

- LEGEND:**
-  CASK TRANSPORT ROUTE
 -  BY-PASS ROAD
 -  PROPOSED DISPOSAL SITE
 -  EXCAVATION BENCH

SITE PLAN

0 200 400 600 800

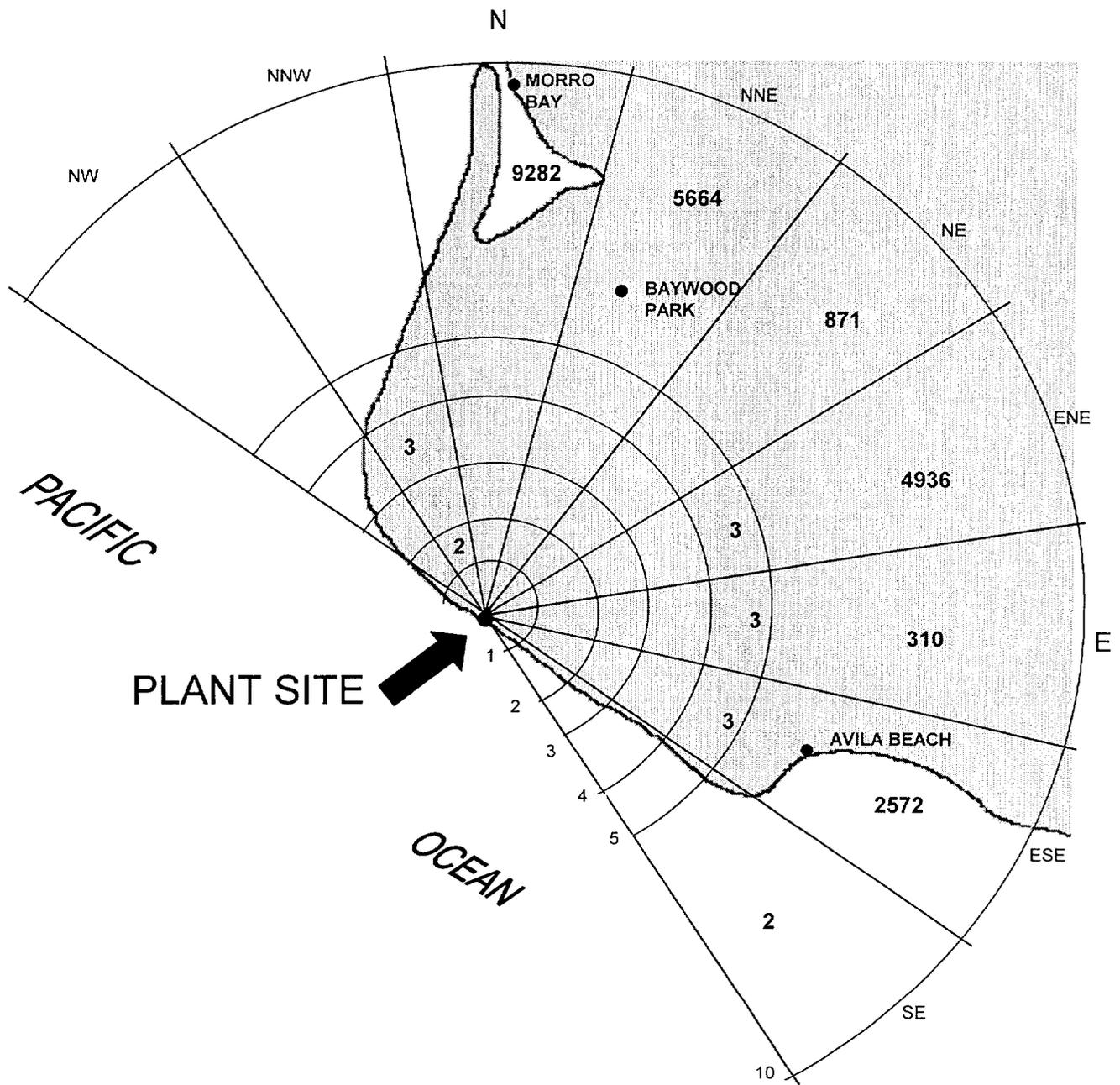
SCALE: 1" = 150'

