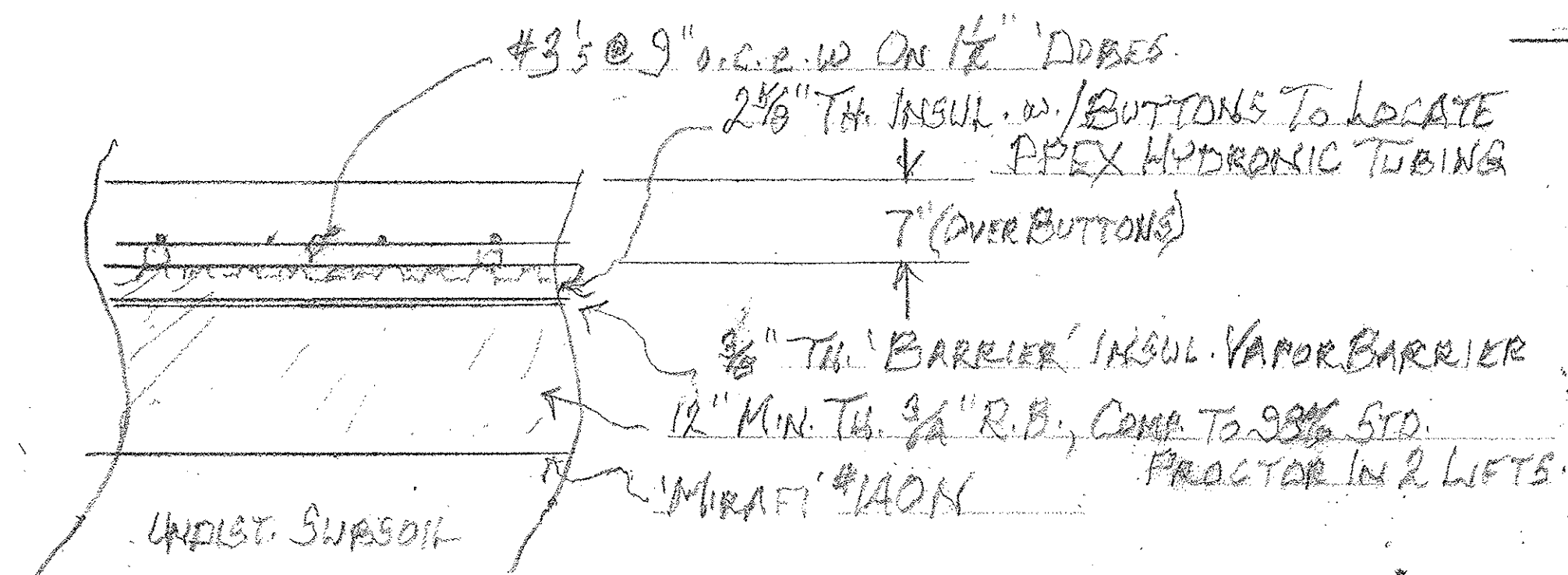
Mike is planning to come by your office today (Friday 10/4) and I hope that this info is sufficient so that you will be able to issue the foundation permit for the building when he arrives there.

