



UNIVERSITY OF MINNESOTA

**NOvA Project:
(NuMI Off-Axis Electron Neutrino Appearance
Experiment)**

Phase I Road and Site Work

Ash River, Minnesota

Location Plan: Ash River, MN



Project Rationale:

Support Collaborative Physics Research:

- Cooperative Agreement between University of MN, U.S. Department of Energy and Fermilab
- DOE Funded Project
- Unique Opportunity
 - Work in concert with existing research facility at Tower-Soudan, MN
 - Work in concert with Fermi National Accelerator Lab in Batavia, IL
 - Furthers a goal of the world-wide physics community in understanding the nature of how neutrinos change from one type to another.

Project Description:

□ Phase I – Road Work + Site preparation

- Upgrade 3.5 miles of existing logging road
- Clear and grub the site
- Excavate rock for containment basin and prepare for construction of the detector enclosure
- Install rock anchors, concrete floor and side walls at face of cut rock excavation

Project Description - continued

- A completed environmental study produced no known environmental issues – site has been investigated by a qualified environmental consultant.
- Anticipated Completion for Phase I: Fall 2009
- Increase in Annual Operating Costs: \$350,000 after completion of Phase II. Operating costs will be funded entirely by the DOE Grant.
- Project Delivery Method: Construction Manager at Risk
- Project Team:
 - Engineer: Burns and McDonnell, Downers Grove, IL
 - Construction Manager: To Be Determined
 - Development Manager: Hines

Project Cost Estimate:

□ **Cost Estimate – Phase 1 Work:**

■ Construction	\$12,800,000
■ Non-construction	<u>2,595,000</u>
■ Total Project Cost	\$15,395,000

□ **Capital Funding – Phase 1**

■ DOE Funds (Non-University)	\$15,395,000
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Project Description – Future Phase

- Phase II – Construction of Far Detector Building
 - 41,000 GSF Far Detector Building – concrete structure
 - Below-grade enclosure (70' wide x 70' tall x 350' long) for detector equipment (25,000 GSF)
 - Cosmic ray shielding
 - Support spaces (control room, electrical equipment room, computer room)
 - At-grade Service Building and Loading Dock Area (16,000 GSF)
 - Metal sided structural steel building
 - Loading dock, office, toilet, scintillator equipment room, mechanical equipment room, fire protection.

