SAINT FRANCIS HIGH SCHOOL

Case Study

Continuous Gas Monitoring

Sacramento County Environmental Management Department

How did the LEA get involved?

- High School Expansion Project February 2000
- Soil Gas Survey showed high levels of methane gas 87% (2000)
- LEA received a tip September 2001
- Involved agencies were LEA, CIWMB, RWQCB, DTSC-School Property Evaluation and Cleanup Division.

Briefly from the Beginning

- Gravel mining operation 1940's to 1950's
- 1950's the site became a disposal site for construction waste, yard waste, for the City of Sacramento.
- Ceased operations in the early 1960's
- St. Francis High School was built in 1965.

LEA Requirements

- Conduct field investigation to determine the horizontal and vertical extent of the landfill for all three properties

LEA Requirements

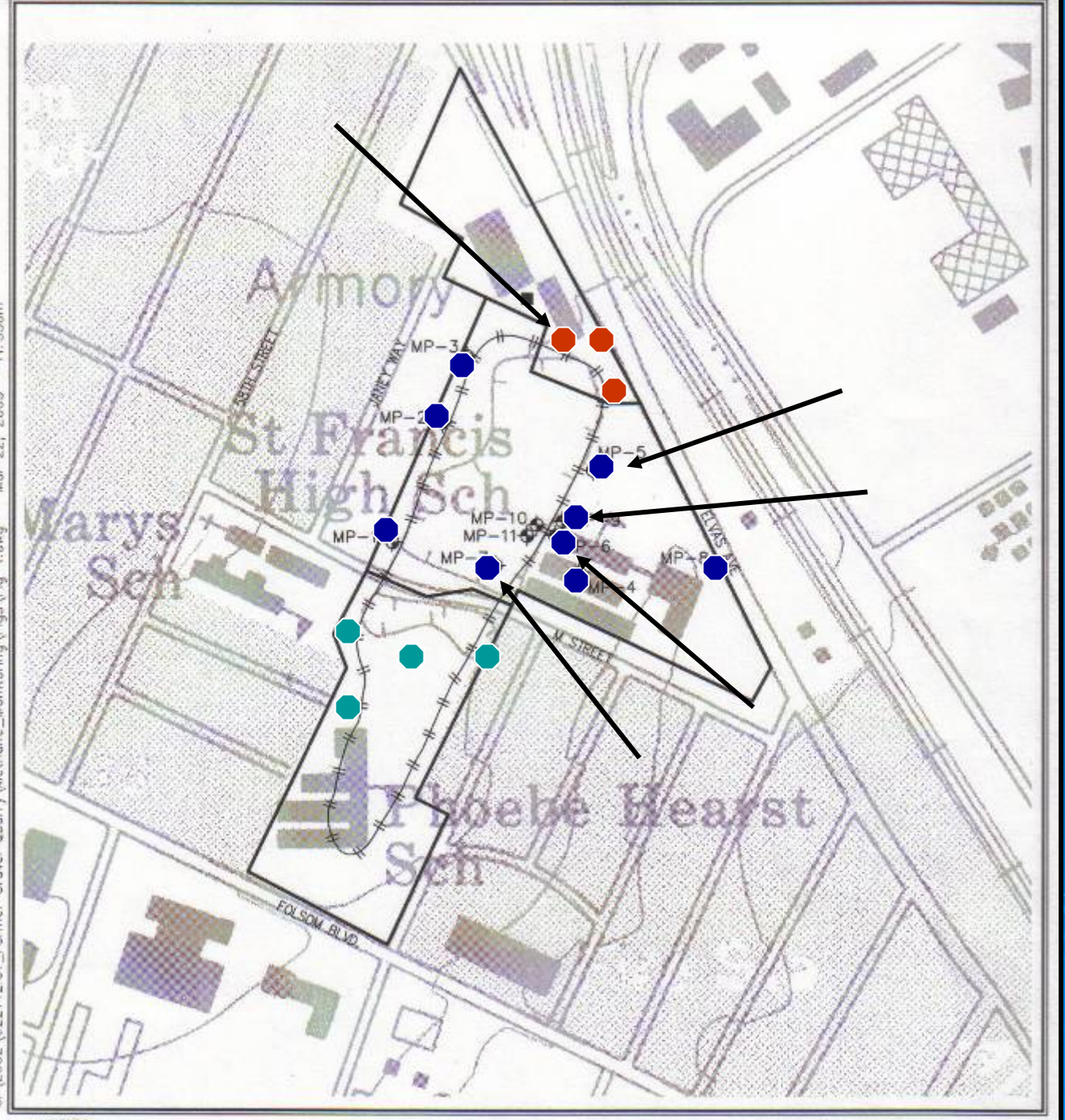
- Conduct additional soil gas surveys to determine extent of migration
- Submit plans for methane gas monitoring
- Design and install a perimeter monitoring system
- Conduct a Risk Assessment for human health exposure
- Design and install a gas control system

