



**SOUTH COAST LANDFILL
REPORT OF WASTE DISCHARGE
DECEMBER 2016**

**VOLUME I - TEXT, TABLES, FIGURES, AND APPENDICES B - J
VOLUMES II AND III: APPENDIX A - FINAL CLOSURE/POST-CLOSURE MAINTENANCE PLAN**



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**SOUTH COAST LANDFILL
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**SECTION 1.0
INTRODUCTION**

1.0 INTRODUCTION

1.1 Project Purpose

This Report of Waste Discharge (ROWD) was prepared under contract by SWT Engineering (SWT) on behalf of the County of Mendocino Department of Transportation (DOT) at the request of the North Coast Regional Water Quality Control Board (RWQCB). The ROWD was requested to provide updated information on the South Coast Landfill (SCL).

The current Waste Discharge Requirements (WDRs) for the SCL date back to 1977 and needs to be updated. The triggering event for the preparation of this ROWD was based on a request from the RWQCB after DOT submitted a Final Closure/Post-Closure Maintenance Plan (FCPCMP): in 2013 and resubmitted in 2016. Based on feedback from the RWQCB, they requested that the 2013 FCPCMP be submitted in the form of a ROWD, which per current regulatory requirements, must take the form of a Joint Technical Document (JTD). It should be noted that the original ROWD was prepared by SHN Consulting Engineers and Geologists (SHN Consulting) in October 1991, with an addendum submitted on August 30, 1993. The 2016 FCPCMP for the SCL was prepared as a standalone document and is included (in its entirety) as Appendix A.

1.2 Report Organization

This ROWD is comprised of the following sections: Introduction (Section 1.0), Waste Characterization (Section 2.0), Design Report (Section 3.0), and Operations Plan (Section 4.0). References used to compile this ROWD are included in Section 5.0 of this document. The sections are followed by tables, figures, and appendices that are referenced throughout this ROWD.

1.3 Site Location and Setting

The SCL is an inactive site (ceased fill operations in 2000) located on 47.65 acres, of which approximately six acres were utilized for non-hazardous waste refuse disposal operations. The SCL is located approximately four miles northeast of the City of Gualala, adjacent to and south of Fish Rock Road in southwestern Mendocino County. The legal site description is the southeast 1/4 of the south 1/2 of Section 4, Township 11 north, Range 15 west, Mount Diablo Base and Meridian (see Figure 1). The address of the SCL is 40855 Fish Rock Road, Gualala, California 95445, Assessor's Parcel No. 141-080-26.

1.4 Facility Background

The site is owned and was operated by DOT from 1970 through 2000. During that time, the SCL received only non-hazardous solid waste. The SCL served the residents of Mendocino County South Coast Area, which is the State Route 1 corridor from the Sonoma County Line to the Navarro River. This area includes the towns of Elk, Irish Beach, Manchester, Point Arena, and Gualala.

The current WDRs were issued in 1977 with the Monitoring and Reporting Program (M&RP) updated on July 19, 1990 and again in 1993 under Order No. 93-83. The initial groundwater monitoring wells were installed as part of the Solid Waste Assessment Testing (SWAT) program with wells 87-1 through 87-5 installed at that time. Additional groundwater monitoring wells were installed in 1991 (91-1) and in 1994, four new wells were installed

(94-1 through 94-4), which are discussed later in this document. In addition, well 87-4 was destroyed in 1994.

The SCL was used for refuse disposal under Solid Waste Facility Permit (SWFP) No. 23-AA-0018. Land use is conducted under Mendocino County Planning Commission Use Permit No. 26-70. Under WDR Order No. 77-23 (as amended by Order No. 93-83), the site was permitted and operated as a Class II-2 solid waste site, designated now as a Class III site under current regulations (California Code of Regulations, Title 27 [27 CCR]). The SCL operated in accordance with State Minimum Standards for a Class III disposal facility as established by the State Water Resources Control Board (SWRCB) and CalRecycle. The site accepted mixed municipal refuse, classified nonhazardous solid waste, and inert waste as defined in the 27 CCR, Sections 20220 and 20230. No liquid or hazardous waste was knowingly accepted at the site.

A small volume transfer station (TS) was constructed on the northwest portion of the landfill property, not on refuse (see Figure 2). The South Coast TS operates under a separate Notification Permit (SWIS No. 23-AA-0043). An attendant is present at the transfer station during all hours of operation and a locked gate prevents any unauthorized entry. In addition, signs are posted at the facility entrance informing all users of acceptable wastes, prohibited wastes, and other potential operational and safety information.

1.5 Waste Characteristics

The SCL received approximately 1,530 tons of refuse in 1996. Annual tonnage varied throughout the site's active life, peaking at approximately 1,700 tons in 1990. The site was open on Saturdays and Sundays from 9:00 a.m. to 4:00 p.m. to all users; and on Monday, Wednesday, and Thursday during daylight hours for the commercial haulers. Approximately 6.5 tons of refuse were received each operating day or about 4.7 tons of refuse per calendar day. The waste stream was generally comprised of approximately 90 percent residential waste, 5 percent commercial waste, and 5 percent demolition waste (see Table 1). Examples of typical waste that were received at the site included household garbage, rubbish, paper, cardboard, tin cans, cloth, grass, trees, brush, and construction and demolition (C&D) debris. No hazardous, designated, or liquid wastes were accepted at the site. No significant industrial or agricultural wastes were received at the site.

This site was operated using the cut and cover and the area fill methods of refuse disposal. Incoming waste was deposited adjacent to the working face, spread into the working face, and compacted using a bulldozer. Cover was applied two to three times per week.

1.6 Regulatory Agency Permits

The SCL is operated under the following regulatory agency permits:

- ◆ SWFP No. 23-AA-0018, issued by the Mendocino County LEA;
- ◆ WDR Order No. 77-23 and M&RP, as amended by Order No. 93-83, issued by the RWQCB, North Coast Region; and
- ◆ Use Permit No. 26-70, issued by the Mendocino County Planning Commission.