Project Costs: Future Phase

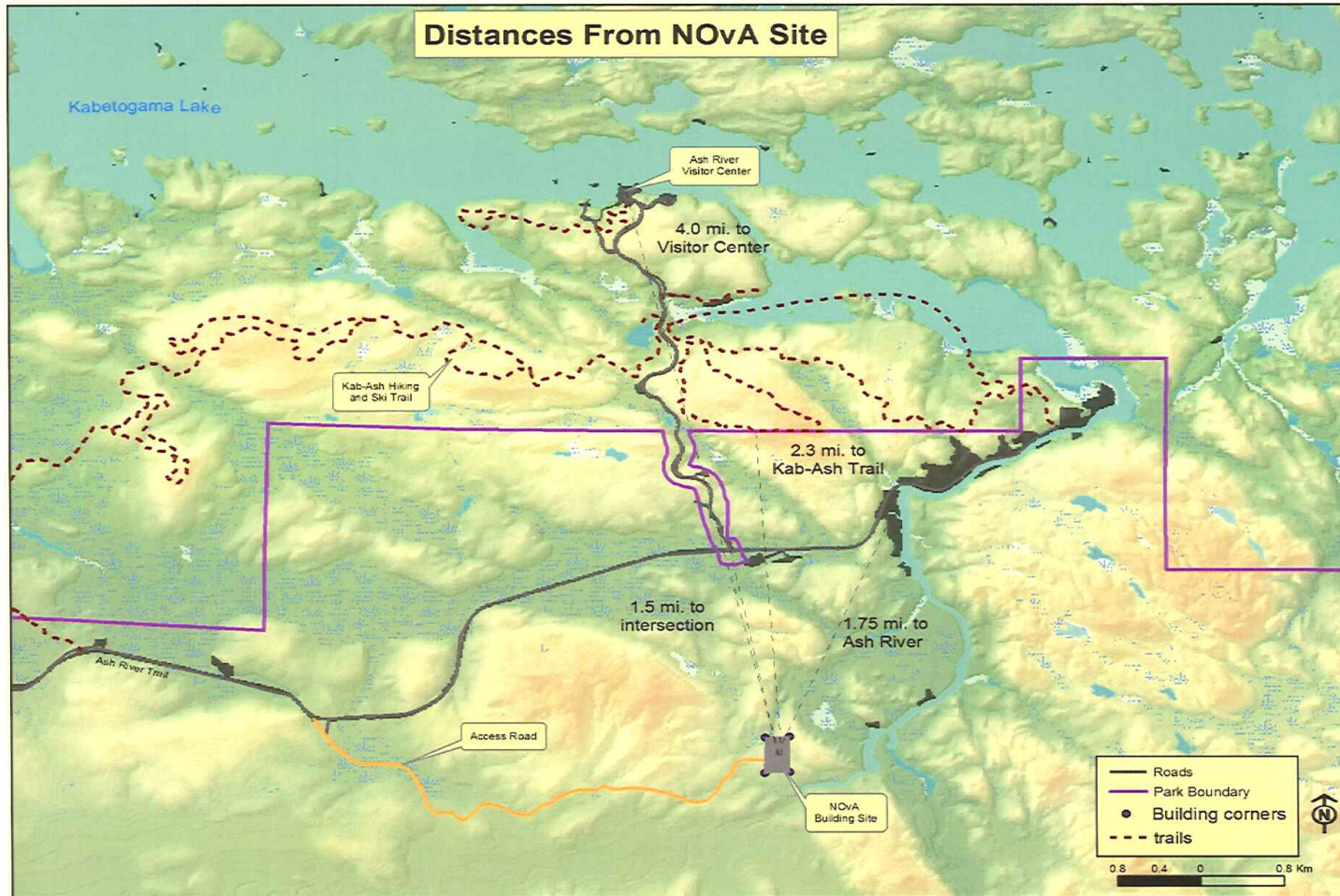
□ **Cost Estimate – Phase 2 Work:**

■ Construction	\$23,047,000
■ Non-construction	<u>11,681,000</u>
■ Total Project Cost	\$34,728,000