SAFETY ANALYSIS REPORT

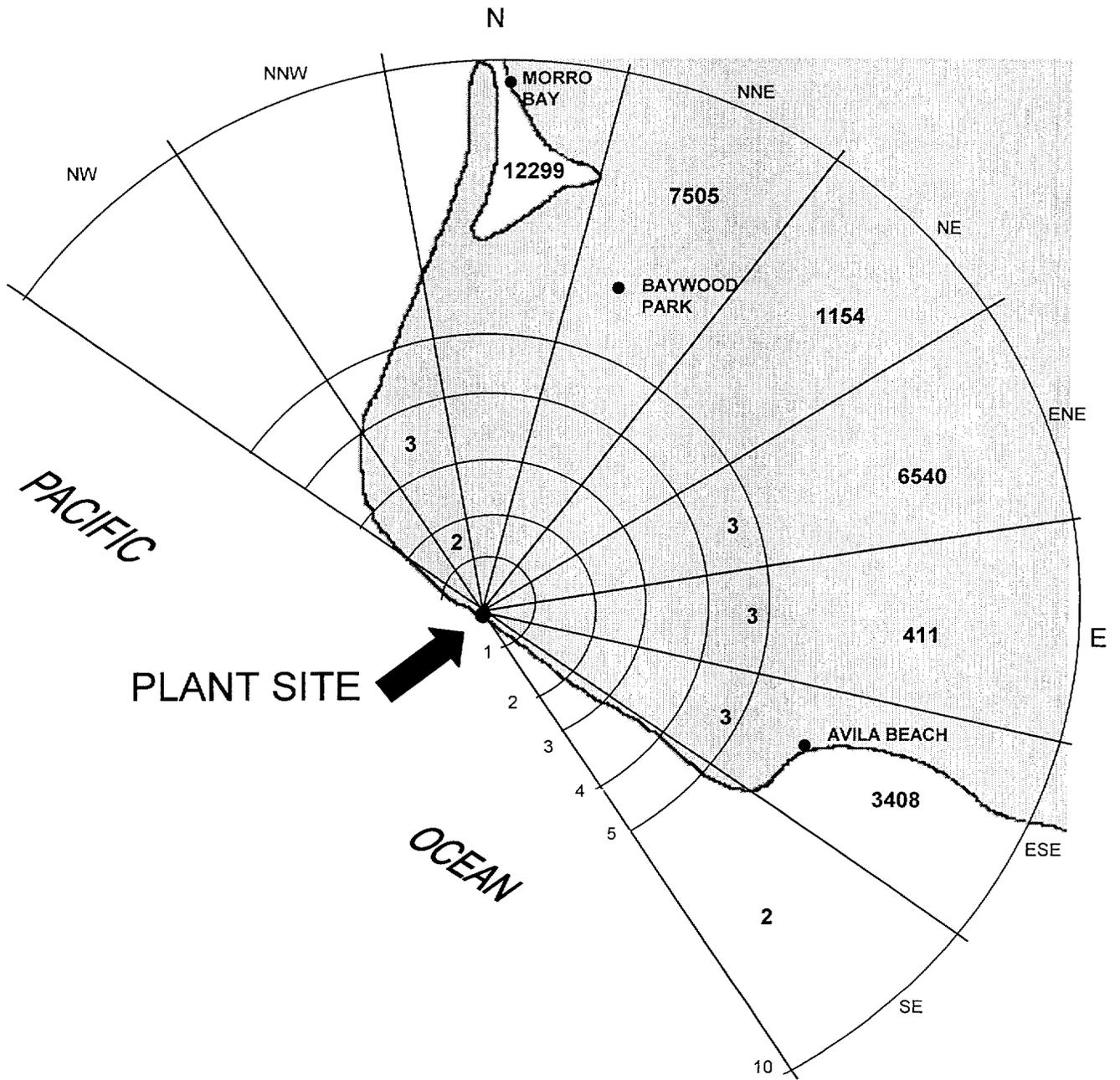
DIABLO CANYON ISFSI

FIGURE 2.1-2

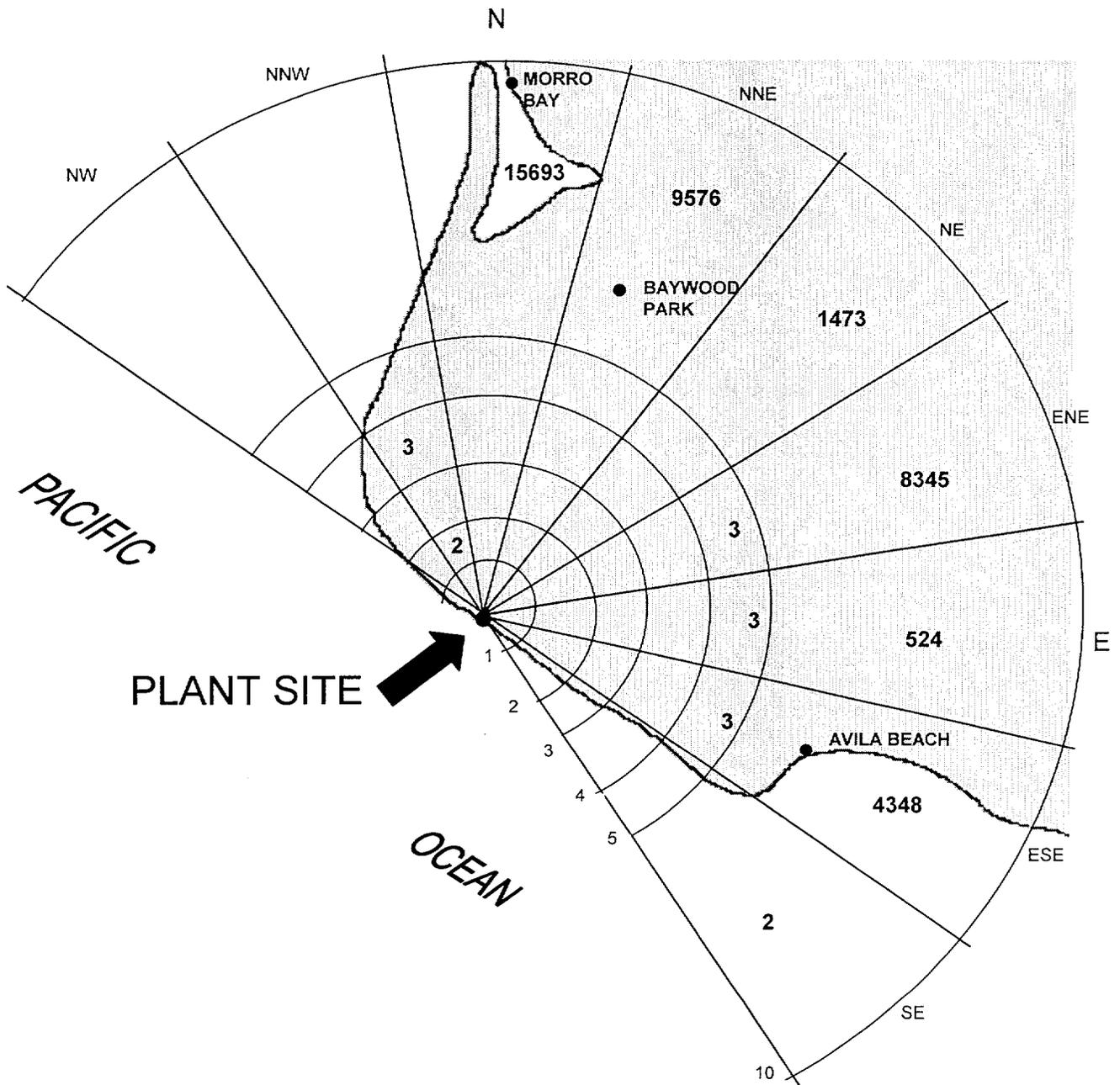
SITE PLAN



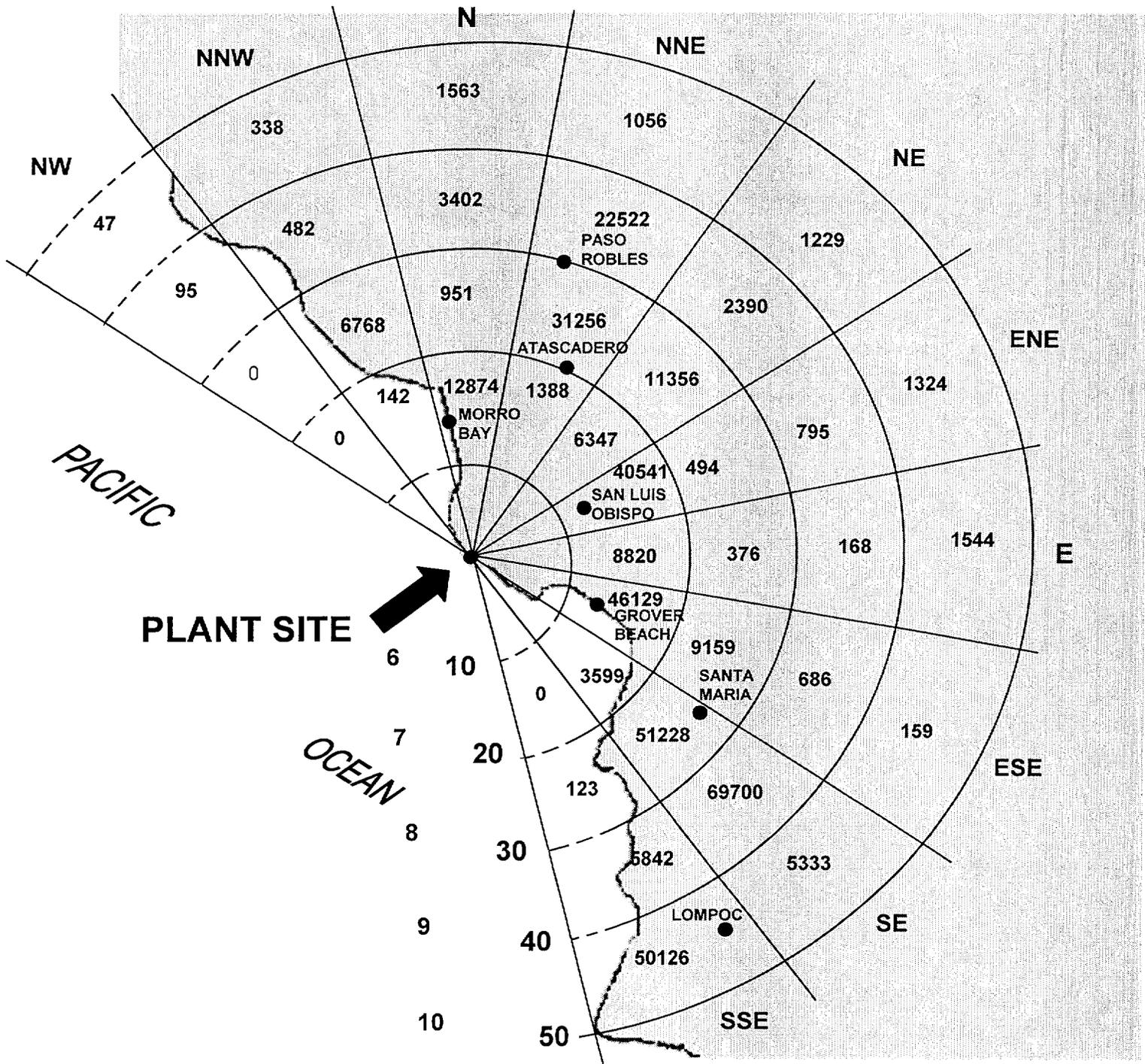
SAFETY ANALYSIS REPORT
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FIGURE 2.1-3
POPULATION DISTRIBUTION
0 TO 10 MILES
2000 CENSUS



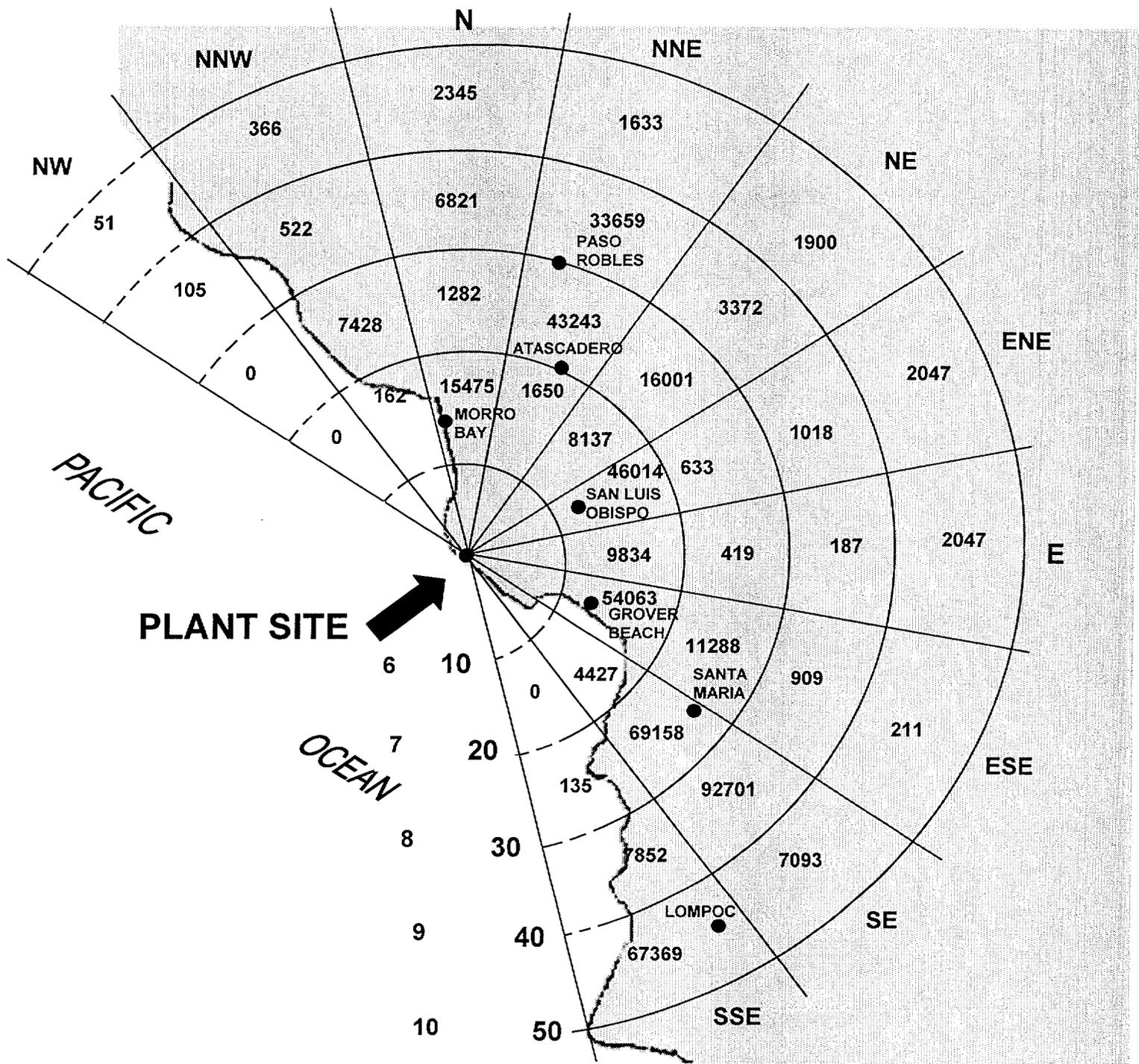
SAFETY ANALYSIS REPORT
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FIGURE 2.1-4
POPULATION DISTRIBUTION
0 TO 10 MILES
2010 PROJECTED



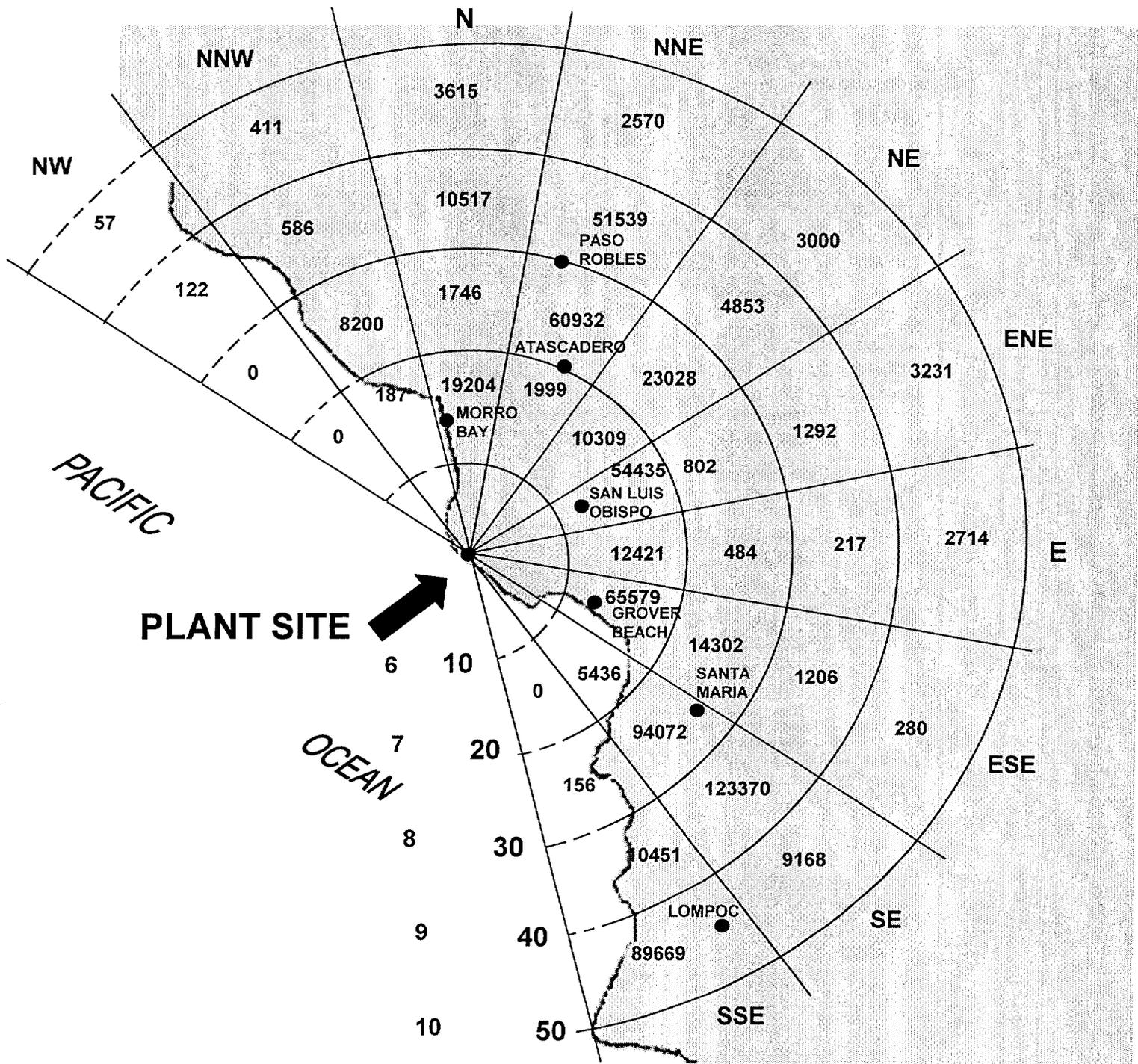
SAFETY ANALYSIS REPORT
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FIGURE 2.1-5
POPULATION DISTRIBUTION
0 TO 10 MILES
2000 CENSUS



SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.1-6
POPULATION DISTRIBUTION
10 TO 50 MILES
2000 CENSUS

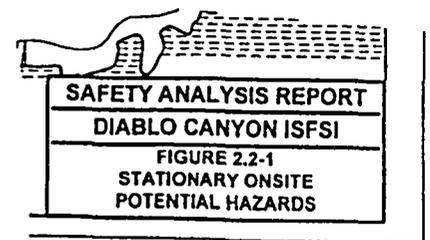


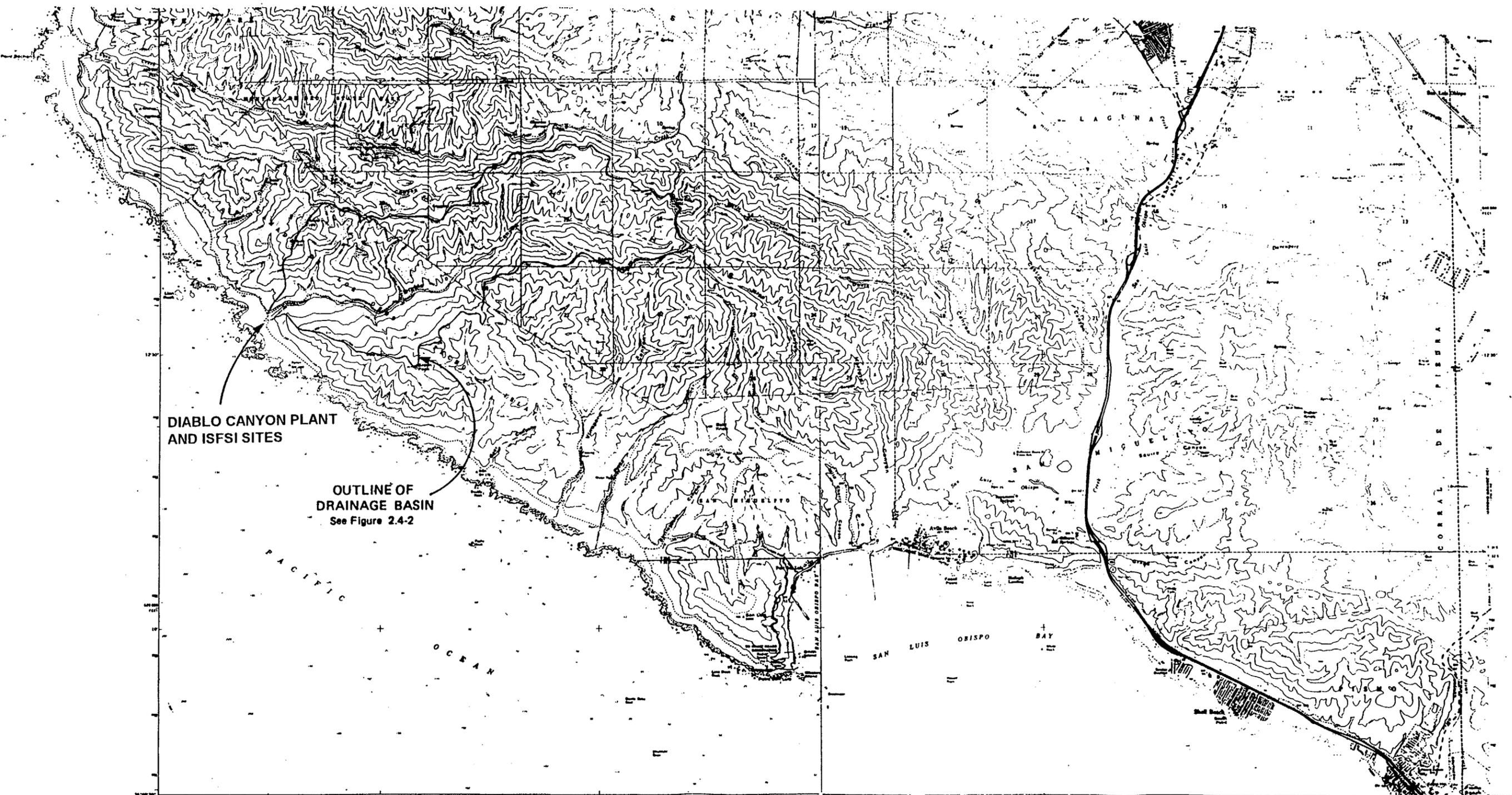
SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.1-7
POPULATION DISTRIBUTION
10 TO 50 MILES
2010 PROJECTED



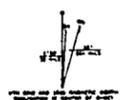
SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.1-8
POPULATION DISTRIBUTION
10 TO 50 MILES
2025 PROJECTED

Figure Withheld Under 10 CFR 2.390





Revised, edited, and published by the Geological Survey
 based on 1965 and USGS
 topography by photogrammetric methods from aerial
 photographs taken 1963. Field checked 1964.
 National hydrographic data compiled from USCGS Charts
 1384 (1962) and 1387 (1963).
 This information is not intended for navigational purposes.
 Projection: projection. 1983 North American datum.
 14,600-foot grid based on California coordinate system, zone 1.
 1983 datum. Horizontal Reference grid based on
 zone 10 shown in blue.