**SECTION 2.0
WASTE CHARACTERIZATION**

2.0 WASTE CHARACTERIZATION (27 CCR, SECTION 21740)

2.1 Topography and Drainage (27 CCR, Section 21750(d))

The SCL is located in the foothill region of the Coastal Mountain range in the heavily forested rugged mountain terrain. The landfill is situated at an elevation of about 500 feet above mean sea level (msl) and approximately 200 feet northeast of the Little North Fork of the Gualala River. The general topography of the area within a one mile radius of the landfill site is gently to moderately sloping hills, except on the southwest ridge, where slopes are relatively steep. The site occupies a relatively flat, linear ridge located in the center of the San Andreas Fault Zone. The area surrounding the site is predominantly a Timber Preserve, and is vegetated with a moderately dense growth of coniferous trees. The current topography (as of February 2012) of the landfill is shown on Figure 2.

2.2 Climate and Precipitation/Runoff (27 CCR, Section 21750(e)(1-6))

Climatological data for the SCL is shown in Appendix B. Temperature and precipitation data were recorded at the State Station Number 9122, located in Ukiah California, approximately 30 miles northeast of the disposal site. In 2012, the average annual temperature was 56.4°F, with a low of 22°F in January and a high of 105°F in August. Annual precipitation highs and lows recorded at Ukiah Station 9122 averaged 9.32 inches in 2012.

The maximum expected 24-hour precipitation for a 24-hour, 100-year storm event, taken from Intensity Duration Frequency Curves for 1972-1986 (Ukiah - Lake Mendocino Dam) is estimated to yield approximately 2.5 inches of rain (see Appendix B).

Evaporation data (from Department of Water Resources (DWR) Bulletin 73-79, November 1979) for Station Number 275150, located in Elk, California, approximately 40 miles northwest of the site, is estimated to be approximately 43.74 inches per year, with a high of 5.9 inches in June and a low of 1.9 inches in February.

A discussion of site drainage patterns and the peak stream discharges associated with the 100-year storm is included in Section 3.2.

2.3 Groundwater and Surface Water Monitoring History

The groundwater monitoring system at the SCL was initiated in 1987. Five monitoring wells (87-1, 87-2, 87-3, 87-4, and 87-5) were installed in 1987. One additional well (91-1) was installed in 1991 to further delineate the downgradient hydrological conditions at the site. In 1994, monitoring well 87-4 was destroyed and four new monitoring wells (94-1, 94-2, 94-3, and 94-4) were installed in 1994. Monitoring well 94-1 was installed within the reamed borehole of 87-4. The depths of the monitoring wells vary from 15.4 feet to 50 feet. Well locations are shown on Figure 3.

The groundwater monitoring wells are sampled on a quarterly basis in accordance with WDR Order No. 77-23 (included in Appendix C), as amended by Order No. 93-83 which complies with 27 CCR, Subchapter 3, Article 1 requirements. Water level information should be gathered on a monthly basis. Quarterly water quality monitoring reports are submitted to the RWQCB.

Surface and groundwater testing were originally performed as part of the SWAT and 23 CCR, Chapter 15 Monitoring Programs. The existing data, collected during previous investigations and routine monitoring, as well as the conclusions of the SWAT report, were analyzed to

evaluate the influence of the landfill on surrounding area surface water and groundwater. However, prior purging and sampling methods did not yield adequate quantities of water for sample collection; where sample collection was possible, only limited, selected analyses were performed. In its July 19, 1990 letter to Mendocino County (see Appendix D), the RWQCB acknowledged the difficulties in obtaining adequate water from the wells and recommended utilizing procedures for pumping and sampling low-yield wells.

The following sections describe the historic groundwater chemistry at the site. Groundwater and surface water quality data, including quarterly monitoring results, are summarized in the quarterly monitoring reports for the SCL submitted to the North Coast RWQCB, which are available upon request.

2.3.1 Volatile Organic Compounds (VOCs)

Toluene was detected in well 87-2 on one occasion during the September 1988 sampling round but was determined to represent contamination in the field or laboratory. Methylene Chloride was detected in the background well on two occasions (February and April 1990). However, this compound is a common laboratory contaminant and may not have been present in the groundwater. None of the detected VOCs have exceeded action levels. Laboratory results at the time (January 1991) indicated no detectable VOCs. Additionally, the second quarter 2016 monitoring report shows that no detectable VOCs were observed above method reporting limits.

2.3.2 Metals

Metals were consistently detected in all wells that have been sampled. Well 87-1, located upgradient of the landfill, has had frequent detections of Iron and Manganese which exceeded Department of Toxic Substances Control (DTSC) (formerly the Department of Health Services) action levels. Barium, Chromium, Iron, Manganese, and Zinc have been detected in all wells that have been tested. Lead has been detected in well 87-1 on two occasions, 87-2 on three different occasions, and once in 87-3 and 87-5.

Since all of the detected metals were found in all of the monitoring wells (both upgradient and downgradient), it was determined that detections were most likely derived from the native geologic materials which underlie the site.

2.3.3 Inorganic Parameters

Sulfate, Chloride, Hardness, and Bicarbonate Alkalinity were detected in wells 87-1, 87-2, 87-3, and 87-5. Concentrations of these constituents in wells located at the downgradient portion of the site were higher than those detected in 87-1. Concentrations of Total Dissolved Solids (TDS), pH, and Specific Conductance were also higher in those wells located downgradient of the site. Fluoride was detected in all wells with the exception of 87-1. Nitrate was detected in all wells. The differences in concentrations may result from either landfill impacts associated with leachate migration or different water bearing zones separated by faults that may traverse the landfill area, as concluded in the Geologic Investigation Report (Hallenbeck and Associates, October 1988).

2.3.4 Surface Water Sampling

Surface water runoff at the site is sampled seasonally at two points on the property: location SW-1 is along the south side of the landfill, where runoff discharges to a surface water

detention basin; and location SW-2 is near the northwest corner of the landfill, where runoff discharges to the Little North Fork of the Gualala River (see Figure 3). In keeping with the facility's National Pollutant Discharge Elimination System (NPDES) permit, storm water sampling is also performed at these locations during the first significant storm of the rainy season and again at the end of the rainy season.