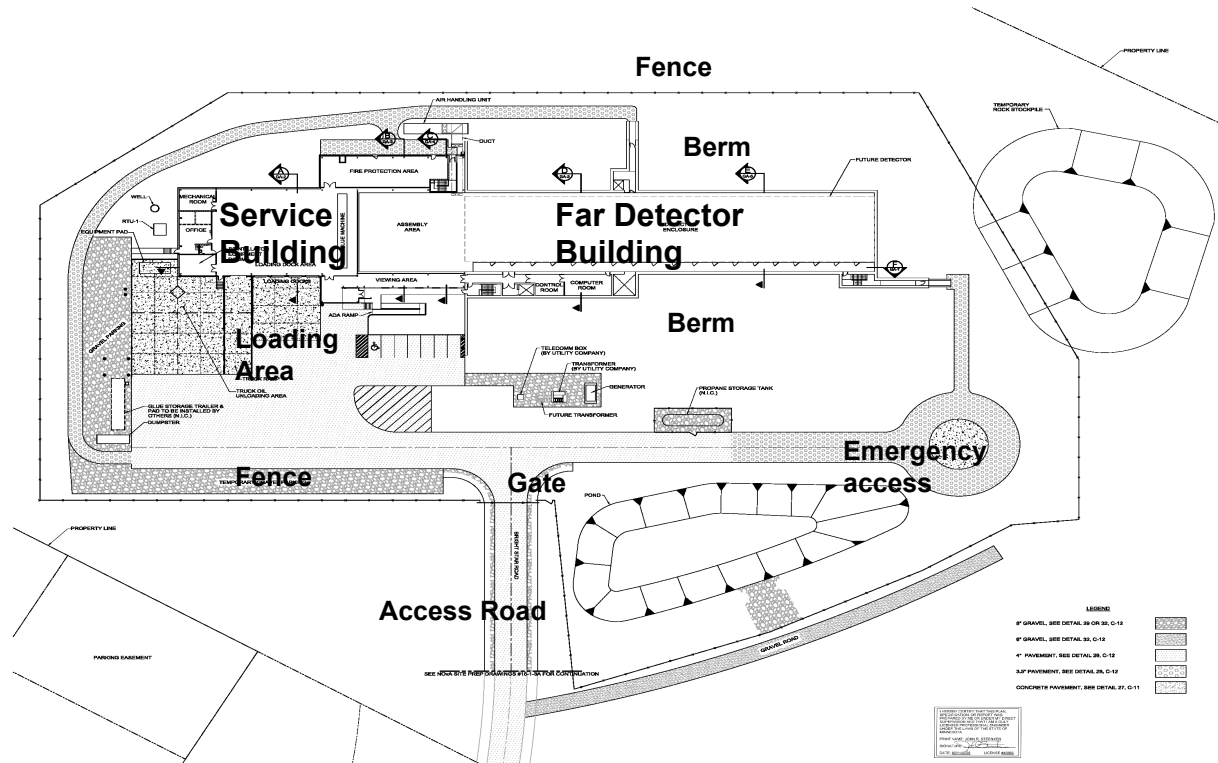
□ **Capital Funding – Phase 2**

■ DOE Funds (Non-University)	\$34,728,000
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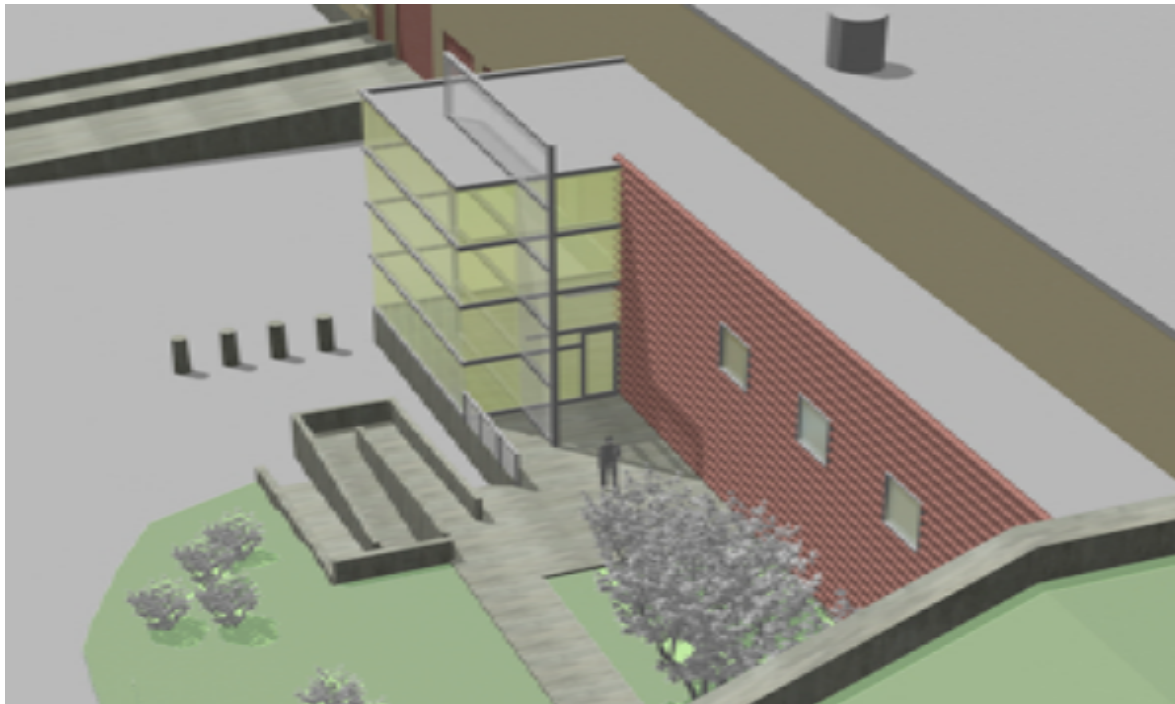
Location Plan



