REPORT

FAULT INVESTIGATION FOR THE MONARCH SCHOOL SAN DIEGO, CALIFORNIA

Prepared for

Centre City Development Corporation
225 Broadway, Suite 1100
San Diego, CA 92101

URS Project No. 27663045.00060

April 6, 2007

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URS

April 6, 2007

Mr. David Allsbrook
Centre City Development Corporation
225 Broadway, Suite 1100
San Diego, CA 92101

Subject: Fault Investigation
Monarch School
West Cedar and California Streets
San Diego, California
URS Project No. 27663045.00060

Dear Mr. Allsbrook:

This report presents results of a geologic study by URS Corporation (URS) to investigate potential fault hazards at the existing Monarch School. The site is an existing building and courtyard occupying a portion of the city block bordered by West Cedar and California Streets in downtown San Diego, California. Our services were performed as outlined in our proposals dated April 6 and June 16, 2006. Our report was revised to address review comments from the City of San Diego received from a Single Discipline Review dated March 5, 2007.

Results of test borings and trenching performed for this investigation indicated a north-northeast trending fault that appears to traverse the northwestern portion of the site. The stratigraphy within the trench showed that the fault would be considered "potentially active" but would not be considered an "active" fault according to the City of San Diego's criteria. In our opinion, building set-backs are not recommended from the fault investigated. No other faults are indicated on the site. We recommend trenching following demolition of the existing building to document the presence (or absence) of the potentially active fault.

We appreciate the opportunity to provide this fault hazard investigation.

Sincerely,

URS CORPORATION

David L. Schug, C.E.G. 1212
Principal Geologist

CERTIFIED ENGINEERING GEOLOGIST DAVID L. SCHUG No. 1212 Exp 5/31/07 STATE OF CALIFORNIA

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SECTION 1 INTRODUCTION

This report presents results of a geologic study by URS Corporation (URS) to investigate potential earthquake fault rupture hazards within the existing Monarch School. The site consists of an existing building and courtyard occupying a portion of the city block bordered by West Cedar and California Streets in downtown San Diego, California (Figures 1 and 2).

This report has been prepared exclusively for the Centre City Development Corporation (CCDC), and their consultants for use in evaluating the property. Site development plans were not available at the time of this report. We understand however, that the existing school site may be expanded to include several above ground levels, with one level of below ground parking.

1.1 PURPOSE AND APPROACH

The project area lies within the City of San Diego (City) Downtown Fault Zone. The City requires fault hazard investigations for new developments within this zone. Figure 3 shows locations of previous consultants fault trenches in the area.

Within the Downtown Fault Zone, building setbacks are required from fault traces that are deemed active; i.e., if there is evidence that the fault has ruptured during the Holocene (last 11,000 years). A fault is defined as potentially active if there is evidence that fault movement occurred within the Quaternary time period (extending from the present to approximately 1.6 millions years ago). According to the City, building setbacks are recommended from potentially active faults, but local practice has been to not setback from potentially active faults.

The purpose of the investigation was to identify potential fault hazards that may pose constraints for potential redevelopment of the site. The existing Monarch School building and a restaurant (Cabo Café) occupy most of the site. Open space areas within the parcel include a small courtyard for the school and a patio for outdoor seating at the restaurant (Figure 2). Typically, exploratory trenching is the preferred method to investigate potential fault hazards in the downtown setting. However, trenching within the immediate limits of the existing Monarch School was not possible due below ground utilities within the property, buried concrete slabs, and the limited space available for trenching on site. We considered trenching within the street and/or sidewalk fronting the school along West Cedar, but the area was heavily conflicted by below ground utilities both in the street and sidewalk. The property owner for the parking area immediately north of and adjacent to the school would not allow trenching.

As an alternative to trenching, the fault investigation relied upon closely spaced test borings and cone penetration tests (CPTs), at locations along California and West Cedar Streets, as shown on Figure 2. The borings and CPTs could be situated between existing utilities within the street. CPTs are vertical soundings, or probes that are advanced through the soil with a truck-mounted rig to provide thrust. The cone measures soil resistance and other parameters which can be correlated to soil type. When used together with test borings, CPTs allow an interpretation of subsurface stratigraphy. Local faults in and around downtown San Diego are known to exhibit vertical offset (vertical separation), possibly as a result of significant lateral movement. Within an exploratory trench, a discreet planar surface (i.e., a fault plane) can often be observed separating dissimilar geologic units. Older geologic units at depth should also exhibit increasing amounts of vertical offset, as the deeper units have accumulated greater relative movement as a result of repeated fault movement over geologic time. Borings and/or CPTs located on opposite sides of a fault would be expected to penetrate dissimilar stratigraphy, which would be indicated by strata of varying composition and thickness.

Continuous subsurface layers would suggest significant faulting does not pass between the borings and CPTs. The CPTs and borings were located at close spacings to reduce the uncertainty of correlating layers from one boring to the next. If present, multiple laterally continuous layers at increasing depths below the site, would increase the confidence that faulting does not exist.

Before going ahead with the borings and CPTs, we met with Mr. Werner Landry, City Geologist to discuss the proposed approach. After performing the CPTs along West Cedar, a fault was suspected based on dissimilar data from adjacent CPTs, (i.e., CPT-2 and CPT-3, as discussed below). We proposed at that time to excavate a short trench encompassing the area between the dissimilar CPTs to further investigate the suspected fault. The trench needed to be located in the sidewalk, rather than the street, which was less conflicted by utilities. The sidewalk area was relatively open for trenching activities, as compared with the limited space within the courtyard and immediately adjacent to the Monarch School. The trench revealed a clay-filled fracture; we inferred this feature to be an expression of the deeper subsurface feature indicated by the miss-matched CPTs.

We again met with Mr. Landry to discuss the need for any additional trenching (beyond the area of CPT-2 and -3), inasmuch as faults were not indicated over the remainder of the site. Mr. Landry recommended the investigation include large diameter borings along West Cedar Street. The large diameter borings were subsequently performed, helping us to confirm there was only one fault projecting across the site. We determined the fault observed in the sidewalk trench to be potentially active, as discussed in the following sections of this report.

When we excavated the sidewalk trench, we were able to measure the trend of the fault across the width of the trench. From the trench, the fault projects towards the northwest building corner. We considered drilling additional borings within the existing building to help constrain the fault location. The environmental consultant had performed a number of borings with a tripod rig within the building. All of the environmental borings met refusal at shallow depths on buried obstructions. Additional borings would need to be drilled to depths significantly deeper than the environmental borings to locate the fault. Deep borings however, did not appear feasible in the interior of the building. We did not recommend subsurface explorations within the existing building because we were able to confidently determine that the fault was a potentially active fault and set-backs would not be recommended. Therefore, we did not recommend subsurface explorations within the existing building.

1.2 SCOPE

The scope of the investigation included:

- Performing a review of published geologic information and previous geologic studies by our firm and others in the project vicinity.
- Advancing two test borings with a hollow stem auger to collect relatively continuous core samples to depths of about 50 feet below ground surface (bgs).

- Advancing seventeen cone penetration tests (CPTs) to depths of about 50 feet bgs.
- Preparing an application with supporting information to obtain a City of San Diego Engineering Permit and a Traffic Control Permit as required for trenching in the public right-of-way.
- Excavating and geologically logging an exploratory trench within the sidewalk along West Cedar Street. The trench was excavated, shored and geologically logged to depths up to about 10 feet below ground surface. Upon completion, the trench was backfilled with the excavated soils, and the sidewalk and driveway areas were replaced with concrete in accordance with city standards.
- Drilling two large diameter borings with a mini-bucket auger rig.
- Coordinating environmental sampling with CCDC's environmental consultant, and discussing results of the trenching with CCDC's consultants, and
- Preparation of this report.

SECTION 2 SITE INVESTIGATION

This site investigation included a review of previous geologic investigations in the area. Locations of previous trenches are shown on Figure 3. Test borings, CPTs, trenching and large diameter borings were performed to document site geologic conditions and evaluate possible faults traversing the site. Locations of the subsurface explorations are shown on Figure 2. Figures 4 through 7 include photographs of the various field exploration activities.

2.1 PREVIOUS STUDIES

An extensive review of previous geologic investigations in downtown San Diego is presented in Treiman (1993 and 2002). Based on review of city records, some nearby investigations are summarized briefly below.

Construction Testing and Engineering (CTE, 1998) excavated a series of exploratory trenches extending across the area approximately between Pacific Coast Highway and California Street, north of the site. The trenches extended below fill soils up to about 8 feet deep into the Bay Point Formation. Faults were not indicated in the trenches.

Law Crandall (1999) excavated a trench extending part way between Pacific Coast Highway and California Street, south of the site. The trench was approximately 225 feet long, and was able to extend into the Bay Point Formation across most of the site. Closely spaced borings and CPTs were used to supplement the trench in areas of deep fill. Correlation of subsurface units in the trench, borings and CPTs indicated the Bay Point Formation did not appear to be faulted.

2.2 TEST BORINGS

Drilling along West Cedar Street was completed on May 5, 2006 using a truck-mounted hollow-stem auger drill rig. Two continuous core borings were advanced to depths of about 50 feet bgs. The continuous coring system used a hollow-stem auger that advanced a 5-foot-long core barrel (sampler) into the ground with the auger. Typically the core barrel was advanced in 2.5 foot runs to maximize core recovery. At the completion of each run, the core barrel was retrieved from within the auger and brought to the surface on drill rod. The coring generally yielded good recovery in the finer grained material. Core runs had average to poor recovery locally within the sandy, non-cohesive zones. The core samples were cleaned and logged in the field with respect to material type prior to placement in core boxes.

The samples were extruded from the sampler, logged, and placed within the core boxes with the continuous core for stratigraphic comparison. Preliminary stratigraphic correlations were made based on a review of the field logs. After the two continuously cored borings were completed; the core samples were arranged in a pattern that maintained their relative vertical positions. Visual observations of each core sample and direct comparison with the samples from adjacent borings allowed correlation of marker beds and similar stratigraphic sequences between borings.

The core borings are discussed further in Appendix A. Final logs of the test borings are also presented in Appendix A. The descriptions on the logs are based on field observations, and detailed geologic logging.

2.3 CONE PENETRATION TESTS

Seventeen CPT soundings were advanced to depths up to 50 feet bgs between May 5 and 6, 2006. The CPTs were located on spacings ranging between about 10 and 20 feet, except in one area between CPT-7 and Boring B-2 where utility conflicts required a 30-foot spacing. Two of the soundings met refusal (i.e., they could not penetrate beyond a shallow depth) after a second attempt. The CPT soundings provided measurements of cone bearing and sleeve friction at 5.0-centimeter (1.97-inch) intervals during penetration. Additional details of the CPT soundings are provided in Appendix B. A soil interpretation chart for the CPT data is provided in Appendix B, along with the CPT data.

2.4 TRENCHING

The sidewalk trench was excavated, logged and backfilled between July 5 and 6, 2006. The trench was about 20 feet long, 24-inches wide and was excavated with a back-hoe to depths up to about 10 feet below ground surface. At the conclusion of logging, the hydraulic shoring was removed and the trench was backfilled with the excavated material and nominally compacted with a compaction wheel. The concrete surface within the trench area was replaced in accordance with city standards. The geologic log of the trench is included as Figure 8.

2.5 LARGE DIAMETER BORINGS

Two large diameter borings were drilled on July 7, 2006. The borings were drilled to depths of about 8 feet bgs with a limited access "bucket" auger rig. This rig has a relatively small foot print needed to advance the boring within the limits of the parking lane along West Cedar Street. The borings were initially drilled with a 24-inch flight auger, but when an unmarked storm drain became exposed in the boring sidewalls, we switched to a smaller 18-inch auger. We were able to visually describe the soil conditions exposed in the boring sidewalls to the maximum depth of the holes. The geologic conditions observed in the large diameter borings are shown graphically on Figure 10. Logs of the large diameter borings are included in Appendix A.

SECTION 3 SITE CONDITIONS

Knowledge of the site conditions has been developed based on a review of the area geology, previous investigations in the vicinity, and the explorations performed for this investigation.

3.1 GEOLOGIC SETTING

The downtown area of San Diego is a low relief coastal plain that gains elevation towards the low mesas bordering the area to the north and east. The coastal plain is underlain by the Bay Point Formation, a sedimentary deposit of Pleistocene age. In the downtown area, the Pliocene age San Diego Formation is a sedimentary formation that underlies the Bay Point Formation at depth.

The site area is underlain by the Bay Point Formation. Kennedy (1975) mapped all of downtown San Diego (inland of the historic high tide line) as the Bay Point Formation. The age of the Bay Point Formation is considered to span a fairly wide range. Kern (1977) interpreted much of the Bay Point Formation as being deposited about 125,000 years ago corresponding to a major high stand of sea level. Studies by Deméré (1981) and Artim and Streiff (1981) have yielded estimates of up to 560,000 years before present for marine deposits mapped as the Bay Point Formation in areas of downtown San Diego. A review of shells collected from trenches in the Ballpark district (Woodward-Clyde, 1998) indicates the Pleistocene sediments within about 10 to 15 feet of the ground surface were probably deposited about 125,000 years before present.

3.2 TECTONIC SETTING

Downtown San Diego is generally considered to lie within the Rose Canyon fault zone. The Rose Canyon fault zone is one of several major northwest-trending fault zones in southern California. The plate tectonic interaction between the Pacific and North American lithospheric plates occurs across a broad zone of predominantly northwest-trending fault zones. The plate interaction is thought to extend from the Imperial Valley west to the continental borderland offshore of San Diego. Geologic, geodetic and seismic data suggests the active faults along the eastern margin of the plate boundary are the most active and appear to be dominant in accommodating the relative motion between plates. A smaller portion of the relative plate movement is also taken by the northwest-trending faults zones that make up the western portion of the plate boundary zone, including the Rose Canyon fault zone.

The on-shore portion of the Rose Canyon fault zone extends along the northeast flank of Mount Soledad and continues southward along the eastern margins of Mission Bay. Between Mission Bay and San Diego Bay, the zone appears to widen and diverge. At least three principal faults extend across San Diego Bay to Coronado and beyond to the south. The three principal faults identified in San Diego Bay are the Spanish Bight, Coronado, and Silver Strand Faults. The Downtown Graben is thought to represent the onshore continuation of the Silver Strand Fault. Figure 1 shows the multi-strand character of the Rose Canyon fault zone in the downtown San Diego area.

San Diego has experienced strong seismic shaking and minor damage from local and distant earthquakes, but none have been very destructive (Agnew and others, 1979). A large earthquake in 1862 may have been centered locally (Anderson and others, 1989), and some researchers have suggested the 1862 event could have been in or near San Diego Bay. More recently, San Diego Bay has been the location of several "swarms" of repeated small to moderate magnitude earthquakes. In 1985, a series of earthquakes (largest event M4.7) was generally centered just south of the San Diego-Coronado Bridge (Reichle and others, 1985).

There are differences of opinion considering the low historical seismicity in the area. Most researchers would agree there is a long recurrence between large, potentially damaging earthquakes, and the absence of significant earthquakes reflects the short time frame of recorded and/or felt reports of earthquakes especially when compared to the average geologic recurrence between large earthquakes.

3.3 SURFACE CONDITIONS

Ground surface elevations within the site area are estimated to range between about 12 and 17 feet above Mean Sea Level (MSL). The property slopes down to the west along Cedar Street towards Pacific Coast Highway.

3.4 GEOLOGIC UNITS

The site is underlain by fill soils, and sedimentary deposits assigned to the Bay Point Formation of Pleistocene age. These materials were exposed in the borings and exploratory trench and are discussed below in order of increasing age. Descriptions of geologic units observed in the trench are provided on the log of the trench, Figure 8. Core samples from the borings are shown on Figure 9. Some of the more pronounced correlative layers within the Bay Point Formation are indicated with tape on the figure. Generalized geologic cross-sections based on the trench, borings and CPTs are presented on Figures 10 and 11.

3.4.1 Fill

The side walk trench and each of the borings along West Cedar Street encountered fill soils to depths of between 3 and 5 feet bgs. The fill soils within in the trench consisted of silty fine sand and brown sand containing concrete, glass and asphalt fragments.

3.4.2 Bay Point Formation

Pleistocene age sedimentary deposits of the Bay Point Formation were encountered below the fill in the trench, borings and CPTs. In general, the sediment consists of light reddish brown to gray, dense fine to coarse sand, sandy silt and hard sandy clay with localized gravel lenses. The coarse-grained sandy intervals are overlain by silt and clay representing fining upwards sequences. Two of these sequences were penetrated within the depths of the core borings (above a depth of about 35 feet below ground surface). The coarse zones along the bottom part of the fining upwards sequence represent erosion surfaces, as might be expected within a backfilled channel. The thickness difference indicated between CPT-7, B-2 and CPT-9 (Figure 10) suggest some scouring of the underlying sequence. Moreover, the boring to CPT correlation is more general in this area, inasmuch as CPT-8 met refusal at a shallow depth. Similar CPT signatures are indicated between CPT-7 and CPT-10, and also CPT-7 and CPT-11 (also see Figure 11).

