



The Spitznagel Partners Inc. Architects/Engineers/Planners 1800 South Summit Avenue Sioux Falls, South Dakota 57101 (605)336 1160

March 8, 1971 / Re: EROS Data Center
Sioux Falls, South Dakota

Mr. Glenn Landis
Apartment 309
9900 Georgia Avenue
Silver Springs, Maryland - 20902

Dear Mr. Landis:

Enclosed please find two copies of criteria for the above referenced project requested as per your phone conversation of March 8, 1971, with Duane Paulson.

Very truly yours,

Richard R. Robinson

RRR*cas

Enclosures

Issued 2/25/71
Revised 3/2/71
Revised 3/3/71

PROPOSED LAND USE

Equivalent to light suburban densities (no industry)
2 mile to 5 mile buffer zone.

No additional development within 2 mile take line.

Interference maintenance within 2 miles.

Commercial establishments should not be located
adjacent to site (EMI). (Within 2 miles at least)

No major highway within 2 miles (of antenna).*

Suggestion:

Divide site into east and west halves.

West: Data Process and Reprod.

East: Satellite Operation, Control, Data
Reception.

Church property not owned (being obtained)

*Modification: 1-1/2 mile minimum highway to antenna.

NATURAL SITE FEATURES

Summer winds southerly.
Winter winds prevail from N.W.

Surface drainage to:
S.W. to Slip Up Creek
S.E. via Unnamed Creek
To West Pipestone Creek

High points 1605' along Central Ridge running from N.W.
to S.E. and north property line (centered and to east).
Low point 1530' S.E. corner.

Trees - 1/4 mile from West boundary along north boundary.
Farm shelter belts 1/8 mile in, approximately centered on
west boundary.
Tree row around church site extreme S.W. corner.
Farm shelter belts extreme S.E. corner.
Quality questionable.

Issued 2/25/71
Revised 3/2/71
Revised 3/8/71

ACCESS/CIRCULATION/PARKING/EXISTING ROAD UTILIZATION

Access to site limited to one direction and one good all-weather road.

Prime access from S.W. from I90 to County Road 121 extended and surfaced to Midway Road one mile west and two miles south of site.

Alternate routes from Midway Road to site:

1. Offset 121 one mile west and extend and surface north to Baltic Road. Extended 121 intersects with E-W road 2 miles north of Midway Road. Surface this road 2 miles to the east to site.
2. Midway Road 1 mile east/intersect with N-S Road. Surface this road 2 miles to the north to site.

Separation of traffic from antenna important (1/2 mile mandatory)

| | |
|-------------|----------|
| Parking | 250 Cars |
| Visitor | 50 Cars |
| Antenna Lot | (Small) |

Traffic Control Markings
Center Divider
Parking Lot Lighting
Markings

Walks:

| | |
|-------------------|---------|
| Major | 6' wide |
| Minor | 3' wide |
| (Natural to flow) | |

Future expansion of parking facilities.

Close roads or portions of roads on east and/or west and south of site. Consider use as service roads. Investigate alternate entrance to farm on south boundary. May have to create 1/2 mile dead ends.

Future use classification of existing site
Boundary roads

Closed/On-Site Circulation

Close to public but consider use as internal project road.

Issued 2/25/71
Revised 3/2/71

Limited Access/On-Site Circulation

Limit access to only those private vehicles belonging to farms whose driveways must be reached by existing boundary roads.

Problem: Visitors and service vehicles to these farms. Farm located on south may be able to have road relocated.

Issued 2/25/71
Revised 3/2/71
Revised 3/8/71

DATA HANDLING BUILDING

96,000 S.F.

200 to 500 people.

Maximum on one shift 300.

Preferred building site in slight hollow *

Tower should be able to be seen from DHB (not essential)

Separate DHB from antenna 1/4 mile minimum.**

*DHB should be on high ground (relative to sewage treatment facility) and within a reasonable distance from the sewage treatment facility to accomplish gravity flow.

**Part of DHB must approach or be outside the 1/2 mile limit from antenna imposed on vehicles if delivery and service vehicles are to be accommodated and employees and visitor/user parking lots are to be within a reasonable distance.

DHB SUPPORT FACILITIES

Archives Building

Maintenance and Grounds Building (could contain power
substation and water treatment plant) 5,000 S.F. +

Future expansion.

Issued 2/25/71
Revised 3/2/71
Revised 3/3/71
Revised 3/8/71

ANTENNA

60' to 85' S-band or 40' VHF antenna.

Locate antenna 1/8 mile from site boundary* (1/2 mile from road and parking?)