Surface water sampling at location SW-2, was conducted in 1990, for a full round of SWAT parameters.

No VOCs were present in the surface water sample. Barium, Zinc, Sulfate, TDS, Electrical Conductivity, Fluoride, and Nitrate were detected at concentrations below DTSC action levels.

Samples were taken from the sedimentation pond on January 23, 1990 and April 4 1990, and March 6, 1991. Methyl Ethyl Ketone, Acetone, and Toluene were detected in the pond sample at concentrations below DTSC action levels. Detections of Barium, Sulfate, TDS, Electrical Conductivity, and Nitrate were also reported. Due to heavy rains in 1991, the sedimentation pond was full when a sample was collected. Therefore, concentrations were lower in this sample.

Concentrations of parameters detected in the sedimentation pond samples are significantly higher than those detected in the groundwater monitoring wells.

A sample taken from the sedimentation pond outlet (SW-1) was tested for standard minerals in 1989. Results indicate concentrations lower than those reported in the sedimentation pond sample. Standard mineral results for monitoring points SW-1 and SW-2 were comparable.

2.3.5 Mineral Characteristics

A trilinear diagram (see Figure 4) was constructed using results of standard mineral analyses from well samples collected in 1991 and the pond sample collected in 1991. The trilinear diagram graphically represents the mineral character of the water from each sample location. Water samples with similar mineral characteristics were plotted in the same general area of the trilinear diagram. This indicated similarities between 87-3 and the pond; and 87-2 and 87-5. The water from well 87-1 did not have the same mineral character as the other sample groupings.

The outlet of the sedimentation pond discharges toward the location of well 87-3, which may account for the mineral similarity between these samples. The difference between the mineral content in well 87-1 and the well group 87-2 and 87-5 could have resulted from either landfill impacts associated with leachate migration or different water bearing zones separated by faults that traverse the landfill area, as concluded in the Geologic Investigation Report (Hallenbeck and Associates, October 1988).

2.3.6 Monitoring Well Installation

To further assess the downgradient groundwater quality at the site, one monitoring well, (designated as 91-1), was installed near the toe of the landfill (see Figure 3). The well was originally proposed to be installed adjacent to existing well 87-4 but was relocated due to access difficulties associated with wet field conditions. A boring was attempted on the road to well 87-4 but was abandoned because of its proximity to buried garbage.

During drilling, soil encountered in the well borehole was sampled for lithologic determination and logged in accordance with the Unified Soil Classification System (USCS). The well borehole was drilled to a depth of 29 feet below grade and terminated in fractured siltstone.

A monitoring well was installed within this borehole, and cased with flush-threaded, 4-inch inside diameter, Schedule 40 polyvinyl chloride (PVC) risers and 0.020-inch slotted screen. The filter pack consisted of #3 sand, which is compatible with the screen size and the soil texture of the water bearing zone. A bentonite seal was placed on top of the filter pack and charged with deionized water. The remaining annulus was backfilled with a cement/5% bentonite mix from the top of the bentonite seal to the ground surface. The well was completed above grade with a lockable steel monument cover.

The total depth of the well is 28 feet below ground surface (bgs). The well is screened from 8 feet to 28 feet bgs. This screening range was chosen to collect the groundwater from a relatively thick sequence of graveley clay with free water filling voids around the gravel clasts. Typical monitoring well construction for the wells installed during this time period are shown on Figure 5. Specific well construction details are presented on the subsurface exploration logs in Appendix E.

The completed well was surveyed and its elevation referenced to a permanent benchmark. The well casing was notched. Water level readings will be measured to the top of the PVC casing.

In 1991, the monitoring well was developed by surge and purge techniques with a "Well Wizard" air displacement purge pump until reasonable clear water was discharged, and pH and Specific Conductance readings had stabilized.

The groundwater monitoring well boring logs are included in Appendix E.

Water quality sampling is performed in general accordance with the sampling and analytical procedures identified in the facility's Sampling and Analysis Plan (Mendocino County, 2002). At least three well casing volumes of water are purged from the groundwater monitoring wells using dedicated pumps. The water samples are decanted directly from the pump discharge tubing into laboratory-supplied containers. The samples are immediately placed in an ice-filled cooler, and submitted to a State-certified testing laboratory, for analysis under appropriate chain-of-custody documentation.

2.4 Geology (27 CCR, Section 21750(f)(1-7))

2.4.1 Geologic Characterization

The site is located on a pressure ridge in the center of the northwest-southeast trending San Andreas Fault Zone, approximately 15 miles southeast of Point Arena, near where the San Andreas Fault enters the Pacific Ocean. A pressure ridge forms when a slice of rock is compressed upward within a fault zone, resulting in a narrow, linear ridge. The northwest-southeast trending faults and folds have created the ridges and valleys of the fault zone (GeoLogic Associates [GLA], 2003). Geologic materials on western and eastern sides of the strike-slip San Andreas Fault Zone vary significantly in nature and origin. Geologic materials within the fault zone typically undergo intense deformation and alteration due to shearing and subsequent weathering. The site is underlain by the Guinda formation, consisting of marine sandstone and mudstone, which are part of the late Cretaceous unit of the

Franciscan assemblage. The rocks have been locally sheared with much clay gouge present in the vicinity of the site (Anderson, 1995). A regional geologic map is shown on Figure 6. Site geologic cross-sections based on data from on-site monitoring well logs, and logs of on-site monitoring wells are included in Appendix E. Construction details of current on-site monitoring wells are summarized in Table 2.