Within the trench, the upper portion of the Bay Point Formation (Trench Unit 2, Figure 8) was a coarse sandy unit containing carbonate and manganese nodules, although pedogenic features (indicative of soil profile formation) were not observed at the trench location. This suggests that previous grading had removed surficial soil horizons typically developed on the Bay Point Formation. The upper portion of the Bay Point Formation appeared weathered and oxidized within Trench Unit 2. The base of this subunit was marked by sharp contact with the underlying sandy clay unit (Unit 3a, also see photo, Figure 9). Therefore the weathered portion of the soil profile is contained within a depositional unit (i.e., Trench Unit 2 is also a depositional unit). We recognized this distinct weathering horizon at similar depths within the two large diameter borings (BH-1 and BH-2) along West Cedar Street. The correlation of this subunit is shown on Figure 10.

3.5 SITE FAULTING

There are no known faults that appear to project directly across the site. Several north to northeast trending potentially active faults had been encountered at building sites about one block east, and several blocks northeast of the site, as shown on Figure 2. Some of these faults were encountered at depths deeper than the exploratory trenches excavated prior to the building excavation. The potentially active faults were subsequently revealed in the excavations for subterranean parking garages.

In order to evaluate possible site faulting, the CPT and test boring data were used to prepare two geologic cross sections along West Cedar and along California Streets, Figures 10 and 11 respectively. Subsurface sections at these locations would intercept possible faults with northwest to northeast orientations.

The subsurface stratigraphy indicated by the CPTs showed a sequence of alternating clayey sand, coarse sand, sandy clay and silt to depths of about 50 feet bgs. Visual examination of the sediment cores from the core borings allowed confirming the sediment types indicated on the CPTs. Along California Street (Figure 11) the sediment layers within the Bay Point Formation penetrated by eight CPTs all appeared to be relatively flat-lying and laterally continuous without significant thickness variations. This suggests that a fault with a significant vertical offset does not pass between the CPTs. Similarly, the geologic cross section along West Cedar Street (which includes eight CPTs and two borings) showed the subsurface sediment layers to be relatively flat-lying without significant thickness variations, although some westward inclination is apparent. As mentioned, the coarse grained intervals represent erosional boundaries which would result in minor thickness differences when correlated between the borings and CPTs. However, the deeper sedimentary sequences (below the coarse zones) were relatively strong correlation horizons without appreciable elevation differences. Despite the less pronounced correlations between CPT-7, B-2 and CPT-9, possible fault offsets are not indicated because of the strong correlation that can be made between the two lines of CPTS along the southeast corner of the site. Within the depths of the explorations, the westward inclination (or "dip") of the Bay Point Formation appears to reflect its depositional environment along the margins of San Diego Bay. The borings and CPTs along West Cedar Street did not indicate faulting, except in the area between CPT-2 and CPT-3.

The CPT-2 and CPT-3 profiles are dissimilar over about a ten foot horizontal distance which indicates a west-side-down "shift" in the subsurface, with some indication of increasing vertical separation with depth. We suspected that the mis-matched CPTs may be located on the opposite sides of a fault with a west-side-down sense of vertical offset.

A short trench was excavated in the sidewalk along West Cedar, encompassing the area of CPT-2 and CPT-3. The purpose of the trench was to further investigate the nature of the miss-matched CPTs. We observed what we appeared to be a minor fault-related feature in the trench (Figure 8). However, there were no shears nor offset strata indicated in the trench. It is possible that the feature observed in the trench could simply represent a clay-filled fracture, and may not be a fault-related structure. We inferred that the miss-matched CPTs could represent a fault in the deeper portion of the Bay Point Formation (below the trench). In this case the clay-filled fracture in the trench could be a near surface expression of a deeper fault. We were able to clearly observe that the suspected fault in the trench does not displace the upper portion of the Bay Point Formation (i.e., the suspected fault feature is overlain by and does not displace Trench Unit 2). Within the trench, the fault has a slight northeasterly trend (about North 10 degrees East), and projects towards the northwest corner of the existing Monarch School building (Figure 2 and Figure 7).

As mentioned, the fault observed within the trench was considered a relatively minor feature consisting of a clay-filled fracture about 0.5-inches wide. The fault appeared to be highly weathered without slickensides or shears. As observed in the trench, the fault appeared to terminate upwards and did not extend into the upper portion of the Bay Point Formation (see Figure 8). The overlying unfaulted unit contained manganese and carbonate probably representing the lower portion of a soil profile (weathering profile) developed on the Bay Point Formation. The unfaulted interval of the Bay Point Formation is clearly older than 11,000 years given its degree of induration and oxidation. The unfaulted interval of the Bay Point Formation could be on the order of 80,000 to perhaps 120,000 years old.

The two large diameter borings were advanced along West Cedar Street in order to visually correlate the geologic units observed in the sidewalk trench with the borings. We observed relatively similar near surface geologic units at relatively constant depths within the large diameter borings and the trench as shown on Figure 10. The occurrence of similar appearing geologic units at roughly consistent depths confirms the absence of faulting in the area between the trench and the large diameter borings.

SECTION 4 DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

The discussions, conclusions, and preliminary recommendations presented in this report are based on the information provided to us, results of our current field explorations, previous investigations by our firm, literature research and professional judgment.

4.1 FAULT HAZARDS

Results of CPTs and trenching performed for this investigation revealed a north-northeast trending fault that appears to traverse the northwestern portion of the site. We had suspected a deep fault based on miss-matched stratigraphy in between CPT-2 and CPT-3 along west Cedar Street. The other CPTs and borings along West Cedar and California Streets were all consistent without indications of miss-matches that might suggest a possible fault.

The stratigraphy within the sidewalk trench was adequate to show that the suspected fault dies out and does not extend upwards into near surface portions of the Bay Point Formation. Therefore the fault is not considered an "active" fault, i.e., it has not been active during the past 11,000 years. According to the city's criteria however, the fault would be considered "potentially active", given the apparent offset at depth within the Pleistocene-age Bay Point Formation.

For planning and project siting purposes, the potential for surface faulting is generally considered to exist along active faults and to a lesser degree along potentially active faults. Those faults that have been most recently active, and particularly those faults that have been repeatedly active during the Holocene (i.e., past 11,000 years) are considered to have the greatest potential for future surface displacement. Potentially active faults are considered to have very low potential for renewed movement within the local geologic setting. Given that the fault does not appear to extend upwards nor displace the upper portion of the Bay Point Formation, it is possible the fault has not displaced materials that could be on the order of 80,000 to perhaps 120,000 years old. In our opinion, building set-backs are not recommended from the potentially active fault encountered in the sidewalk trench.

We understand that a "Notice of Geologic and Geotechnical Conditions" would be required by the city. This notice is required for any building structure in the downtown area that is built upon a potentially active fault without setting back from the fault. As mentioned, building set-backs are not required .

4.2 RECOMMENDATIONS

In our opinion, additional subsurface explorations to locate the fault are not required at this time. We were able to evaluate the activity of the fault-feature in the sidewalk trench, and we determined that the feature is not an active fault. In our opinion the fault is potentially active and does not require a building set-back. Additional explorations are not required to evaluate building set-backs.

At the time of building demolition however, we do recommend trenching. The purpose of trenching at that time would be to confirm the presence or absence of the potentially active fault. If the potentially active fault is not indicated on site, the "Notice of Geologic and Geotechnical Conditions" would not be required. An as-built geologic report should then be submitted to the city that documents the geologic conditions encountered in the excavation.

SECTION 5 LIMITATIONS

At the time of preparing this report, details of the proposed project were not known. Depending upon the project-specific design, the recommendations presented herein may need to be reviewed and updated, as appropriate.

We have observed only a very small portion of the pertinent subsurface and geologic conditions. The preliminary recommendations made herein are based on the assumption that geologic conditions do not deviate appreciably from those found during our investigation. Field explorations have been concentrated within the site boundaries and we have relied on them for the evaluations described in this report.

Geotechnical engineering and the geologic sciences are characterized by uncertainty. Professional judgments presented herein are based partly on our general experience. Our geologic work and judgments rendered meet current professional standards; we do not guarantee the performance of the project in any respect.

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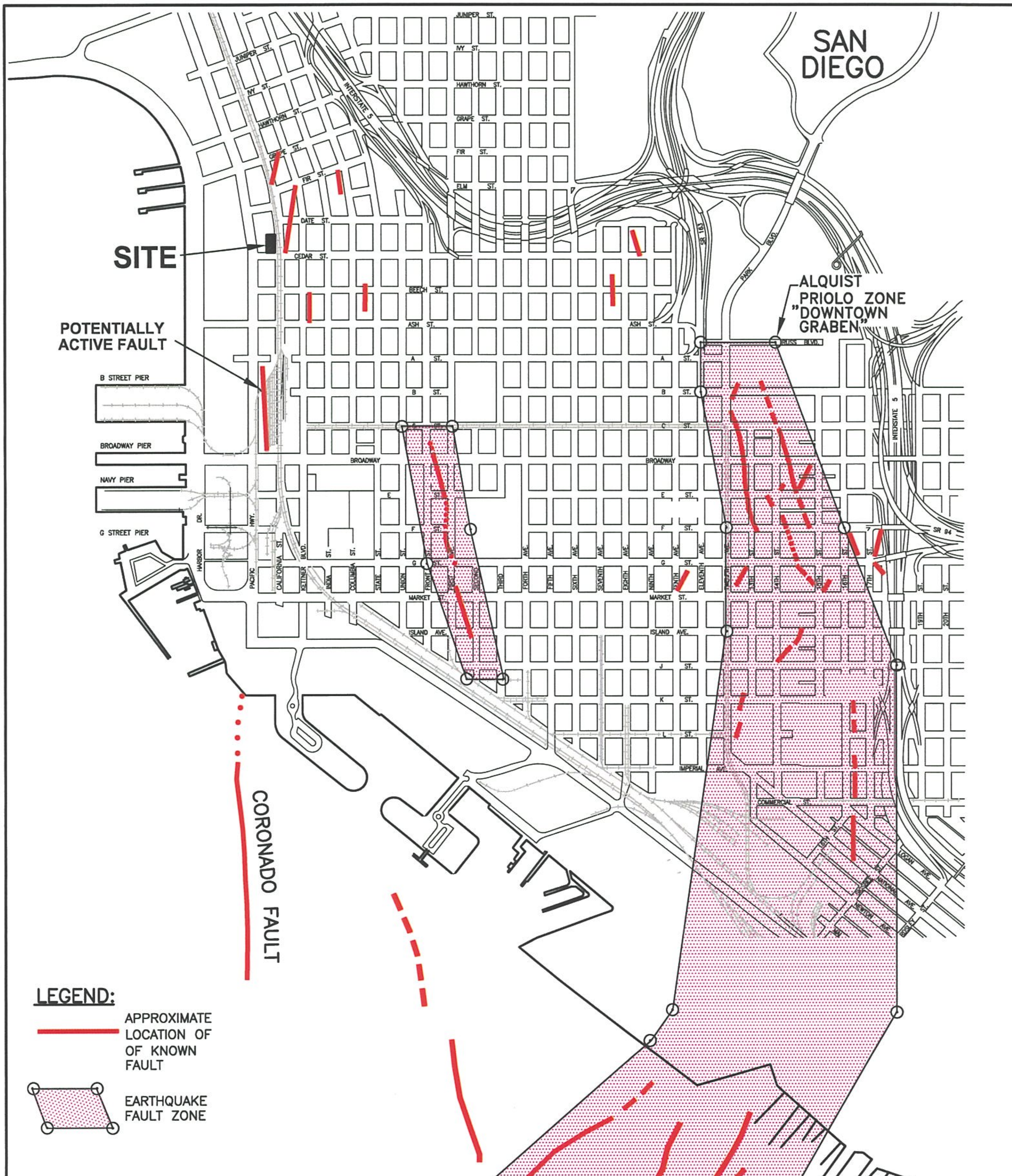
Figures



FAULT MAP
MONARCH SCHOOL
CENTRE CITY DEVELOPMENT CORPORATION

URS

750 0 750 1500 Feet SCALE: 1"= 1500'	CHECKED BY: AJG	DATE: 03-28-07	FIG. NO: 1
	PM: DLS	PROJ. NO: 27663045.00060	

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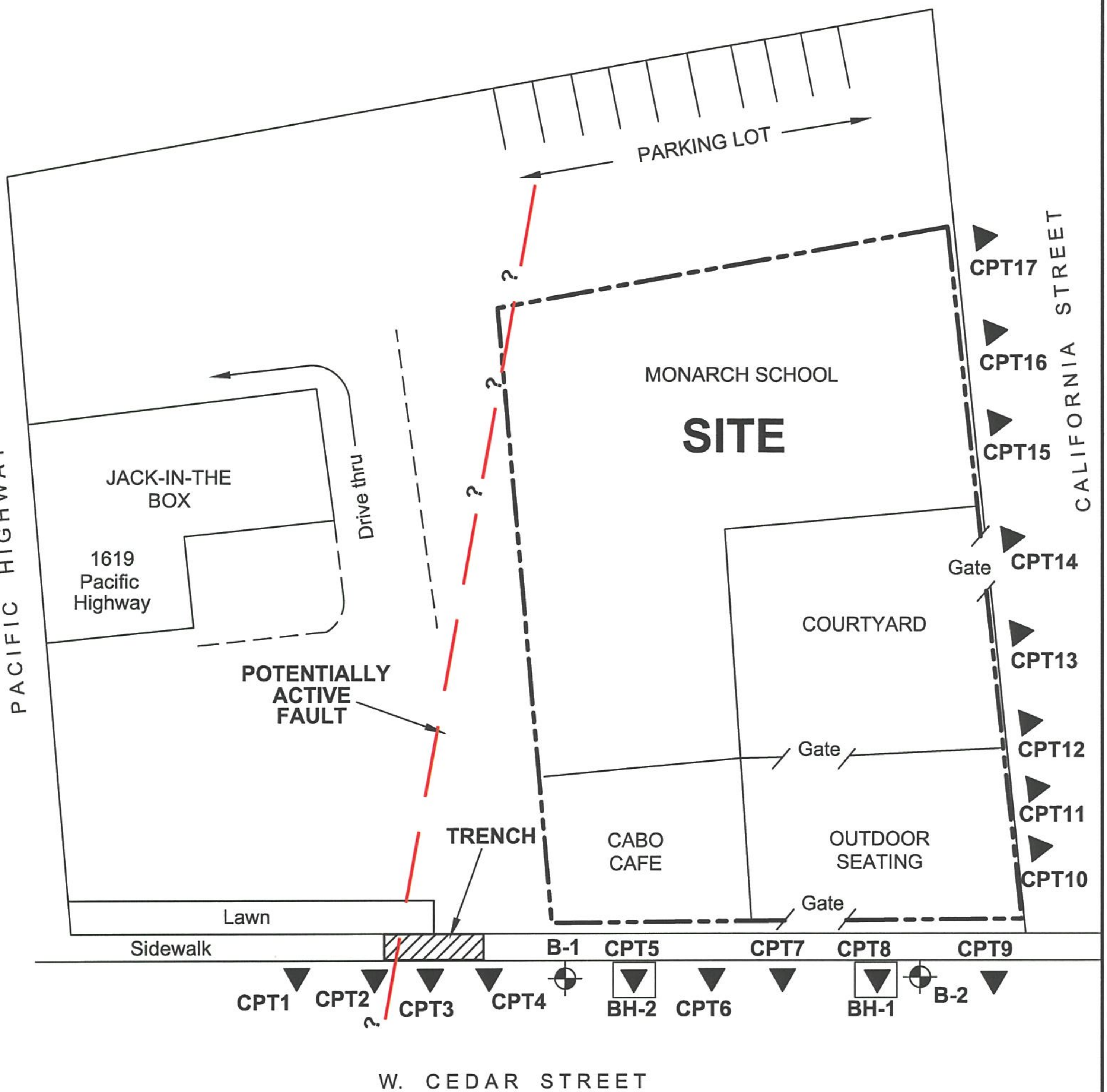


LEGEND

- Approximate Location of Continuous Core Boring
- Approximate Location of Cone Penetrometer Test
- Approximate Location of Large Diameter Auger Boring

