ATTACHMENT 2

RL74/83 GROUNDWATER MODELING MEETING HANDOUTS

Figure 1 shows the generalized geologic conditions at CSSA and illustrates the primary structural features dominated by normal faulting across CSSA. Figure 2 identifies the relative proposed drilling locations for RL83 and DO23 wells. Figure 3 illustrates the proposed well construction for the cluster wells. Figure 4 is an attempt to render the proposed monitoring network from a three-dimensional viewpoint.

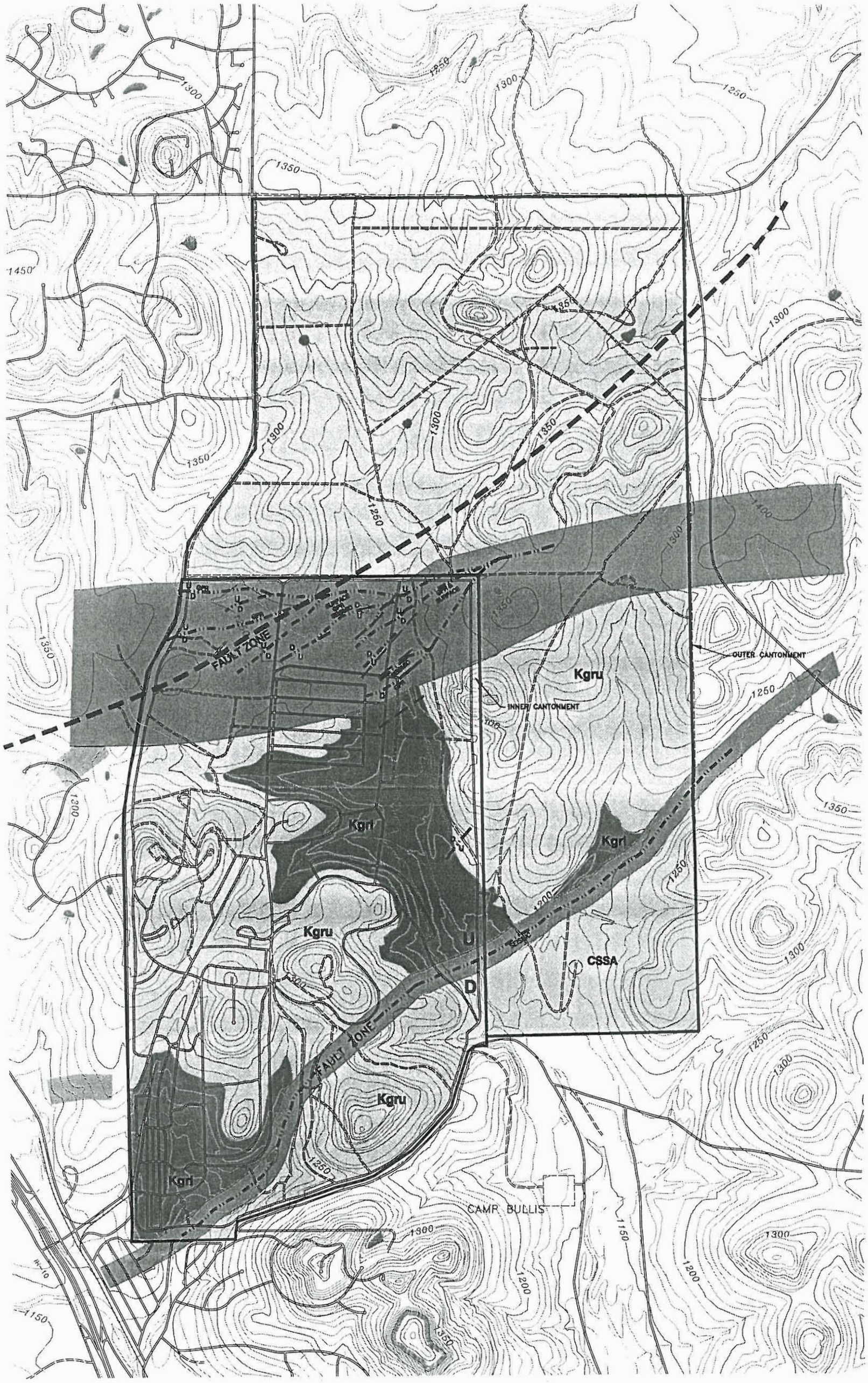
The primary assumption is that Wells 2, 3, 4, 16, D, MW1, and MW2 provide a somewhat adequate delineation of the solvent plume above action levels. Therefore, the additional wells have been placed such that the suspected source areas and routes of preferential contaminant migration can be investigated. By decentralizing the focus of the investigations, subsurface data can be collected from differing areas of post to help define varying geologic/hydrogeologic conditions.