Geologic materials west of the fault zone consist primarily of the Cretaceous age Anchor Bay Member of the Gualala Block (Davenport, 1984). Near the coast, the Anchor Bay Member is characterized by consolidated, silicified mudstone with variable amounts of interbedded sandstone; further inland, exposures primarily consist of consolidated, coarse-grained, micaceous sandstone, underlying uplifted Pleistocene age Marine Terrace deposits. Marine Terrace Deposits typically consist of sand and gravel derived from littoral marine depositional environments. Adjacent to the San Andreas Fault Zone, the unit is highly sheared and broken, taking on the appearance of pervasively sheared colluvium. Unconsolidated Holocene age alluvium and stream channel deposits overlie older geologic materials.

Bedrock east of the fault zone predominantly consists of the Late Cretaceous to Early Tertiary age Coastal Belt Franciscan Complex, which is represented by unmetamorphosed to slightly metamorphosed marine sediments consisting of graywacke sandstone conglomerate shale, schist, chert, and serpentinite. The Coastal Belt Franciscan is commonly highly weathered, and prone to disaggregation, resulting in numerous debris slides along stream drainages and road cuts. The Franciscan Complex is overlain by unconsolidated Holocene age alluvium and stream channel deposits. Within the relatively flat-lying central and eastern portions of the property, unconsolidated, well-graded recent-age alluvial terrace deposits of mixed clays, silts, sands, and gravel are exposed (GLA, 2003).

Published geologic maps and subsurface exploration logs indicate that the landfill site is underlain by Cretaceous age marine sedimentary deposits, consisting of steeply dipping claystone, sandstone, and shale. However, since the entire site is located within the fault zone, "bedrock" conditions consist of a melange derived from both the Gualala Block and the adjacent Franciscan Complex. Near surface bedrock generally weathers to moderately stiff clays and clayey gravels.

The site is located on a pressure ridge within the center of the San Andreas Fault Zone. The San Andreas Fault Zone encompasses numerous, smaller faults, which lie parallel and subparallel to the Fault Zone. Some of these smaller faults may underlie the landfill site (Hallenbeck and Associates).

Several fault-related landslides are located in the project vicinity. One landslide lies immediately west of the site; two landslides are located 2,500 feet and 4,500 feet northwest of the site, and one landslide is located approximately 3,000 feet north of the northern end of the site. Other landslides may be present in the project area, but have not been identified.

As previously mentioned, a number of landslides have been mapped near the site (Davenport, 1984; McKittrick, 1995), however, no landslide features have been identified on the SCL property. Most of the large-scale landslides in the region have relatively deep-seated failure surfaces with a rotational/transitional mode of movement along planar joints of bedding. In many cases, slope failure appears to be related to erosional processes at the

toe of slopes. The fact that landslides are not typically mapped within fault gouge in the area may be related to the nearly vertical textural fabric of shears within the unit. This inference is supported by information presented by McKittrick (1995), which indicates low to moderate landslide susceptibility on most of the SCL property (GLA, 2003).

As previously mentioned, the project site is directly underlain by the San Andreas Fault Zone. A maximum probable earthquake (MPE) event for the San Andreas Fault Zone is of magnitude 7.9 (GLA, 2003). A review of published literature provides a basis for estimating peak ground acceleration values, given a MPE magnitude and the distance to the causative fault. Expected maximum peak horizontal ground acceleration using the procedure described by Bray et al (1998) could be 0.9 g. The site has remained uncapped since 2000 when refuse fill operations ceased and no minor and/or major damages have been sustained at the SCL during that time through numerous earthquake events. However, deformation effects could occur.

2.4.2 Stability Analysis for Landfill Configuration

Following a review of the existing landfill conditions and the initial landfill site conditions, a profile was selected for the initial landfill configuration stability analysis. This profile consists of a 15 foot high landfill, with a slope face gradient of 3:1 (horizontal to vertical), a top slope of 3 percent, level ground beyond the toe for a distance of 15 feet, and then a 1:3/4 (horizontal to vertical) downhill native ground slope. The base of the landfill was assumed level at the elevation of the toe, and a horizontal water table was assigned 20 feet below the toe of the landfill, in accordance with water level data taken from on-site wells during initial site characterization. The profile is indicated graphically on Figures 7 and 8.

The profile was originally analyzed for stability for both steady-state and earthquake conditions using the Simplified Bishop Method as applied by the computer program "SB-SLOPE", version 1.4, produced by Von Gunten Engineering Software, Inc. A search alternative was used to locate the lowest safety factor for each condition analyzed.

Landfill strengths and densities were selected following a literature review. The soil strength beneath the landfill was selected to represent relatively strong soils, as indicated by exploration boring data at the site. Cohesion values of all materials were assumed to be less for long-term steady-state conditions, and greater for short duration earthquake conditions. Strength parameters used for the refuse fill stability analysis are presented in the following table.

Strength parameters used:

	LANDFILL		SOIL BELOW LANDFILL	
	Steady-State	Earthquake	Steady-State	Earthquake
Above Water Table	D=50 C=600 P=22	D=50 C=900 P=22	D=135 C=1500 P=25	D=135 C=2000 P=25
Below Water Table	D=25 C=300 P=22	D=88 C=450 P=22	D=72 C=1000 P=25	D=135 C=1500 P=25

D=Density in pounds per cubic foot

C=Cohesion in pounds per square foot

P=Internal friction (phi) Angle in degrees

Based on criteria established in "Stability Analysis of Earth Slopes" (Yang Huang, 1983) acceptable safety factors of 1.5 for steady state conditions, and 1.1 for earthquake conditions were used in the stability analysis. These safety factors reflect the non-critical (generally not life threatening) nature of a potential landfill slope failure. Due to the proximity of the San Andreas earthquake fault (the site is situated in the fault zone) horizontal pseudo-static earthquake values are presented in "Geotechnical Engineering Techniques and Practices" (Roy Hunt, 1986).

This pseudo-static earthquake coefficient should not be mistaken for predicted maximum peak ground surface accelerations, which are higher. Peak ground surface accelerations are short of duration, high magnitude, and alternate in direction. In the analysis used by accepted practice, the effect of an earthquake on slope stability is modeled by applying a static horizontal force to the sliding mass, which is derived by applying a lesser horizontal acceleration in one direction only.