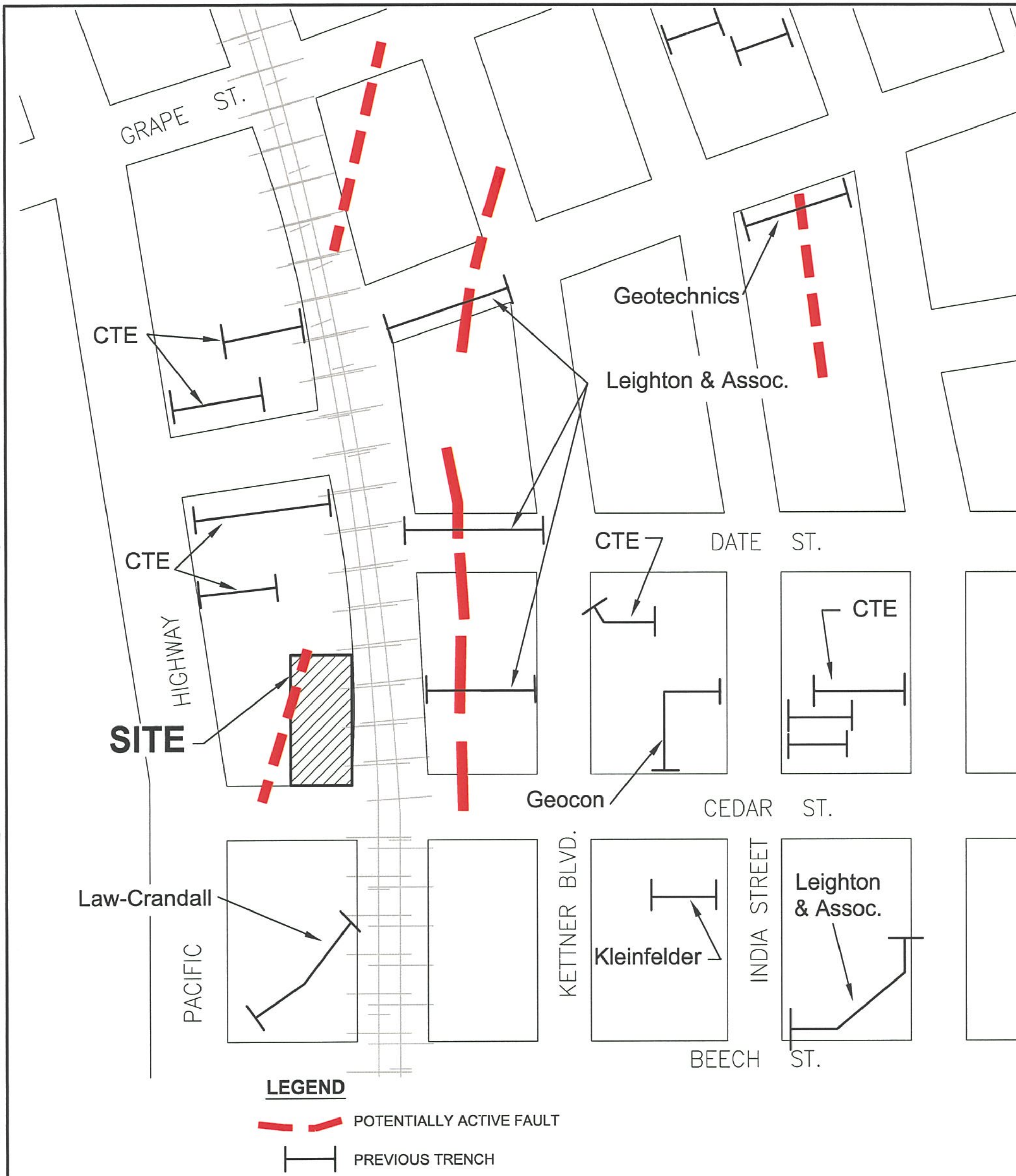
SITE PLAN
MONARCH SCHOOL
CENTRE CITY DEVELOPMENT CORPORATION

URS

15 0 15 30 Feet
APPROXIMATE SCALE: 1"= 30'

CHECKED BY: AJG	DATE: 03-28-07	FIG. NO:
PM: DLS	PROJ. NO: 27663045.00060	2

X:\27663045\Monarch School SiteMap.dwg Apr 13, 2007 - 1:57pm



PREVIOUS FAULT TRENCHES MONARCH SCHOOL CENTRE CITY DEVELOPMENT CORPORATION			
URS	100 0 100 200 Feet SCALE: 1"= 200'	CHECKED BY: AJG	DATE: 03-28-07	FIG. NO: 3
		PM: DLS	PROJ. NO: 27663045.00060	

X:\27663045\Monarch School Previous Trenches.dwg Apr 13, 2007 - 1:57pm

VIEW WEST ON CEDAR.

VIEW WEST ALONG SIDEWALK. WOOD-COVERED PANELS ARE
AT ELECTRICAL LINES CROSSING BELOW SIDEWALK.

SITE PHOTOS
MONARCH SCHOOL
CENTRE CITY DEVELOPMENT CORPORATION

URS	CHECKED BY: AJG	DATE: 03-28-07	FIG. NO:
	PM: DLS	PROJ. NO: 27663045.00060	4

CPT AND DRILL RIG ON CEDAR.

MINI BUCKET AUGER RIG USED TO DRILL LARGE DIAMETER BORINGS.

PHOTOS OF SITE EXPLORATIONS
MONARCH SCHOOL
CENTRE CITY DEVELOPMENT CORPORATION

URS	CHECKED BY: AJG	DATE: 03-28-07	FIG. NO:
	PM: DLS	PROJ. NO: 27663045.00060	5

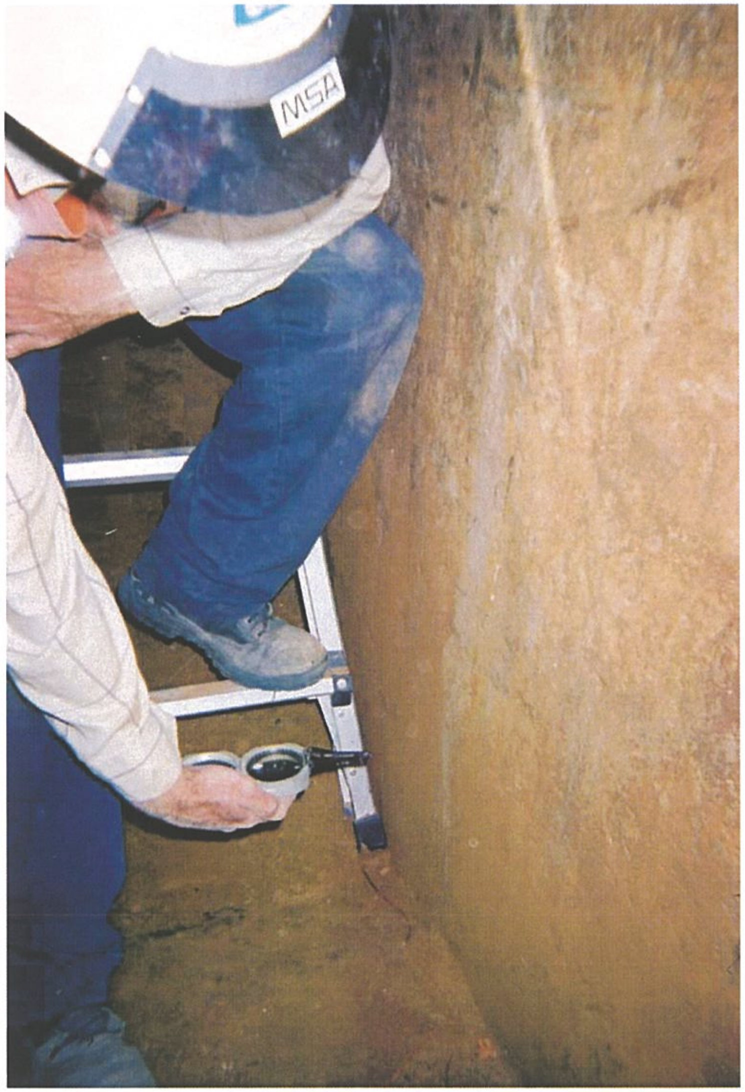
TRENCH EQUIPMENT.

SIDEWALK TRENCH
ON CEDAR.

PHOTOS OF SITE EXPLORATIONS
MONARCH SCHOOL
CENTRE CITY DEVELOPMENT CORPORATION

URS	CHECKED BY: AJG	DATE: 03-28-07	FIG. NO:
	PM: DLS	PROJ. NO: 27663045.00060	6

X:\27663045\Monarch School Site Photos.dwg Apr 13, 2007 – 1:59pm



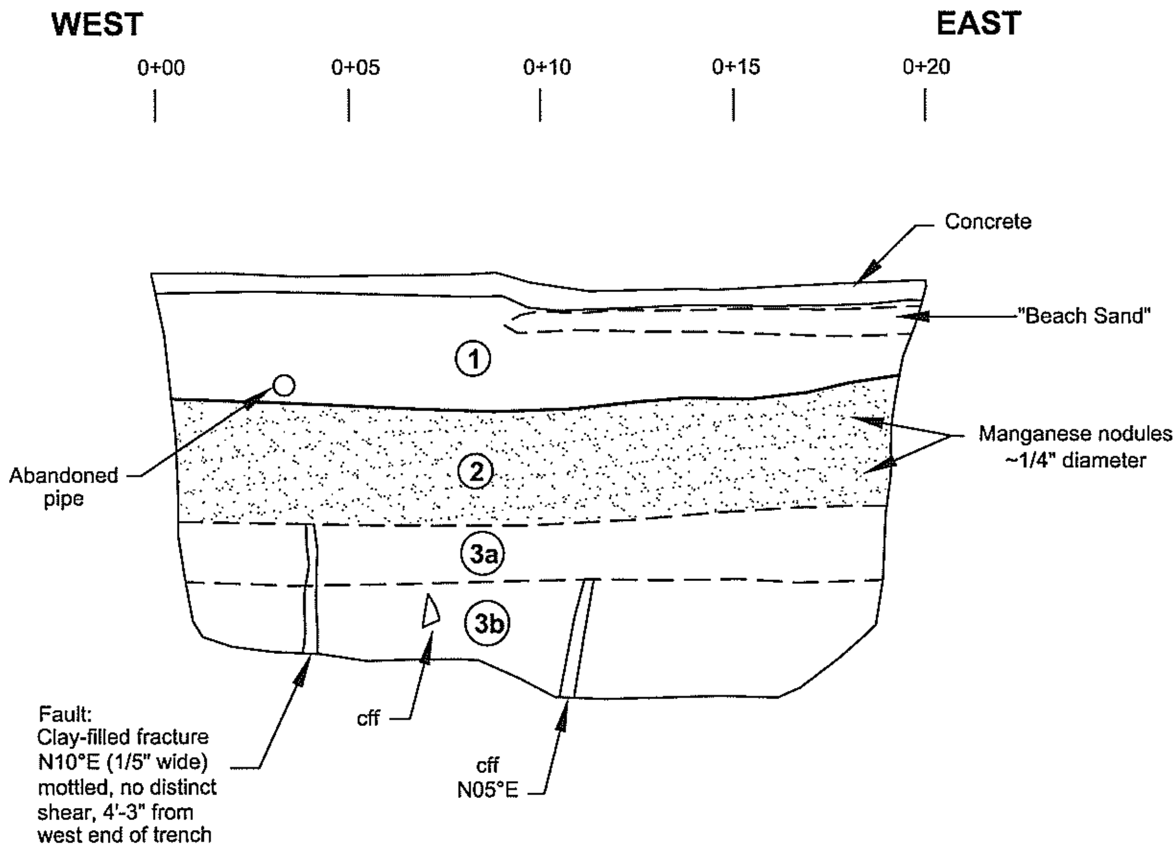
THE MEASURED TREND OF THE FAULT IS ABOUT N10°E.

TAPE IS ALIGNED WITH THE FAULT TREND OBSERVED IN THE TRENCH.

PHOTOS OF FAULT IN TRENCH
MONARCH SCHOOL
CENTRE CITY DEVELOPMENT CORPORATION

URS	CHECKED BY: AJG	DATE: 03-28-07	FIG. NO: 7
	PM: DLS	PROJ. NO: 27663045.00060	

X:\27663045\Monarch School Site Photos.dwg Apr 13, 2007 - 2:00pm



FILL

(1) Brown, silty sand with concrete and asphalt pieces, broken bottles and other debris

BAY POINT FORMATION

(2) Reddish brown, silty clayey medium to coarse sand with carbonate flakes and manganese nodules

(3a) Yellowish brown to brown, sandy CLAy (CL) to clayey SAND (SC)

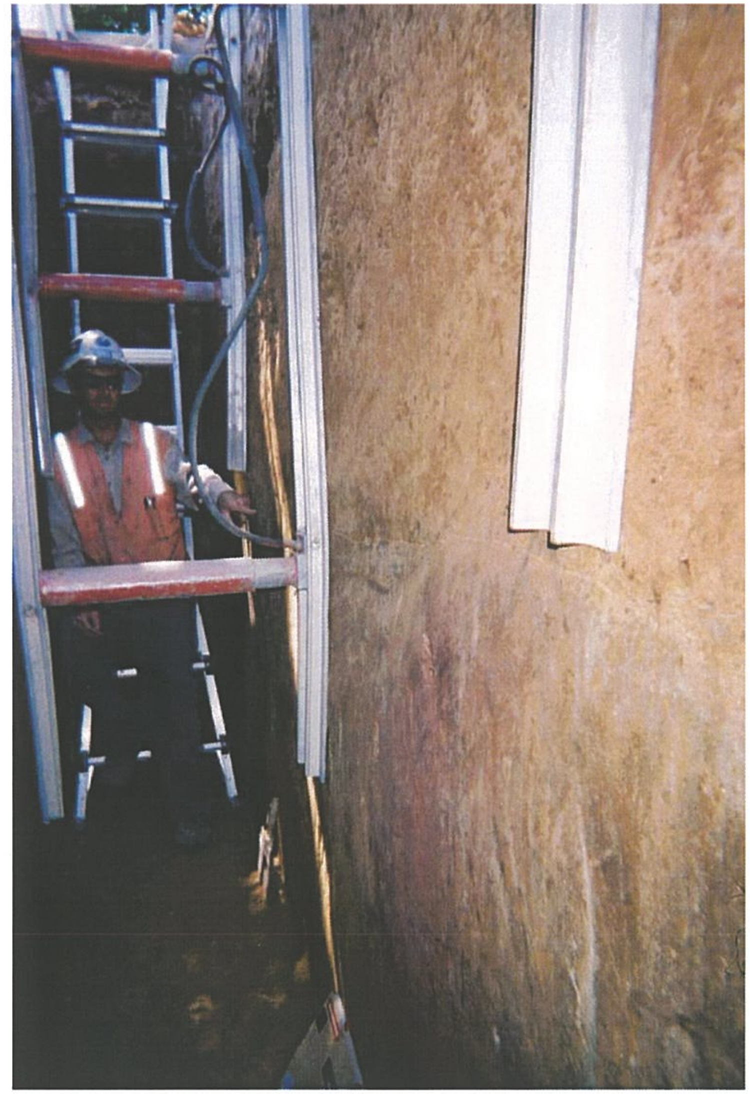
(3b) Brown, clayey SAND (SC)

GEOLOGIC LOG OF TRENCH
MONARCH SCHOOL
CENTRE CITY DEVELOPMENT CORPORATION

URS	2.5 0 2.5 5 Feet SCALE: 1"= 5'	CHECKED BY: AJG	DATE: 03-28-07	FIG. NO: 8
		PM: DLS	PROJ. NO: 27663045.00070	

X:\27663045\Monarch School Log of Trench.dwg Apr 13, 2007 - 2:01pm

CONTINUOUS CORE SAMPLES, WITH TAPE CONNECTING CORRELATIVE UNITS BETWEEN THE TWO BORINGS.

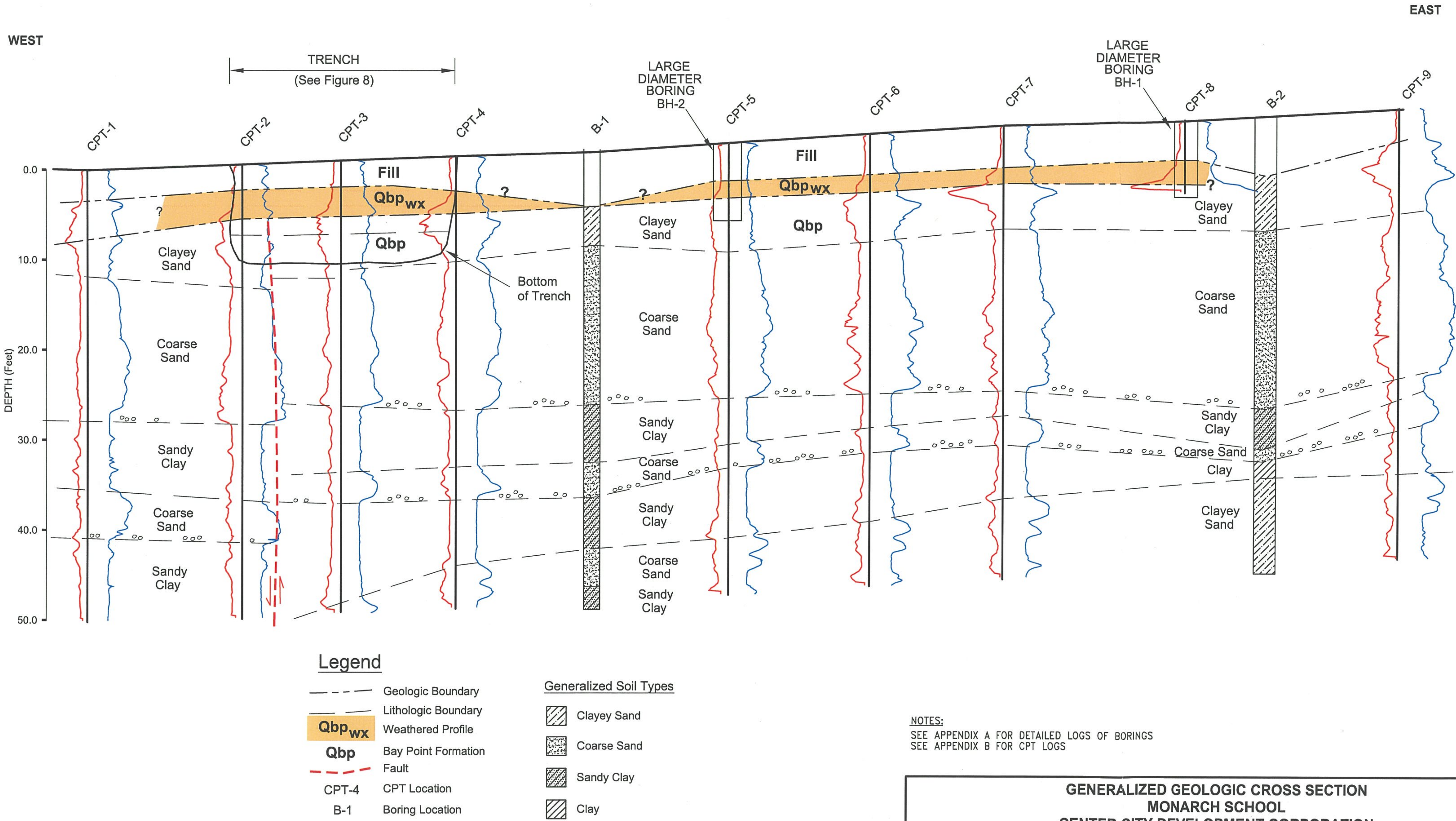


GEOLOGIST IS POINTING TO THE BASE OF TRENCH UNIT 2 WHICH IS NOT OFFSET BY THE FAULT.