Required line of sight/above 5° antenna should clear all terrains and man-made obstacles in all directions.

lights/electric machinery/power substations/buildings.

Locate on high ground.

Bore sight tower located 2000' to 4000' from antenna. **
Top of tower \pm 2° above line from antenna dish.

Antenna support buildings.
Electronic receiving equipment.
Building 1000 S.F.
Near Antenna.

Transmitter Building 1000 S.F.
Locate on opposite side of antenna from E.R.E. Building.

Operations Buildings
15000 S.F.

Support structures can be on lower ground.

Water tower obstruction.

*Modification: Antenna could be located closer than 1/8 mile to property line if no traffic or other source of electronic problems were nearby. ***

** Bore-sight tower danger zone for humans: 1-1/2 miles from antenna on line with bore sight tower locate 2000' \pm from it. No buildings, farms, parking, or sustained occupancy.

***Modification: Antenna safety zone required: 460' to 800' radius. This criteria will locate antenna from property line or roads.

UTILITIES

Existing power lines

| | | |
|---------|----------------|---|
| 7.2 KV | E. Boundary | Single phase farmstead services |
| 7.2 KV | W. Boundary | |
| 12.5 KV | 1/2 Mile N. | |
| 12.5 KV | 2 Miles S. | (built as 69 KV line for future conversion) |
| 69 KV | 1-1/2 Miles E. | |
| 69 KV | 2-1/2 Miles S. | |
| 115 KV | 1-1/4 Miles W. | - USBR Transmission Line |
| 115 KV | 2-1/2 Miles E. | |

Power from N.S.P. or R.E.A. will enter the site along west boundary.

N.S.P. will run lines into site 400 feet without added cost.

All power lines within 2 mile radius of antenna should be buried or relocated when antenna is installed. (not budgeted now)

All new power lines into site should be buried.
Power distribution on site should be done with underground shielded conduits.

Power substation.
Locate near power access/west boundary.
Locate 500 feet minimum from DHB.

Buried phone cable south boundary.

All phone cables direct buried on site by Phone Company.

New phone service from Garretson.

Petroleum pipeline cuts diagonally across S.E. corner.

Note: Power substation may be able to be incorporated in maintenance and grounds building/transformers at each building.

Future expansion.

Issued 2/25/71
Revised 3/2/71
Revised 3/3/71

WATER

Existing Wells:

1555'/63' to aquafier S.E.
1565'/100' to aquafier N.W.

Required source capacity: 100,000 GPD

Demand: Initial

23,000 GPD processing.
40,000 GPD total.

On Site Source:

2 wells 1000' apart located upstream from waste disposal ponds.

Back-up Source:

Pipeline 5 to 6 miles to Sioux River outwash deposits.

Water Treatment Plant (need to be determined) *

Size

Locate between wells (not mandatory)

Fail safe water supply (fire) water tower 140' overall height (obstacle for antenna?)

Location critical.

Fire Hydrants - distribution lines

Locate supply wells on that part of the site, exclusive of natural drainage ways, that has the lowest altitude.

Future expansion.

*Locate on ground high enough to have gravity flow line to sedimentation ponds. (Backwash filters) Waste from water treatment process/salts and lime another problem.

Issued 2/25/71
Revised 3/2/71
Revised 3/4/71

WASTE DISPOSAL

Separation of chemical waste from normal building waste.

Chemical waste holding pond.

Alternative proposal for chemical waste:

Collect in tank.

Truck to Sioux Falls Sewage Treatment Plant in small quantities.

Sanitary waste stabilization ponds approximately 1 acre/100 people. *

Geometric configuration better for ponds.

Require 5 to 10 acres for ponds. *

Ponds located minimum 1/4 mile ^{**} from DHB.
Require 6' drop for gravity flow/1/4 mile

Consider winds and smell.

Utilize effluent for ground sprinkler system or run off to S.E.*

Waste water treatment plant for chemical and/or human waste?

Future expansion.

*Alternate Proposal:

1 acre sedimentation pond/dam low land in S.E. corner/run effluent into dammed area/create on-site lake/may necessitate occasional run-off via unnamed creek to S.E. to west Pipestone Creek.

**Desirable but not mandatory

Consider 1/8 mile because of intervening hill and up wind location.

SUPPORT SERVICES

Emergency Vehicles

Fire

Ambulance

First Aid

Security

Plant Protection

Building Maintenance

Equipment Maintenance and Service

Janitorial Service

Storage/Material Handling

Supply Delivery

Fuel Delivery

Garbage

Food/Snacks/Shops in DHB