The results of the analyses are as follows:

Condition	Safety Factor	Criteria	Conclusion
Steady-State	4.24	1.5	Acceptable
Earthquake	1.89	1.1	Acceptable

The calculated results and the critical calculated failure circles are presented on Figure 7 for the Steady-State condition, and Figure 8 for the Earthquake condition. It should be noted that the critical failure circles shown on these figures pass through relatively strong native soils; this indicates that the stability of the landfill itself is greater yet.

Results of the slope stability analysis indicate that the initial landfill configuration was stable during a catastrophic earthquake throughout its active life. As discussed above, the SCL has been inactive since 2000. Section 3.0 of this ROWD presents the final closure design, including a slope stability analysis as discussed in the 2016 FCPCMP (see Appendix A).

2.4.3 Site Soil Characterization

During the SWAT evaluation, permeability tests were performed on representative soil samples collected from monitoring well borings 87-2 (gravely, sandy clay at 5.0 feet) and 87-3 (sandy clay at 2.5 feet). Results indicated permeabilities of 5.5×10^{-8} centimeters per second (cm/sec) and 1.4×10^{-5} cm/sec, respectively. Permeability test information is presented in Appendix F.

Two bulk samples (for cover soils characterization) were collected from existing exposures of on-site soils in borrow areas where cover materials are obtained (see Figure 3 for locations). The following tests were performed on each soil sample:

- ◆ Sieve Analysis (ASTM D 422 63/D 1140 54)
- ◆ Atterberg Limits (ASTM D 4318 83)
- ◆ Modified Proctor Compaction Curve (ASTM D 1557-78)
- ◆ Hydraulic Conductivity (ASTM D 2434 68 remolded constant head permeability)

Laboratory data sheets are included in Appendix F. Test results are shown in the following table:

	INDICATOR	
	SOUTH BANK SAMPLE	WEST BANK SAMPLE
SAMPLE DESCRIPTION	Sandy Silt	Sandy Silt
ATTERBERG LIMITS		
Liquid Limit	36	44
Plastic Limit	26	36
Plasticity Index	10	8
COMPACTION CURVE TEST		
Relative Max. Dry Density (pcf)	108.5	109
Optimum Moisture (%)	16.5	18.5
COEFFICIENT OF PERMEABILITY (CM/SEC)	4.2×10^{-7}	3.6×10^{-6}

These results indicate that some on-site soils can be used for the final cover if a soil low-permeability layer were selected as part of the final cover design. However, the proposed final cover design will include a synthetic liner component for the low-permeability layer (see Appendix A). Final closure Construction Quality Assurance (CQA) will be conducted during placement of final cover material to ensure that proper final cover specifications are achieved. CQA procedures are outlined in the 2016 FCPCMP (see Appendix A).

Sample designations "South Bank" and "West Bank" represent the general locations where soil samples were collected within the borrow area. The laboratory results indicate a general range of achievable permeabilities for the soils from this area. Although the sample designated "West Bank" indicates a remolded permeability value greater than 1×10^{-6} cm/sec, it should be noted that suitable, low-permeability soils (less than 1×10^{-6} cm/sec) are likely to be present along the west bank of the borrow area.

Four boreholes for in-place permeability were drilled in the planned development area. One borehole, B-1, was field permeability tested using the gravity method. Test results indicated a permeability of 2.7×10^{-4} cm/sec. This relatively high-permeability may be due to the rocky nature of the near surface soils, although the finer soil fraction has a high clay content. Near surface bedrock is highly weathered and reduces to clay and clayey gravel.

The results of the in-place permeability testing (borehole) and the slug test on well 91-1, indicates a variable range permeabilities within the geologic materials that underlie the site, due predominately to the faulted, fractured, sheared, and weathered nature of the area. The relatively high-permeability value obtained from borehole B-1 (in the borrow area) is representative of near surface soils derived from weathered bedrock. The results of the slug test in well 91-1 indicate that the soils opposite the screened section of the water bearing zone are of low-permeability, resulting from highly fractured, and subsequently reduced (weathered) geologic materials.

2.5 Hydrogeology (27 CCR, Section 21750(g)(1-7))

2.5.1 Hydrogeologic Characterization

The deposits of major importance as a source of groundwater include the semi-consolidated Pleistocene marine terrace deposits and the unconsolidated Holocene alluvium and stream

channel deposits. Deposits of minor importance as a source of groundwater include the Anchor Bay Member bedrock west of the San Andreas Fault and the Franciscan bedrock east of the fault zone. A few springs and wells may produce small quantities of water from joints and fractures in the bedrock. No extensive or continuous groundwater aquifers exist in the region.

The site location defines the watershed of both the northwesterly draining Garcia River and the southerly draining north fork of the Gualala River. Few DWR water well logs are available for the site vicinity, due to the sparsely developed area, and the proximity to the fault zone, which precludes substantial groundwater production of regional gradients.

Regional groundwater movement is expected to be influenced by the fault zone, as well as topographic gradients. In the project vicinity, groundwater moves downslope toward the ravine formed by the Fault Zone, which can also act as a groundwater barrier. Because the site is located on a pressure ridge (at a higher elevation) within the ravine, groundwater and surface water flow away from the site. This is evidenced by the Garcia River which flows northerly, and the Gualala River which flows southerly. Movement of groundwater beneath the site is likely to be influenced by smaller faults associated with the Fault Zone, as well as by topographic gradients, due to its location on a pressure ridge.

Surface outcrops at the site confirm the presence of abundant faults and fractures, indicative of transverse movement, compression, and shearing associated with seismic activity.

Although indications of faulting and fractures exist at the site, movement of surface water and/or groundwater along faults and fractures is limited by the presence of barriers created by local faulting. Extensive and/or continuous movement of groundwater beneath the site is not expected or indicated by subsurface explorations.

The differences in yield and mineral character of the groundwater in site wells may be the result of barriers created by local faulting, which separate groundwater sources and/or water bearing zones. Due to the clayey nature of on-site soils and the site's location in the Fault Zone, groundwater beneath the site is low yielding. Because of the high concentrations of minerals derived from the geologic materials beneath the site, groundwater is of poor drinking water quality.