PHOTOS OF CORES AND TRENCH UNITS
MONARCH SCHOOL
CENTRE CITY DEVELOPMENT CORPORATION

URS	CHECKED BY: AJG	DATE: 03-28-07	FIG. NO: 9
	PM: DLS	PROJ. NO: 27663045.00060	

X:\27663045\Monarch School Site Photos.dwg Apr 13, 2007 - 2:00pm

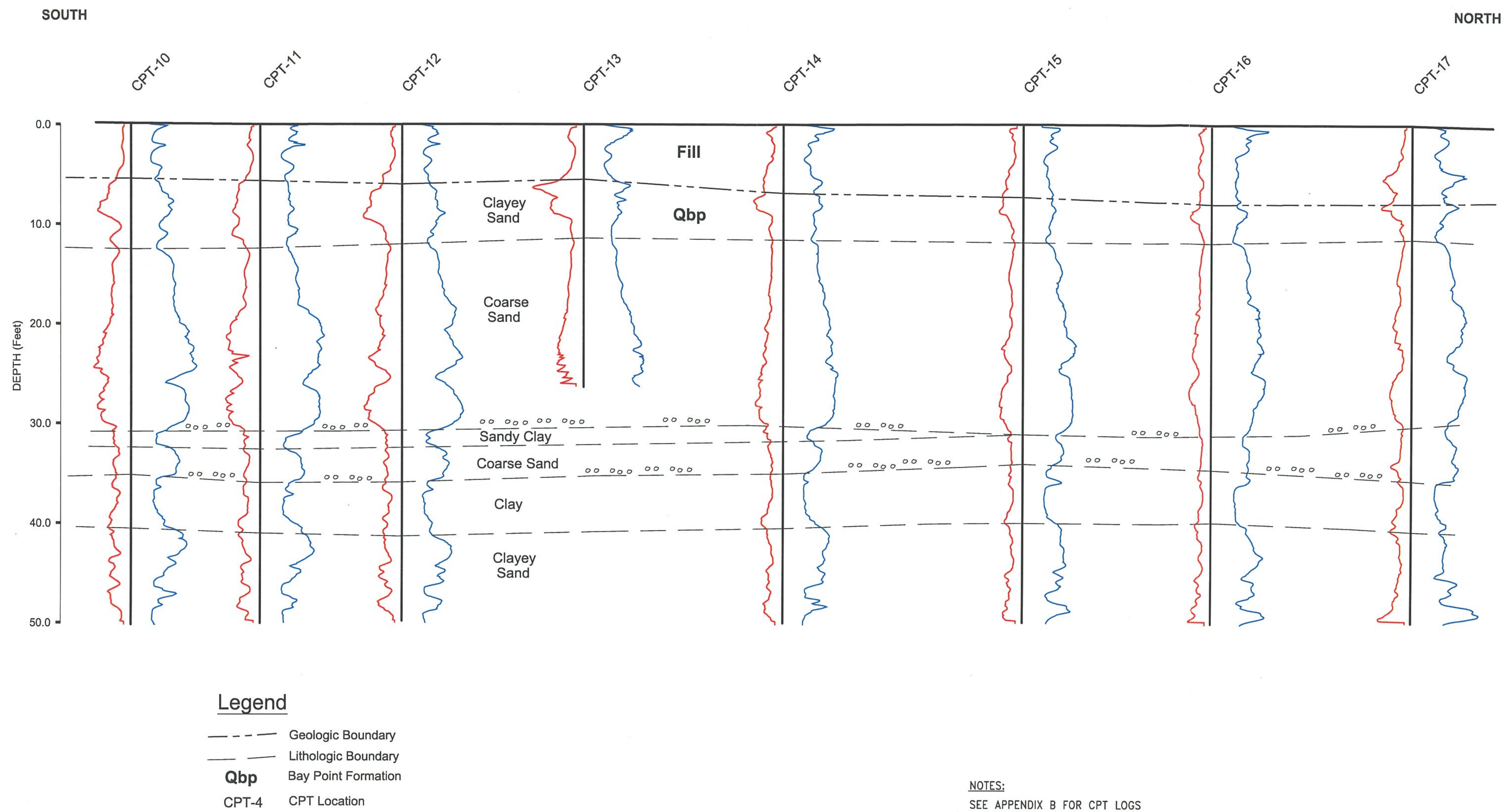


NOTES:
SEE APPENDIX A FOR DETAILED LOGS OF BORINGS
SEE APPENDIX B FOR CPT LOGS

GENERALIZED GEOLOGIC CROSS SECTION
MONARCH SCHOOL
CENTER CITY DEVELOPMENT CORPORATION

URS	SCALE: 1"= 10' (5 0 5 10 Feet)	CHECKED BY: AJG	DATE: 03-28-07	FIG. NO: 10
		PM: DLS	PROJ. NO: 27663045.00060	

X:\27663045\Monarch School Cross Section.dwg Apr 13, 2007 - 2:01pm



NOTES:
SEE APPENDIX B FOR CPT LOGS

GENERALIZED GEOLOGIC CROSS SECTION MONARCH SCHOOL CENTER CITY DEVELOPMENT CORPORATION			
URS	SCALE: 1"= 10' (5 0 5 10 Feet)	CHECKED BY: AJG	DATE: 03-28-07	FIG. NO: 11
		PM: DLS	PROJ. NO: 27663045.00060	

X:\27663045\Monarch School Cross Section.dwg Apr 13, 2007 - 2:02pm

Tri-County Drilling of San Diego, California advanced two borings using a CME-75 "High Torque" truck-mounted drill rig on May 5, 2006. The borings were advance to depths of about 50 feet bgs and were designated B-1 and B-2. The locations of the borings were chosen such that geologic interpretation could be made along a cross section drawn roughly perpendicular to the expected trends of faults in the downtown area and for stratigraphic comparison with the CPT soundings. The borings were continuously cored where feasible. Locations of the borings are shown on the Site Plan, Figure 2.

The continuous coring system consisted of using hollow-stem auger that advances a 5-foot-long core barrel (sampler) into the ground with the auger. Typically the core barrel was advanced in 2.5 foot runs as a result of poor recovery when 5-foot runs were attempted. At the completion of each run the core barrel was retrieved from within the auger and brought to the surface on drill rod. The coring generally yielded good recovery overall with relatively undisturbed sediment cores in the finer grained material. Core recovery was poor locally within the sandy, non-cohesive zones.

The core samples were cleaned and logged in the field with respect to material type prior to placement in core boxes. Preliminary stratigraphic correlations were made based on a review of the field logs. After all continuously cored borings were completed, the core samples were arranged in a pattern that maintained their relative vertical positions. Visual observations of each core sample and direct comparison with the samples from adjacent borings allowed correlation of marker beds and similar stratigraphic sequences between borings.

Two large diameter borings were drilled on July 7, 2006. The borings were drilled to depths of about 8 feet bgs with a limited access "bucket" auger rig. The borings were initially drilled with a 24-inch flight auger, but when an unmarked storm drain became exposed in the boring sidewalls, we switched to a smaller 18-inch auger. We were able to visually describe the soil conditions exposed in the boring sidewalls to the maximum depth of the holes. Log of the large diameter borings are included in this Appendix.

A Key to Logs is presented as Figure A-1. Final logs of the borings are presented on Figures A-2 through A-5. The descriptions on the boring logs are based on field logs and sample inspections.

Project: Fault Investigation - Monarch School **Project Location:** San Diego, CA **Project Number:** 27663045.00060	**Key to Logs** Sheet 1 of 1

Elevation, feet	Depth, feet	SAMPLES: Type	SAMPLES: Number	SAMPLES: Sampling Resistance	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Density, pcf	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9	10

COLUMN DESCRIPTIONS

1 **Elevation:** Elevation in feet referenced to mean sea level (MSL) or site datum.

2 **Depth:** Depth in feet below the ground surface.

3 **Sample Type:** Type of soil sample collected at depth interval shown; sampler symbols are explained below.

4 **Sample Number:** Sample identification number. Unnumbered sample indicates no sample recovery.

5 **Sampling Resistance:** Number of blows required to advance driven sampler 12 inches beyond first 6-inch interval, or distance noted, using a 140-lb hammer with a 30-inch drop.

6 **Graphic Log:** Graphic depiction of subsurface material encountered; typical symbols are explained below.

7 **Material Description:** Description of material encountered; may include relative density/consistency, moisture, color, particle size; texture, weathering, and strength of formation material.

8 **Water Content:** Water content of soil sample measured in laboratory, expressed as percentage of dry weight of specimen.

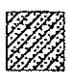
9 **Dry Unit Weight:** Dry density of soil sample measured in laboratory, in pounds per cubic foot.

10 **Remarks and Other Tests:** Comments and observations regarding drilling or sampling made by driller or field personnel.

WA Three-point wash sieve, %<#200 sieve
SA Sieve analysis (%<#200 sieve)

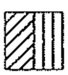
TYPICAL MATERIAL GRAPHIC SYMBOLS


Silty SAND (SM)


Clayey SAND (SC)


Fine to medium SAND (SW)


CLAY (CL)


Sandy CLAY to clayey SILT (CL-ML)


Clayey SAND to sandy CLAY (SC/CL)

TYPICAL SAMPLER GRAPHIC SYMBOLS


Grab sample

OTHER GRAPHIC SYMBOLS


First water encountered at time of drilling and sampling (ATD)


Water level measured at specified time after completion of drilling and sampling


Minor change in material properties within a stratum

— — Inferred or gradational contact between strata

GENERAL NOTES

1. Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive; actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.
3. Elevations shown on logs were estimated by URS from widely spaced contours and should be considered rough estimates. Detailed topographic information was not available at the time of this report.

Project: Fault Investigation - Monarch School	**Log of Boring B-1**
Project Location: San Diego, CA	Sheet 1 of 2
Project Number: 27663045.00060	

Date(s) Drilled	05/05/06	Logged By	D. Rector	Checked By	D. Schug
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8 inches	Total Depth of Borehole	50 feet
Drill Rig Type	CME 75	Drilling Contractor	Tri County Drilling	Approximate Surface Elevation	~10 feet MSL
Water Level Depth (Feet)	Not measured	Sampling Method(s)	Grab sample/Continuous core	Hammer Data	140 lbs/30" drop
Borehole Backfill	Bentonite slurry capped with concrete	Location	See Site Plan		

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Density, pcf	REMARKS AND OTHER TESTS
10	0					FILL 6" concrete over moist, brown, clayey sand to silty sand with brick, concrete and rock fragments			
		X	1-1						
5	5								
						RESIDUAL SOIL (?) Dense (?), moist, reddish brown, silty SAND (SC) with clay peds and carbonate flakes			Begin continuous coring.
0	10					BAY POINT FORMATION Dense (?), moist, yellowish reddish brown, silty to clayey SAND (SM-SC)			
						Dense (?), moist, light gray, clayey fine to medium SAND (SW) layers of rust coloration			
-5	15								
						Becomes coarse grained			
-10	20					Becomes medium grained and more dark colored minerals present			
-15	25								
						Becomes coarse grained with less dark colored minerals			
						Dense (?), moist, olive, very fine sandy CLAY to sandy SILT (CL-ML)			
-20	30								

Report: GEO_10_SNA; File: 27663045.GPJ; 3/28/2007 B-1

URS

Project: Fault Investigation - Monarch School	**Log of Boring B-1**
Project Location: San Diego, CA	Sheet 2 of 2
Project Number: 27663045.00060	

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Density, pcf	REMARKS AND OTHER TESTS
-20	30								
-25	35					Dense (?), moist, light gray, medium to coarse SAND *(SW)			
						Dense (?), moist, olive, very fine sandy CLAY (CL) with layer of rust staining			
-30	40								
						Increase in sand			
						Dense (?), moist, light olive gray, coarse SAND (SW) (beach sands)			
-35	45								
						Dense (?), moist, olive, fine sandy CLAY (CL)			
-40	50								
						Bottom of boring at 50 feet			
-45	55								
-50	60								
-55	65								

Report: GEO_10_SNA; File: 27663045.GPJ; 3/28/2007 B-1

Project: Fault Investigation - Monarch School	Log of Boring B-2
Project Location: San Diego, CA	Sheet 1 of 2
Project Number: 27663045.00060	

Date(s) Drilled	05/05/06	Logged By	D. Rector	Checked By	D. Schug
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8 inches	Total Depth of Borehole	50 feet
Drill Rig Type	CME 75	Drilling Contractor	Tri County Drilling	Approximate Surface Elevation	~15 feet MSL
Water Level Depth (Feet)	Not measured	Sampling Method(s)	Grab sample/Continuous core	Hammer Data	140 lbs/30" drop
Borehole Backfill	Bentonite slurry capped with concrete	Location	See Site Plan		

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Sampling Resistance	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Density, pcf	REMARKS AND OTHER TESTS
15	0					FILL 6" concrete over moist, reddish brown to brown, silty sand with clay, brick pieces, asphalt pieces and roots			
		☒	2-1						
10	5					Charcoal pieces, broken concrete pieces			
						RESIDUAL SOIL Dense (?), moist, reddish brown, clayey silt AND (SM) with bits of carbonate present			Begin continuous coring.
						BAY POINT FORMATION Dense (?), moist, yellowish brown, silty fine SAND (SM) with massive texture			
5	10					Becomes more layered with some iron staining			
						Dense (?), moist, yellowish brown, clean fine to medium SAND (SW) with mica flakes and iron staining veinlets (beach sands)			
0	15								
-5	20					Darker minerals becomes more prevalent (i.e. biotite mica), noticible layering of dark minerals alternating with lighter material (beach deposits)			
-10	25					layering very apparent, decreases in darker minerals			
-15	30								

Report: GEO_10_SNA; File: 27663045.GPJ; 3/28/2007 B-2

URS

Figure A-3

Project: Fault Investigation - Monarch School Project Location: San Diego, CA Project Number: 27663045.00060	**Log of Boring B-2** Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES Type	Number	Sampling Resistance	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Density, pcf	REMARKS AND OTHER TESTS
-15	30								
						Dense (?), moist, olive, clayey very fine SAND to very fine sandy CLAY (SC/CL)			
-20	35								
						Dense (?), moist, light gray, fine to medium SAND with clean sand (SW) (beach sands)			
						Dense (?), moist, olive, very fine sandy CLAY (CL)			
-25	40					Dense (?), moist, olive gray, fine tom medium clayey SAND (SC) with rust colored minerals			
						Dense (?), moist, light gray, medium to coarse SAND with silt (SM) and mica flakes			
						Becomes coarse grained			
-30	45					Becomes medium grained			
-35	50								
						Bottom of boring at 50 feet			
-40	55								
-45	60								
-50	65								

Report: GEO_10_SNA; File: 27663045.GPJ; 3/28/2007 B-2

Project: Fault Investigation - Monarch School Project Location: San Diego, CA Project Number: 27663045.00060	**Log of Boring BH-1** Sheet 1 of 1

Date(s) Drilled	07/07/06	Logged By	D. Rector	Checked By	
Drilling Method	Bucket Auger	Drill Bit Size/Type	24 inches	Total Depth of Borehole	8 feet
Drill Rig Type		Drilling Contractor	Pacific Drilling	Approximate Surface Elevation	
Water Level Depth (Feet)	Not measured	Sampling Method(s)	Grab sample	Hammer Data	NA
Borehole Backfill	Soil cuttings	Location	See Site Plan		

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Sampling Resistance	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Density, pcf	REMARKS AND OTHER TESTS
	0					FILL Moist, brown, silty sand with concrete and asphalt pieces, broken bottles and other debris			
						BAY POINT FORMATION Dense, reddish brown, silty, clayey, medium to fine SAND (SM) with carbonate flakes and manganese nodules (weathering profile)			Found storm drain at 4'. Switch 30" auger to 18"
	5	☒	BH1-1						
		☒	BH1-1			Dense, moist, yellowish brown to brown, sandy CLAY to clayey SAND (SC-CL)			
						Bottom of boring at 8 feet			
	10								
	15								
	20								
	25								
	30								

Report: GEO_10_SNA; File: 27663045.GPJ; 3/28/2007 BH-1

URS

Project: Fault Investigation - Monarch School Project Location: San Diego, CA Project Number: 27663045.00060	**Log of Boring BH-2** Sheet 1 of 1

Date(s) Drilled	07/07/06	Logged By	D. Rector	Checked By	
Drilling Method	Bucket Auger	Drill Bit Size/Type	24 inches	Total Depth of Borehole	8 feet
Drill Rig Type		Drilling Contractor	Pacific Drilling	Approximate Surface Elevation	
Water Level Depth (Feet)	Not measured	Sampling Method(s)	Grab sample	Hammer Data	NA
Borehole Backfill	Soil cuttings	Location	See Site Plan		