SCALE 1:2500

CONTOUR INTERVAL, 40 FEET
 SHOWS MEAN SEA LEVEL
 METRIC CURVES AND SHOWN IN FEET - SHOWS MEAN SEA LEVEL
 NATIONAL DATUM 1983 - CALIFORNIA COORDINATE SYSTEM, ZONE 1
 1983 DATUM



ROAD CLASSIFICATION
 Light gray Unimproved dirt
 Dark gray Improved dirt

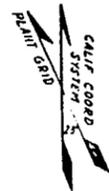
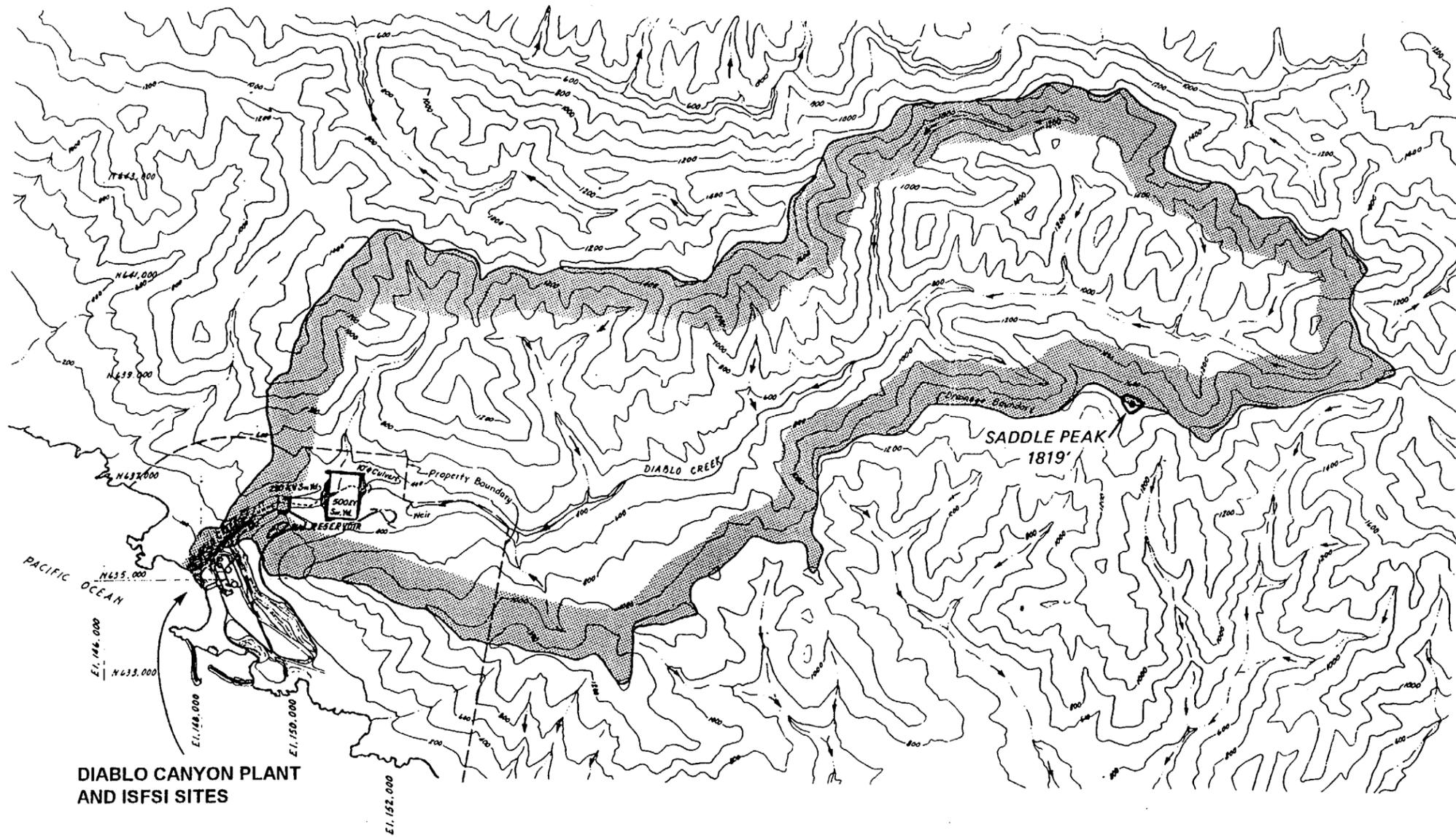
PORT SAN LUIS, CALIF.
 36° 00' 00" N 122° 00' 00" W
 1983
 AND 1983 IN THE 40-DEGREE ZONE

SCALE 1:2500

ROAD CLASSIFICATION
 Light gray Unimproved dirt
 Dark gray Improved dirt
 U.S. Road
 State Road

PISMO BEACH, CALIF.
 35° 00' 00" N 120° 00' 00" W
 1983
 AND 1983 IN THE 40-DEGREE ZONE

SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.4-1
PLANT SITE LOCATION
DRAINAGE AND TOPOGRAPHY



- NOTES:**
1. GRID COORDINATES SHOWN ARE BASED ON CALIF. STATE COORDINATE SYSTEM
 2. DATUM FOR ELEVATIONS SHOWN IS MEAN SEA LEVEL EL. 0.0'
 3. ARROW (→) INDICATES DIRECTION OF RUN OFF
 4. TOPOGRAPHY PHOTOGRAMMETRICALLY REPRODUCED FROM USGS PORT SAN LUIS 7.5 MINUTE QUADRANGLE, 1965.

DIABLO CANYON PLANT AND ISFSI SITES

SURFACE DRAINAGE PLAN

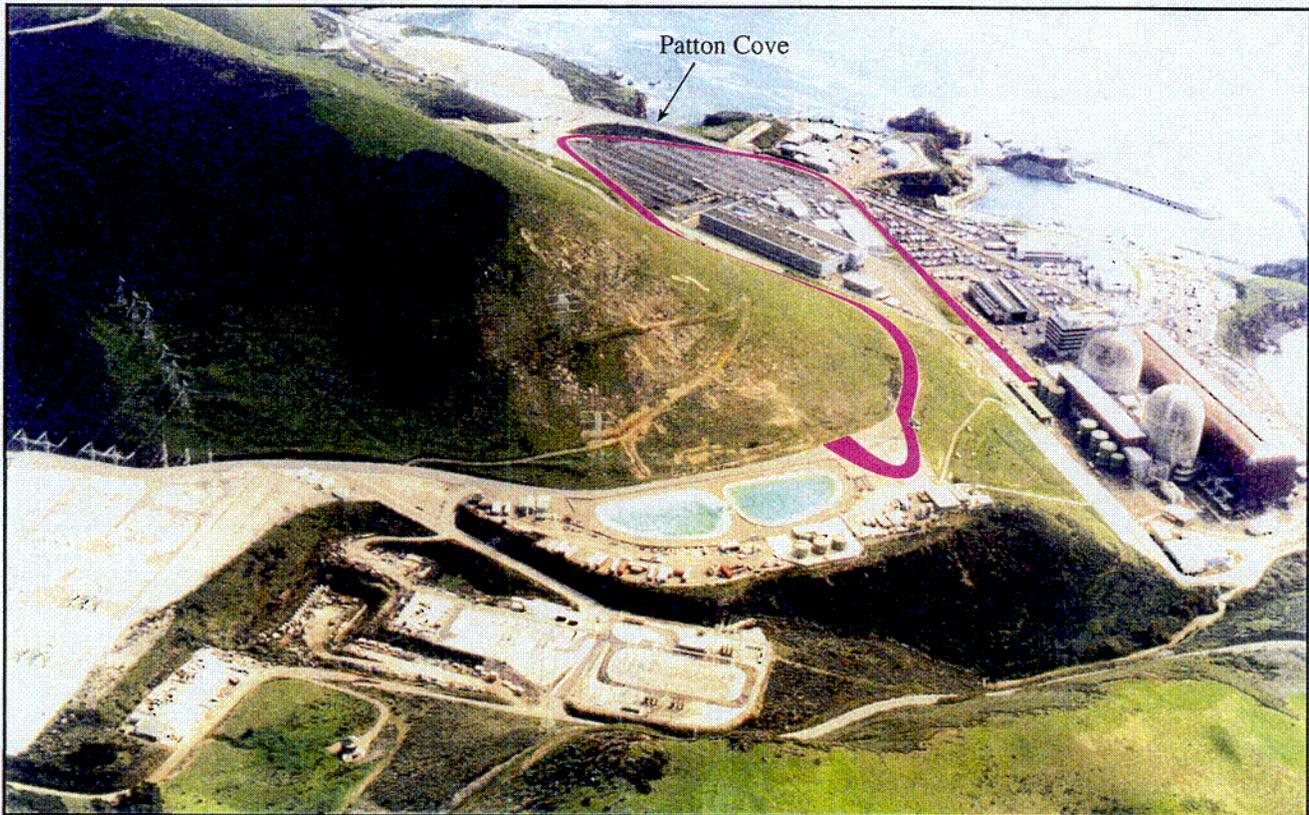


SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.4-2
SURFACE DRAINAGE PLAN



Northeast view of Diablo Canyon Power Plant and the ISFSI and CTF sites. The ISFSI is at the base of the slope to the right of the raw water reservoir. The CTF is directly southwest of the reservoirs. The extent of the 1971 borrow area excavation is indicated by the rocky area on the slope above the reservoir. The power plant and adjacent facilities are constructed on a marine terrace that is covered by Quaternary fan deposits. Photo roll WDP-1.

SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.6-2 DIABLO CANYON POWER PLANT AND THE ISFSI AND CTF SITES



■ Transport route

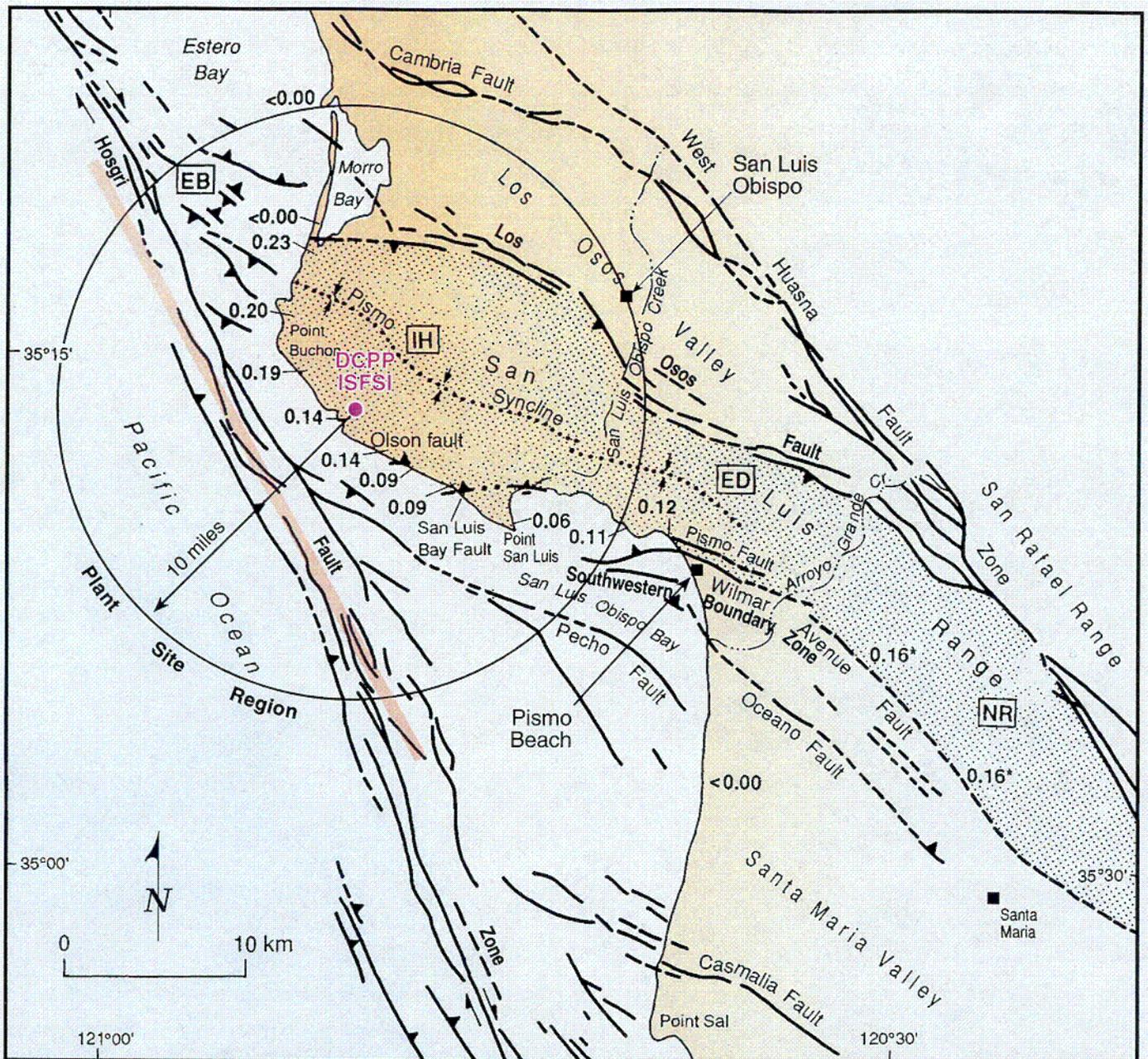
Southward view of the ISFSI study area and transport route. The ISFSI site is located at the base of the slope behind the raw water reservoir. The CTF site is in the flat area to the right of the reservoir. The transport route starts behind the power plant, crosses the marine terrace towards the coast, and curves back along the base of the ridge to the ISFSI pads. The extent of the 1971 borrow area excavation is indicated by brown grass and bedrock outcrops of the Obispo Formation above the reservoir. The natural steep slope of the canyon wall (with brushy vegetation) in the foreground is partly covered by the fill from the 230-kV switchyard below the reservoirs; the 500-kV switchyard is on the left. Photo roll JLB-1.