Thanks, and best regards,

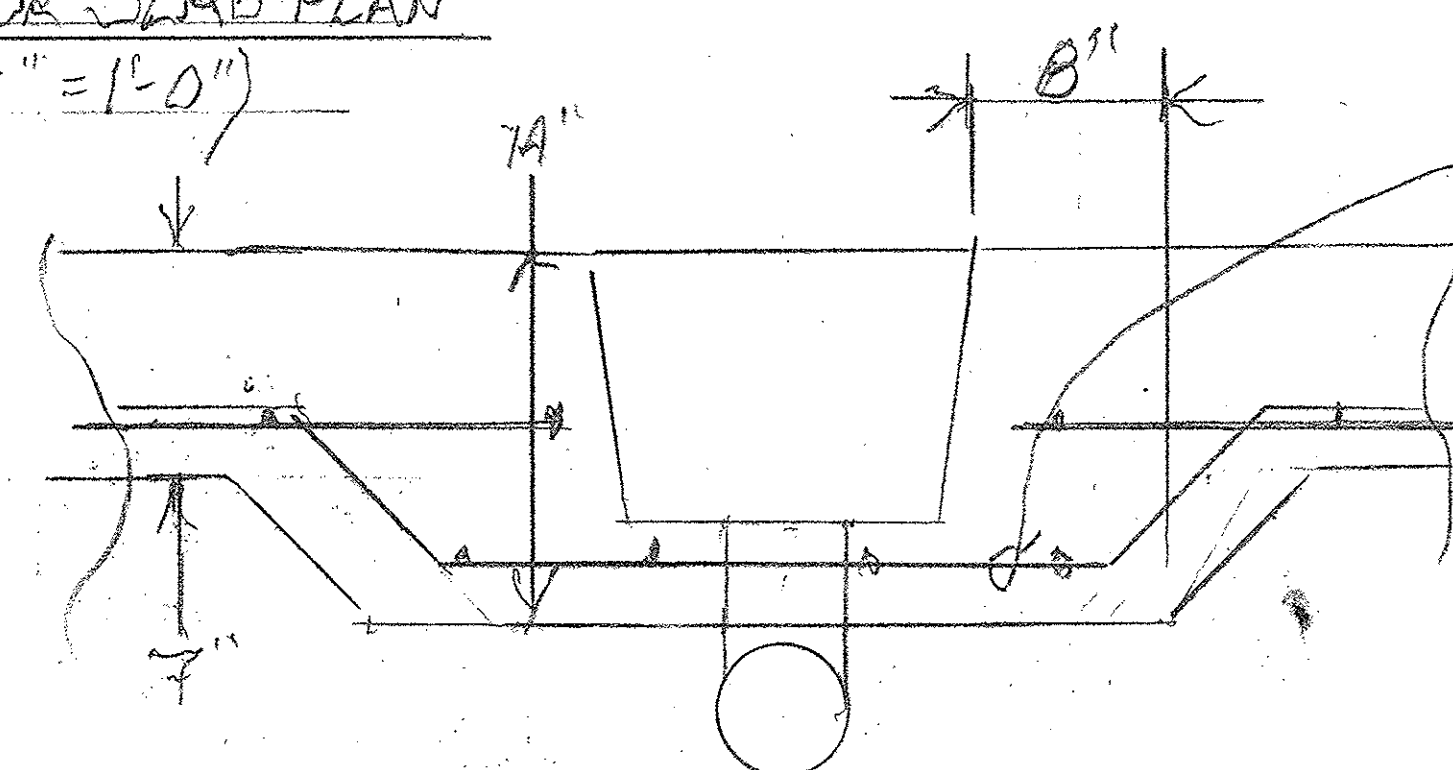
Greg



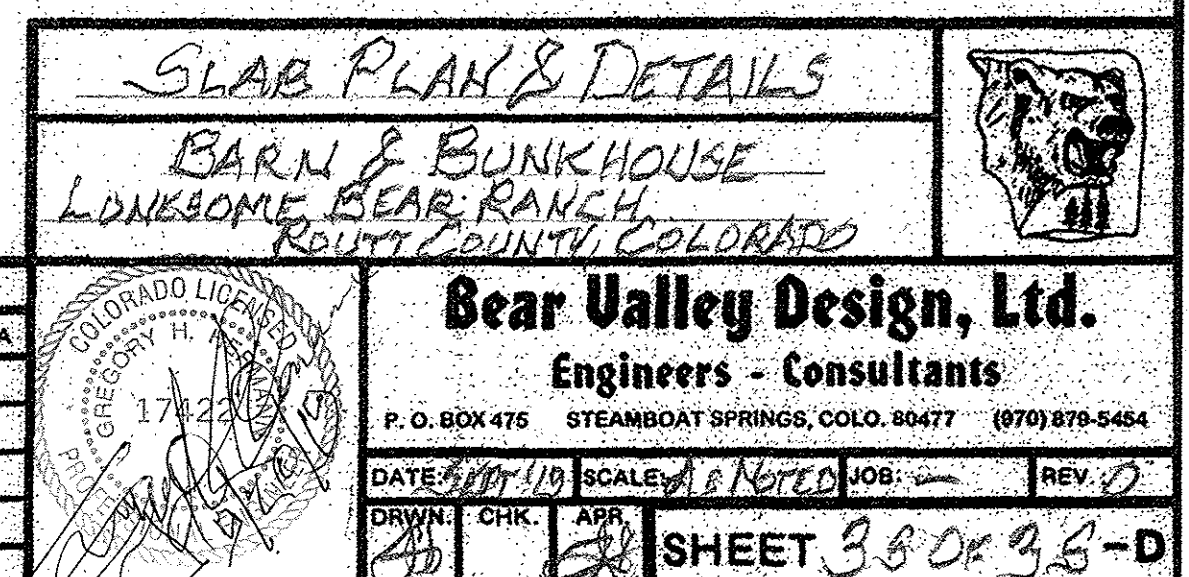
## FLOOR SLAB PLAN

$$\left(\frac{1}{A}'' = 1 - 0''\right)$$


## TYPICAL SLAB SECTION

$$(1'' = 110')$$


### SLAB DETAIL @ FLOOR DRAIN

$$(R' = I' \cup O')$$
[illegible]





Proudly Serving Rural Routt County \* City of Steamboat Springs \* Town of Hayden \* Town of Oak Creek \* Town of Yampa \* Routt County School Districts

## Foundation-Only Building Permit Submittal Requirements

Routt County Regional Building Department can approve and issue Foundation-Only Building Permits, the following submittal requirements at minimum need to be submitted with your permit application. Please also refer to our Application and Plan Review Permitting Process informational handout, which will provide additional detailed information on the below requirements and contact information per the AHJ's.

**Special Note Under-Slab Work:** Permits for Plumbing, Mechanical, Gas, Fire Sprinklers, and Electrical work will not be allowed to be issued during a Foundation-Only Building Permit and no under-slab work shall be performed until a full Building Permit is approved and issued. The following exceptions below are allowed for Electrical and Plumbing.

### Exceptions:

1. Electrical Permit for temporary construction service only may be obtained.
2. Plumbing Permit for installation of the sanitary main and/or water main(s) may be obtained, this permit will only allow the lines to enter the building under or through the footing/foundation, and no further work beyond this will be allowed or inspected.

## Foundation-Only Building Permit Required Submittal and Approvals

- Completed and Approved Site Plan meeting submittal requirements from the AHJ
- Completed and Approved Utility Plan meeting submittal requirements from the AHJ
- Completed and Approved Grade and Fill Permit Application meeting submittal requirements from AHJ.
- Completed and Approved Septic System and Well Permit where applicable from AHJ.
- Full Approval from Planning and Zoning Departments or AHJ meeting all submittal requirements.
- Completed Soils Report: Soil bearing capacity, including minimum dead load requirements.
- Lateral earth pressure for basement and retaining walls. (According to the submitted soils report.)
- Roof Design Snow Load. (Snow loads vary in the Routt County Region, please contact the building department office to verify the snow load for the area where you intend to build.)
- Floor design live loads. (40 p.s.f.)
- Wind design speed (115 m.p.h. according to the IRC & IBC) and exposure (either B or C) or Risk Category exception.
- Foundation material description and specifications.
- The location and size of piles and drilled caissons.
- The location and size of footings.
- The depth of footings, piles and drilled caissons.
- The location and size of all foundation walls and piers.
- The location, size, grade, and spacing of all reinforcing steel.
- Material and fasteners specifications for wood foundation systems.
- Anchor bolt size and spacing.