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Sampling Resistance	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Density, pcf	REMARKS AND OTHER TESTS
	0					FILL Moist, brown, silty sand with concrete and asphalt pieces, broken bottles and other debris			
	5	☒	BH2-1			BAY POINT FORMATION Dense, reddish brown, silty, clayey, medium to fine SAND (SM) with carbonate flakes and manganese nodules (weathering profile)			
		☒	BH2-2			Dense, moist, yellowish brown to brown, sandy CLAY to clayey SAND (SC-CL)			
						Bottom of boring at 8 feet			
	10								
	15								
	20								
	25								
	30								

Report: GEO_10_SNA; File: 27663045.GPJ; 3/28/2007 BH-2

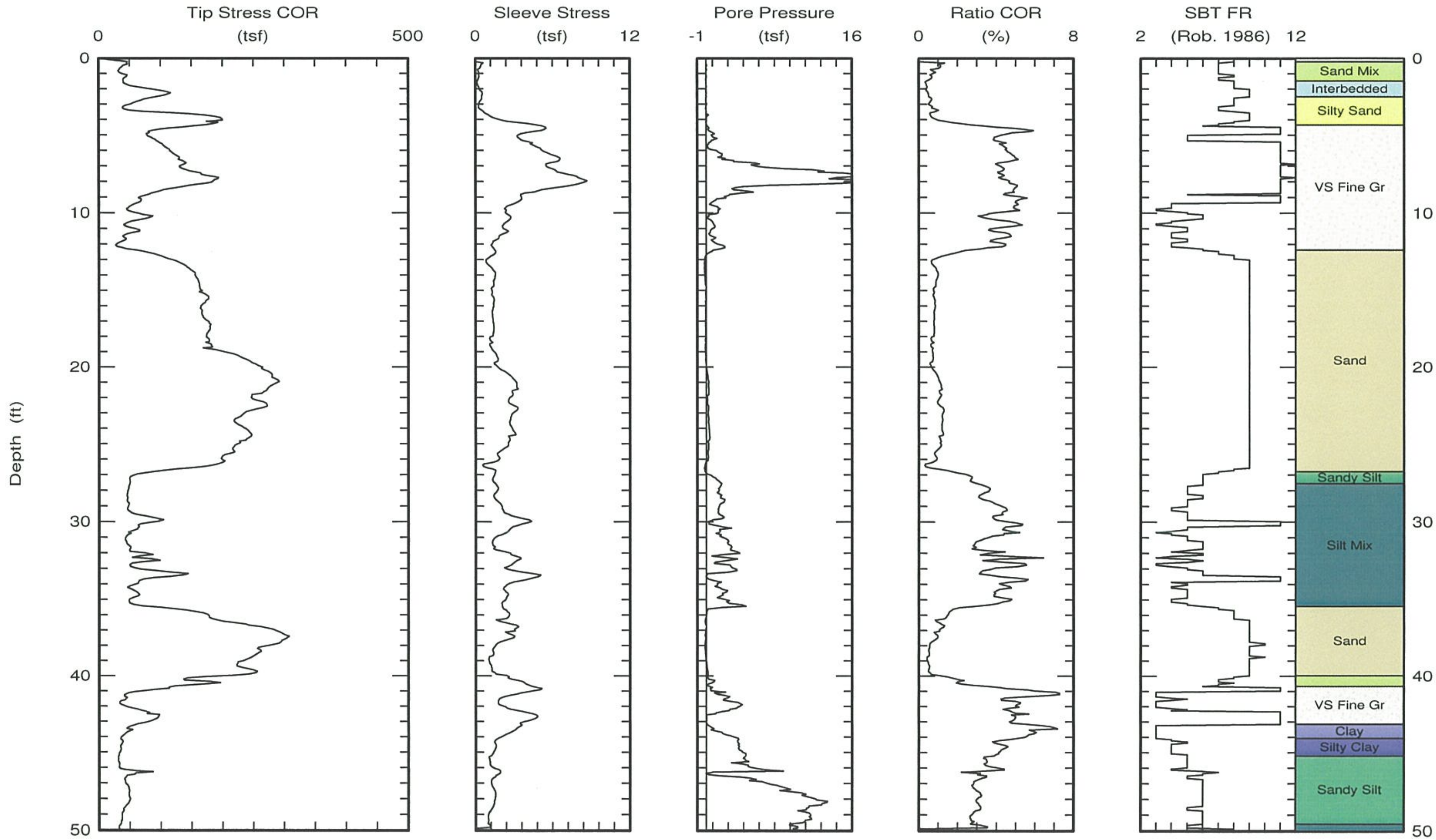
URS

Figure A-5

Kehoe Testing & Engineering of Huntington Beach, California advanced seventeen CPT soundings in three series between May 5 and May 6, 2006. The CPTs were advanced to depths of about 50 feet bgs.. The soundings were conducted using a 30-ton capacity cone with a tip area of 15 cm^2 and a friction sleeve area of 225 cm^2. The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.85. The cone takes measurements of cone bearing, sleeve friction, and dynamic pore water pressure at 5-cm intervals during penetration to provide a nearly continuous geologic log. The CPT soundings were performed generally in accordance with ASTM D5778. The CPT utilized the truck-mounted rig to provide thrust. At the completion of the soundings, the open hole was backfilled with bentonite clay grout and capped with bentonite chips.

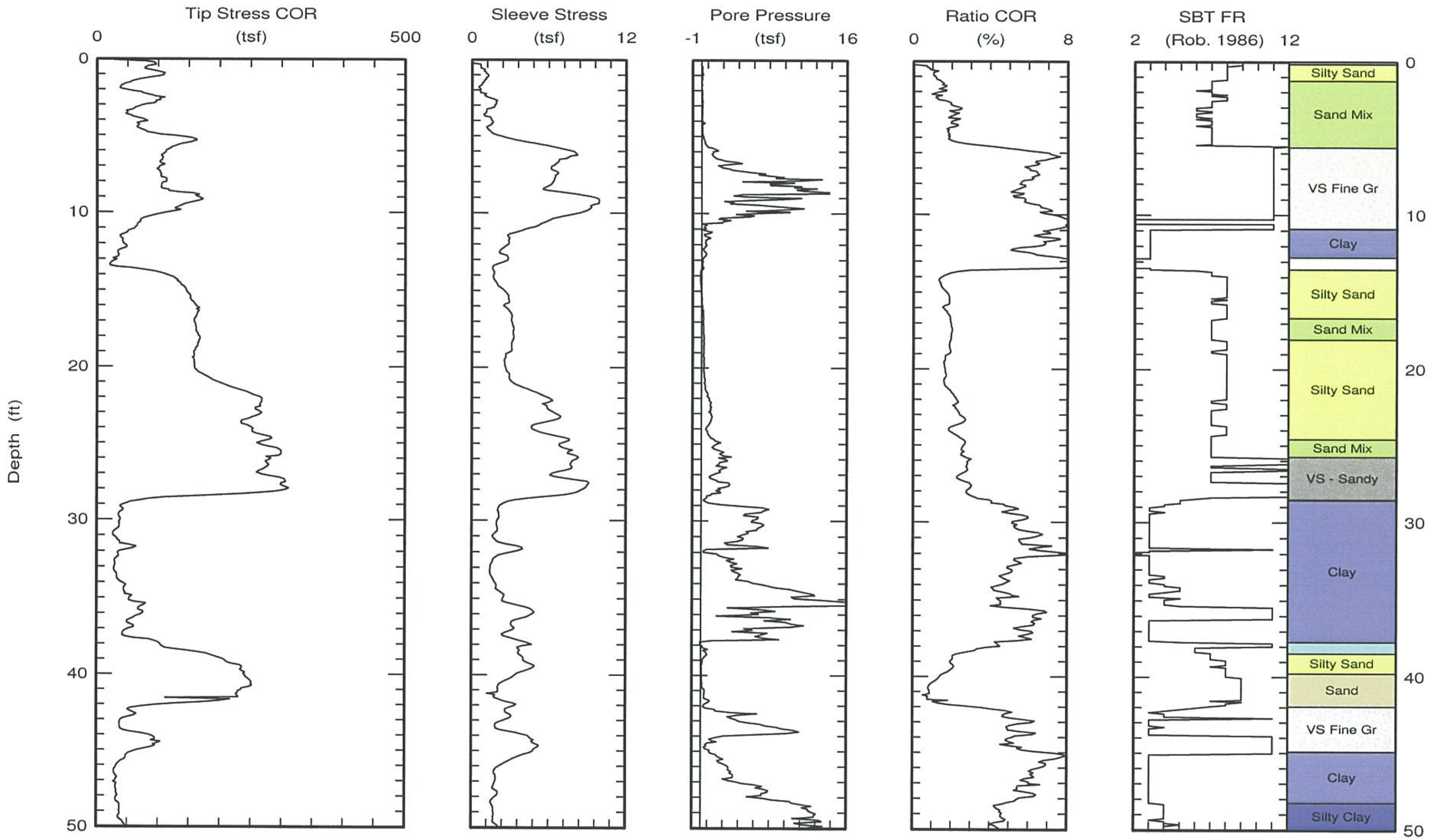
Measurements of resistance encountered during sounding were used to evaluate the variation of material and types and engineering properties. Soil behavior type (SBT) and stratigraphic interpretation is based on relationships between cone bearing, sleeve friction, and pore water pressure. The friction ratio is a calculated parameter (defined by as sleeve friction divided by cone bearing) and is used to infer soil behavior type. This appendix provides the results of the CPT sounding graphically, along with stratigraphic and parameter interpretations processed by Kehoe Testing & Engineering.

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 05/May/2006 Test ID: CPT-1 Project: SanDiego
	Client: URS Job Site: Monarch School	



Maximum depth: 50.18 (ft)

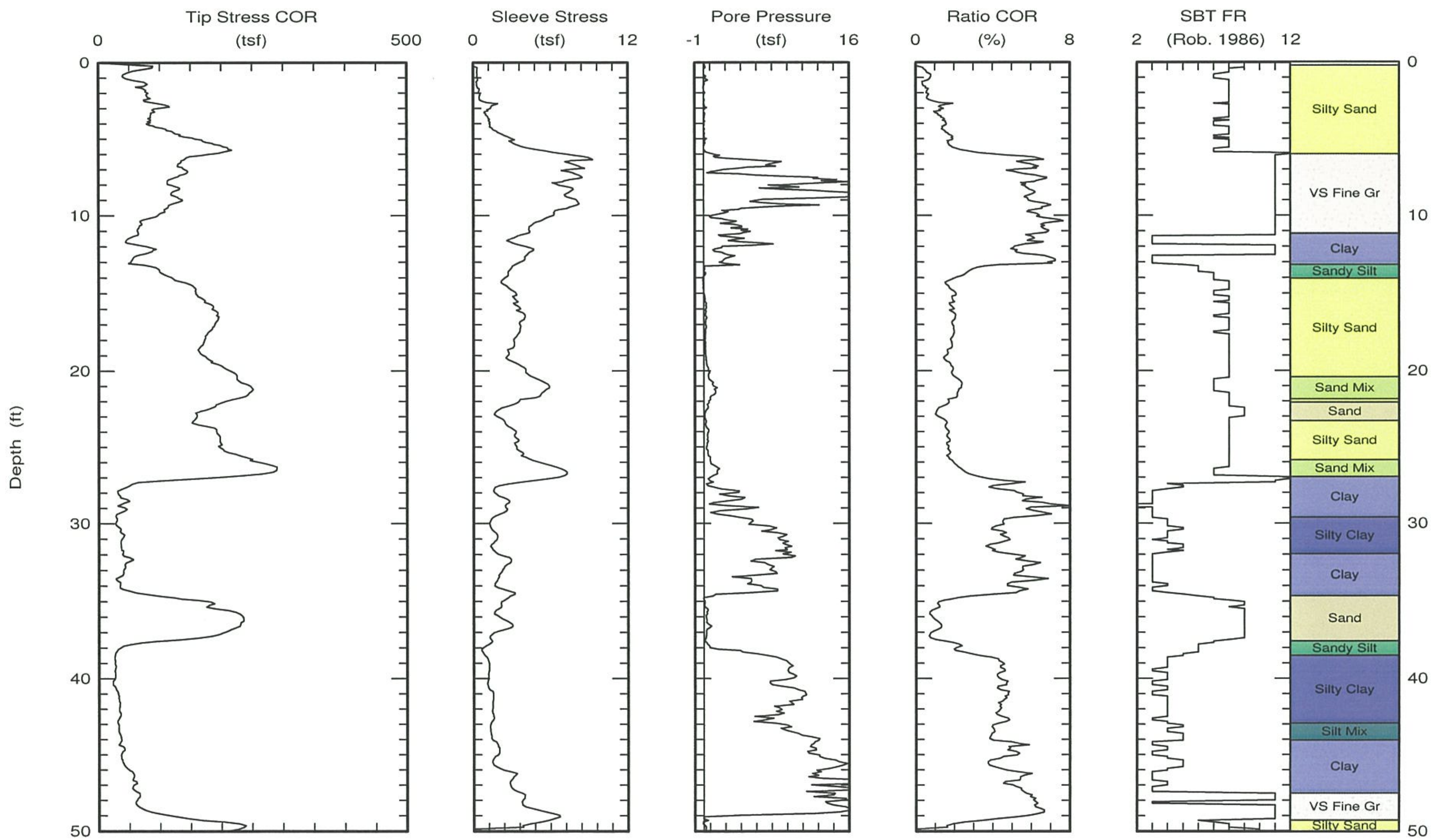
Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/May/2006 Test ID: CPT-2 Project: SanDiego
	Client: URS Job Site: Monarch School	



Maximum depth: 50.34 (ft)
Page 1 of 2

Test ID: CP

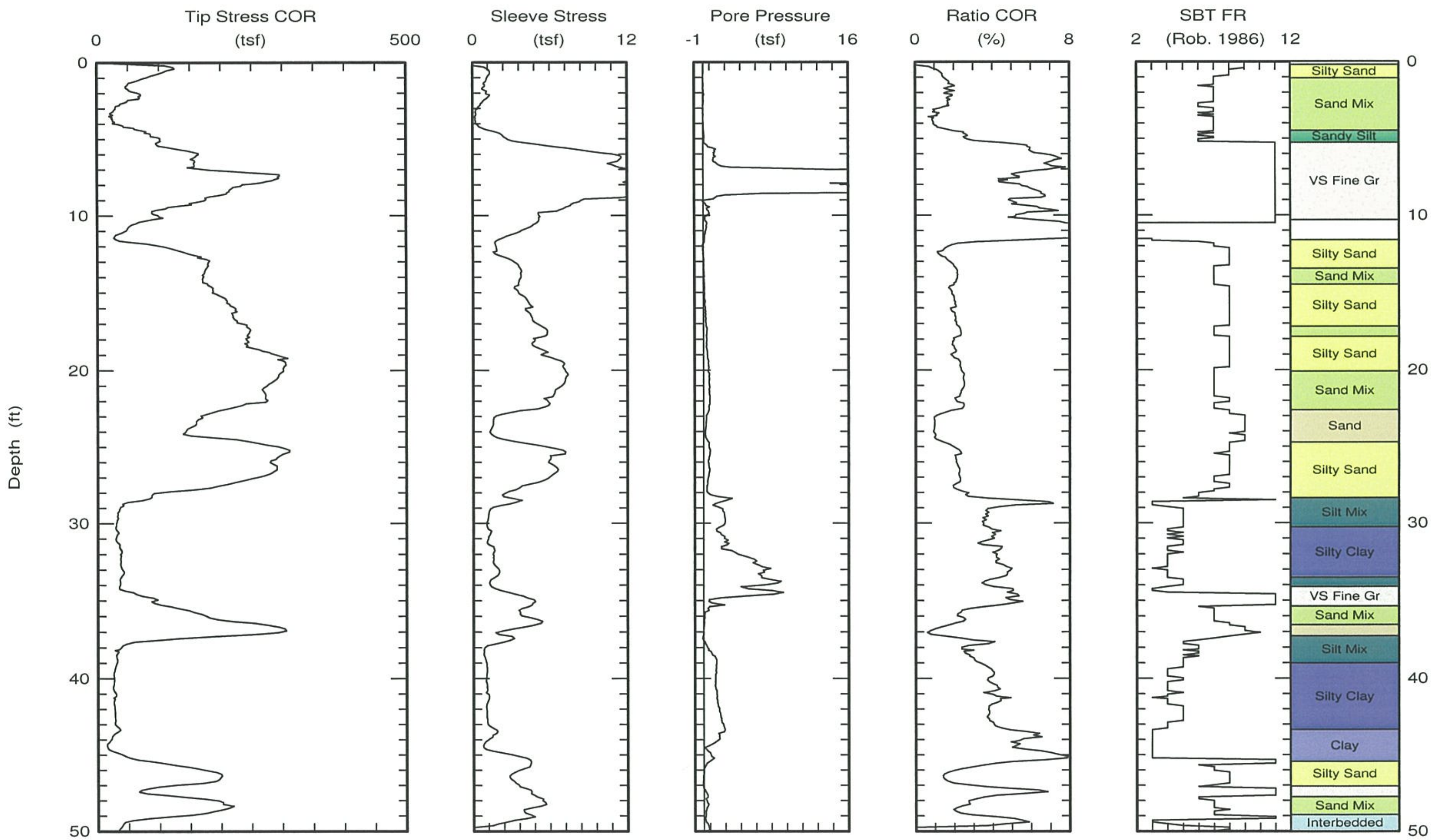
Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/May/2006 Test ID: CPT-3 Project: SanDiego
	Client: URS Job Site: Monarch School	