The following table lists the advantages and disadvantages for each proposed well location. Cluster wells (RL83) are denoted as locations C1 through C4. The LGR wells (DO23) have been assigned the location identifiers X, Y, and Z.

Drilling Location	***Advantage***	***Disadvantage***
Cluster C1	➢ Upgradient of contaminant plume. ➢ Upgradient of B1 and B2. ➢ Upgradient of fault zone. ➢ Provides BS and CC information north of inner cantonment area.	➢ Fault zone will not be intersected. ➢ Well will be closely spaced towards proposed LGR Well Y.
Cluster C2	➢ Within vicinity of primary source areas B3 and O1. ➢ Within fault zone. ➢ Easternmost penetration of BS and CC within cantonment area.	➢ Additional drilling footage may be incurred due to increased surface elevation?
Cluster C3	➢ Within fault zone. ➢ Help determine if contaminants are being conducted westward through fault by pumping. ➢ Serve as a perimeter observation point and demonstrate that contaminants are not migrating from CSSA along a primary pathway. ➢ Cluster will monitor entire thickness of the Middle Trinity Aquifer at a location proximal to receptors in developed areas west of CSSA.	➢ Likely that cluster will not encounter contaminants, thus not aid in contaminant transport model. ➢ Relatively close to wells 9, 10, and 11 which all penetrate the CC.

Drilling Location	*Advantage*	*Disadvantage*
Cluster C4	➢ In vicinity of former well 6, which had 1.5 ppb PCE in May 1994. ➢ Cluster will monitor groundwater impacts (if any) in the most industrialized portion of CSSA. ➢ Cluster will monitor entire thickness of the Middle Trinity Aquifer at a location proximal to receptors in developed areas south of CSSA. ➢ Past monitoring indicates that the location would be in a downgradient position during periods of drought when groundwater flow is southwest. ➢ Provide useful information in vicinity of fault and information regarding the BS and CC towards the southwest. ➢ Serve as a perimeter observation point and demonstrate that contaminants are not migrating from CSSA along a primary pathway.	➢ No useful data regarding the well 16 solvent plume is likely to be attained. ➢ Possible that the cluster will not encounter contaminants detected in former Well 6, thus not aid in contaminant transport.
Well X	➢ Serve as a perimeter LGR well for inner cantonment. ➢ Upgradient of fault zone and provide detection monitoring. ➢ Proximal to Salado Creek which is the primary watershed drainage for suspected SWMU source areas. ➢ Fills in spatial data gap in central portion of CSSA.	➢ Unless contaminant infiltration is occurring along Salado Creek, useful data regarding the well 16 solvent plume or source areas may be limited. ➢ A different well location may better suit the modeling effort.
Well Y	➢ Serve as a dowgradient LGR well to B1 and B2. ➢ Help determine if B2 is a source of PCE/TCE contamination. Possibly provide an additional clean upgradient location to well 16. ➢ Proximal to mapped fault zone.	➢ In area with that already has sufficient well control. ➢ A different well location may better suit the modeling effort. ➢ Well will be closely spaced near well cluster C1.

Drilling Location	*Advantage*	*Disadvantage*
Well Z	➢ Provide missing hydraulic data in the eastern portion of the outer cantonment area. ➢ Help spatially distribute data for the modeling effort. ➢ Help determine if there is a easterly groundwater component in this vicinity. ➢ Proximal to mapped fault zone.	➢ Will likely not encounter contaminants, and therefore will not be an asset to contaminant distribution modeling. ➢ Additional surface elevation will increase drilling footage. ➢ A different well location may better suit the modeling effort.



LEGEND

U / D — DISPLACEMENT BASED ON GROUND PENETRATING RADAR (GPR) SEISMIC, AND/OR MAPPING "U" INDICATES UPTHROWN SIDE OF FAULT, "D" INDICATES DOWNTHROWN SIDE OF FAULT. AREA SHADED GRAY REPRESENTS FAULT ZONE.