LEA Requirements cont'd

- Submit plans for any proposed land use changes to the LEA, RWQCB, and the AQMD.
- Any post closure land use must meet Title 27 requirements. (Required in the Use Permit)
- Install continuous gas monitoring systems for existing designated buildings.

The Situation

- Three different property owners
- Three different consultants
- Perimeter gas monitoring system required on all three properties
- >5% methane gas in one of three monitoring wells on the National Guard Amory property
- 0% to ND (ppm) Phoebe Hearst Property
- 3 monitoring wells on St. Francis >5%. All three are adjacent to classrooms or occupied buildings



NOTES:

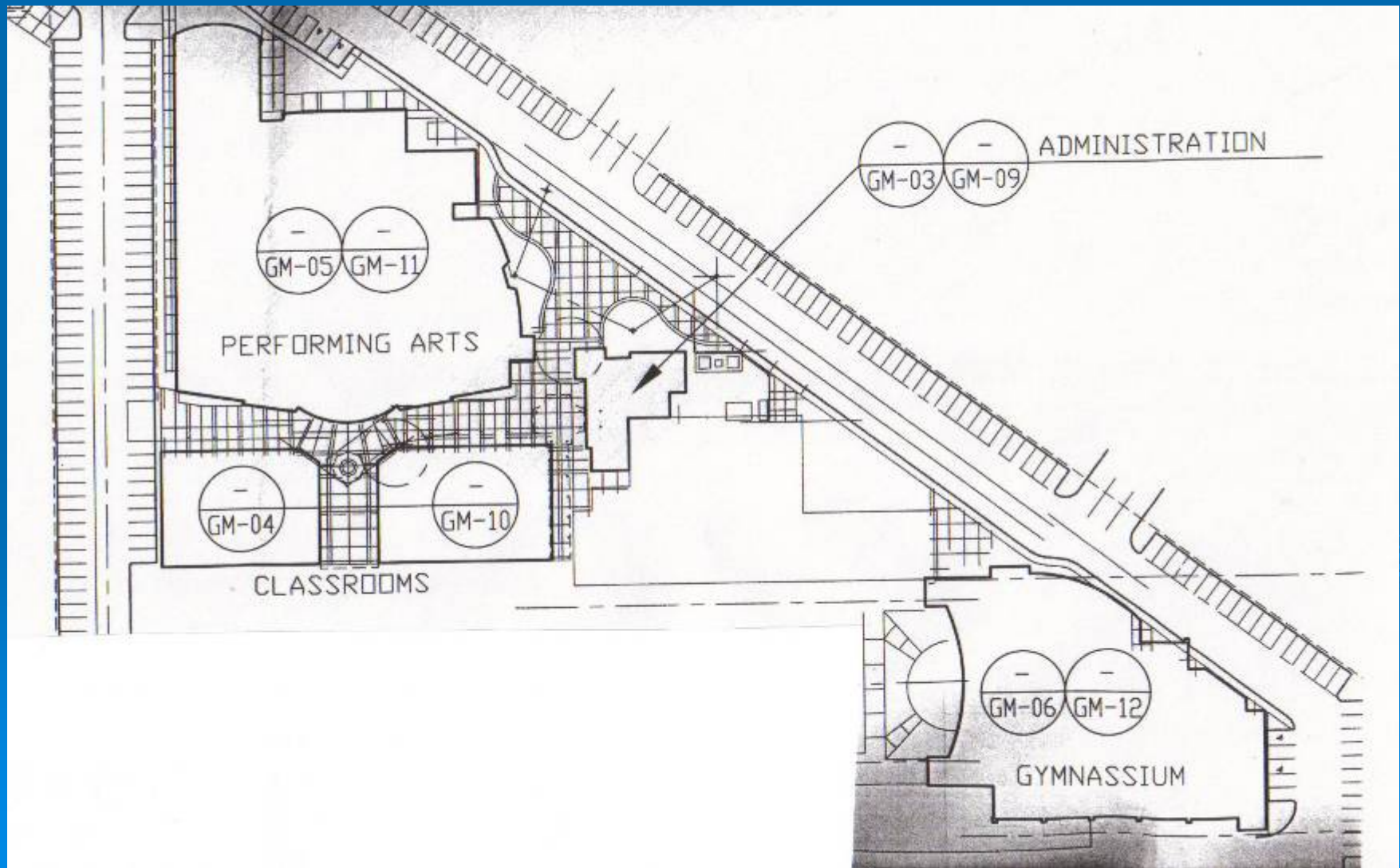
SOURCE: BASE MAP TAKEN FROM

2001

April 2005

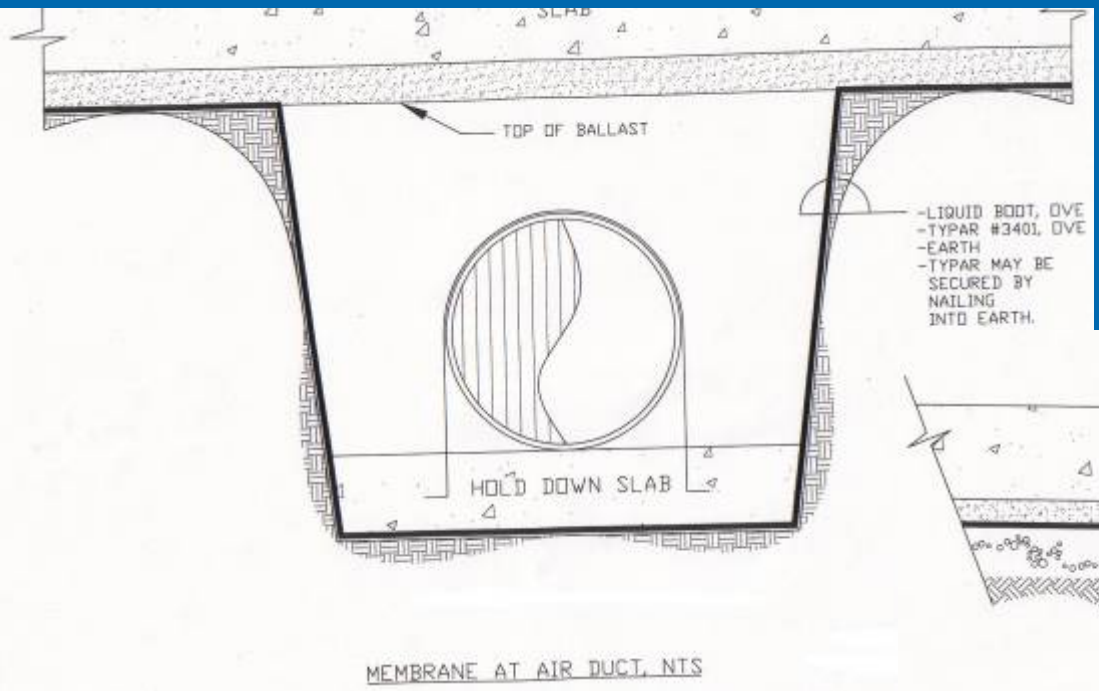
- Continuously monitor existing buildings and portables

- Construction started in 2002 on the new performing arts center, classrooms, and administration office.