Maximum depth: 50.19 (ft)

Test ID: CP

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/May/2006 Test ID: CPT-4 Project: SanDiego	
	Client: URS Job Site: Monarch School		

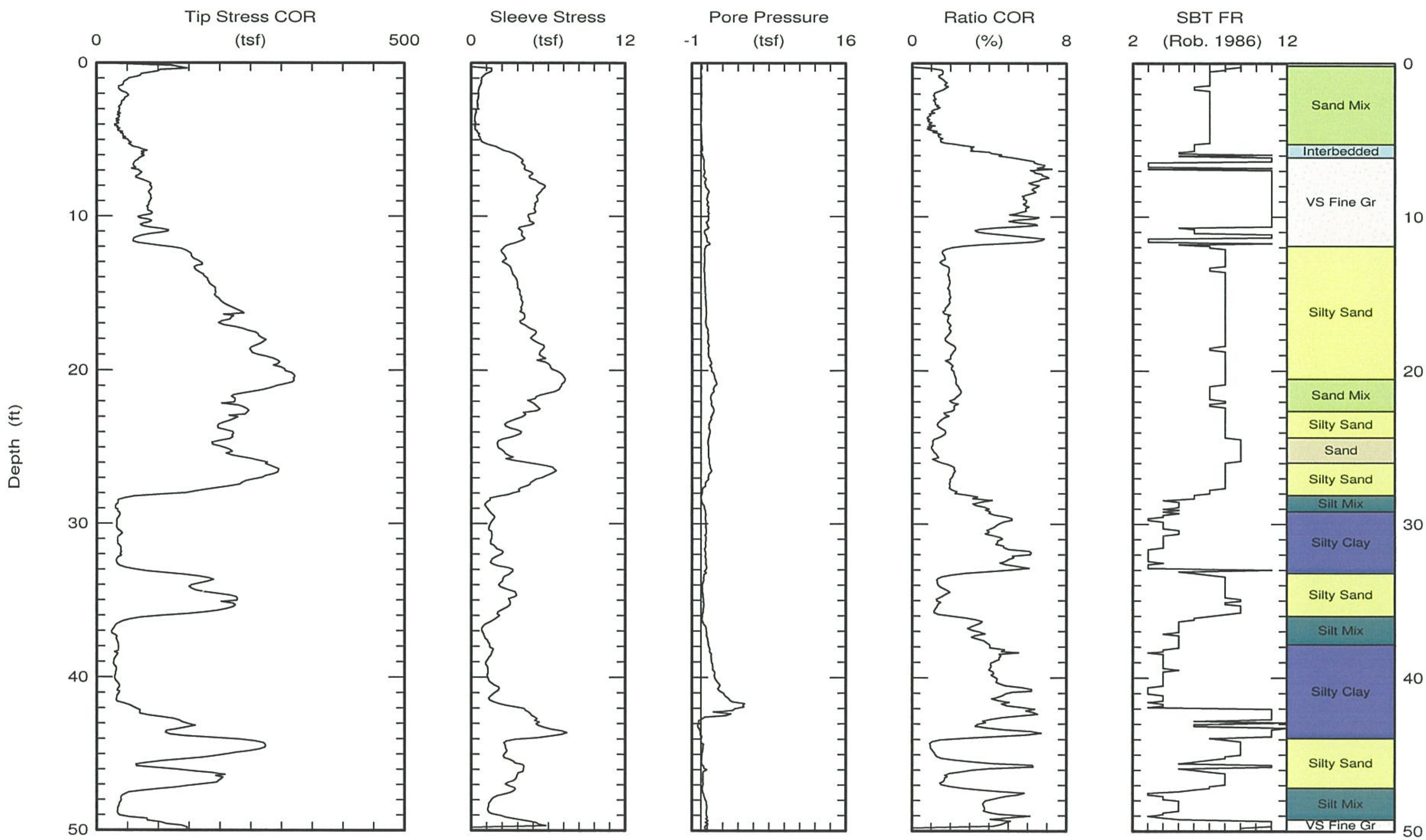


Maximum depth: 50.11 (ft)

Page 1 of 2

Test ID: CF

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/May/2006 Test ID: CPT-5 Project: SanDiego
	Client: URS Job Site: Monarch School	

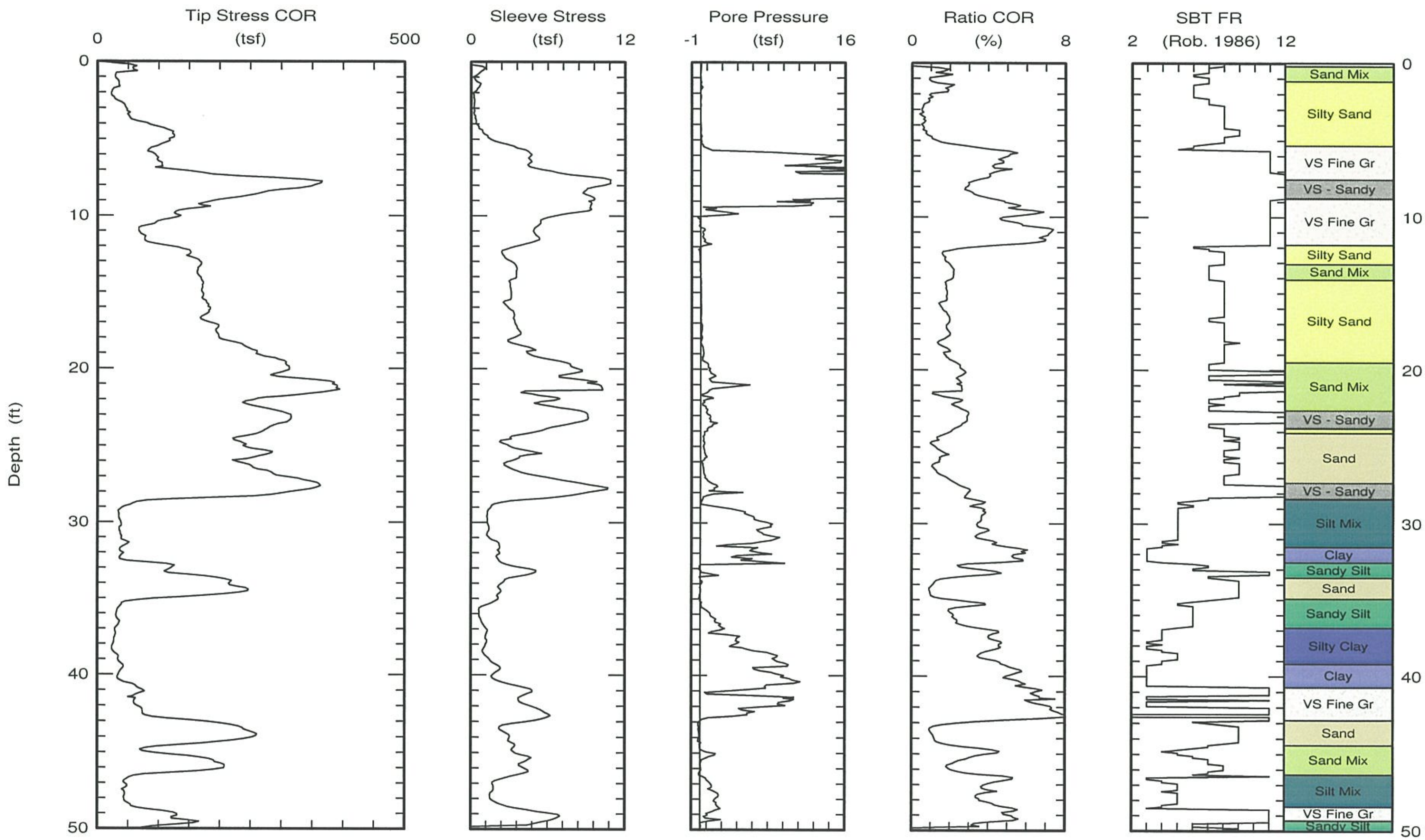


Maximum depth: 50.13 (ft)
Page 1 of 2

Test ID: CF

Kehoe Testing & Engineering
Office: (714) 901-7270
Fax: (714) 901-7289
skehoe@msn.com

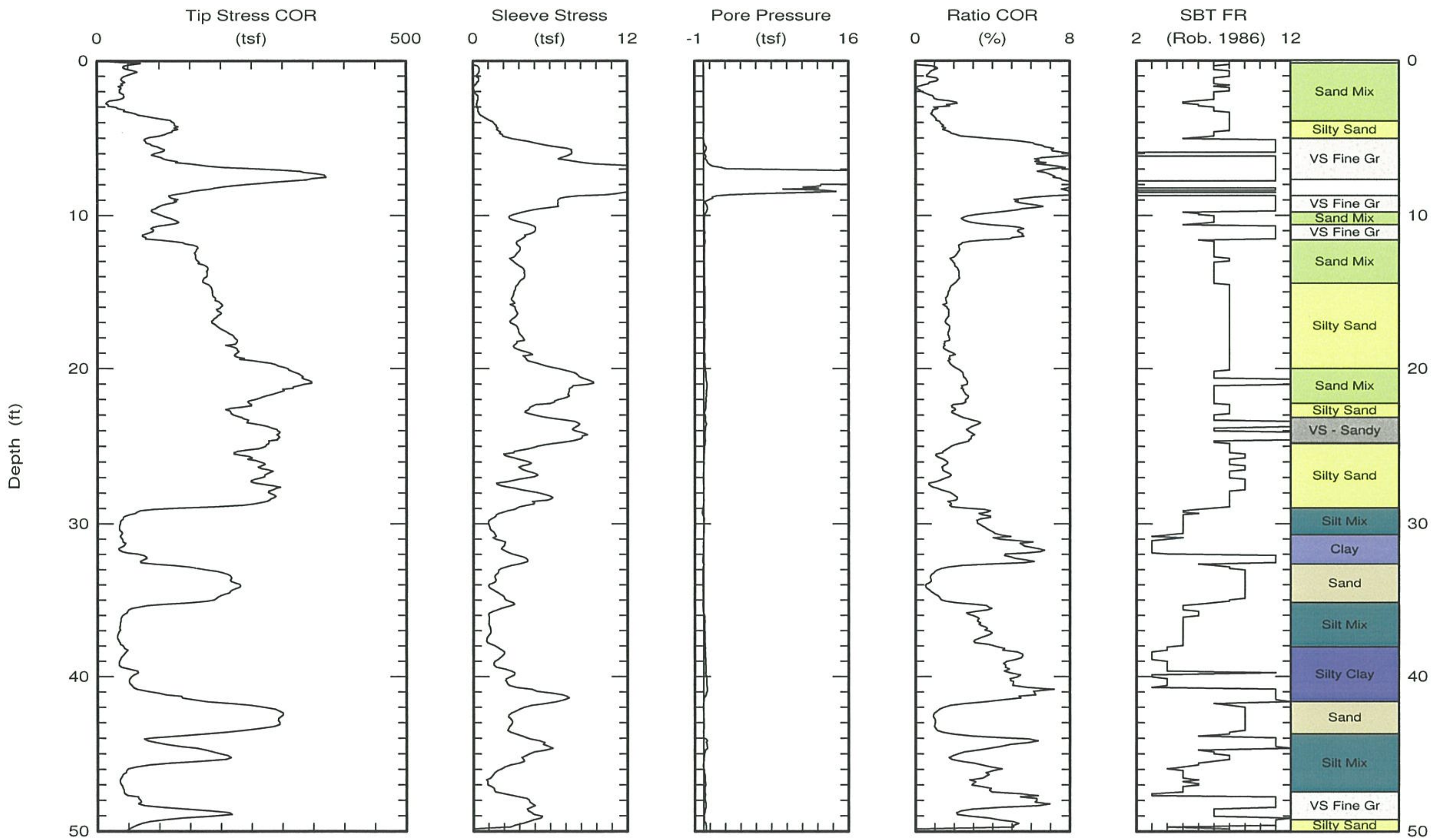
CPT Data 30 ton rig		Date: 12/May/2006 Test ID: CPT-6 Project: SanDiego
Client: URS Job Site: Monarch School		



Maximum depth: 50.12 (ft)
Page 1 of 2

Test ID: CP

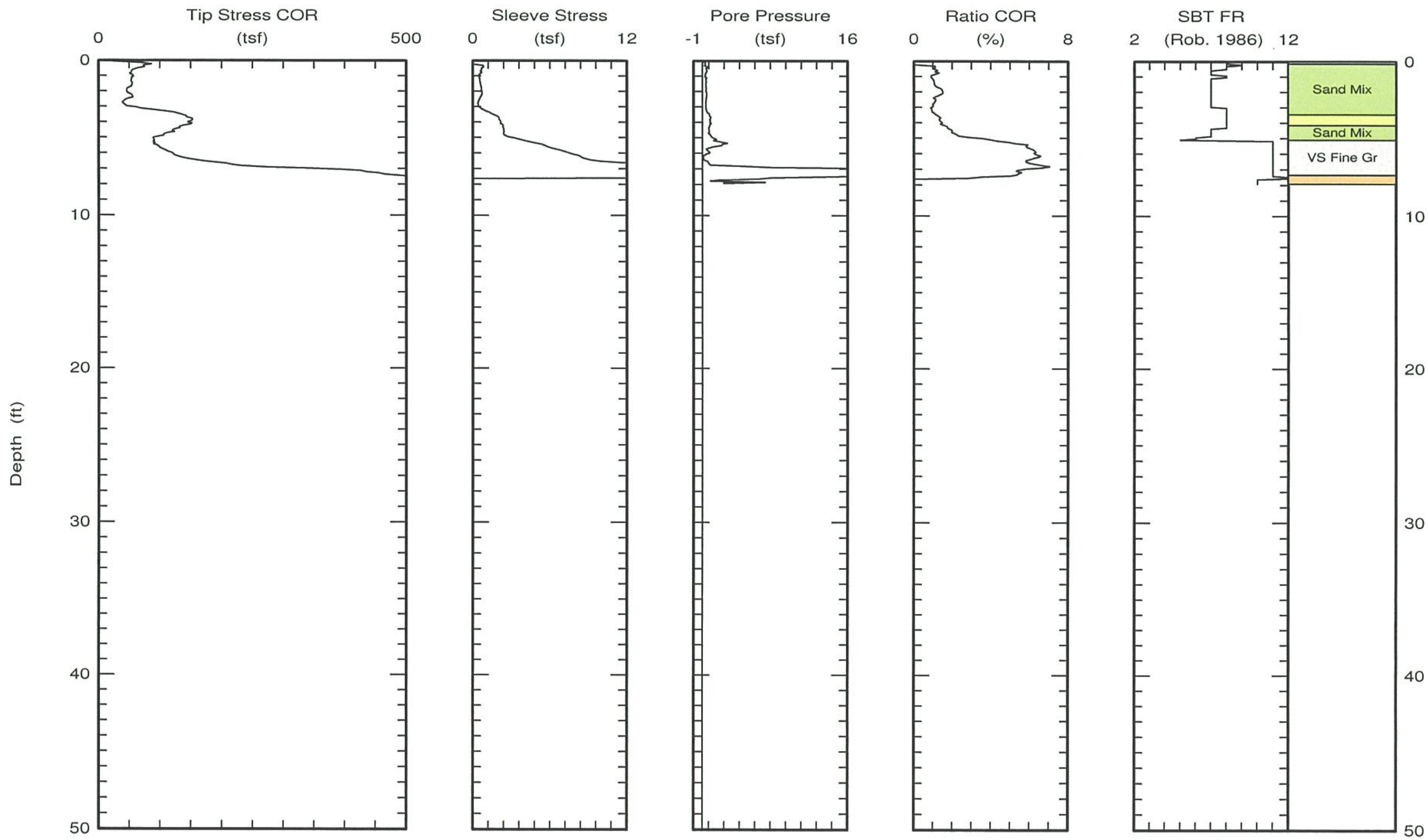
Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/May/2006 Test ID: CPT-7 Project: SanDiego
	Client: URS Job Site: Monarch School	