In 1991, one monitoring well was installed in general accordance to the methods described in December 1991, Conceptual Workplan for Subsurface Investigation and Surface Water Sampling (SHN Consulting). Well 91-1 was completed to a depth of 28 feet bgs. First groundwater was observed in a thin layer of fractured bedrock at a depth of 10 to 10.25 feet, and in the voids within a layer of graveley clay from approximately 10.25 to 22 feet bgs. Data on previous boring logs indicates that groundwater was encountered at depths ranging between 8 and 23 feet bgs.

Data obtained from the on-site wells in the downgradient portion of the site at the time showed that groundwater beneath the SCL property was flowing southerly at a gradient of 0.12. In 2003, further evaluation (GLA) was performed (see Appendix A of the 2016 FCPCMP), which indicated that groundwater is interpreted to flow from the northeast to the southwest at a hydraulic gradient of approximately 0.08 ft/ft. However, this pattern is expected to be locally interrupted by well-developed shears within the gouge zone matrix with resultant anisotropic flow directed in a more southerly direction (GLA, 2003). Water

levels and elevations of the on-site wells are monitored quarterly and have consistently shown the same flow direction and gradient.

Several marsh areas were identified in the project area, approximately 2,000 feet north-northwest of the northern end of the site's property boundary. Although most of these marshes occur predominantly along the San Andreas Fault Zone, a few occur within a landslide. Another marsh area is located approximately 500 feet east of the southern end of the project site. Springs in the vicinity of the landfill identified to the west of the fault zone include one located in the landslide marsh area (mentioned above), and another located approximately 5,000 feet north-northwest of the northern end of the site boundary. Both of these springs are located in landslide materials. Three additional springs are located approximately 2,500 feet, 3,500 feet and 4,500 feet northwest of the northern side of the site boundary. Figure 6 depicts the regional geology.

Three springs, located in the Coastal Belt Franciscan Complex, east of the Fault Zone, are located approximately 2,000 feet northeast of the central portion of the site, and 5,000 feet southeast of the southern end of the site (see Figure 6).

In 1991, a slug test using the Hvorslev Method was performed on well 91-1. Results of the slug test indicated a permeability of 4.4×10^{-6} cm/sec in the water bearing zone. A slug test measures the average permeability of the area of the filter pack, which may not represent the actual permeabilities of distinct water bearing layers. Assuming a porosity of 15 percent and a gradient of 0.12, the groundwater velocity is 0.01 feet per day. The slug test permeability curve is shown on Figure 9, and slug test data is included in Appendix G.

2.6 Land and Water Use

Land use and zoning for the site and its immediate vicinity are shown in Figure 10. The landfill is zoned as a Public Facility (PF) and is designated as PF on the Mendocino County Zoning Map. Land use is designated as PS (SW) in the Mendocino County General Plan, or Public Services for Solid Waste. The majority of the land surrounding the site within a mile radius is zoned Timber Preserve (TP) and is designated as forest lands in the Mendocino County General Plan.

A well survey to determine the presence of any off-site wells located within 2,000 feet downgradient of the site was conducted. The owners of the downgradient area were determined and contacted by mail. The owners, Barnes Lumber Company and Gualala Redwoods, Inc., indicated that no known wells were located on their properties. Well survey correspondence is included in Appendix H.

Few DWR logs are available for the area within a one mile radius, and the well survey recovered no additional information regarding any previously undocumented wells located downgradient of the site. A parcel map showing locations of confirmed wells within a one mile radius of the site is included in Appendix H. DWR well logs are included in the Water Quality SWAT Report, prepared by EBA Wastechologies, April 1989.

An environmental assessment of the site was conducted to describe landfill environmental settings and potential environmental consequences of landfill operations (see checklist in Appendix I). This information was used to determine the need for compliance with California Environmental Quality Act (CEQA) as part of active operations, which were discontinued in 2000. An environmental assessment (Mitigated Negative Declaration (MND)) in compliance

with CEQA was recently completed in support of the 2016 FCPCMP. A copy of the MND (with the exception of the Appenices) is included as Appendix J.

As noted in Section 2.5, no extensive or continuous groundwater aquifers exist in the project vicinity (Geology, Hydrogeology, and Water Quality, DWR, June 1956). Few DWR water well logs are available for the site vicinity due to the sparsely developed area, and the proximity to the fault zone, which precludes substantial groundwater production or regional gradients. Because of the clayey nature of on-site soils, and the site's location in the Fault Zone, groundwater beneath the site is low yielding and of poor drinking water quality. Through the modification of groundwater sampling techniques at the landfill, as needed, complete analyses are generated on a quarterly basis. Concentrations of indicator parameters in wells located in the downgradient portion of the site are higher than that of well 87-1 based on initial groundwater monitoring.

Generally, current results (e.g., 2016 Second Quarter Groundwater Monitoring Report) for groundwater monitoring were consistent with historical results, which indicate that minor inorganic impacts to groundwater may exist proximate to the landfill. No VOC was detected above the method reporting limits in groundwater samples from the monitoring wells during the second quarter 2013 monitoring events. All general chemistry monitoring parameter concentrations were below historical intrawell maximum concentrations and no applicable or relevant and appropriate requirement value was exceeded. Quarterly monitoring reports have been and will continue to be submitted to the RWQCB on a continual basis to provide updated information on tests from the on-site monitoring wells.

Gas control and collection systems do not exist at the site. Air quality SWAT, completed in 1988, concluded that "these results do not indicate the presence of significant problems or that hazardous wastes are present or leaving the site" (Mendocino Public Works, Public Site Review). However, the 2016 FCPCMP (Appendix A) proposes installation of a passive landfill gas control/venting system.

