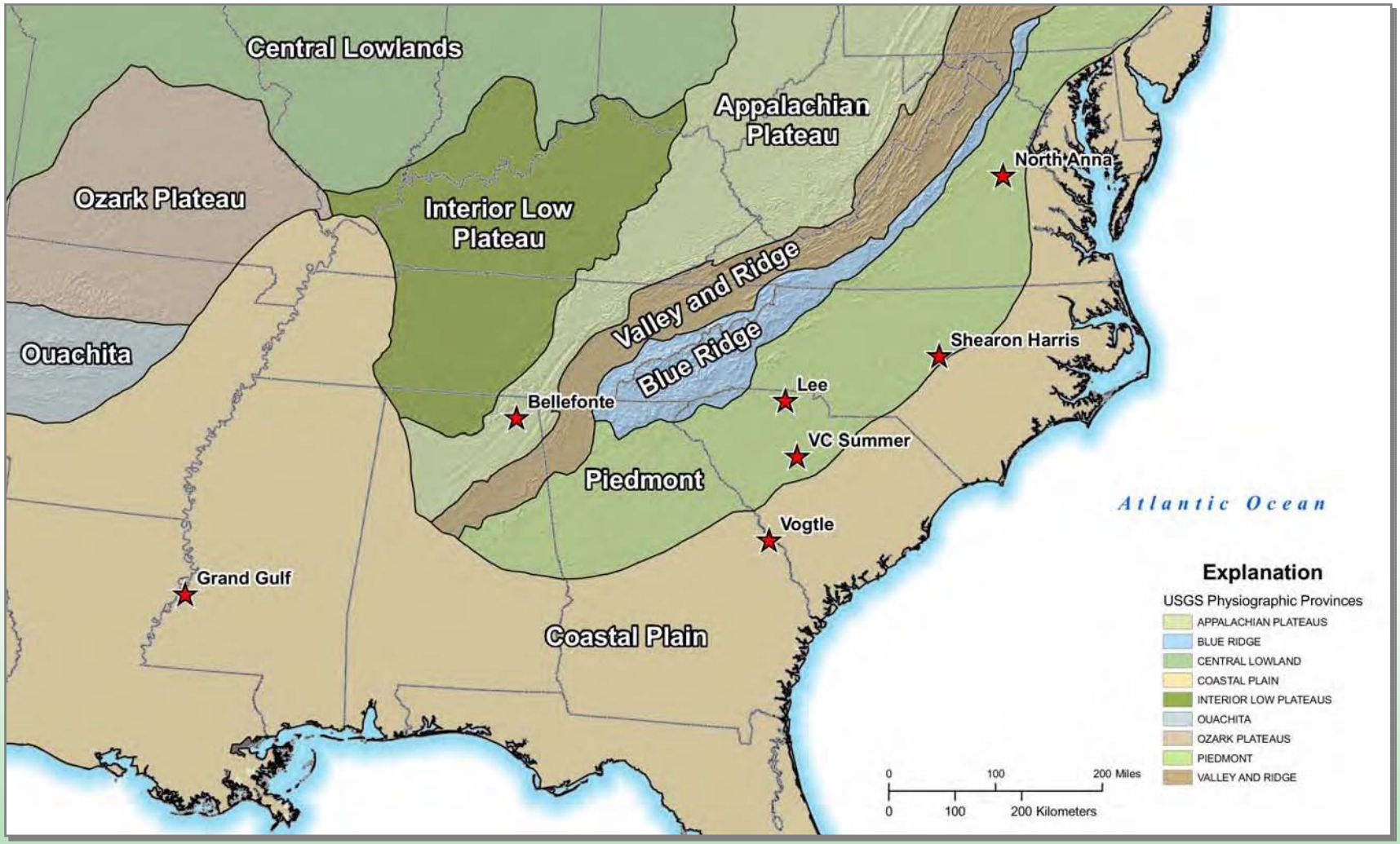
DUKE ENERGY

William States Lee Nuclear Station

Gaffney, South Carolina

Westinghouse AP1000 Units 1 and 2

Lee Site Location



Lee Site Overview

Lee Pre-Exploration Site Conditions

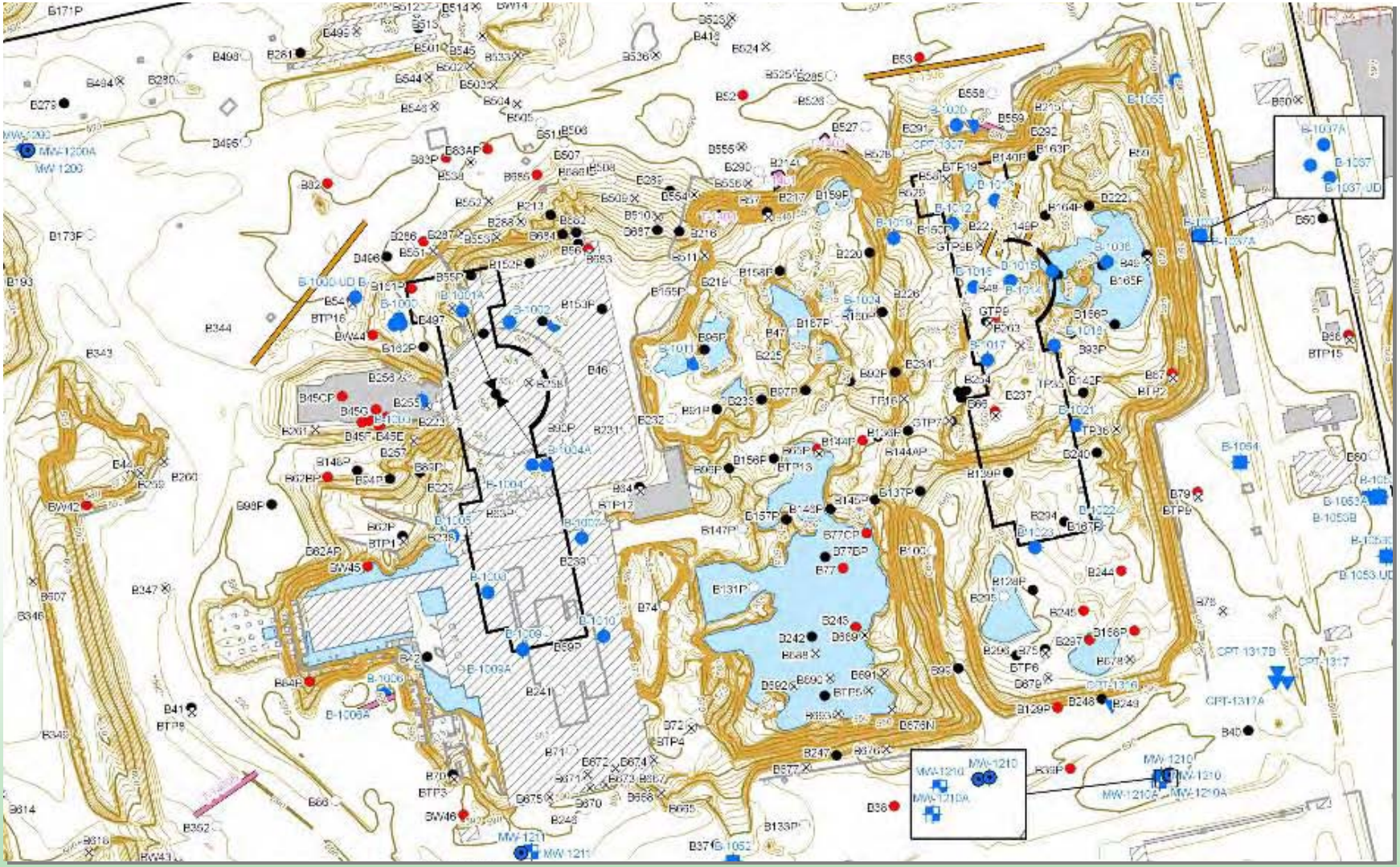
View west toward Unit 1

Lee Current Conditions

Former Unit 2 excavation cleaning