Maximum depth: 50.19 (ft)
Page 1 of 2

Test ID: CF

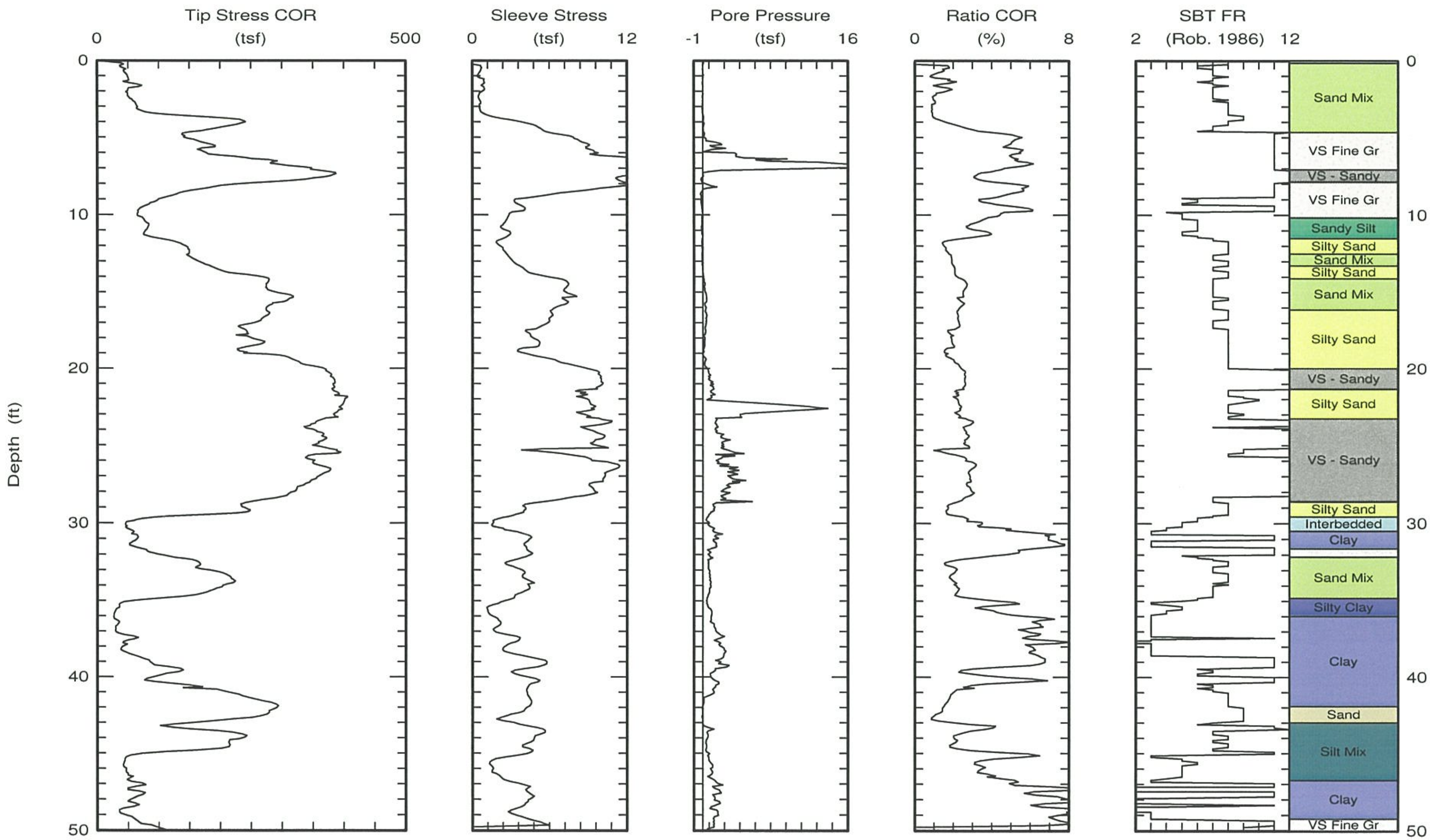
Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/May/2006 Test ID: CPT-8 Project: SanDiego
	Client: URS Job Site: Monarch School	



Maximum depth: 7.92 (ft)

Test ID: CP

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/May/2006 Test ID: CPT-9 Project: SanDiego
	Client: URS Job Site: Monarch School	

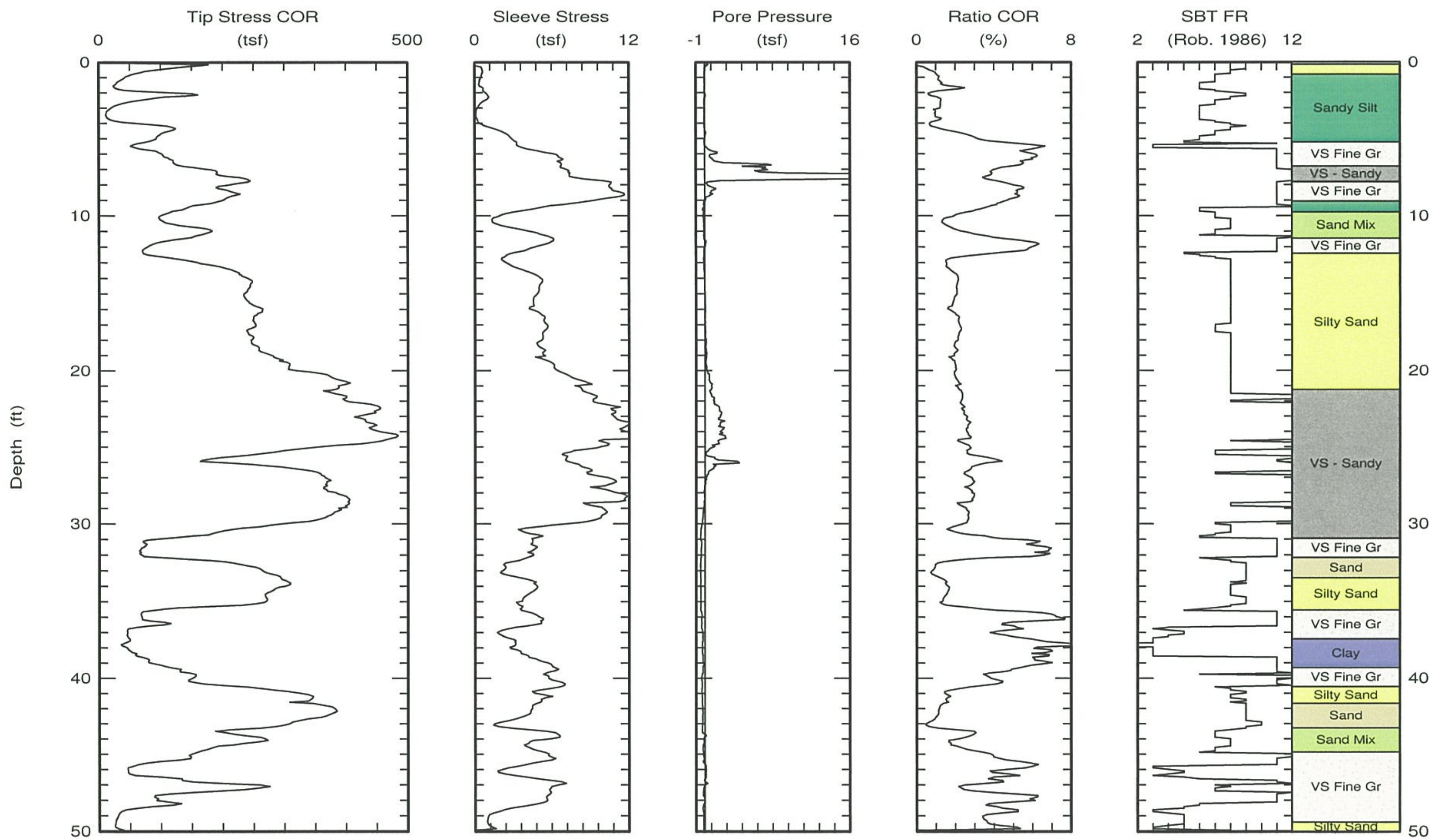


Maximum depth: 50.09 (ft)

Page 1 of 2

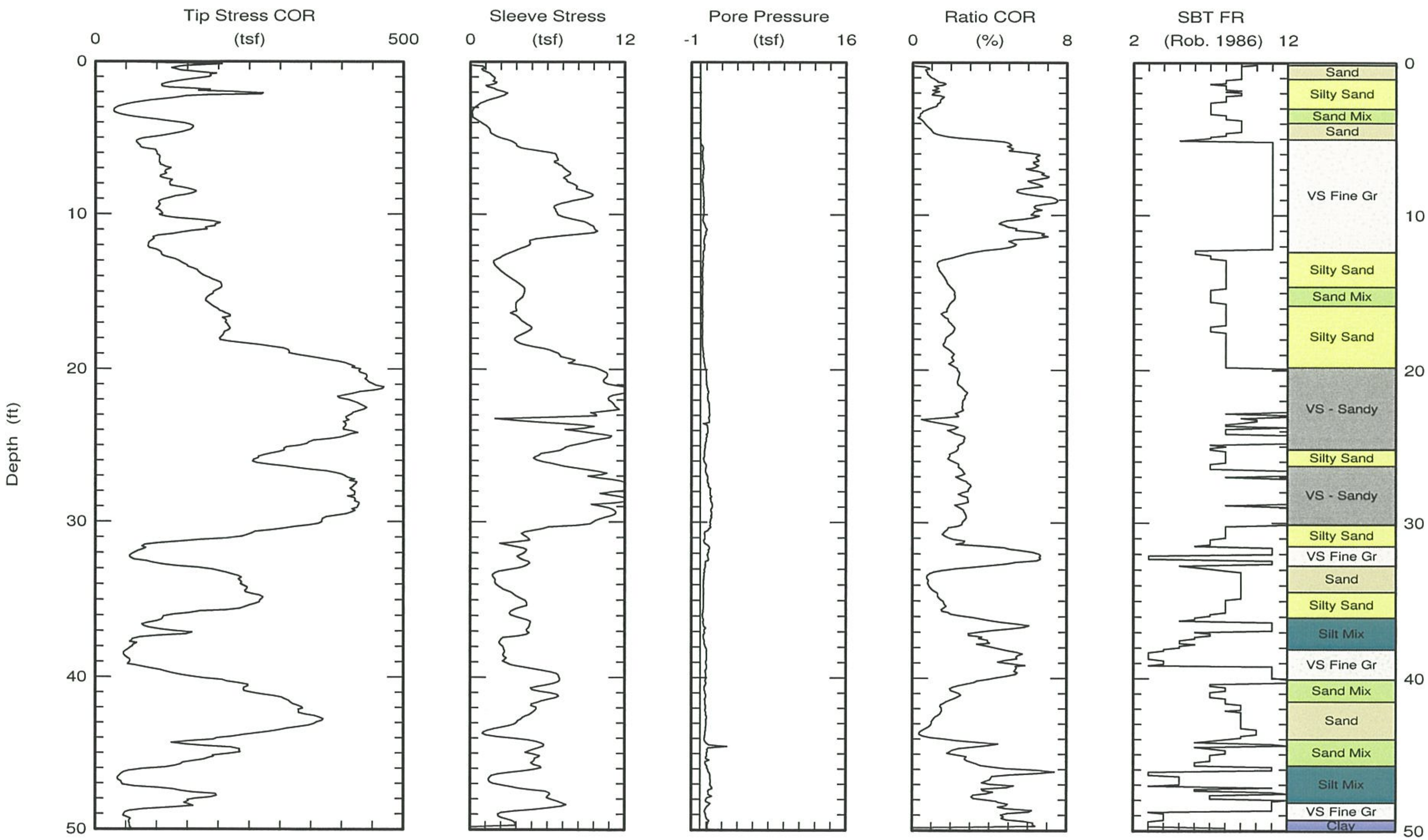
Test ID: CF

KTE Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 06/May/2006 Test ID: CPT-10 Project: SanDiego
	Client: URS Job Site: Monarch School	



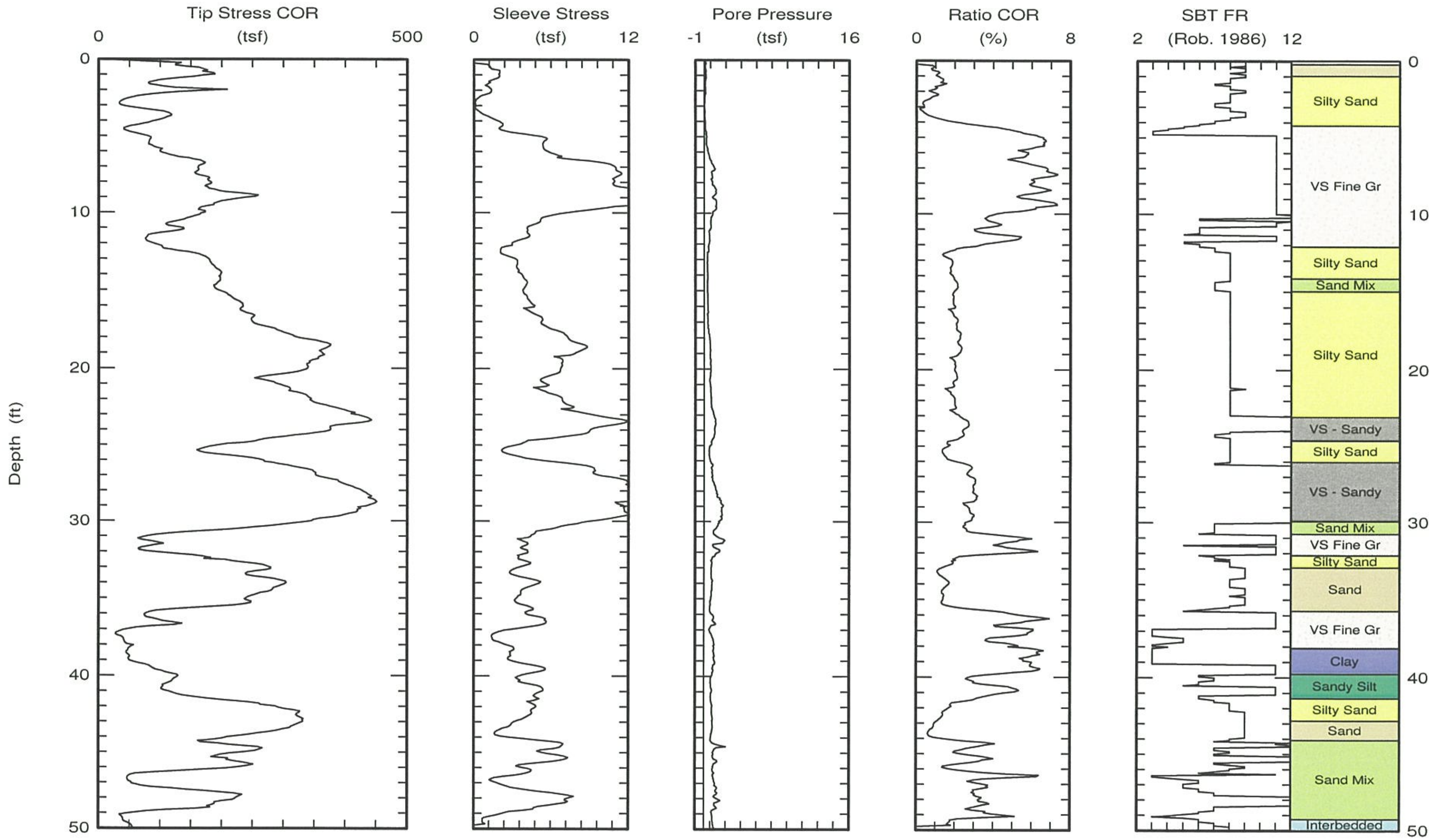
Maximum depth: 50.24 (ft)

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 06/May/2006 Test ID: CPT-11 Project: SanDiego
	Client: URS Job Site: Monarch School	



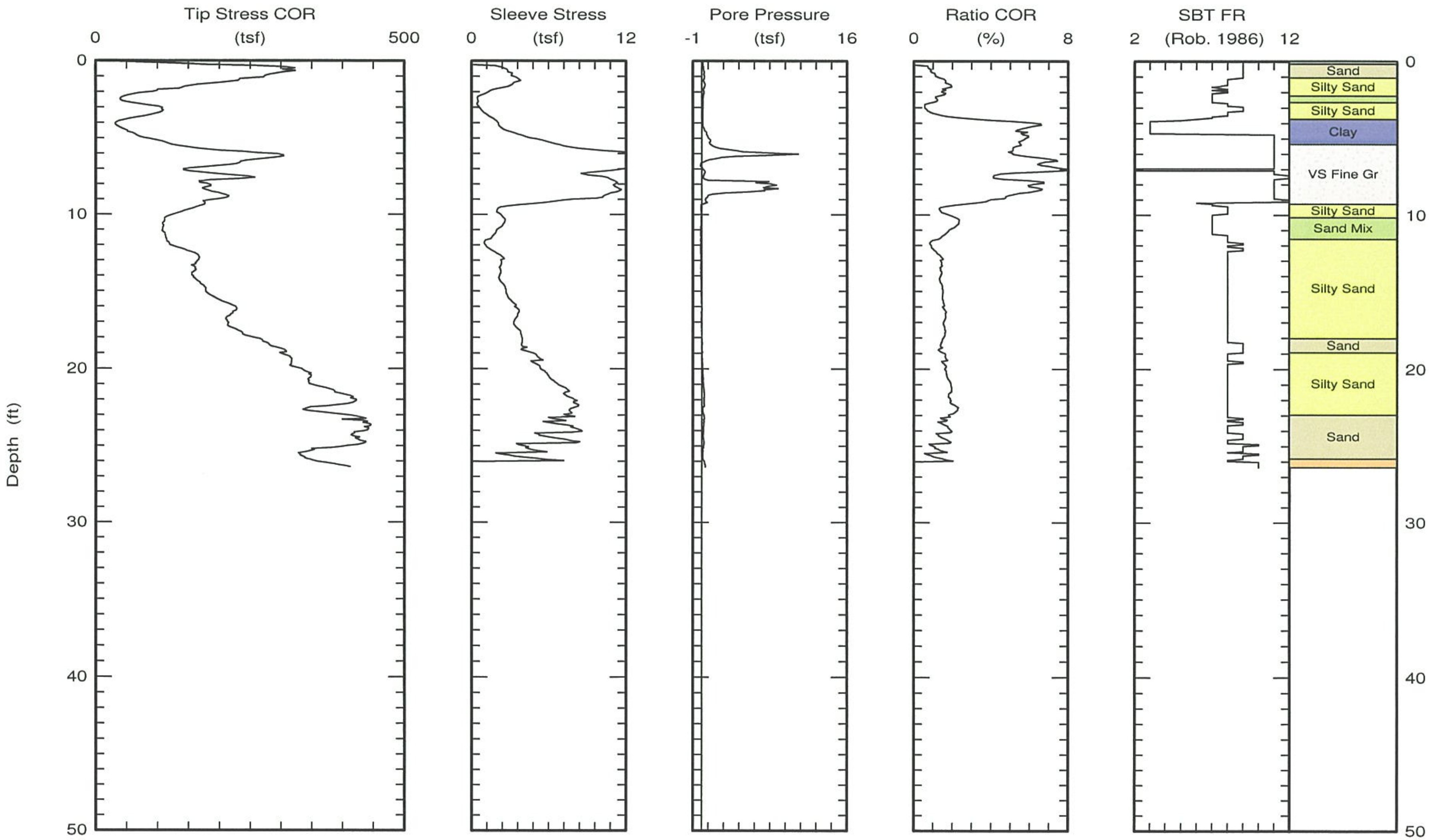
Maximum depth: 50.13 (ft)