In accordance with 27 CCR, Section 20925, subsurface gas monitoring wells (probes) are required to be installed around the perimeter of the landfill within the property limits but outside the limits of refuse with a spacing not to exceed 1,000 feet. Two methane wells (probes) (LFGW-1 and LFGW-2) were installed at the site as part of air quality SWAT testing. The results of the SWAT investigation indicated negligible levels of organic contaminants in the landfill gas and no hazardous levels of landfill gas present at the landfill.

In order to maintain compliance with 27 CCR, Section 20925, three additional multiple depth gas monitoring wells were placed around the perimeter of the SCL in June 2012. These wells are shown on Figures 2 and 12 of the 2016 FCPCMP (see Appendix A). The three gas probes (i.e., P-1, P-2, and P-3) were drilled and constructed in accordance with the well construction permit issued by the County. Additional information related to the installation of the gas monitoring probes can be found in the 2016 FCPCMP included as Appendix A.

A biotic study was also completed as part of the environmental assessment (see Appendix J) to evaluate the potential impacts to biological resources, including fishery resources in the site vicinity in support of the 2016 FCPCMP.

Due to its remote location and the few residences located within a one mile radius of the landfill and the transfer station operations, adverse impacts from noise and traffic are

minimal. The South Coast TS is discussed in Section 1.4. Additionally, the landfill is not in the viewshed of any residences.

2.7 Floodplain

Based on examination of the Federal Insurance Rate Maps (FIRM), published by the Federal Emergency Management Agency (FEMA), the landfill site is not located in a 100-year floodplain (see Figure 11) (1991 ROWD, SHN Consulting).

**SECTION 3.0
DESIGN REPORT**

3.0 DESIGN REPORT (27 CCR, SECTION 21760)

3.1 Design Report (27 CCR, Section 21760(a-b))

The SCL is an inactive landfill awaiting regulatory approvals to implement final closure construction and when certified closed, the beginning of post-closure maintenance activities will commence. The following section provides information on current design features and a summary of the proposed final closure design. Additional details related to final closure design is included in the 2016 FCPCMP, included as Appendix A.

3.1.1 Site Facilities/Transfer Station

There are no waste handling areas, buildings, or equipment cleaning facilities related to the landfill located at the site since the landfill has been inactive since 2000. However, there is a covered tipping floor, not related to the landfill, where vehicles transfer debris into a transfer container located on a lower level behind the structure. A portable toilet is located adjacent to the attendant's office and is available for personnel at the site. Additionally, a small volume TS is located and operated at the northwest portion of the landfill property, as discussed in Section 1.4.

3.1.2 Permitted Area

The active WDRs for the SCL (Order No. 77-23, amended by Order No. 93-83) lists the disposal area as approximately 10 acres. However, the actual disposal area consists of approximately six acres. A refuse limits study was completed in support of the 2016 FCPCMP.

3.1.3 Site Life

The SCL ceased accepting waste in 2000. Intermediate cover was placed over the six-acre refuse disposal area. DOT constructed a small volume TS on the northwest portion of the site property to provide continual refuse disposal services.

3.1.4 Leachate Collection and Removal System (LCRS)

A LCRS was installed at the SCL and consists of a leachate infiltration gallery, polyethylene and polyvinyl pipe used to transport leachate that is collected primarily from small surface seeps and transports the leachate to the containment system.

The leachate collection gallery was constructed to completely surround the end of the drainage trench at the edge of refuse. The leachate collection gallery intercepts the drainage trench, captures the leachate, and transports the leachate to the leachate containment facility. The leachate collection gallery consists of 2-inch rock, which is enveloped in filter fabric and is located under the perimeter road at the edge of refuse. The leachate drains into a vertical 36-inch corrugated metal pipe (CMP) riser wrapped in filter fabric, located six feet from the edge of the perimeter road. The leachate is gravity fed into two 3-inch polyvinyl chloride (PVC) drains which connects to a 2-inch PVC pipe and then to a 2-inch polyethylene pipe (PEP) and into the leachate containment facility (tank farm). The leachate containment facility is outfitted with a suction coupling for the off-chance that leachate needs to be evacuated from the pipes. During the wet season, leachate is regularly transported by truck and disposed of at the Gualala Community Service District Wastewater Treatment Plant (GCSD). In 2015, 17,500 gallons of leachate were hauled to an approved wastewater treatment plant.

The leachate containment facility consists of nine 2,300-gallon plastic tanks, which has the capacity to store 20,700 gallons of leachate. The containment facility is surrounded by an earthen containment structure in the event that one of the tanks develop a leak.

The tanks are periodically pumped by tanker truck and leachate is disposed of at the GCSO in Gualala, California. The County has entered into a contractual agreement with the GCSO for the disposal of the leachate (SWD, 1996). Pumping of the tanks during the wet season is more frequent.

It should be noted that leachate samples are collected annually in the fourth quarter of each year from the collection tanks located along the south side of the landfill. Results are also included in the quarterly water quality monitoring reports submitted to the RWQCB.

3.1.5 Landfill Gas Control/Monitoring System

The SCL currently does not have a landfill gas control system. Two methane wells (probes) (LFGW-1 and LFGW-2) were installed at the site as part of the air quality SWAT at the locations shown on Figure 3. Perimeter gas monitoring wells were not installed to the south and west of the site, because the steep gradient down to the Gualala River prohibits easy access for construction of the wells. The two gas wells were installed above the low seasonal water table. LFGW-1 consists of a dual probe monitoring system and was installed to a depth of 20 feet. LFGW-2 is a single probe system and was installed to a depth of 11 feet. The probes were monitored one time in accordance with the air quality SWAT sampling and analytical requirements. Specific contaminants were detected in the landfill gas well and in the downwind ambient air samples, and trace amounts of methane were detected in the perimeter probes. However, the results of the air quality SWAT investigation indicated negligible levels of organic contaminants in the landfill gas and no hazardous levels of landfill gas are present at the landfill (Anderson, 1995). These landfill gas probes are no longer monitored on a quarterly basis as they are currently not in use and will not be used in the foreseeable future. The probes are covered and locked, but have not been formally decommissioned.