Site Plan

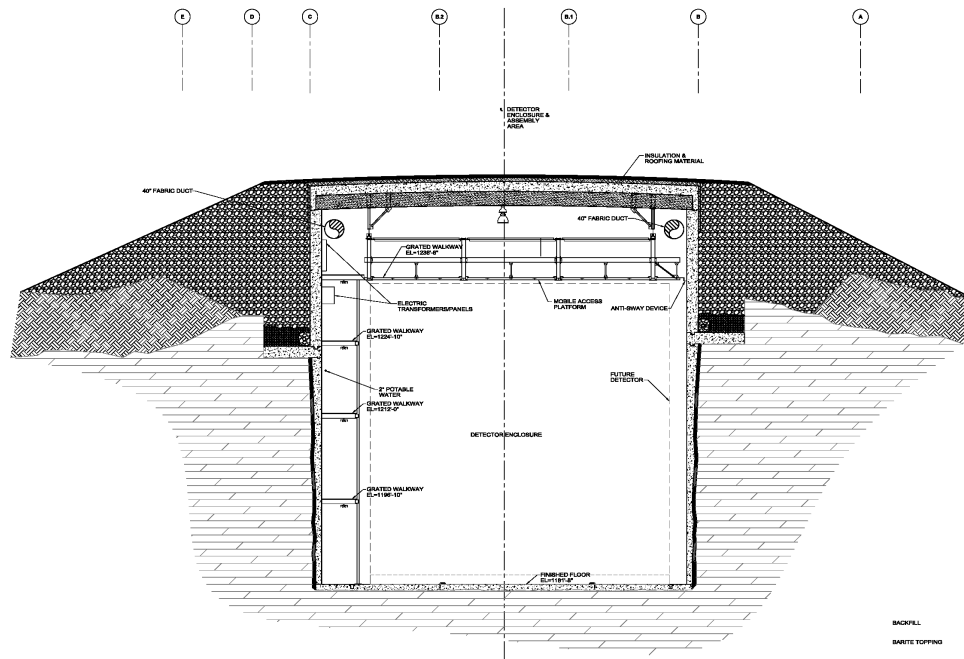


Building Exterior 2



Looking north at Service Building entrance and dock loading area.

Far Detector Building Section



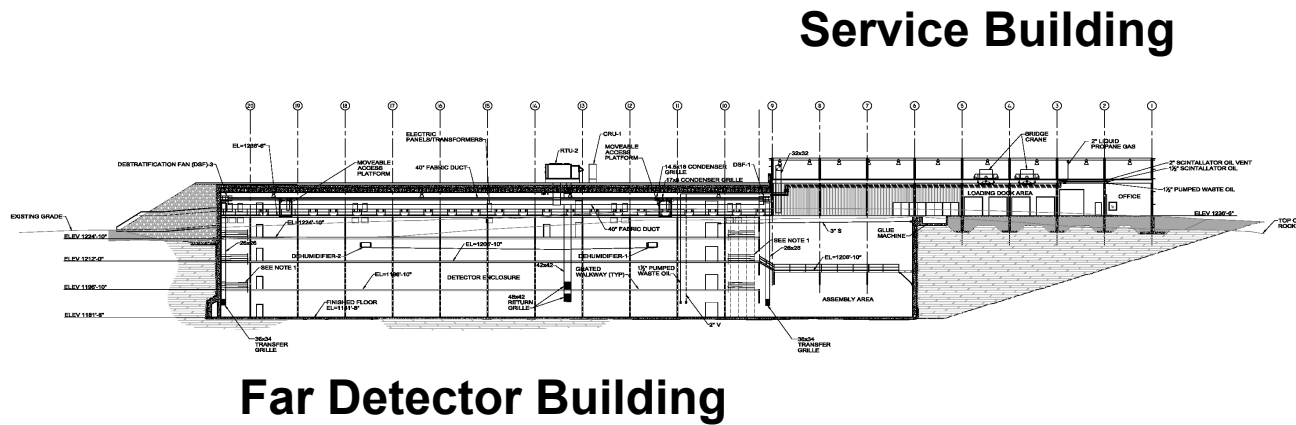
LEGEND

- BACKFILL
- BARITE TOPPING
- EARTH
- BEDROCK
- CONCRETE



DESIGNED BY: [Name]
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 DATE: [Date]

Overall Longitudinal Section



NOTE:
1. REMOVABLE MATERIAL TO EXTEND ENTIRE LENGTH OF GATWALK FOR ELEVATIONS 118'-0", 122'-0", AND 128'-0".

LEGEND

BACKFILL	
BASE/TOPPING	
EARTH	
BEDROCK	
CONCRETE	

DATE: 03/10/08 1:00 PM



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