Routt County Regional Building Department

136 Sixth Street, PO Box 773840 Steamboat Springs, CO 80477 PH: 970-870-5566 Fax 970-870-5489 Email: [Building@co.routt.co.us](mailto:Building@co.routt.co.us)



# RCRBD Record Set

- Framing anchors and connectors to be embedded in concrete or masonry.
- Concrete and masonry beam pocket locations and sizes.
- Concrete slab thickness and reinforcement.
- The location of exterior and interior columns, beams and girders, headers and lintels.
- Construction details and material specifications for columns, beams, girders, headers and lintels.
- The location of all exterior and interior bearing and shear walls.
- Bearing and shear wall construction details and material specifications.
- Floor construction details and material specifications.
- Roof construction details and material specifications.
- Exterior deck and porch construction details and material specifications.
- Structural load calculations for the entire building including wind, snow, live and dead loads.
- Height and area calculations
- Architectural elevations and sections

**Foundation-Only Building Permit Fees:** Routt County Regional Building Department does not provide any fee reduction for Foundation-Only Building Permits; all applicants must provide the total project valuation that would be entered for a normal Building Permit application. Plan Review Fees must be paid prior to the Plan Review process beginning, then all Building Permit Fees must be paid for prior to the issuance of the Foundation-Only Building Permit.

**IBC Section 107.3.3 Phased Approval.** The building official is authorized to issue a permit for the construction of foundations or any other part of a building or structure before the construction documents for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of this code. The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted.

#### **Foundation Plan Submittal Requirements:**

The plans submitted by the applicant or professional consultant must be labeled as Foundation-Only Plans and have the Professionals Stamp/Seal on the plan set in order to be approved by the Routt County Regional Building Department.

#### **Applicants Responsibilities and Risks:**

The Foundation-Only Building Permit when issued by the Routt County Regional Building Department allows the applicant to proceed with the construction of the footings and foundation work as shown on the approved set of plans. The permit applicant understands no work beyond the foundation shall take place prior to receiving approval and issuance of a full Building Permit. The permit applicant is proceeding at their own risk with no assurance that a full Building Permit will be granted. Any changes, alterations, or addendums that are submitted or required to the building plans after the issuance of the Foundation-Only Building Permit could potentially affect the pre-approved work area. Any necessary changes or alterations to the existing foundation work will be the applicant's responsibility to complete in accordance with the new approved submitted plans.

Permit Applicant Signature:  Date: 9/21/2019

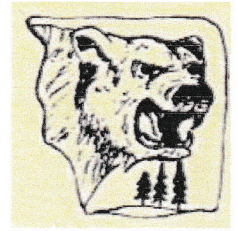
Building Official Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Routt County Regional Building Department  
136 Sixth Street, PO Box 773840 Steamboat Springs, CO 80477 PH: 970-870-5566 Fax 970-870-5489 Email: [Building@co.routt.co.us](mailto:Building@co.routt.co.us)



# Bear Valley Design, Ltd.

## Engineers - Consultants



P. O. Box #770475  
STEAMBOAT SPRINGS, COLORADO, 80477-0475  
MOBILE: (970) 879-5454  
E-MAIL: <bearbyd@mindspring.com>

June 27, 2019

**RCRBD**  
**Record Set**

Mr. Carrol Moran  
PO Box 209  
Chatfield, Texas, 75105

Subject: Soil investigation and LTAR evaluation for a two buildings and an Onsite Wastewater Treatment System (OWTS) on a 100.94 acre tract of land on the Lonesome Bear Ranch in T5N R868W, in Routt County, Colorado.

Dear Mr. Moran,

Per your request, we performed a soil investigation and evaluation on the subject site earlier in June of this year. The investigation was performed for the purpose of providing soil design parameters for the foundations for a steel building and for a residence, and the evaluation was performed the purpose of designing an Onsite Wastewater Treatment System (OWTS) for use by the steel building (which will include a bunkhouse).