Existing Unit 2 excavation cleanup in progress

Lee Geotechnical Exploration



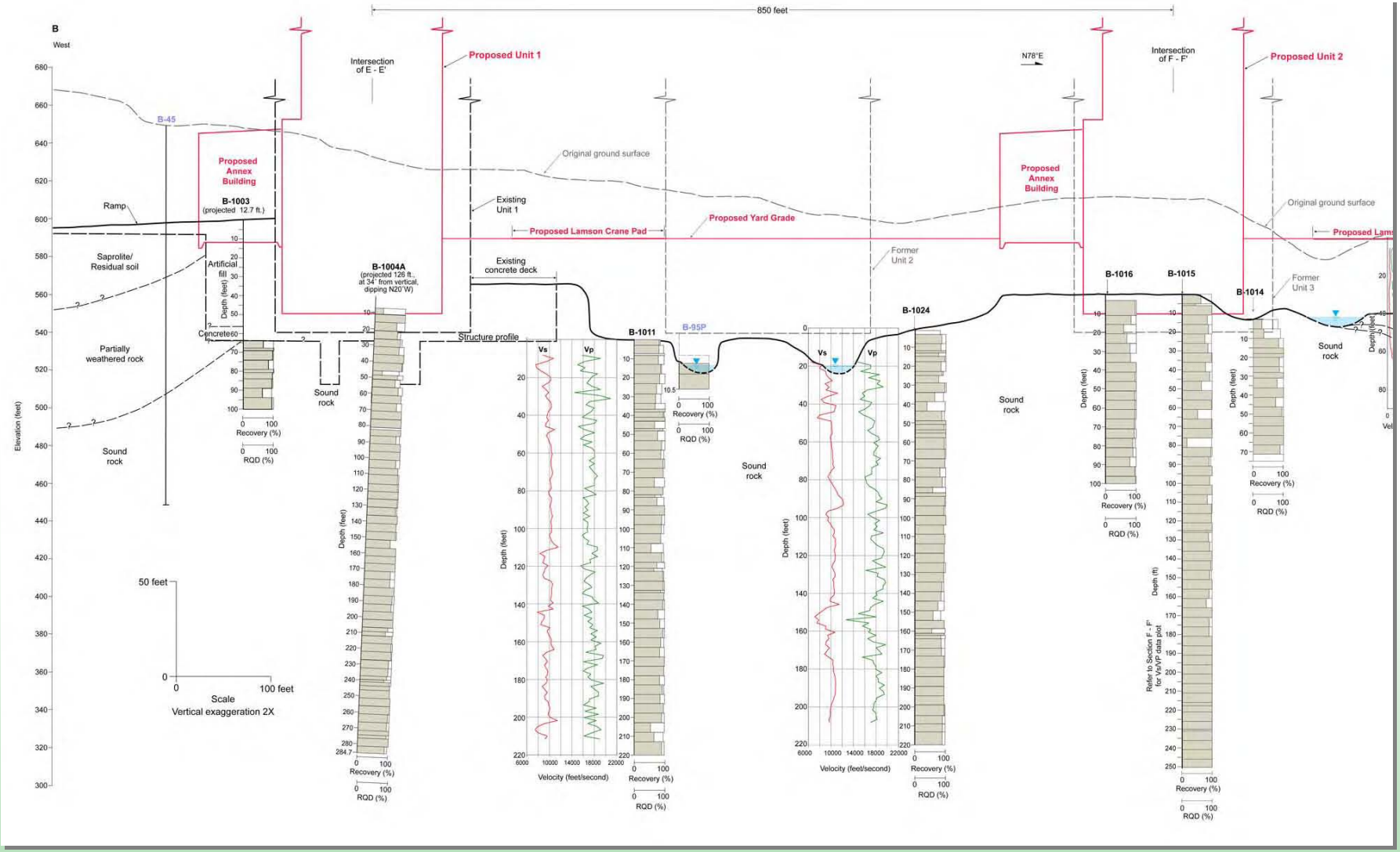
Lee Geotechnical Field Investigation

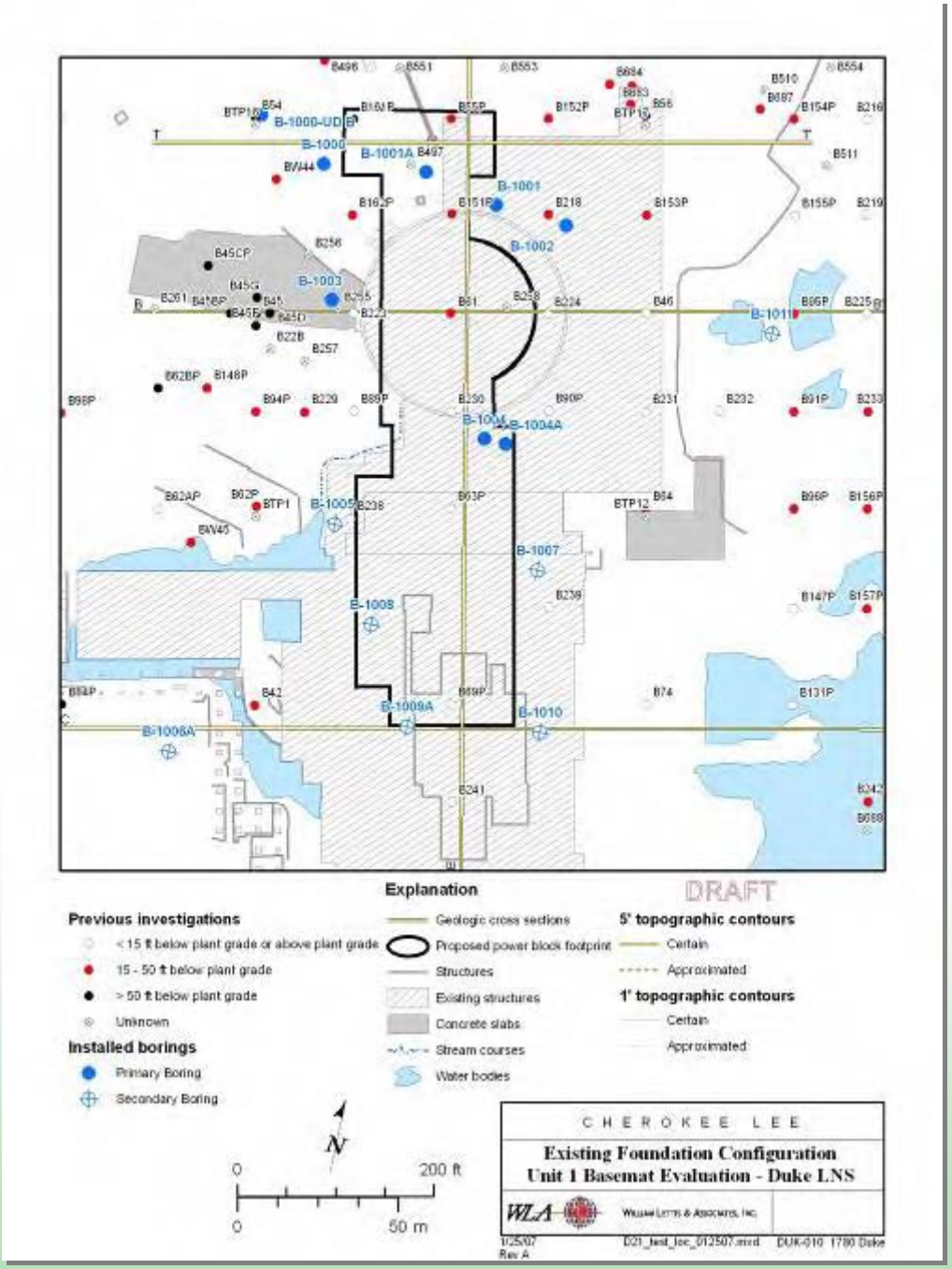
Test Type	Number
Soil and Rock Borings	93
Monitoring Wells/Pump Tests	21/4
Cone Penetrometer Test/SCPT	29/9
Test Pits	14
Goodman Jack	14 (2 borings)
P-S Suspension Log	10
Downhole Velocity	4
Televiewer Survey	9
Spectral Analysis of Surface Waves (SASW) Survey	16

Lee Existing Subsurface Profile (Typical)

Artificial Fill and Residual Soils **– Reddish Soils, Typically Sandy Silts (ML) and Silty Sands (SM) with Variable Clay Content**	0 – 20’ (Outside Excavation)
Saprolite **– Completely Weathered Rock with rock fragments, Preserved parent fabric/structure, Degraded to a Soil Consistency**	20’ – 40’ (Outside Excavation)
Partially Weathered Rock **– Transition Zone from Residual Soil / Saprolite to Rock**	40’ – 45’
Moderately Weathered Rock **– Greater than 50% volume of fresh rock; common weathered/decomposed seams**	Locally to 60’
Competent Rock **- Metagranite and Metagranodiorite**	45’