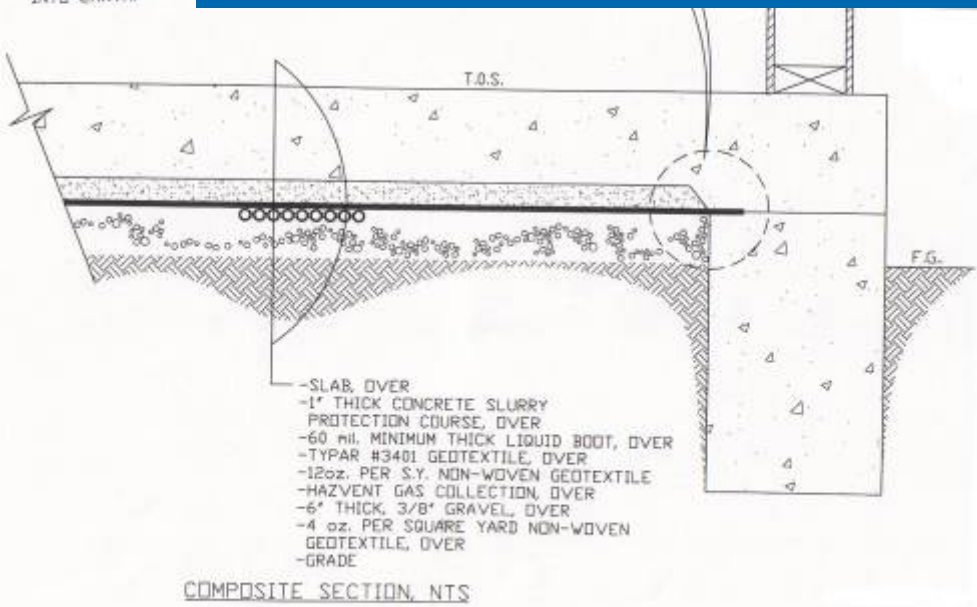


Requirements

- Methane gas barrier

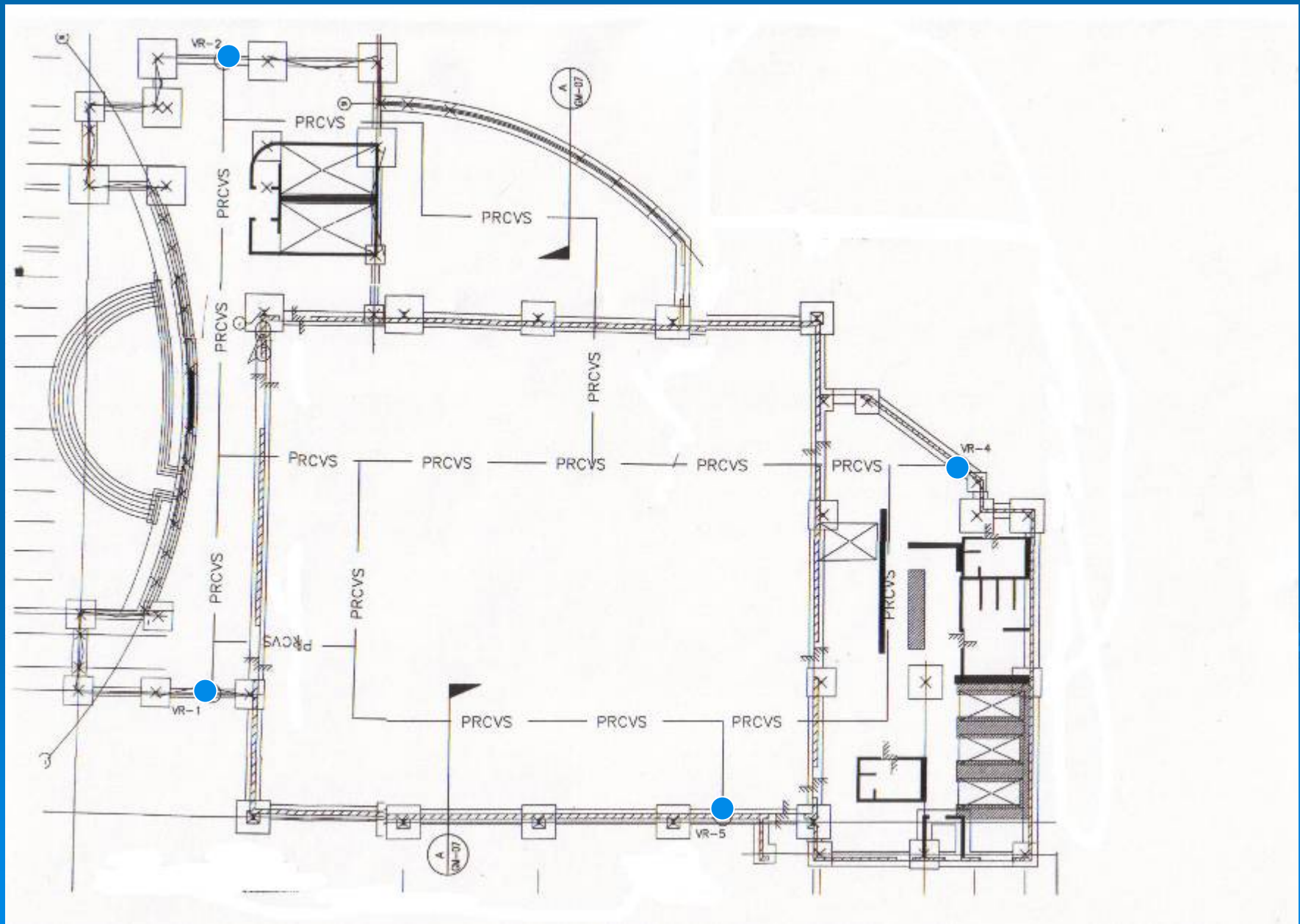


MEMBRANE AT AIR DUCT, NTS

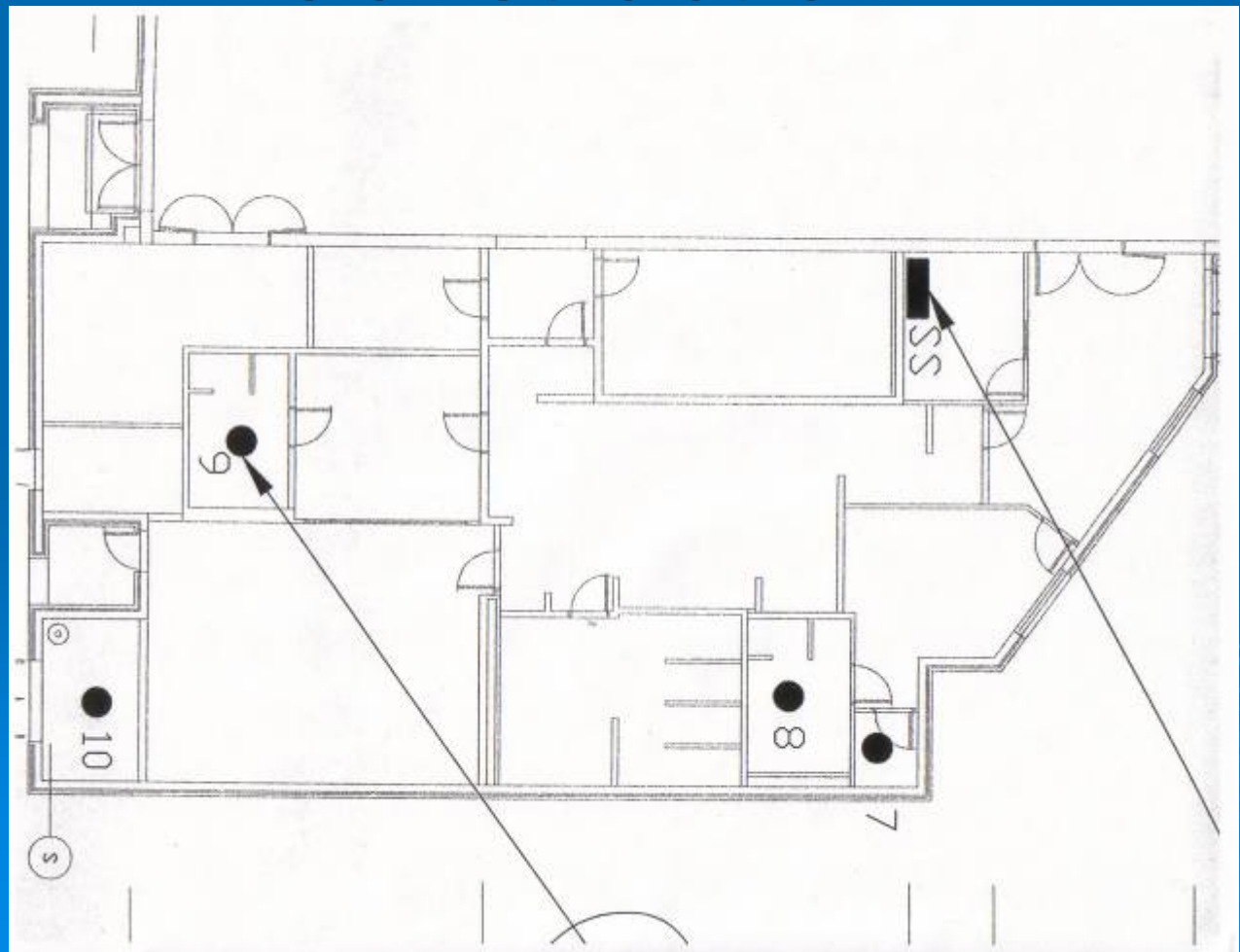


COMPOSITE SECTION, NTS

Passive venting system



Continuous Monitoring Requirements for New Construction



- Centralized system control panel

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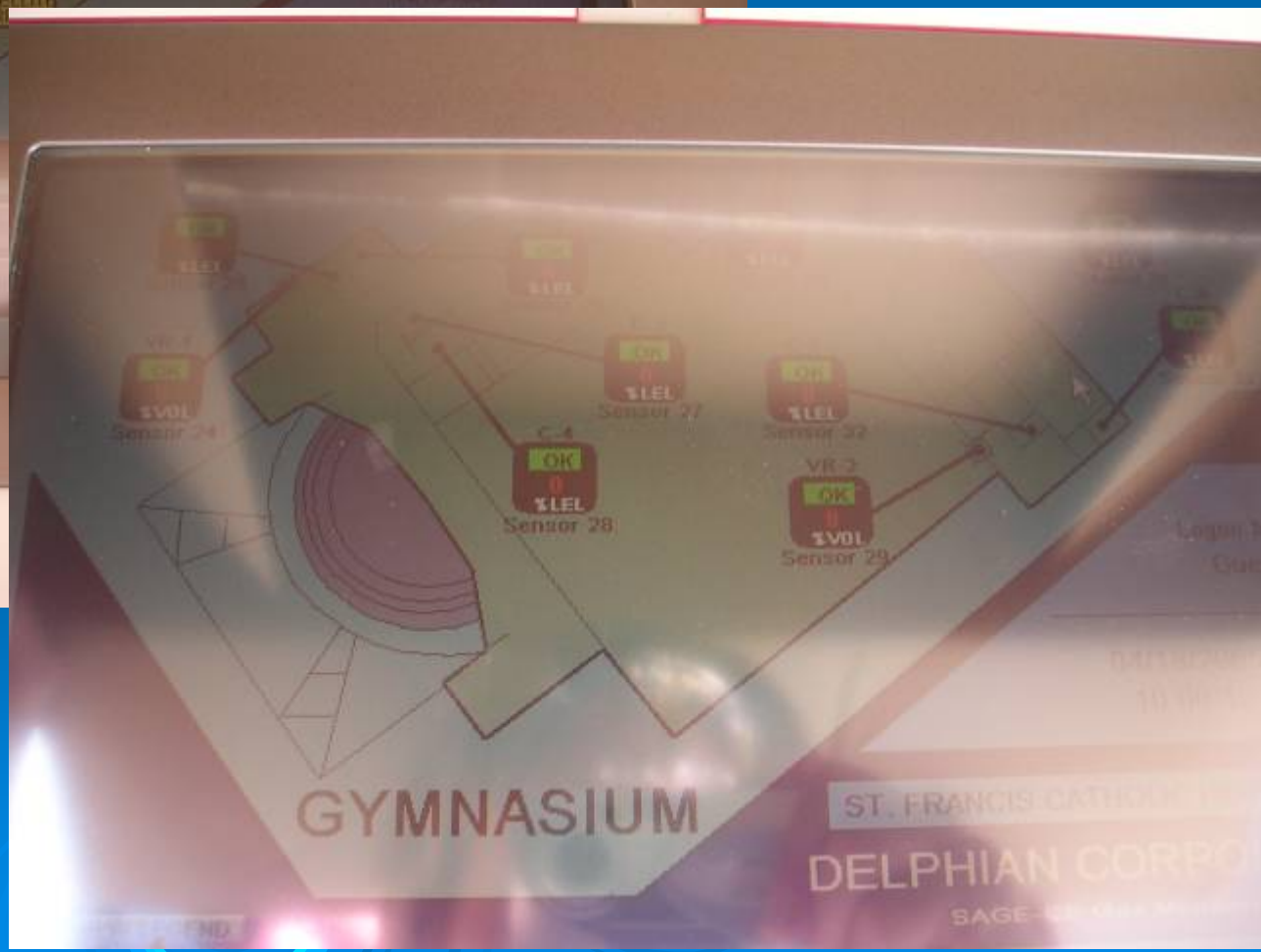
