

A Mixing, Loading and Storage Facility With The Environment in Mind

By Randy Smith

This article is about the new Environmental Facility we have built at the Nakoma Golf Club. Our objective was to create an affordable building which would improve upon the safe handling and use of plant nutrients and protectants. I firmly believe we have succeeded in doing that.

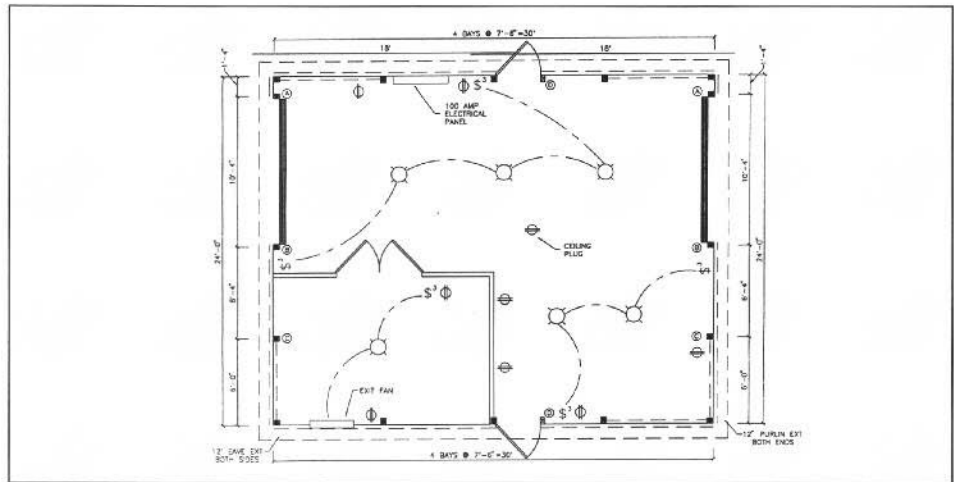
Several things in the past led to the construction of our new facility. I have always disliked the old methods of just filling sprayers on hard surfaces or on open ground with no chance for containment or recycling. The storage of various chemical products in the open, in the shop or next to employees and open drains seemed hazardous and unacceptable.

My long range plan included improvements along these lines, but progress really started when my green liaison and eventual club president asked the question in 1991, "what are your concerns about our golf course maintenance operation?" He didn't expect the number of pages of concerns I presented to him. He had the patience and interest to learn more about our operation which of course made the next step of the presentation a little easier.

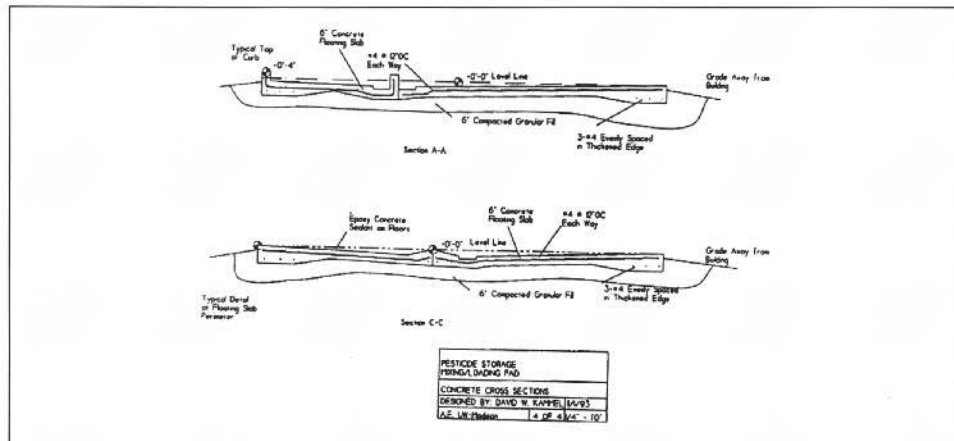
Our first attempt to improve the storage, mixing and loading site was a containment pad with a small modular building. It was discussed with the green committee and recommended to the board of directors. It passed and a total of \$15,000 was approved. However, due to a few construction projects on our course, we did not spend the money in 1993. This was already two years after the original question. It therefore was reapproved for 1994 with more funding.

By this time, we had obtained more information and recommendations from the Golf Course Superintendents Association of America through seminars and their reference *Golf Course Maintenance Facilities*. We also attended a very informative seminar at our Wisconsin Golf Course Superintendents Association annual spring meeting where David Kammel, UW-Madison

Nakoma Golf Club Environmental Facility Basic Floor Plan



Concrete Cross Sections for Mixing/Loading Pad



Department of Agricultural Engineering, gave a presentation on mixing, loading and storage of various agricultural chemicals. In addition, we visited numerous larger containment operations that Mindy Hammacker, Natural Resource Extension Agent, put us in contact with.

These various sources of information led us to a decision to construct a building separate from all other buildings and with a heated section large enough to store liquid products. We also planned for a building that would have room for storing application equipment while also serving as the loading containment area.