Kgru — UPPER GLEN ROSE FORMATION (WORK PERFORMED BY PARSONS ES)

Kgri — LOWER GLEN ROSE FORMATION (WORK PERFORMED BY PARSONS ES)

FAULTS FROM HEFNER, RENE G. ENVIRONMENTAL GEOLOGY AND LAND USE CAPABILITY OF THE WESTERN CAMP BULLIS, NORTHEASTERN CASTLE HILLS, NORTHERN HELOTES, AND VAN RAUB QUADRANGLES IN NORTHWEST BEXAR COUNTY, TEXAS. THE UNIVERSITY OF TEXAS AT SAN ANTONIO, M.A. THESIS (UNPUB.) 1993

WATERREUS, PETER A. HYDROLOGY OF THE CAMP BULLIS AREA, NORTHERN BEXAR COUNTY, TEXAS, THE UNIVERSITY OF TEXAS AT SAN ANTONIO, M.A. THESIS (UNPUB.), 1992

SOIL GAS TRENDS

Figure 1

Geologic Map of CSSA

CAMP STANLEY STORAGE ACTIVITY

734521-02000 CSSA-GEO.DWG

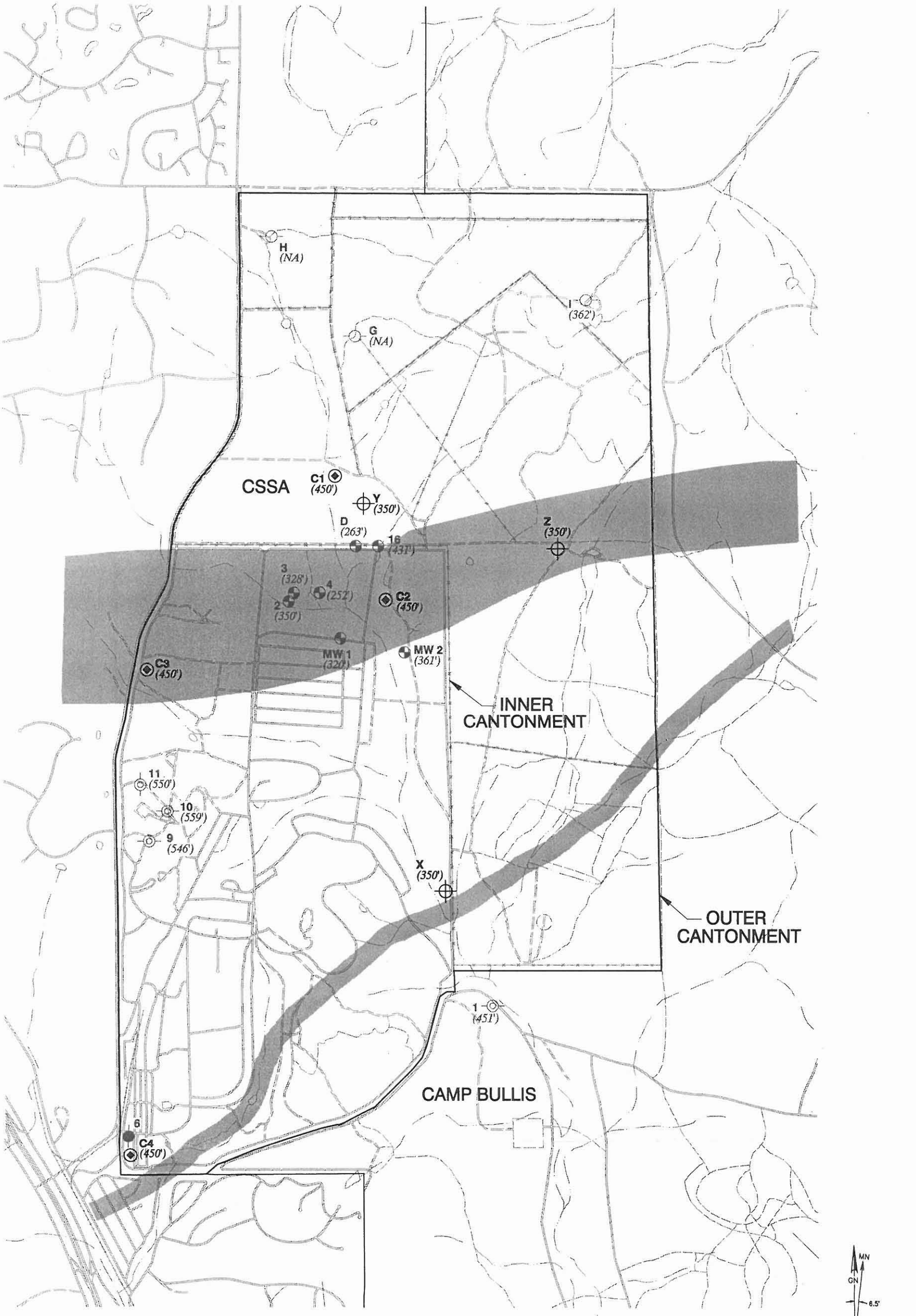


Figure 2

Existing and Proposed Well Locations

CAMP STANLEY STORAGE ACTIVITY

734521-02000 CSSA-WELL96.DWG

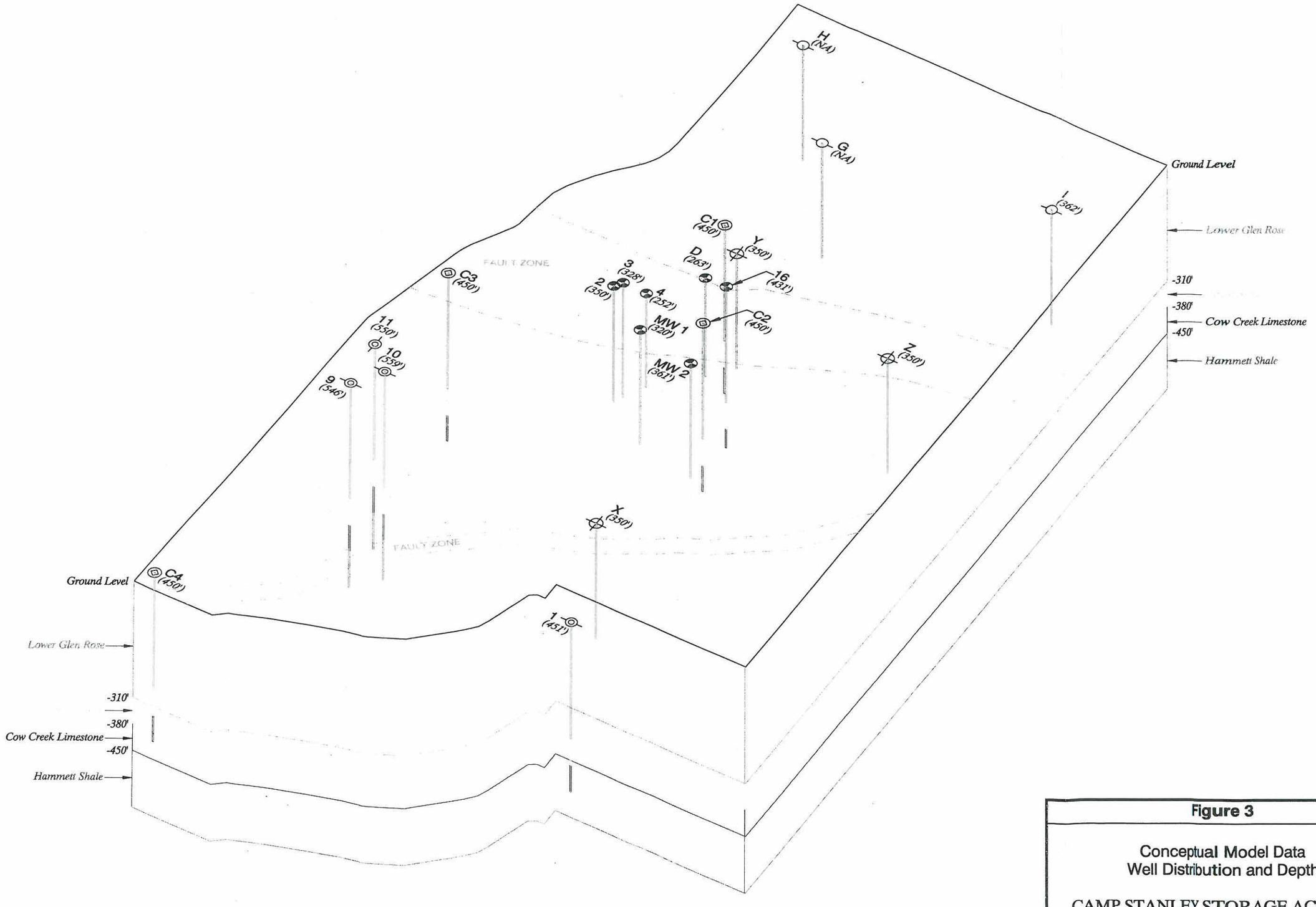
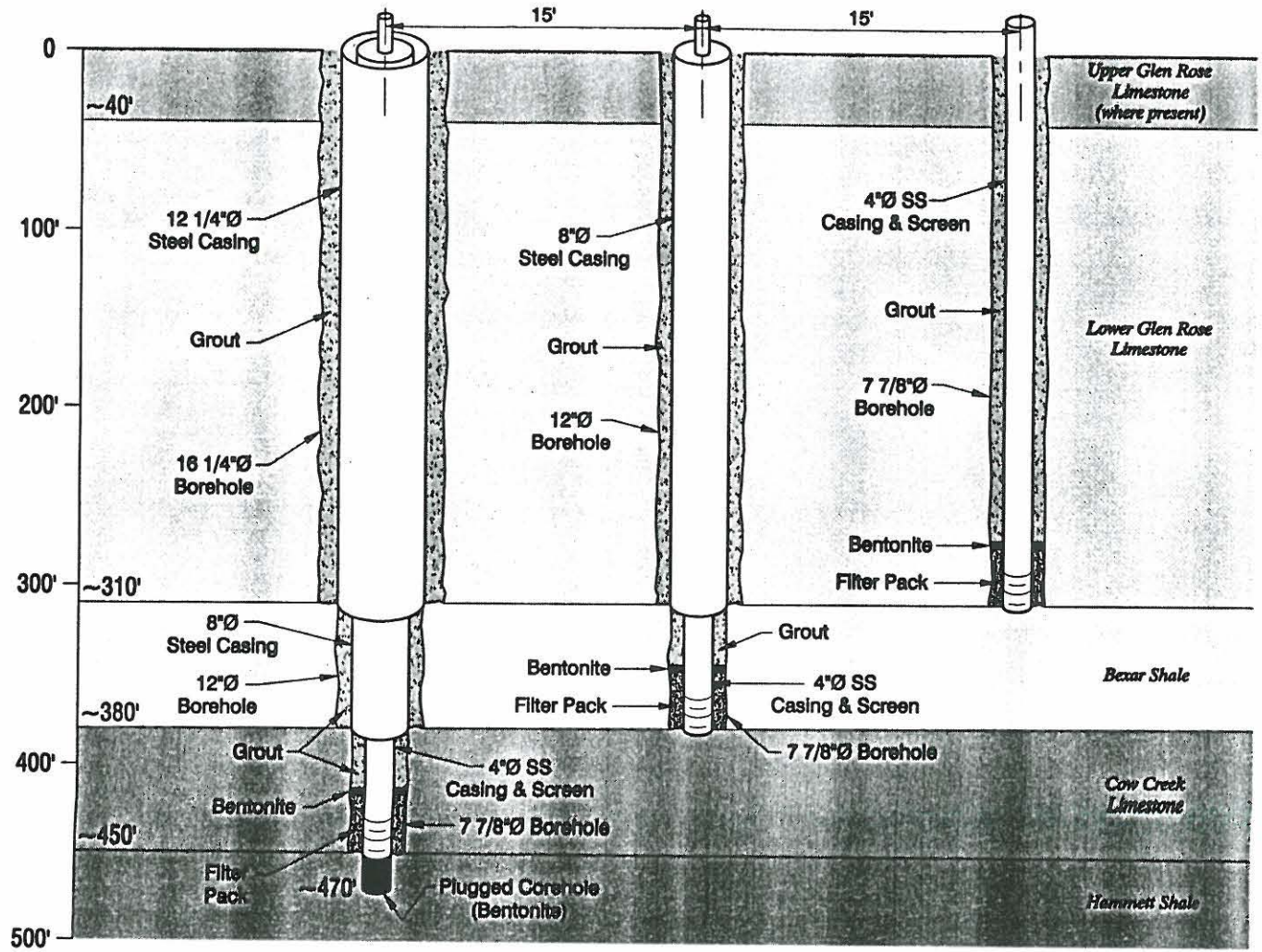