The proposed steel structure is anticipated to be of typical, single story, red iron steel framed construction, including a slab on grade main floor and a bunkhouse upper floor, all to be founded on reinforced concrete stem walls which bear upon reinforced concrete spread footers. The proposed residence is anticipated to be of typical wood framed construction, with a slab on grade lower (walk-out) lower floor, a main floor and an upper floor. The building site is located on top of a hogback with slopes downward to the north, aouth, and east, and a slope upward to the west. The vegetation on the site consists of grass and oak brush. Although the building site is nearly level, the slopes downward to the south and east are relatively steep, and the slope upward to the west is fairly steep.



Three test pits and a profile hole (four pits total) were advanced on the lot, three in the relatively flat area where the buildings are expected to be situated. The profile hole was advanced somewhat downslope to the north of the proposed building pad, in the logical location for the OWTS absorption field. The pits were advanced using a crawler mounted excavator.

All three test pits revealed 12 to 24 inches of very slightly moist, medium brown sandy, slightly silty loam, topsoil overlying a native, moderately dense, very slightly moist medium sand subsoil which extended to the maximum depth explored of eight feet.

The fourth test pit (the profile hole) revealed approximately 30 inches of similar, moderately moist topsoil overlying subsoils similar to those exposed in the first three test pits, but less dense, and containing small amounts of silt and clay. The profile hole was advanced to a depth of nine feet, and revealed no signs of free ground water and no bedrock.

No bedrock or free water was encountered in any of the four test pits.

Our experience with similar soils, taken together with our observations in the test pits, have led us to form the opinion that the moderately dense sand subsoil observed in the first three test pits will provide stable bearing for the foundations of both of the proposed structures. We also concluded that the site and the subsoil observed in the profile hole are, in fact, suitable for the installation of an OWTS with a leach field of the type of design detailed below.

Spread footers for both of the proposed structures should be designed to bear on the moderately dense sand subsoil observed in the first three test pits, with a maximum net bearing pressure of 2.0 KSF. No minimum dead load will be necessary on any of the footers. Any retaining structures should be designed to retain pressure equivalent to that which would be exerted by a fluid weighing 40 PCF.

The footers for both foundations must be surrounded with a footer drain constructed using 4" diameter D-2729 perforated PVC pipe (with the perforations located at 4 and 8 'o'clock'), bedded and covered with ¾" screened rock, which in turn must be wrapped in a geo-fabric such as 'Mirafi' #140N. Both footer drains must run from a pair of clean-outs, have a minimum 1% slope around the foundation to a corner opposite the clean-outs, and at that point be welded together to drain to daylight via a non-perforated 4" diameter PVC pipe. These drains must be located at a low enough grade so that it will prevent



water which might penetrate the backfill from soaking the bearing soil beneath the footers. The daylighted end of these drains should be protected from intrusion by critters by means of a screen and cobbles.

Frost protection for the foundations must be provided by maintaining a minimum of 48" of earth cover over them, measured in any direction. The finish grade should provide for a minimum of 2% slope away from the structures in all directions for a minimum of 10 feet, as well as for positive and continuous drainage away from the buildings without any ponding. Native subsoil materials will provide appropriate backfill. It is anticipated that a large portion of both buildings' perimeters will be surrounded with a graveled driving surface. Backfill not situated beneath a graveled driving surface may be capped with a maximum six inch thick layer of topsoil. The native backfill material must be placed in lifts a maximum of 10 inches thick, with each lift moistened and compacted to 93% of its Standard Proctor density.

In order to control moisture as well as to minimize heating costs for the proposed building, as well as to provide for proper curing of the concrete, all slab on grade floors must be placed directly on top of a minimum six mil thick sheet of visquene. The slabs on grade must be isolated from the subgrade by a minimum twelve inch thick layer of compacted  $\frac{3}{4}$ " road base gravel. This gravel fill must be isolated from the underlying material by means of a sheet of 'Mirafi' #140N (or equal). It is anticipated that the slab on grade floors will be provided with hydronic, in floor heating. In this case, underslab insulation per energy code requirements must be provided. We highly recommend the use of foam insulation provided with 'buttons' for positively locating the (O2 barrier type) Ppex tubing, and providing a layer of 'Barrier' insulating vapor barrier beneath the foam insulation.