Incorporating all of these features resulted in a building project planned at \$25,000 and, in fact, we did overrun this budget. More on that. Please refer to the description of the actual expenditure that appears below.

Summary of Expenditures for Nakoma Golf Club's Environmental Facility

December 1994

Description:

Building - 24' X 30' Pole Building	\$11,045
Doors - 2 walk, 2 drive through	1,135
Permits, misc.	444
Electricity	2,400
Heating/Ventilation	1,987

Plumbing	7,000*
Extra siding for interior	1,000
Concrete work	4,200
TOTAL	\$29,211

* Overrun. The plumbing was completed on a time and material basis due to some uncertain design situations for our structure. The labor portion was enormous in my opinion, but I felt we had no alternative due to codes and eventual inspections. All other vendors were under contract.

The final design was a result of a meeting including David Kammel, Mindy Hammacker, Charles Frazier and myself. Refer to the basic floor plan for the result of our planning.

By budget time in the fall of 1993, we had contacted contractors to build our new structure. We acted as the general contractor to coordinate the different firms involved in the project. But before they could begin, we needed the building permit. I went to procure that supposedly simple document called the "permit" and found out I needed a waiver or "Application of Existing Conditional Use" to be signed by our alderperson because of our conservancy status. That meant selling our purpose.

We did. Then it was back for the permit, or so I thought. I was then told we needed a more complete structural design including the exterior views so they would know how it would look. So it was back to the drawing board. One week later I made my third trip in quest of the permit. Then THEY asked "are you going to have any electricity, plumbing and/or heating?"

"Yes," I replied.

That answer led back to the design table to provide them more details on "who, what, when and how much."

Back to the drawing board. After many hours with the electricians, plumbers and heating contractor, I made yet another trip for the permit. In truth, we needed four permits — one for the building and one for each of the utilities. Before construction actually started, we were well into the 1994 golf season. We proceeded as we found the time.

Our staff prepared the site, an area 75 feet away from existing structures to allow for future expansion and 25 feet from our well. Preparation included subsurfaces of fill sand to meet specifications for the three containment areas shown on the floor plans. The next step was installation of our own 24' X 30' pole building by the contractor. After

the building was up, the concrete work was done. We included plenty of reinforcement. The dikes were finished with gentle slopes to allow ease of entry for people, equipment and product. The concrete work was completed with a single pour by the cement contractor.

Once the concrete had cured, our staff applied two coats of a chemical resistant epoxy. The project was static until this fall when we continued work with the construction of the heated room and the addition of steel to the inside walls. We brought potable and nonpotable water sources to the building. A local plumber did the inside work to meet codes. A simple electric heater, ventilation fan and inlet vent were install next. Most recently, our electrician completed the wiring.

As our operating budget permits, our staff will complete the internal walls with steel siding. Eventually we will pave the roads to both ends of the building. Motion lights, additional fire extinguishers, an "office center" and a cellular telephone are planned.

Our new Environmental Facility is a product of planning by Chuck Frazier and myself, and the club's concern for the safety of people, animals and the environment. We are proud to have been able to complete the "almost affordable" facility which should serve as a model for others to improve upon. It is also an educational adventure for students, educators and peers. Chuck and I are always willing to discuss the project with you or give you a tour. Just call first! 🙏

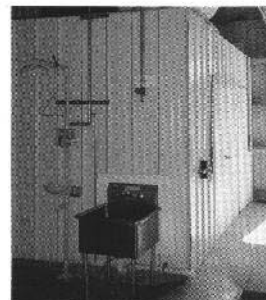
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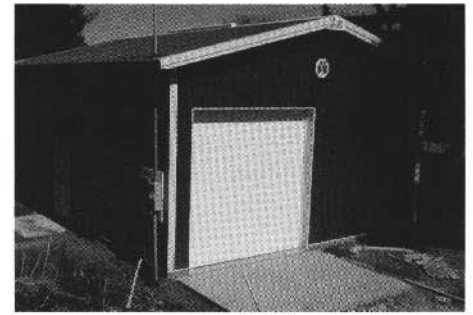
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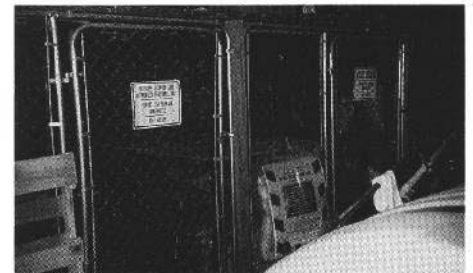
View of outside of Heated Storage Room, including vent and double doors, rinsate tank, eyewash and shower station, s/s sink, sumps and containment dikes.



NGC (1995) Environmental Facility for storage/mixing/loading of Plant Nutrients and Protectants.



OLD method of storage liquid chemical products.



OLD Method of storage in main equipment storage building without containment.



Sprayer Storage area and drive through.



Reduced pressure principle backflow (RPPB) prevention device to be installed as our main fill source from our irrigation system.