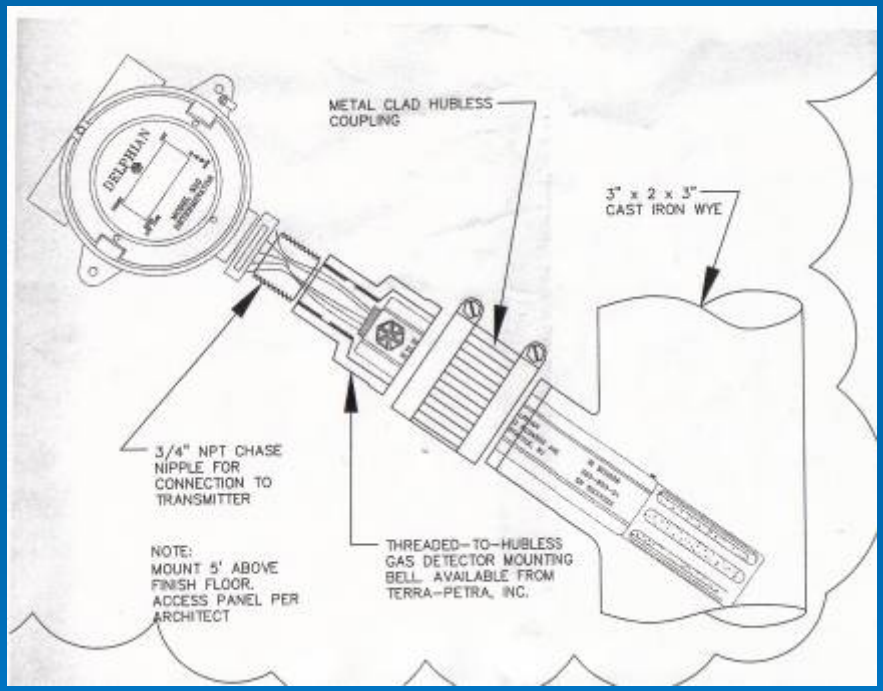


- Gas detectors constantly measure the air and transmit gas readings to the control panel. They are infrared sensors. All sensors are visible.




DELPHIAN
Model 650
REMEDIATOR
VENT RISER SENSOR VR-1
S/N IRF12002
DWV ASTM F-628-99

- There is an auto dialer device that calls an alarm company which calls the fire department on a high alarm (25% LEL). This must be distinguished from a “fire” call.
- Dedicated power supply
- Two phone lines that are tested every 24 hours
- Not connected to the fire alarm system
- Continuous chime (alarm noise) in a common area.

What's Next

- Developing Emergency Response Protocols with St. Francis High School
- Developing a maintenance guidelines
- Installation of the gas control system
- All new construction including portables must have the membrane layer passive gas vent system and continuous monitoring

Lessons Learned

- Be real specific on what you want
- Response protocols, involve Fire Department
- Other situation alarms
- Be involved in the installation inspections
- The person ultimately responsible for the system has to know and understand the system before it is handed off
- Use your CIWMB staff