Lee Geotechnical Cross Section East to West (View to North)



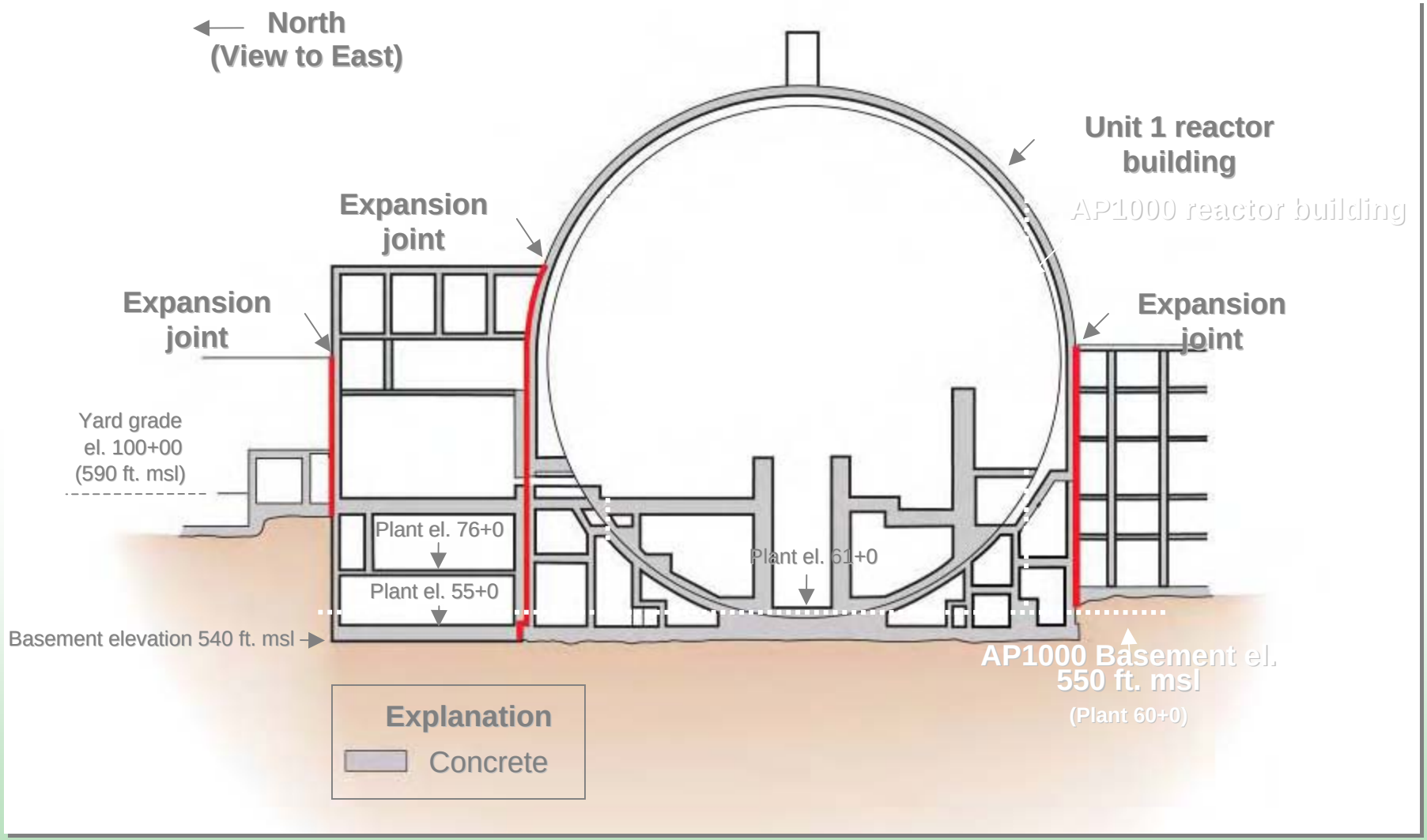


Lee Unit 1 Foundation Configuration

Plan View

Lee Existing Unit 1

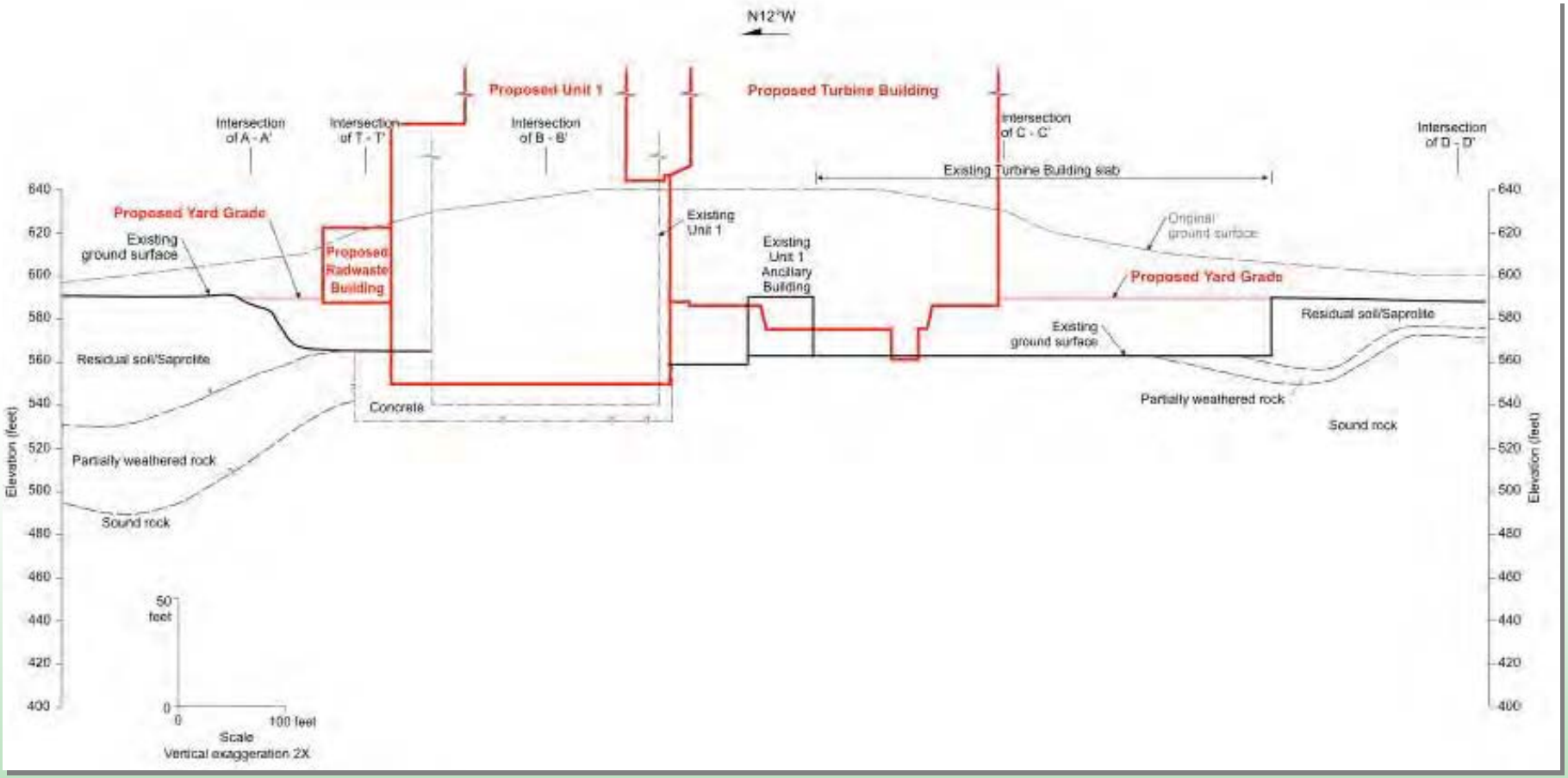
Schematic Longitudinal Profile



Not to scale

Lee Conceptual Excavation Plan for Unit 1

(North-South, View to East)



Lee Construction / Backfill Plans

- **Establish Plant Grade at Elevation 590'**
- **Excavate Power Block to Competent Rock at Elevation 550'**
- Nuclear Island**: Place Fill Concrete Leveling Mat**
  - Unit 1 - Fill concrete over existing basemat and fill concrete
  - Unit 2 - Leveling fill concrete (<10 ft) over rock
- Other SC-2 Structures**: Construct engineered fill pad or drilled piles (turbine building) for SC 2 structures**