SAFETY ANALYSIS REPORT

DIABLO CANYON ISFSI

**FIGURE 2.6-3
SOUTHWARD VIEW OF THE ISFSI AND
CTF SITES AND TRANSPORT ROUTE**

C02



(from PG&E, 1988)

Explanation

- Fault: dashed where approximately located; teeth indicate dip direction of reverse fault; arrows indicate relative sense of displacement
- Syncline axial trace
- 0.14** Late Pleistocene (post 120,000 years ago) uplift rate (meters/1000 yr)
- 0.16*** Uplift rate (meters/1000 yr) based on the altitude and estimated age (560,000 years) of the Q₇ marine terrace (modified from PG&E, Final Report of the Long Term Seismic Program, 1988).

- EB** Estero Bay Subblock
- IH** Irish Hills Subblock
- ED** Edna Subblock
- NR** Newsom Ridge Subblock
- Average fault trend (338°) used for ground motion analyses

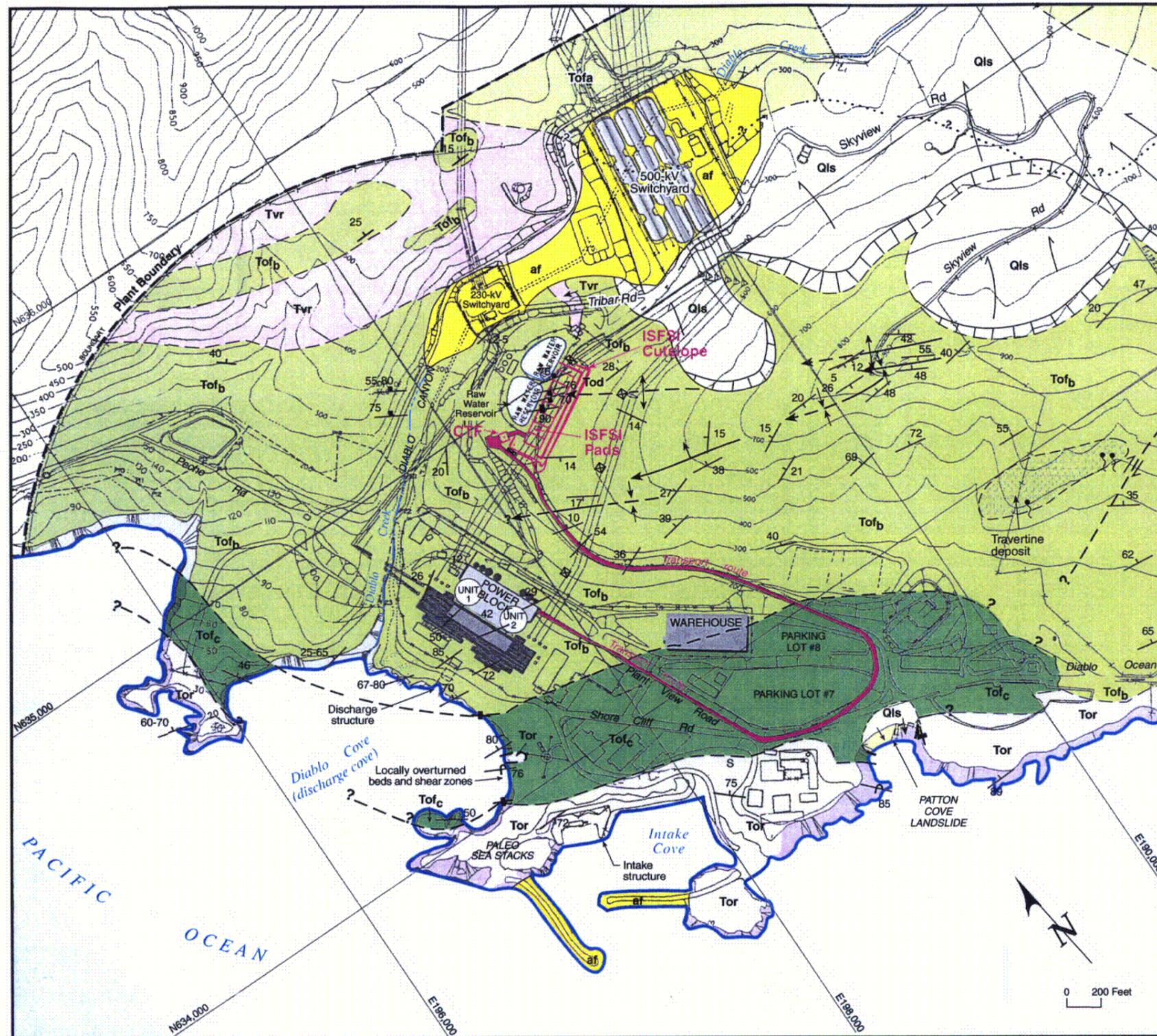
SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.6-4 REGIONAL STRUCTURE MAP

C03



Photo of Obispo Formation dolomite and sandstone strata exposed on the hillslope above the transport route on Reservoir Road. The ISFSI site is to the right of the raw water reservoir. Bedding dips into the hillslope on the west limb of the regional Pismo syncline and extends beneath the power block (off photo to lower left). A small parasitic syncline is manifest as the U-shaped strata directly below the ridge crest in the middle of the photo. Several debris-flow chutes (↓) form the gullies on the slope above Reservoir Road. Photo roll JLB-2.

SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.6-5 C04 OBISPO FORMATION DOLOMITE AND SANDSTONE ON HILLSLOPE ABOVE RESERVOIR ROAD



Explanation

- af** Artificial fill (engineered), only major fills shown
 - Qls** Quaternary landslide deposits
 - Tvr** Volcanic rock (middle Miocene), diabase intrusive sills and dikes
- Obispo Formation**
(lower and middle Miocene) - bedded dolomitic sandstone, siltstone, and claystone with tuffaceous beds, locally calcareous, some chert and volcanic rock lenses
- Member Tof - Sandstone and dolomite
- Tof_a** Unit a - diatomaceous siltstone and tuffaceous sandstone; yellow-brown to tan; thick to massive bedding
 - Tof_b** Unit b - dolomite, dolomitic siltstone, dolomitic sandstone and sandstone, medium to very thick bedding
 - Tof_c** Unit c - shale, claystone and siltstone, thin to medium bedding extensively sheared
- Tor** Member Tor - Volcanic rock, zeolitized and silicified tuff
- Bedrock fault or shear zone, dashed where approximate, queried where uncertain, arrows show sense of displacement
 - Geologic contact, solid line where well-defined, dashed where approximate, queried and/or dotted where uncertain
 - Cut or fill slope
 - Large landslides. Arrows indicate direction of movement, hachures define head scarp. (Smaller landslides are not shown)
 - 500-kV tower
 - Generalized strike and dip of bedding
 - Parasitic folds on south limb of Pismo syncline
 - Axis of anticline, plunge indicated by larger arrow, dashed where approximately located
 - Axis of syncline, plunge indicated by larger arrow, dashed where approximately located
 - Axis of monocline, plunge indicated by larger arrow, dashed where approximately located
 - Steep sea cliff
 - Strike and dip of fault
 - Spring

Note: Except for small faults at and near the ISFSI site, only major geologic structures and bedrock units, and large landslides, are shown.

Data sources

Base Maps:
PG&E Civil Site Facilities Layout Plan (modified 1994)

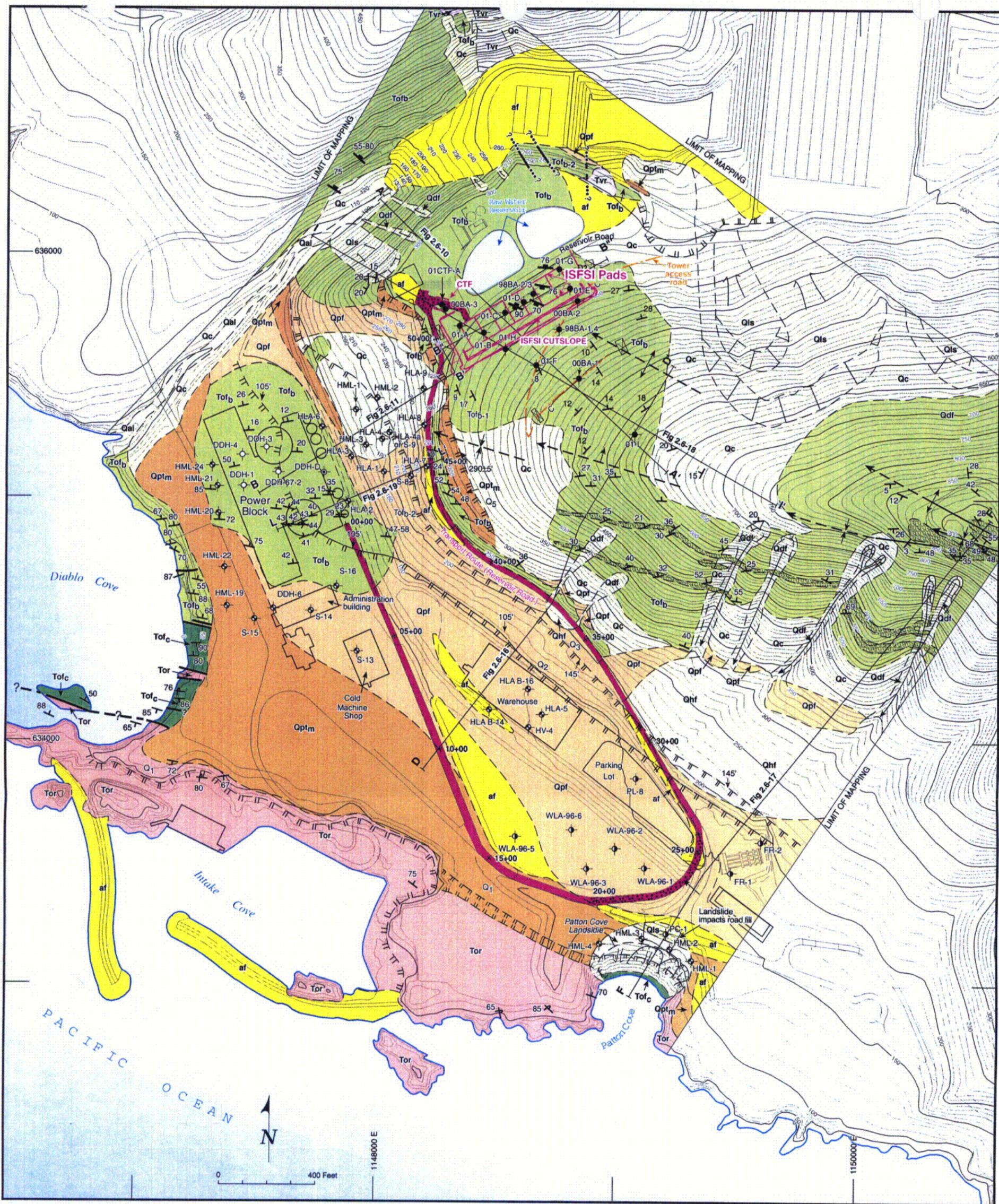
Topography from PG&E, 1986 (and later revisions), Plot plan drawing 471124

Geology modified from:
C.A. Hall, Jr., W.G. Ernest, S. W. Prior, and J.W. Siese, 1979, Geologic map of the San Luis Obispo-San Simion region, U.S. Geological Survey Miscellaneous Investigation I-1097.

C.A. Hall Jr., 1973, Geologic map of the Morro Bay South and Port San Luis Quadrangles, San Luis Obispo County, California, U.S. Geological Survey Miscellaneous Field Studies Map MF-511, scale 1:24,000.

SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.6-6
GEOLOGIC MAP OF BEDROCK AND LANDSLIDES IN THE PLANT SITE AREA

C05



Explanation

- | | | | | | | | | |
|------------|--|---|---------|---|---|---|---|--|
| Quaternary | af | Artificial fill (engineered) | — — — ? | Geologic contact, solid line where well-defined, dashed where approximate, queried where uncertain. | ↖ | Axis of monocline, larger arrow shows plunge, dashed where approximate | ⊙ | Boring from 1967 power block study |
| | Qal
Qdf
Qc
Qls
Qhf | Quaternary deposits - alluvium, debris flow, colluvium, landslide, Holocene colluvial fan | — — — ? | Fault, dashed where approximate, queried where uncertain | ↖ | Buried shoreline, angle of marine terrace wave cut platform; number and elevation indicated | ⊙ | 1977 boring DDH-D at power block |
| | | NOTE: Only surficial deposits greater than about 5 feet thick shown | | | | | | |
| | Qpf | Pleistocene colluvial fan | | | | | | |
| | Qptm | Pleistocene marine terrace deposit (inferred) | | | | | | |
| Tertiary | Tvr | Volcanic rock (middle Miocene), diabase intrusive sills and dikes | | | | | | |
| | Obispo Formation (lower and middle Miocene) | | | | | | | |
| | Tofb | Member Tof, Unit b - dolomite, dolomitic siltstone, dolomitic sandstone, and sandstone, medium to thick bedded. | | | | | | |
| | Tofc | Member Tof, Unit c - shale, claystone and siltstone, thin to medium bedding, extensively sheared. | | | | | | |
| | Tor | Member Tor - volcanic rock, zeolitized and silicified tuff | | | | | | |
| | | | ↘ | Landslides, arrows indicate direction of movement, hachures define headscarp region | ⊗ | Footprint of 500-kV tower | ⊙ | Boring from previous HLA and HML studies |
| | | | ↘ | Debris flow path | ↘ | 85 | ↘ | Boring for ISFSI siting investigations, WLA 1998 to 2001 |
| | | | ↘ | Axis of syncline, larger arrow shows plunge, dashed where approximate | ↘ | 10 | ↘ | Boring for ISFSI siting investigations, WLA 1996 to 1998 |
| | | | ↘ | Axis of anticline, larger arrow shows plunge, dashed where approximate | ↘ | 85 | ↘ | Transport route; stippled where transport route will be underlain by new engineered fill |
| | | | ↘ | | ↘ | ⊕ | ↘ | Geologic cross section |
| | | | ↘ | | ↘ | ⊕ | ↘ | |
| | | | ↘ | | ↘ | ⊕ | ↘ | |
| | | | ↘ | | ↘ | ⊕ | ↘ | |

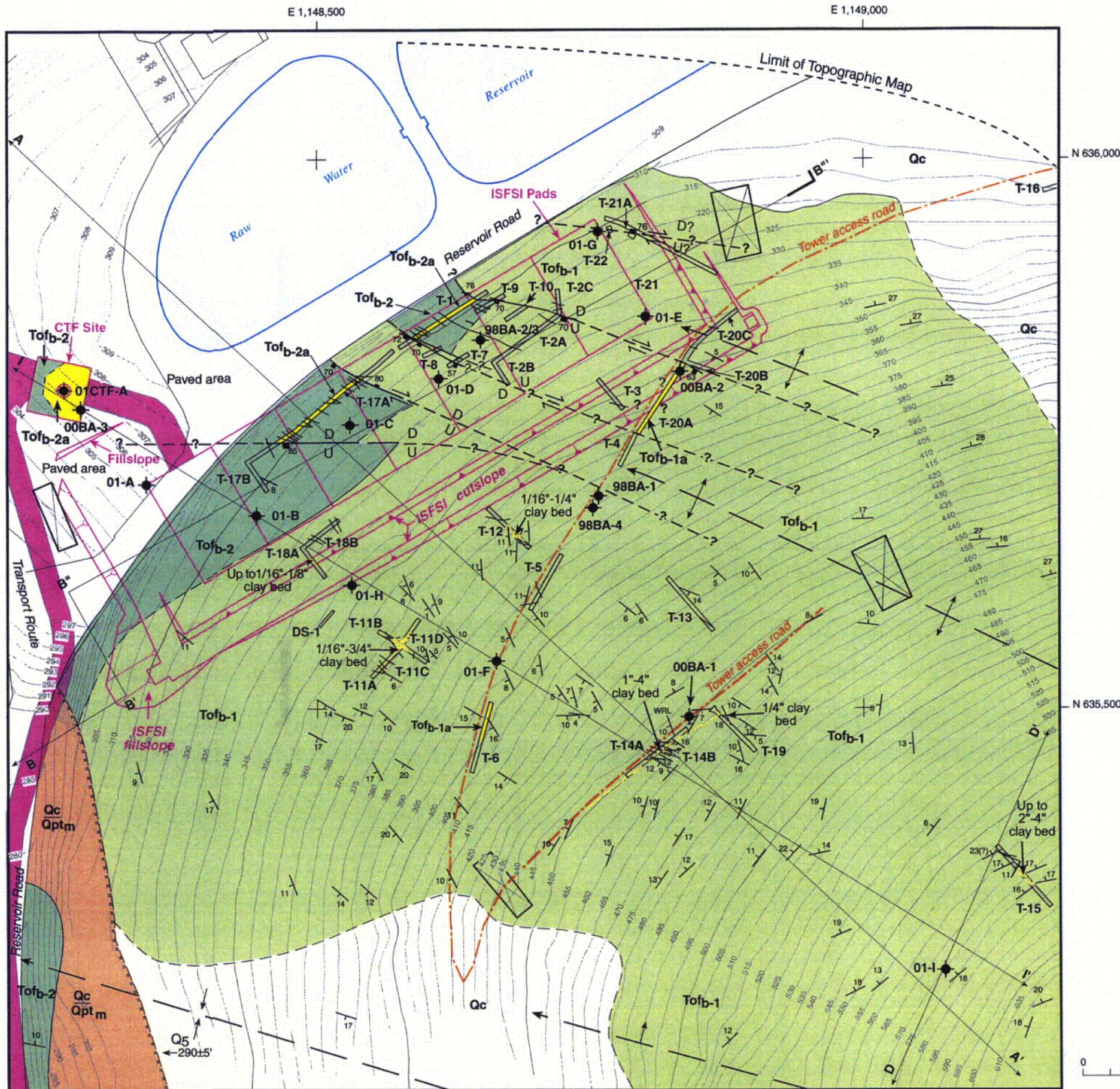
NOTE: The base topography for this map is a compilation of four different topographic maps: (1) the 1:2,400-scale Towill Corporation map based on 1966 aerial photography; (2) the 1986, 1:2,400-scale PG&E Plot Plan map; (3) 1970s era, 1:240-scale PG&E topographic/civil maps ("20-scale civil drawings"); and (4) the 2000-2001, 1:600 scale ISFSI Site map. These maps were merged and edited to eliminate map border conflicts and registered to the California State Coordinate System. Some of the maps listed above were received from PG&E Geoscience Department under letter of transmittal dated October 26, 2001 (PG&E Geosciences, 2001b).

SAFETY ANALYSIS REPORT

DIABLO CANYON ISFSI

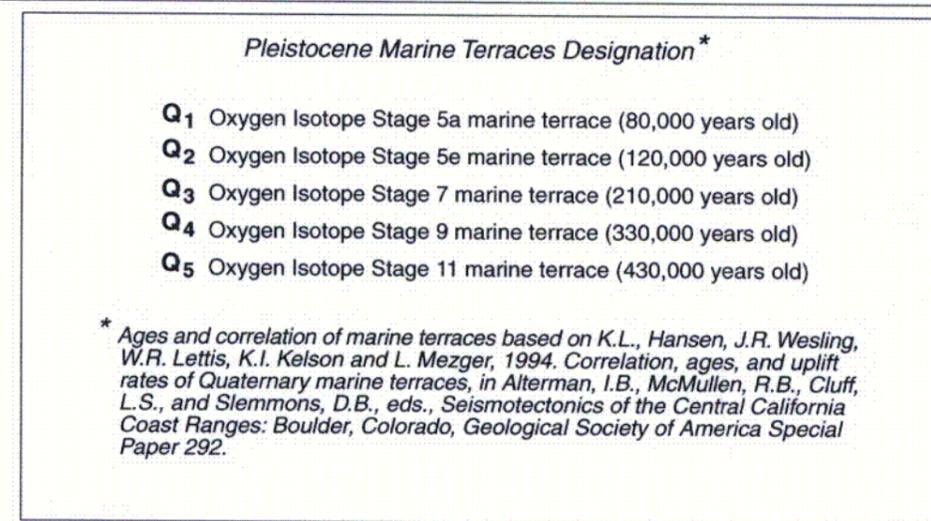
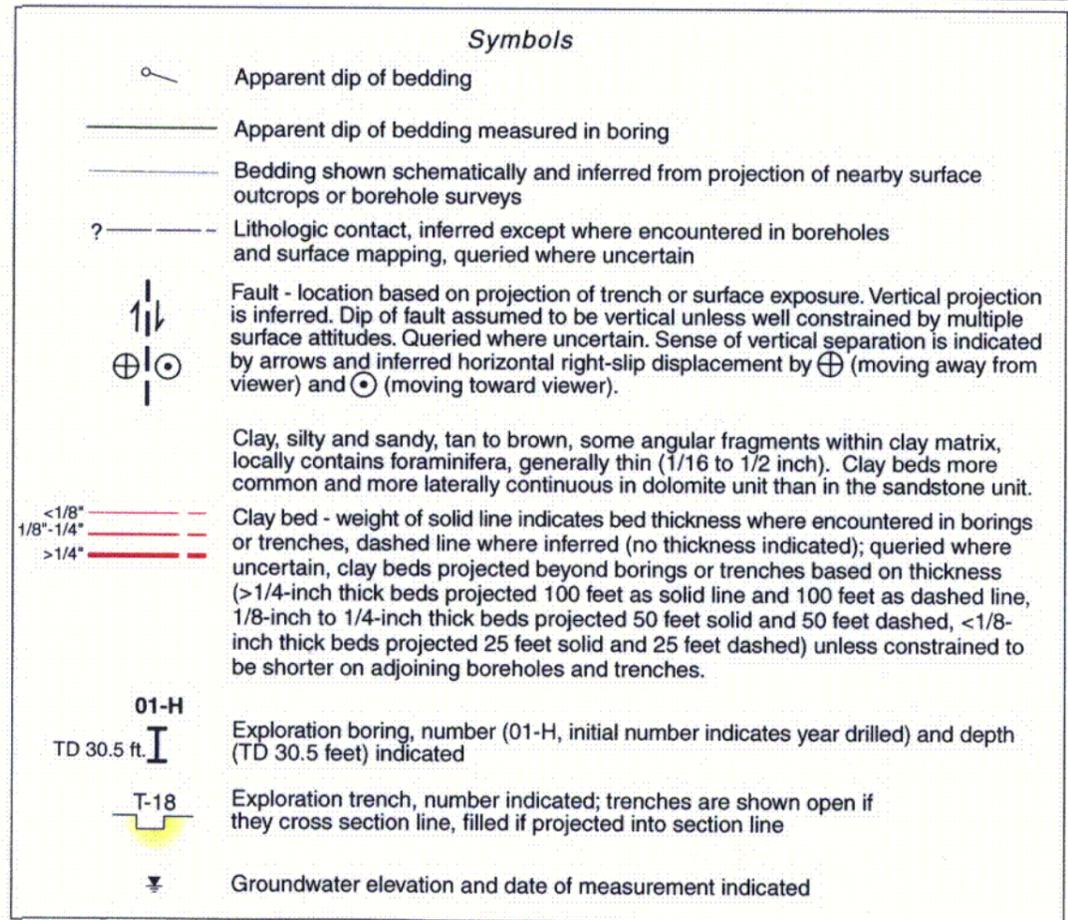
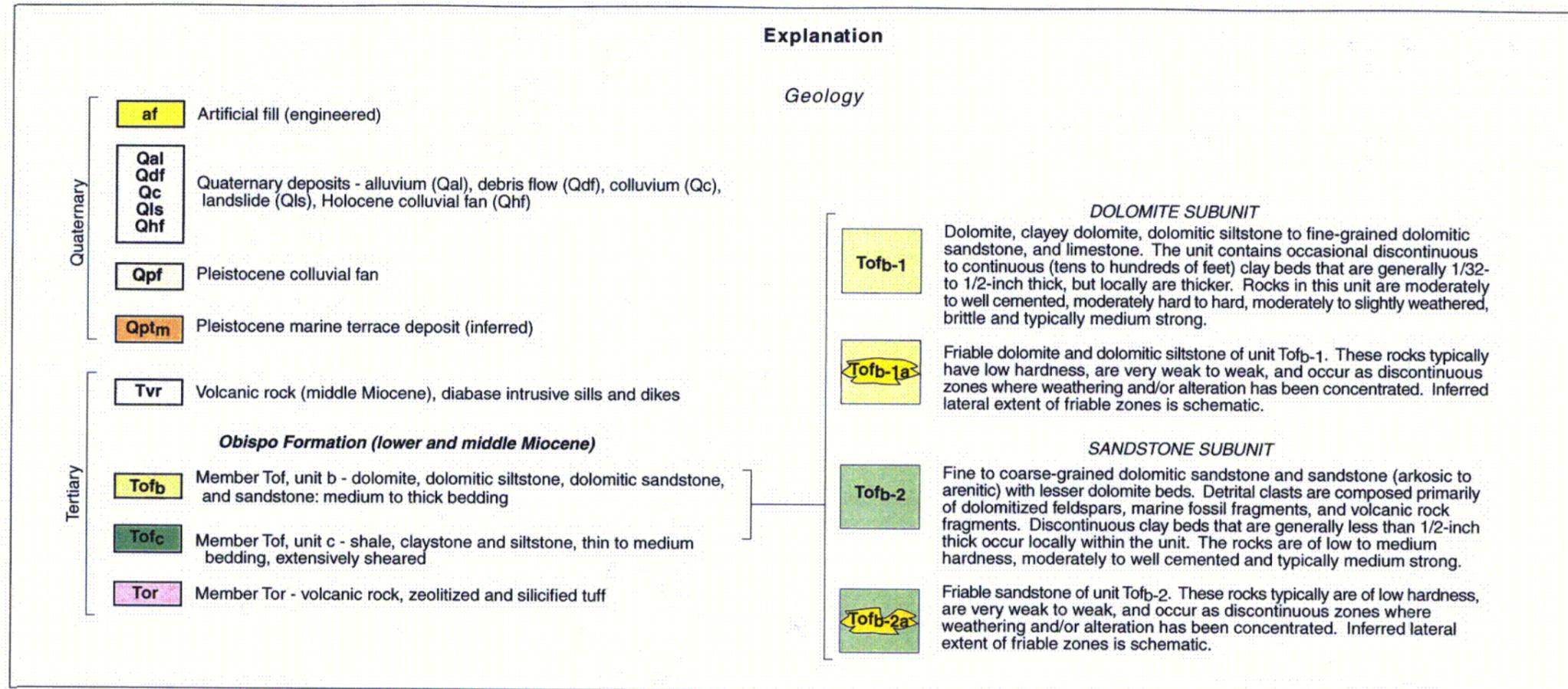
FIGURE 2.6-7
GEOLOGIC MAP OF THE ISFSI STUDY AREA AND TRANSPORT ROUTE VICINITY