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 06/May/2006 Test ID: CPT-12 Project: SanDiego
	Client: URS Job Site: Monarch School	



Maximum depth: 50.10 (ft)

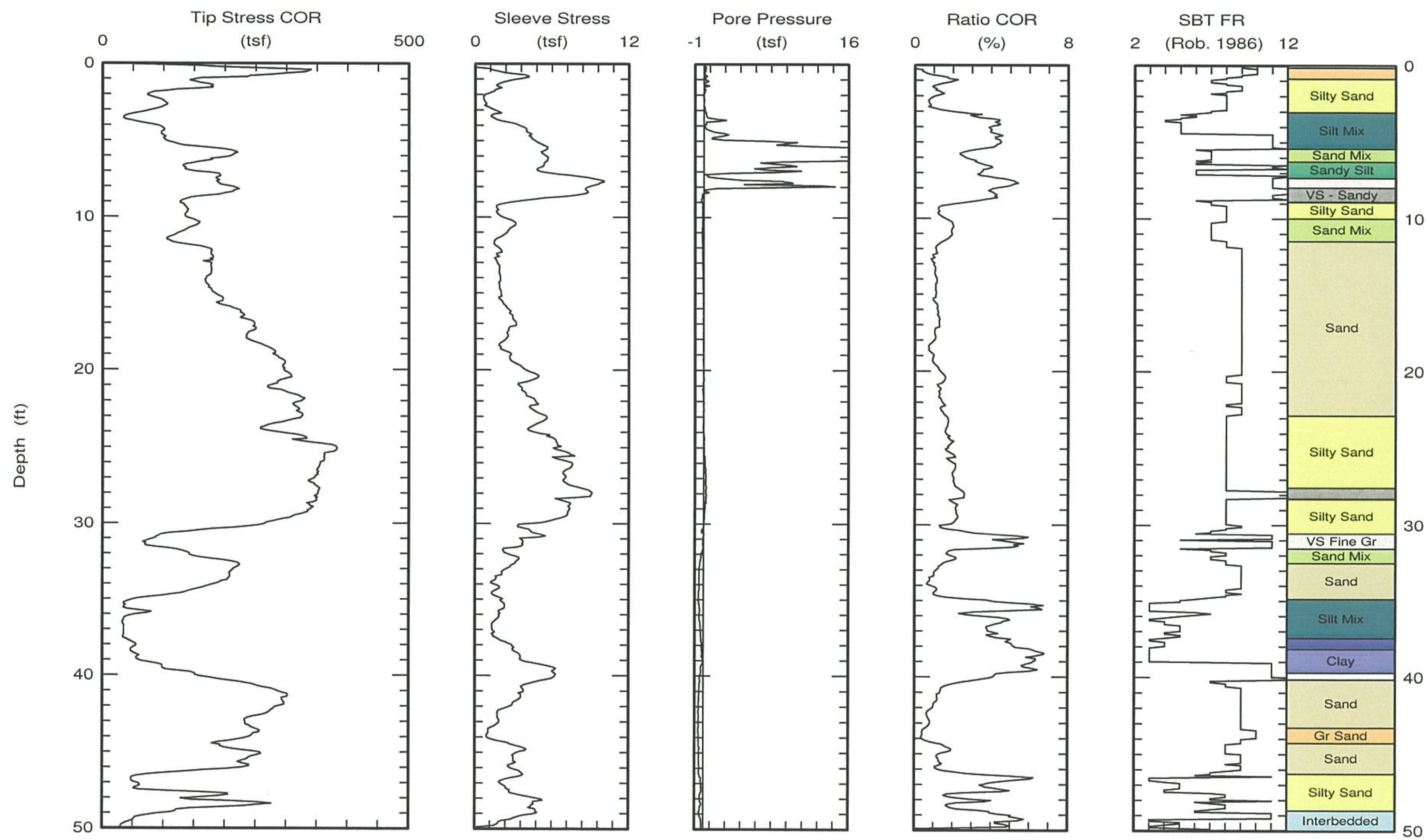
Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 06/May/2006 Test ID: CPT-13 Project: SanDiego
	Client: URS Job Site: Monarch School	



Maximum depth: 26.37 (ft)

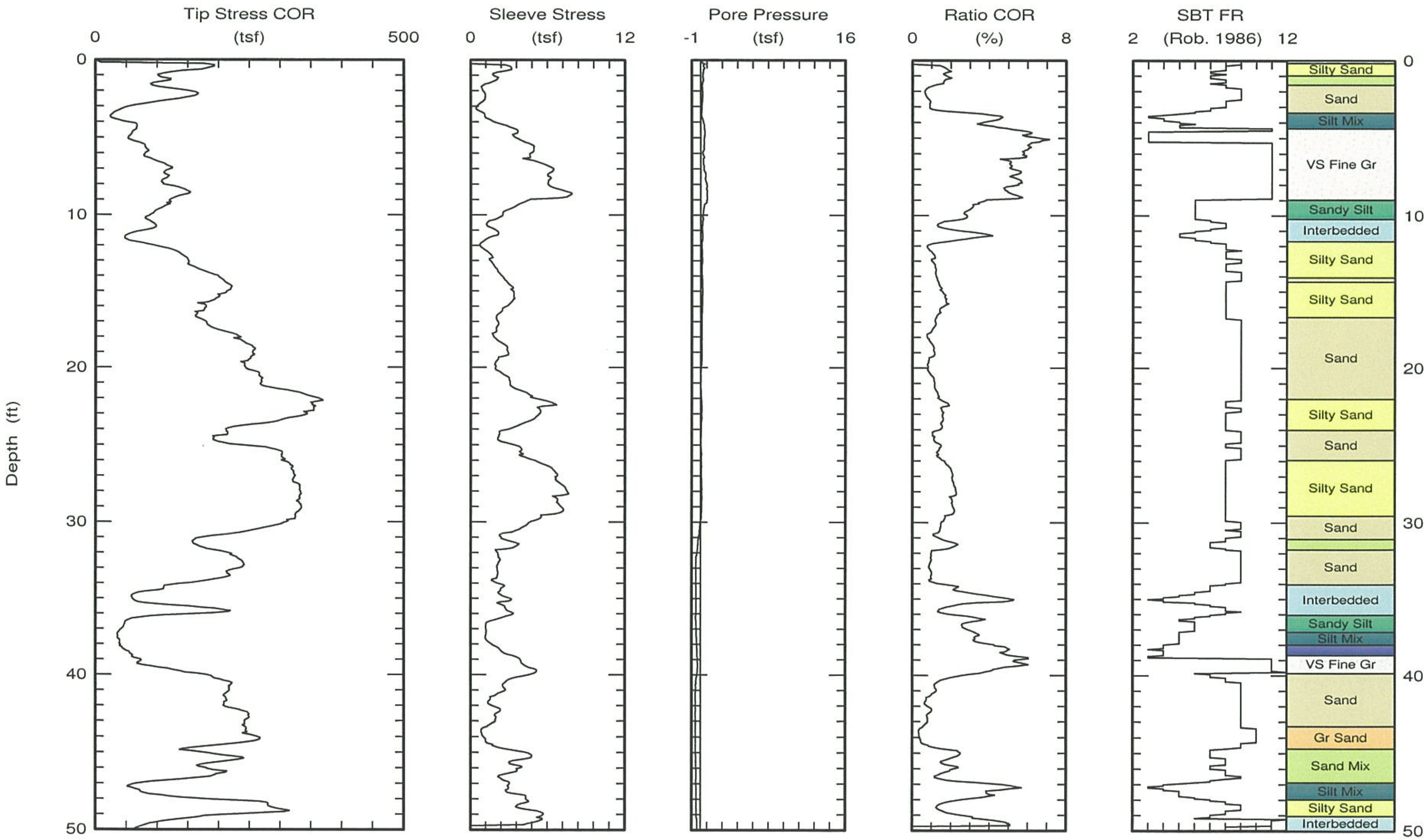
Test ID: CPT

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 06/May/2006 Test ID: CPT-14 Project: SanDiego
	Client: URS Job Site: Monarch School	



Maximum depth: 50.23 (ft)

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 06/May/2006 Test ID: CPT-15 Project: SanDiego
	Client: URS Job Site: Monarch School	



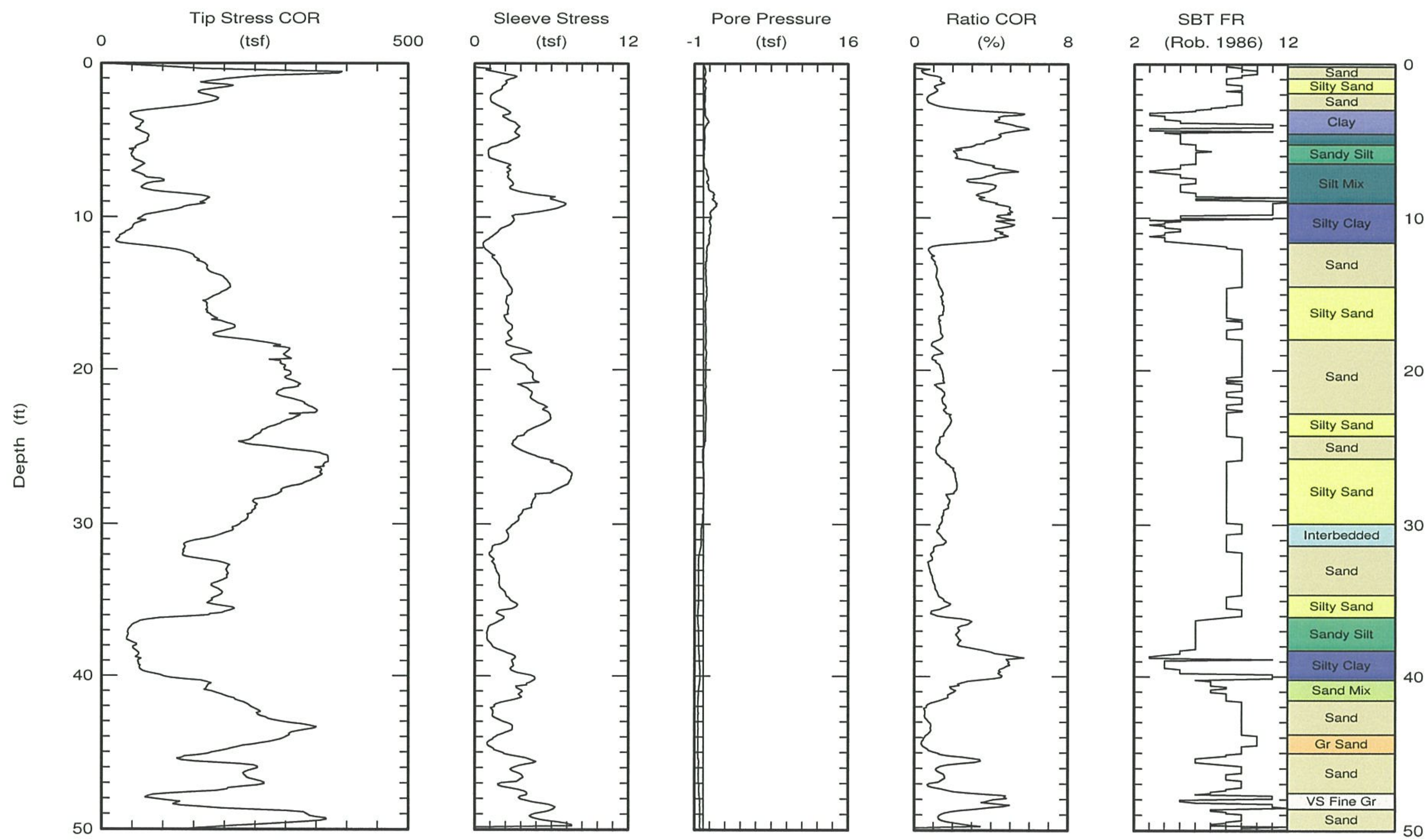
Maximum depth: 50.08 (ft)

Kehoe Testing & Engineering
Office: (714) 901-7270
Fax: (714) 901-7289
skehoe@msn.com

CPT Data
30 ton rig

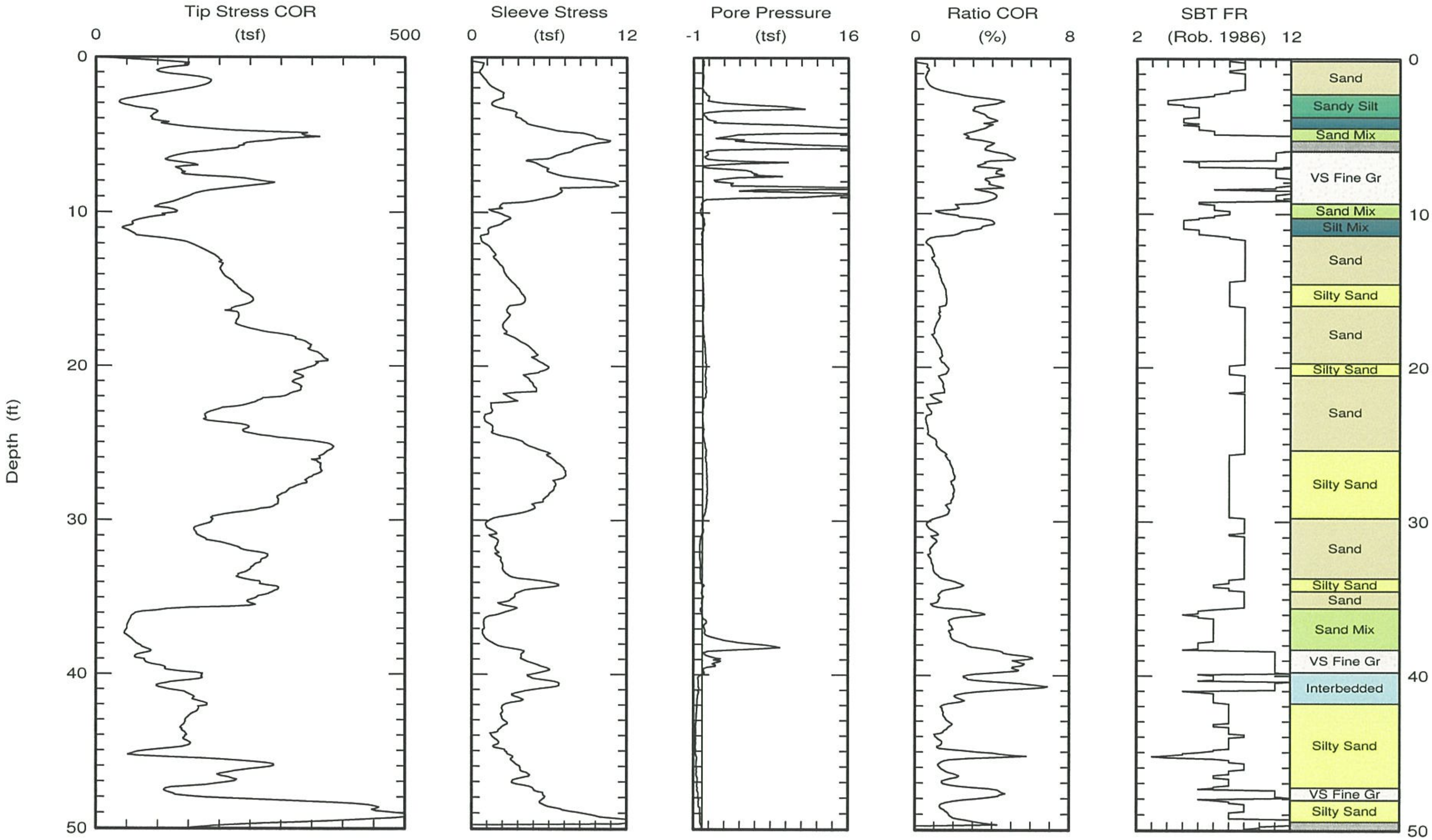
Date: 06/May/2006
Test ID: CPT-16
Project: SanDiego

Client: URS
Job Site: Monarch School



Maximum depth: 50.17 (ft)

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 06/May/2006 Test ID: CPT-17 Project: SanDiego
	Client: URS Job Site: Monarch School	



Maximum depth: 50.06 (ft)

Test ID: CPT