Figure 3

Conceptual Model Data
Well Distribution and Depth

CAMP STANLEY STORAGE ACTIVITY

734521-02000 CSSA-CMD.DWG



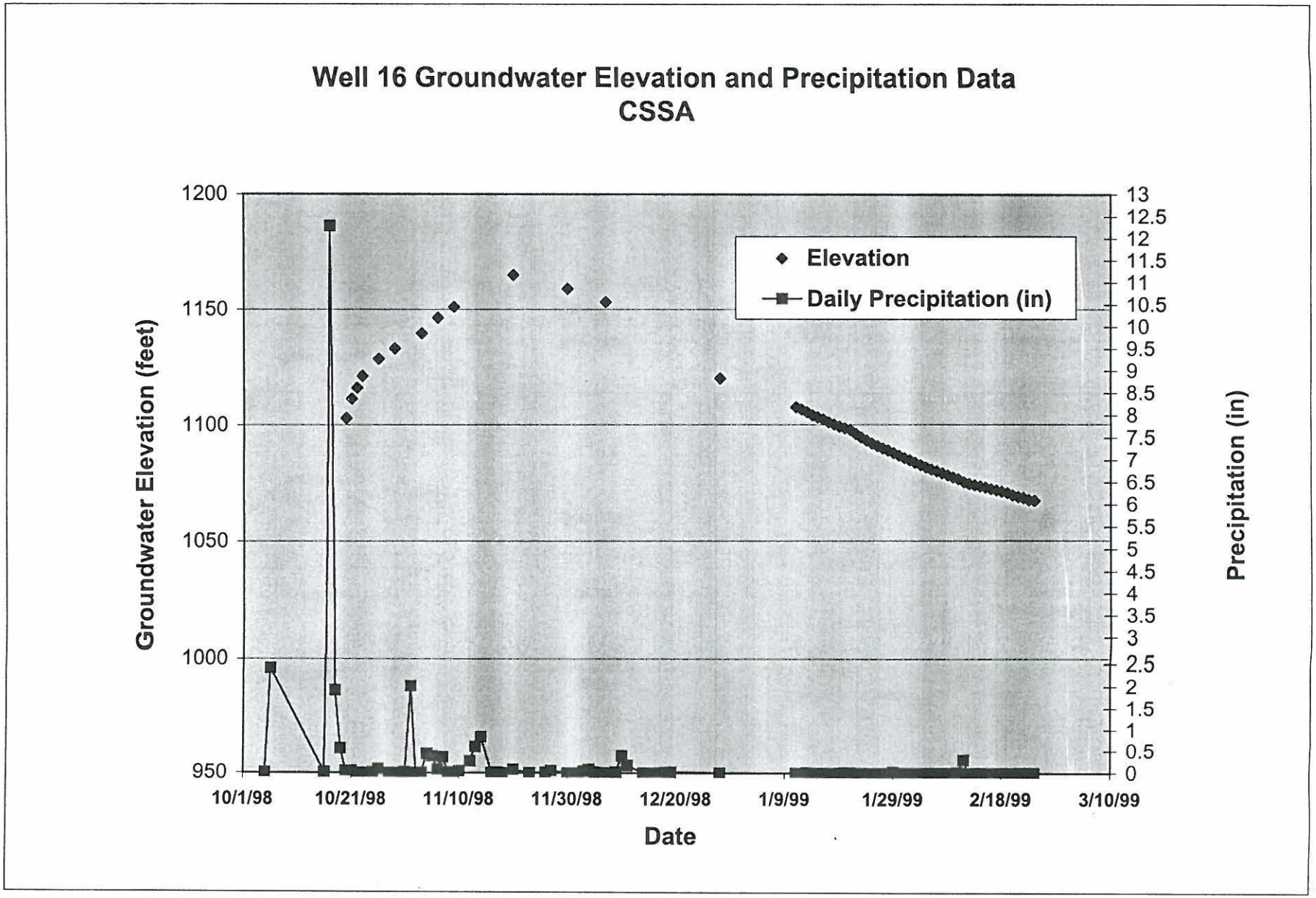
Not to Scale

Figure 4

Proposed Well Cluster Design

CAMP STANLEY STORAGE ACTIVITY

729973 CSSA-WDES.DWG


Well 16 Groundwater Elevation and Precipitation Data
CSSA
Groundwater Elevation (feet)
1200
1150
1100
1050
1000
950
Precipitation (in)
13
12.5
12
11.5
11
10.5
10
9.5
9
8.5
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Elevation
Daily Precipitation (in)
10/1/98
10/21/98
11/10/98
11/30/98
12/20/98
1/9/99
1/29/99
2/18/99
3/10/99
Date