C06



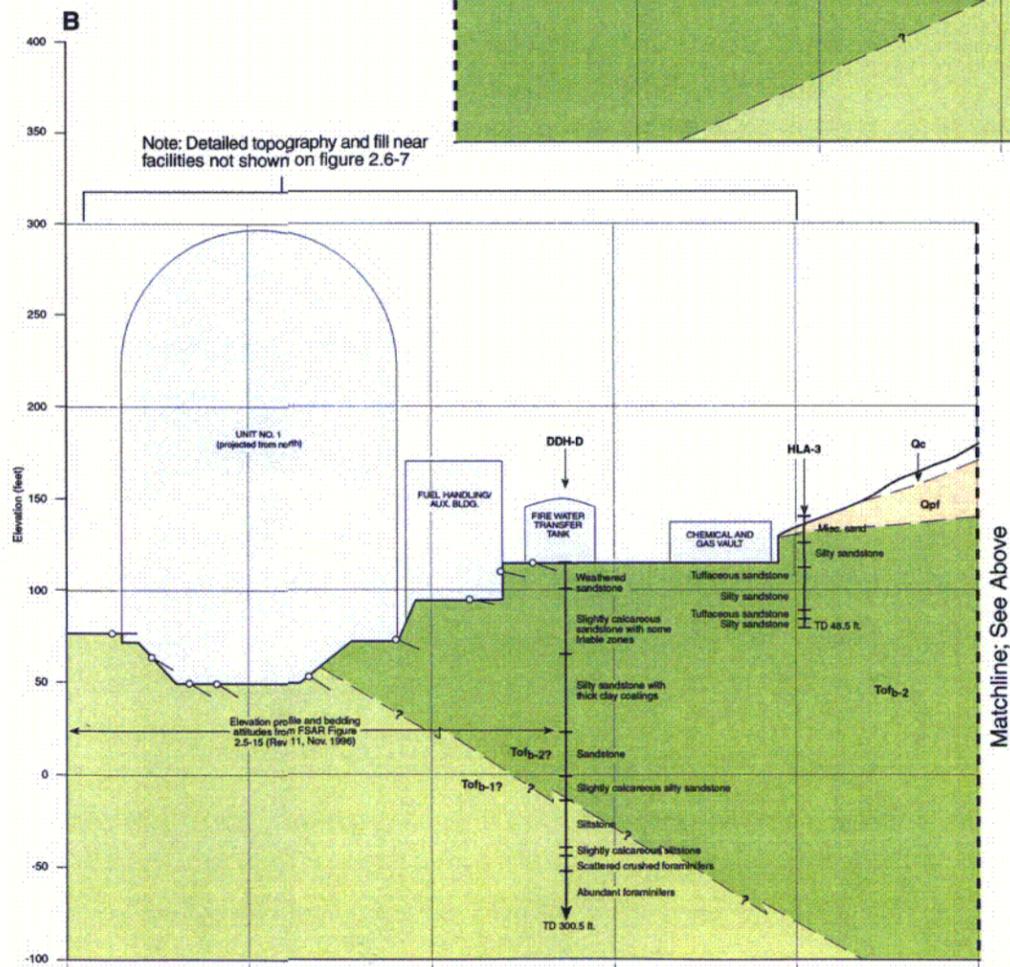
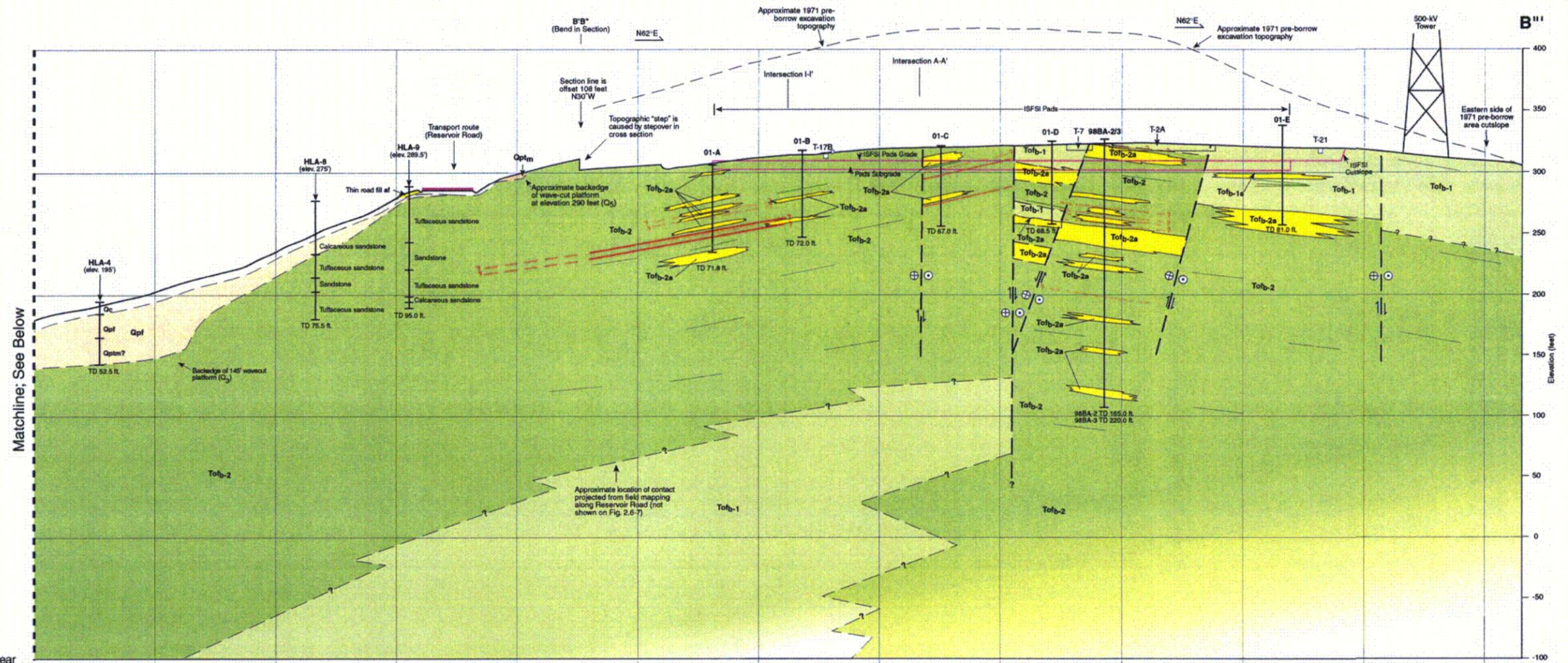
- EXPLANATION**
- Qc** Colluvium
 - Qptm** Marine terrace deposit (overlain by Qc)
- Obispo Formation (lower and middle Miocene)**
- DOLOMITE UNIT**
- Tofb-1** Dolomite, clayey dolomite, dolomitic siltstone to fine-grained dolomitic sandstone, and limestone. The unit contains occasional discontinuous to continuous (tens to hundreds of feet) clay beds that are generally 1/32- to 1/2-inch thick, but locally are thicker. Rocks in this unit are moderately to well cemented, moderately hard to hard, moderately to slightly weathered, brittle and typically medium strong.
 - Tofb-1a** Friable dolomite and dolomitic siltstone of unit Tofb-1. These rocks typically have low hardness, are very weak to weak, and occur as discontinuous zones where weathering and/or alteration has been concentrated. Inferred lateral extent of friable zones is schematic.
- SANDSTONE UNIT**
- Tofb-2** Fine to coarse-grained dolomitic sandstone and sandstone (arkosic to arenitic) with lesser dolomite beds. Detrital clasts are composed primarily of dolomitized feldspars, marine fossil fragments, and volcanic rock fragments. Discontinuous clay beds that are generally less than 1/2-inch thick occur locally within the unit. The rocks are of low to medium hardness, moderately to well cemented and typically medium strong.
 - Tofb-2a** Friable sandstone of unit Tofb-2. These rocks typically are of low hardness are very weak to weak, and occur as discontinuous zones where weathering and/or alteration has been concentrated. Inferred lateral extent of friable zones is schematic.
- Strike and dip of bedding
 - Minor fault, dip indicated, dashed where inferred, queried where uncertain, arrows show relative sense of displacement, U-upthrown, D-downtrown
 - Small, secondary faults exposed in trench
 - Clay bed, thickness indicated
 - Geologic contact, solid line where well-defined, dashed where approximate
 - Boring for ISFSI, number indicated (initial number is year drilled, e.g. 01 was drilled in 2001)
 - Geologic cross section, arrows indicate end of line is off the map area
 - Buried shoreline angle of marine terrace wave-cut platform, number and elevation indicated
 - Exploratory trench, number indicated
 - Discontinuity survey line in bulldozer cut
 - Footprint of 500-kV tower
 - Outslope above and fill prism west of ISFSI pads
 - Axis of anticline, larger arrow shows plunge, dashed where approximate
 - Axis of syncline, larger arrow shows plunge, dashed where approximate
 - Axis of monocline, larger arrow shows plunge, dashed where approximate
- Notes:**
 ISFSI geometry is based on PG&E Enercon Drwg. Base map from No. PGE-009-sk-001 dated 9/27/01.
 Geology not shown in paved area and reservoir area.

SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.6-8
GEOLOGIC MAP OF ISFSI AND CTF SITES
 C07



SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.6-9 EXPLANATION FOR CROSS SECTIONS

COB



- Notes**
1. Location of cross section shown on Figures 2.6-7 and 2.6-8. Nearby borings are projected to cross section.
 2. See Figure 2.6-9 for explanation of geologic units.
 3. Horizontal scale = vertical scale.

SAFETY ANALYSIS REPORT	
DIABLO CANYON ISFSI	
FIGURE 2.6-11	
CROSS SECTION B-B'''	