All structural elements of the building must be isolated so that the slab on grade floors are free to float with respect to the rest of the buildings. All partitions located directly above any slab on grade floors must be constructed with a minimum 1- $\frac{1}{2}$  inch high expansion joint, built per typical local practice, at the bottom of the framing of said partitions.

The native slightly clayey sand subsoil encountered in the profile hole classifies as a Type 3 soil per CDOPH& E Regulation #43. Therefore, absorption trenches for the proposed OWTs should be designed based on a Long Term Acceptance Rate (LTAR) of 0.35 gallons per square foot per day.



We re-emphasize that no free ground water was observed in either the profile hole or in the other test pits, and the observed subsoil in the profile hole extended more than four feet below the expected design elevation of the bottom of the proposed absorption trenches without encountering any free ground water.

Thank you for the opportunity to have been of professional service to you in this matter.

Sincerely,

Bear Valley Design, Ltd.

Gregory H. Hermann  
Colorado P.E. #17422



**Structural Notes--Lonesome Bear Ranch, Barn/Bunkhouse, Routt County,**  
**Colorado**

1. All concrete shall contain six 90 pound sacks of Type II cement per cubic yard,  $\frac{3}{4}$  inch maximum size aggregate, 2% to 4% entrained air, and shall be placed in full accordance with all provisions of the current version of ACI-318.
2. All reinforcing steel shall conform to ASTM A-615, Grade 60
3. Design slab on grade floor load is 250 lbs./sq. ft., live;
4. Design nominal snow load is 80 lbs./sq. ft.
5. Design wind load is 90 mph, per IRC 'Exposure B' requirements at a density altitude of 7,200 ft., mean sea level.
6. Design earthquake is per IRC 'Zone B' requirements.
7. Design soil conditions are 2.0 KiP/sq. ft., maximum net bearing and 0.0 KiP/sq. ft., minimum dead load, per Bear Valley Design, Ltd. Letter dated June 27, 2019.
8. All details enumerated in the letter referenced in 7. Must be executed in full.
9. The steel ('red iron') frame building above the foundation is to be designed, engineered, certified, and fabricated by others. Installation of the building and anchor bolts in the foundation is to be per the building mfgr's. sizing and layout dimensions and specifications
10. Heating plans to be provided on a design/build basis by mechanical contractor.
11. Electrical plans to be provided on a design/build basis by electrical contractor.
12. Plumbing plans to be provided on a design/build basis by plumbing contractor.
13. All above grade, enclosed portions of the building are to be insulated using spray-on, 2 part urethane foam insulation, with minimum R values of R-50 in the roof and R-30 in the exterior walls.





100.94 Acre Parcel on Lonesome Bear Ranch, Routt County, OWTS Calculations

Proposed Barn and Bunkhouse:

4 Bedrooms = 7 persons @ 75 Gallons/ day/ person = 525 Gal./day design flow

Minimum tank size = 1,250 Gallons, with 2 chambers and an approved effluent filter plus a 500 Gallon Dosing Tank with a Fluid Dynamics, Inc., #216 Auto-siphon, giving average 30 gpm flow for an approx. 250 gallon dose.

Leach Field Sizing : 'Infiltrator' Quick 4 chambers in center fed trenches.

Long Term Acceptance Rate (LTAR) = 0.35 Gal./ sq. ft. / day into Type 3 Soil, sandy clay loam (per Bear Valley Design, Ltd., letter, dated 6/27/19)

(525 Gal./day) x (.7 (reduction factor for use of chambers)) x (.9 (reduction factor for dosing)) / (0.35 Gal./day/ sq. ft.) = 945 sq. ft. (required absorption area)

System will be designed to use 'Infiltrator' 'Quick 4' chambers. Said chambers provide an effective absorption area 48" x 34". (48 x 34)/144 = 11.33 sq. ft./ chamber

945 sq. ft./ (11.33 sq. ft./ chamber) = 84 chambers required (4 rows of 21), center fed