C10



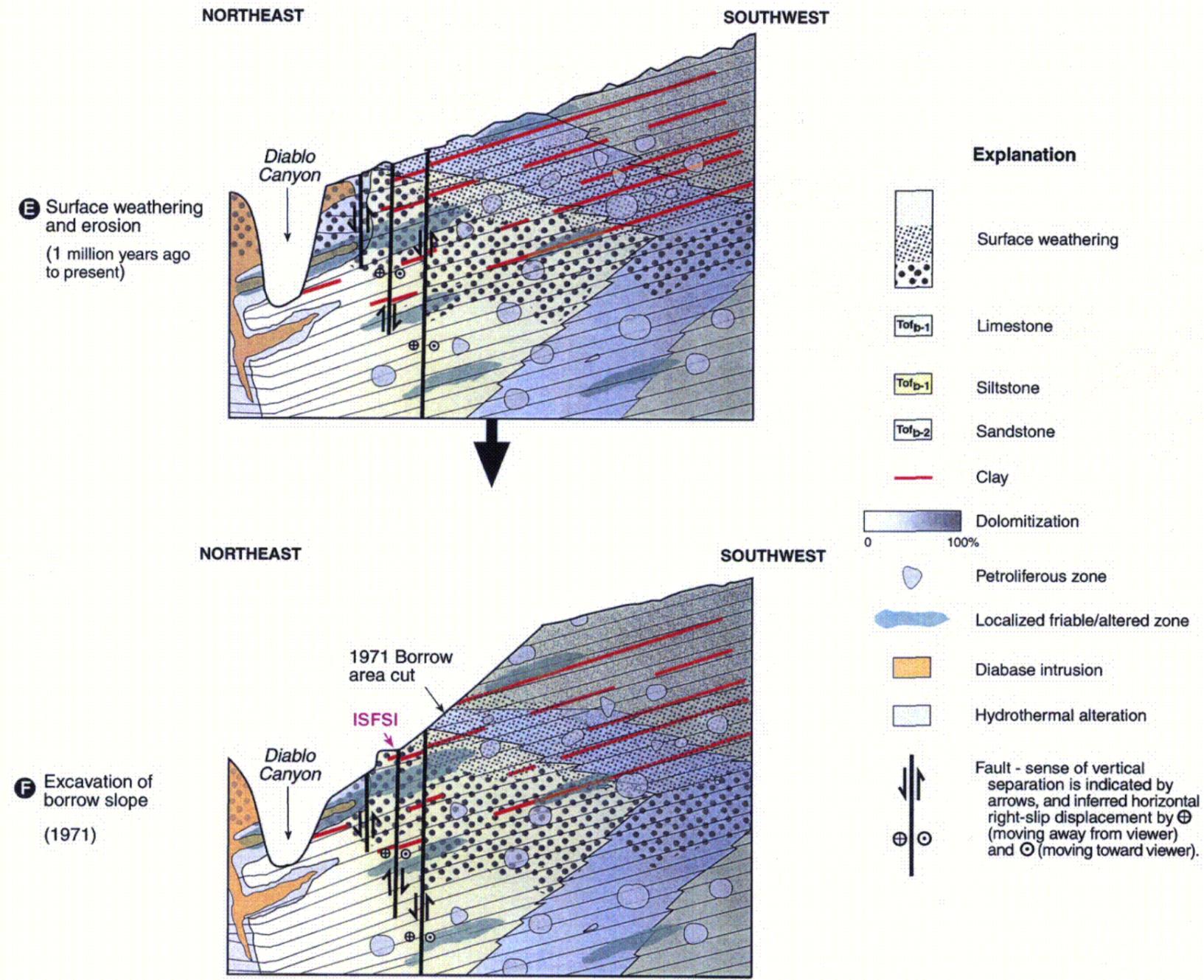
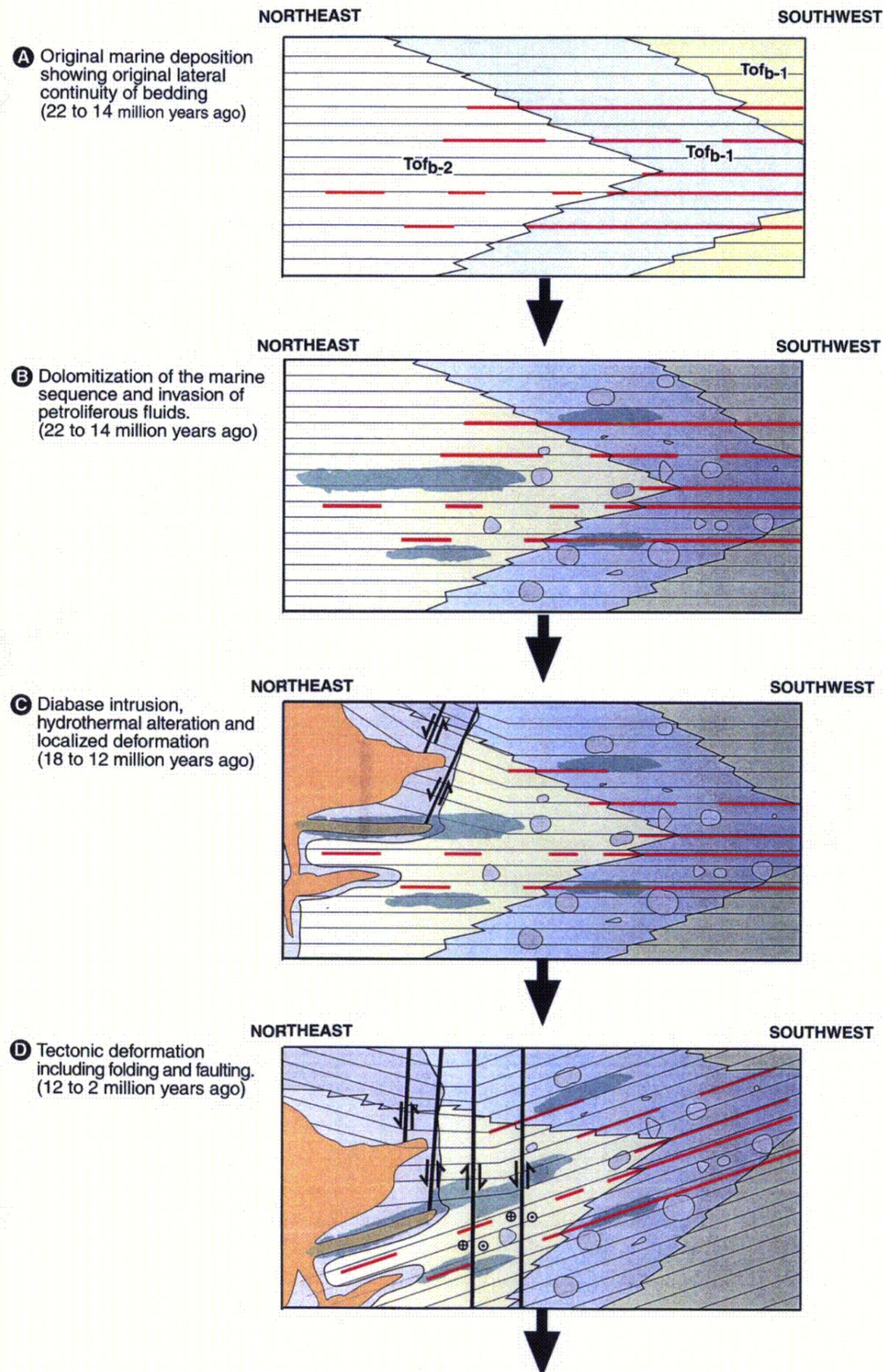
Southward view of the ISFSI site, above the raw water reservoir. The 1971 borrow area cutslope is indicated by areas of bedrock exposure and brown grass. Trenches excavated for the ISFSI investigations are shown (trenches backfilled in April 2001). Trench T-16 is located to the left of the photo. Photo roll AR 3-25.

SAFETY ANALYSIS REPORT

DIABLO CANYON ISFSI

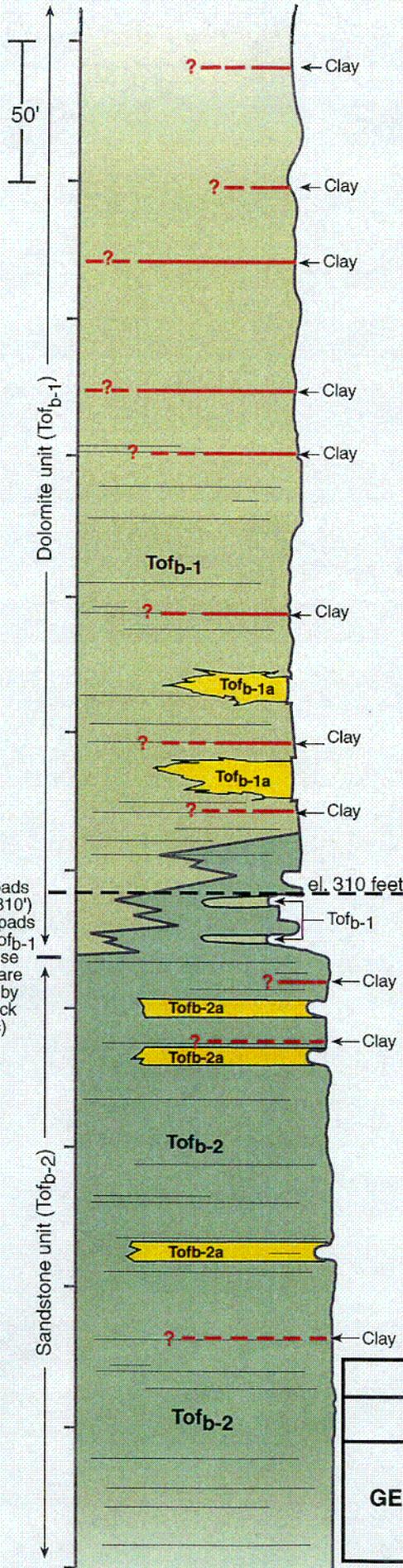
**FIGURE 2.6-12
SOUTHWARD VIEW OF ISFSI STUDY AREA**

C11

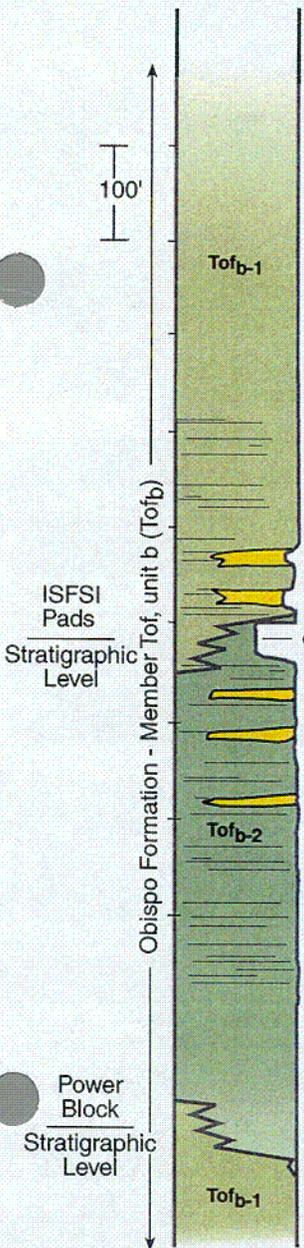


SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.6-13
DIAGRAMMATIC CROSS SECTION ILLUSTRATING
THE DEPOSITIONAL AND STRUCTURAL HISTORY
OF THE ISFSI STUDY AREA C12

Large-Scale View



Small-Scale View



Explanation
(Informal subunits of unit Tof_b of Obispo Formation)

DOLOMITE SUBUNIT

Tof_{b-1}

Dolomite, clayey dolomite, dolomitic siltstone to fine-grained dolomitic sandstone, and limestone. The unit contains occasional discontinuous to continuous (tens to hundreds of feet) clay beds that are generally 1/32-to 1/2-inch thick, but locally are thicker. Rocks in this unit are moderately to well cemented, moderately hard to hard, moderately to slightly weathered, brittle and typically medium strong.

Tof_{b-1a}

Friable dolomite and dolomitic siltstone of unit Tof_{b-1}. These rocks typically have low hardness, are very weak to weak, and occur as discontinuous zones where weathering and/or alteration has been concentrated. Inferred lateral extent of friable zones is schematic.

SANDSTONE SUBUNIT

Tof_{b-2}

Fine to coarse-grained dolomitic sandstone and sandstone (arkosic to arenitic) with lesser dolomite beds. Detrital clasts are composed primarily of dolomitized feldspars, marine fossil fragments, and volcanic rock fragments. Discontinuous clay beds that are generally less than 1/2-inch thick occur locally within the unit. The rocks are of low to medium hardness, moderately to well cemented and typically medium strong.

Tof_{b-2a}

Friable sandstone of unit Tof_{b-2}. These rocks typically are of low hardness and are very weak to weak, and occur as discontinuous zones where weathering and/or alteration has been concentrated. Inferred lateral extent of friable zones is schematic.

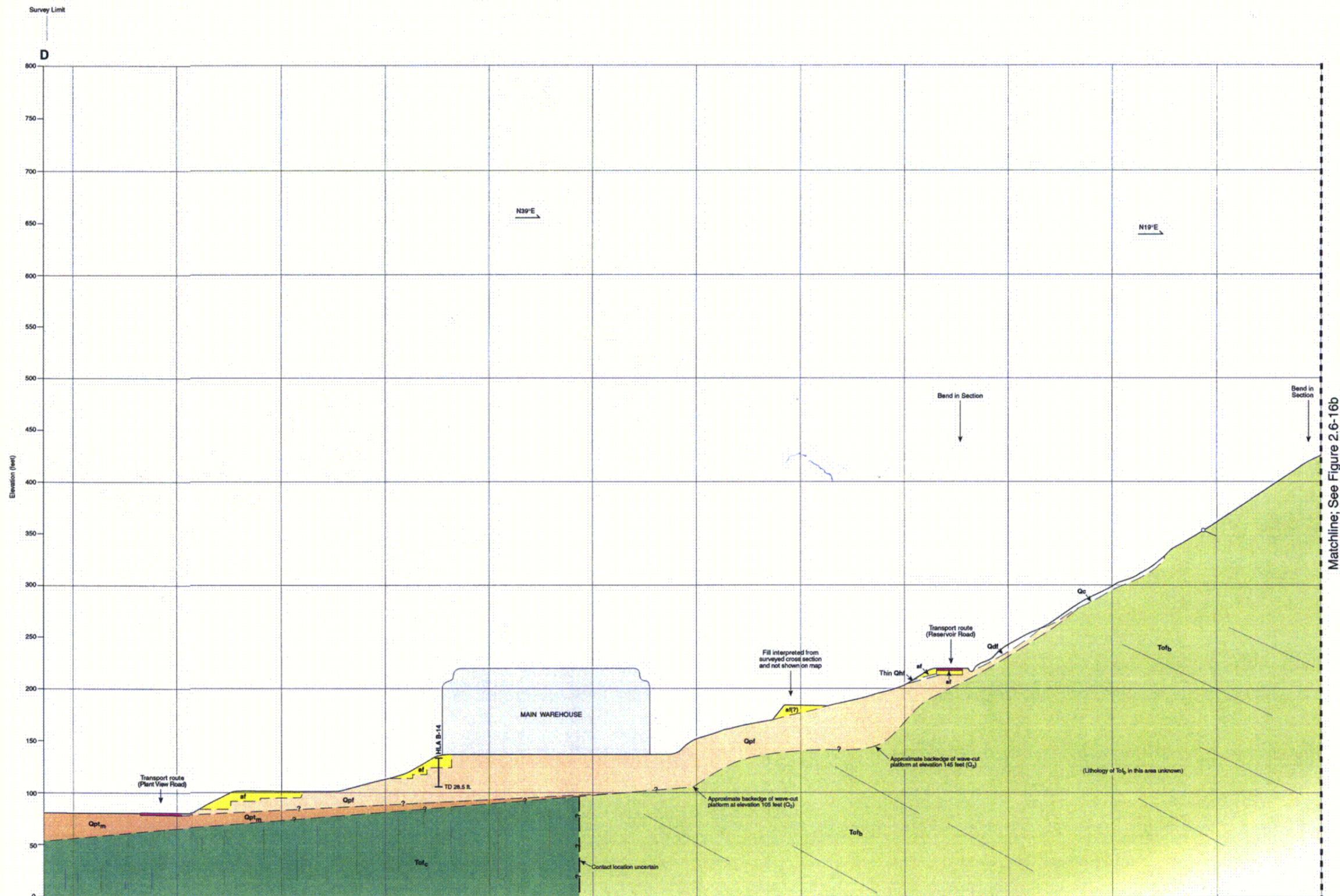
? - - - - - Clay bed; silty and sandy, tan to brown, some angular fragments within clay matrix, locally contains foraminifera, generally thin (1/16 to 1/2 inch). Clay beds more common and more laterally continuous in dolomite unit than in the sandstone unit

SAFETY ANALYSIS REPORT

DIABLO CANYON ISFSI

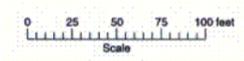
**FIGURE 2.6-15
GENERALIZED STRATIGRAPHIC COLUMN AT
THE ISFSI AND POWER BLOCK SITES**

C13



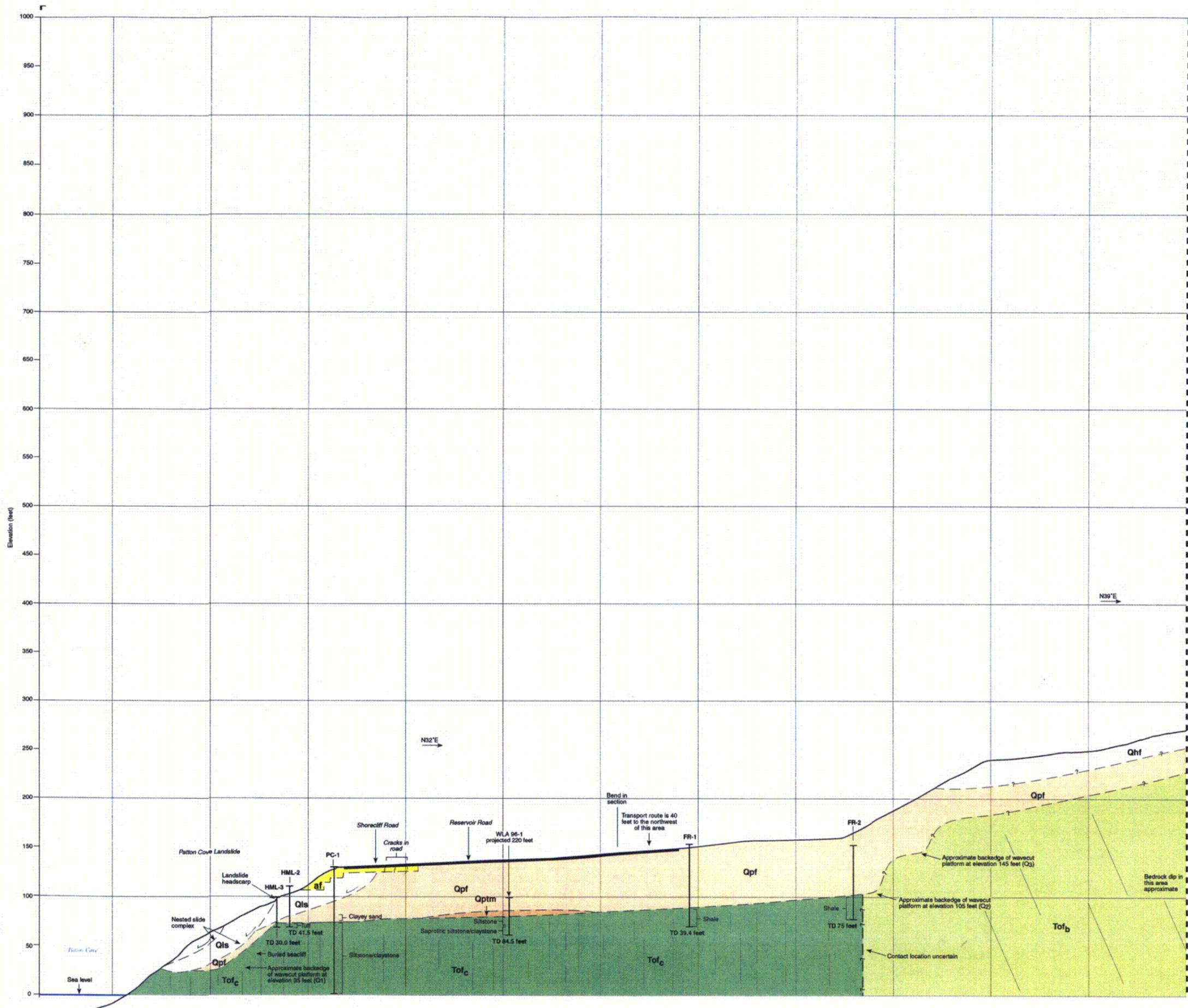
Matchline; See Figure 2.6-16b

- Notes**
1. Location of cross section shown on Figures 2.6-7 and 2.6-8. Nearby borings are projected to cross section.
 2. See Figure 2.6-9 for explanation of geologic units.
 3. Horizontal scale = vertical scale.



SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.6-16a CROSS SECTION D-D'

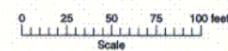
C14



Matchline: See Figure 21-19b

Notes

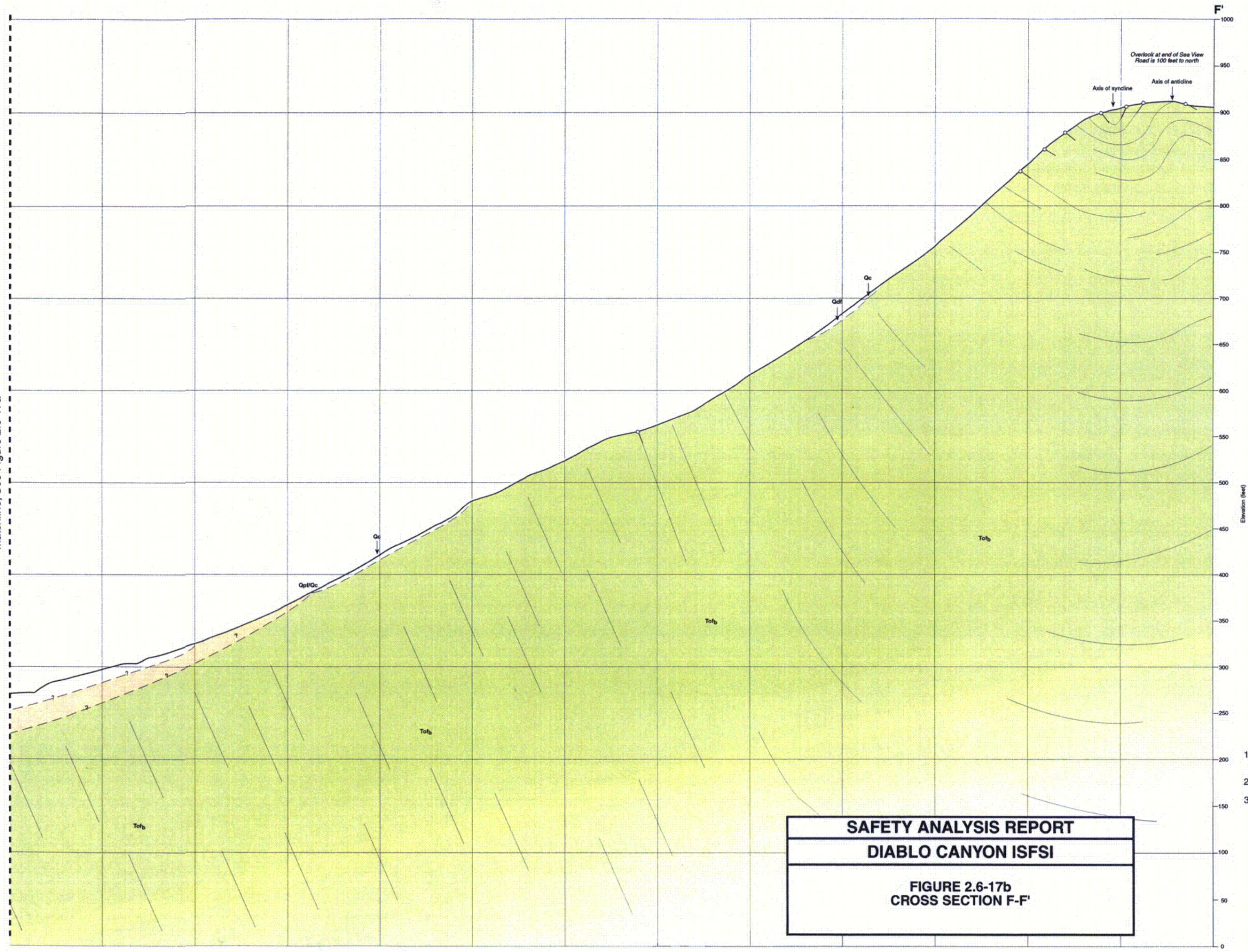
1. Location of cross section shown on Figures 21-3 and 21-4. Nearby borings are projected to cross section.
2. See Figure 21-13 for explanation of geologic units.
3. Horizontal scale = Vertical scale.



SAFETY ANALYSIS REPORT
DIABLO CANYON ISFSI
FIGURE 2.6-17a CROSS SECTION F-F'

C16

Matchline; See Figure 2.6-17a



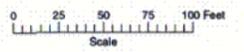
Overlook at end of Sea View Road is 100 feet to north

Axis of syncline
Axis of anticline

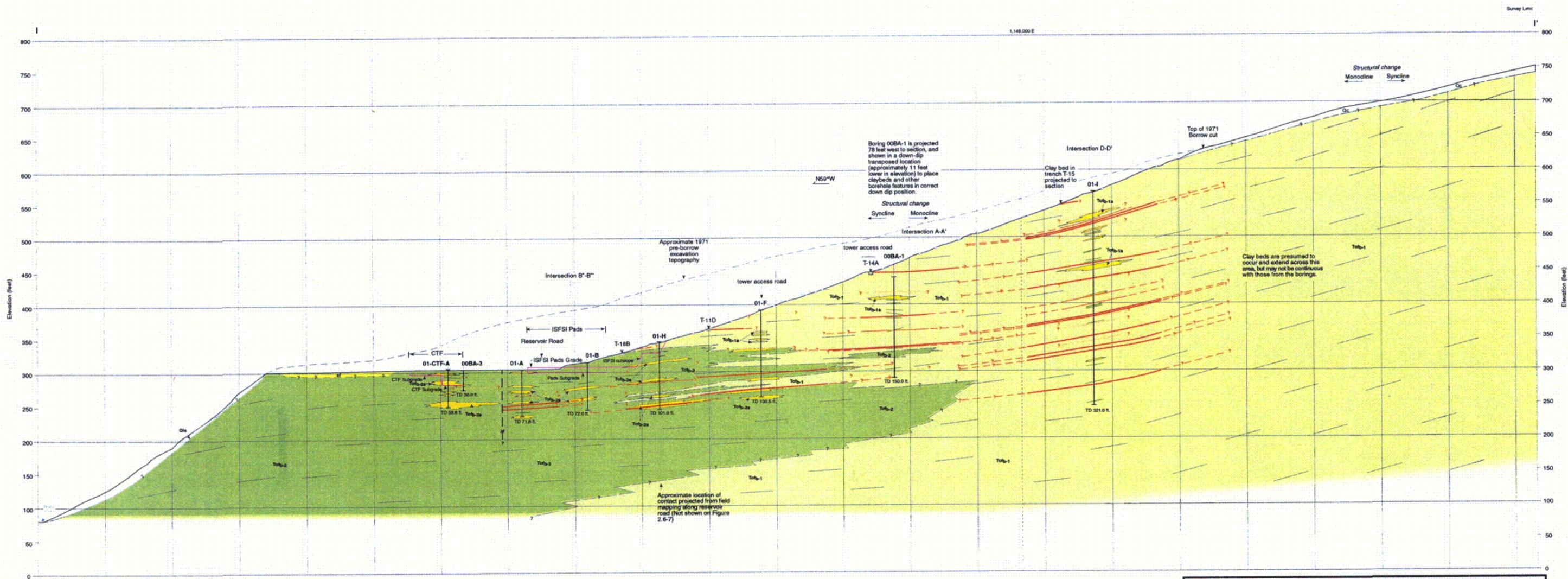
Elevation (feet)

- Notes**
1. Location of cross section shown on Figures 21-3 and 21-4. Nearby borings are projected to cross section.
 2. See Figure 21-13 for explanation of geologic units.
 3. Horizontal scale = Vertical scale.

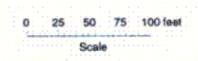
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FIGURE 2.6-17b
CROSS SECTION F-F'



- Notes**
1. Location of cross section shown on Figures 2.6-7 and 2.6-8. Nearby borings are projected to cross section.
 2. See Figure 2.6-9 for explanation of geologic units.
 3. Horizontal scale = vertical scale.



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FIGURE 2.6-18 CROSS SECTION I-I'

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