In addition to the two existing landfill gas probes described above, DOT implemented construction of three additional gas probes, completed in June 2012. The probes were installed according to the gas probe design information prepared in the 2003 FCPCMP. The gas probe design from 2003 was also requested to be revisited/confirmed by CalRecycle, who provided verbal approval in 2012. Currently, the three additional gas probes are in use as compliance gas wells, which are monitored quarterly as the compliance probes.

Drilling and installation of the three probes (P-1, P-2, and P-3) was performed in June 2012 at the locations shown in Figure 3. The design depth for probe P-1 was 41 feet, however, groundwater was encountered in the boring at 28.5 feet. Therefore, the lower portion of the P-1 boring was backfilled to a depth of 20 feet and probe P-1 was installed above this depth. Borings for P-2 and P-3 were advanced to 52 feet and 21 feet, respectively. Drilling and construction were monitored by a registered geologist. All drilling and construction of the three probes were conducted in accordance with the well construction permit issued by the County Health and Human Services Agency. The gas probe installation report (GLA, 2012), which includes boring and probe construction logs, is included as Appendix C of the 2016 FCPCMP (see Appendix A of this ROWD).

Due to the negligible levels of organic contaminants in the landfill gas and no hazardous levels of landfill gas present at the landfill due to the remote location, an active landfill gas control system is not proposed for the site. However, a passive vent landfill gas system will be installed under the final cover for the sole purpose of preventing buildup of landfill gas under the linear low-density polyethylene (LLDPE) geomembrane component of the proposed final cover design. In the event that landfill gas production warrants extraction, this passive system can be retrofitted into an active system. For additional details, see the FCPCMP, included as Appendix A of this ROWD.

3.2 Drainage and Erosion Control

3.2.1 Drainage Control System Design

The primary function of the SCL drainage control system is to collect and convey storm water in a controlled manner to minimize erosion and potential infiltration of storm water into the refuse prism. The following sections describe the site hydrology, the existing drainage control features, and the proposed drainage control features.

3.2.1.1 Hydrology

A hydrology study for the proposed conditions at the site was conducted in accordance with 27 CCR, Section 20365. The objective of the hydrology study was to calculate storm water run-off for sizing and location information for the site's storm drain facilities at closure.

A rainfall intensity duration frequency curve for the SCL was obtained from the Department of Water Resources. A description of the Rational Method for the methods of analyses is included in the introduction to Appendix G of the 2016 FCPCMP (see Appendix A of this ROWD). A computer program developed by Advanced Engineering Software was used to compute the run-off. The hydrology study map indicating drainage sub-areas, discharge points, and calculations for on-site and off-site flows is also included in the 2016 FCPCMP (see Appendix A of this ROWD). A summary of the peak discharge rates is also included in the hydrology study calculations.

3.2.1.2 Existing Drainage Control System

Existing drainage ditches have been in place for several years and have been sized through trial and error, to accommodate maximum flows. A perimeter ditch exists along the toe of the landfill and directs runoff into two desilting basins. Although no formal calculations have been prepared to identify sediment quantities, history indicates that the existing ponds are adequate. Runoff is controlled using culverts and open ditches at the desilting basin outlets. Siltation fences are in place upstream from the desilting basins to limit the quantity of sediment allowed to enter the desilting basins, consequently, minimizing the quantity of sediment being discharged into and from the basins. Additional erosion control methods include hay bales, silt fences, straw, and seed.

3.2.1.3 Proposed Final Drainage Control System

The following describes modifications to the existing drainage structures required for incorporation with the proposed final grades and final cover system. The existing drainage facilities will be either decommissioned or removed and relocated. All drainage structures have been sized to accommodate run-off from a 100-year, 24-hour storm event. Hydraulic calculations completed to size the drainage structures are included in the 2016 FCPCMP (see

Appendix A). The proposed final drainage system and the associated details are shown on Figures 5, 8, and 9 of the 2016 FCPCMP (see Appendix A).

The contributing drainage areas for the SCL are divided into the following drainage areas; South Slope, East Slope, Northeast Slope, Top Deck/North Slope, and Landfill Deck Access Road and portion of Top Deck, and West Slope.

South Slope

The South Slope drainage area originates on the top deck/slope hinge point are shown on Detail 8/D1 on Figure 5 of the 2016 FCPCMP (see Appendix A). The slope runoff is not concentrated, but flows evenly through the closure turf and down the Super Grip Net. At the toe of the slope, even collection of slope run-off occurs within a triangular shaped closure turf-lined channel on the inside of the perimeter access road shown on Detail 6/D1 on Figure 5 of the 2016 FCPCMP (see Appendix A). The drainage channel will collect runoff from the slope above and will then convey the runoff southerly along the inside of the perimeter road to a concrete downdrain. The runoff will be directed to a riprap dissipater and then to an existing basin. The total South Slope area is 1.27 acres, with a peak runoff of 5.08 CFS developed from nodes 2.25 through 2.35.

East Slope

The east drainage area originates at the hinge point between the top deck and the slope. The runoff is directed down the slope to a closure turf-lined triangular drainage channel on the inside of the perimeter access road shown on. Detail 6/D1 on Figure 5 of the 2016 FCPCMP (see Appendix A). The drainage channel will collect runoff from the slope above and will then convey the runoff southerly along the inside of the perimeter road to a concrete downdrain. The runoff will be directed to a riprap dissipater and then to an existing basin. The total East Slope area is 1.52 acres, with a peak runoff of 6.71 CFS developed from nodes 2.25 through 2.35.

Northeast Slope

The northeast drainage area originates at the beginning of the access road. The runoff is directed along the northeast perimeter road evenly towards the south basin. The level section of the road (see Detail 6/D1 on Figure 5) will collect runoff from the slope above and convey runoff to the south basin access road. The runoff will dissipate at the end of the basin access road into the existing basin. The total northeast area is 1.15 acres, with a peak runoff of 3.25 CFS developed from nodes 2.40 through 2.20.

Top Deck/North Slope

A portion of the North Slope drainage area originates on the northerly portion of the top deck. The runoff flows evenly by grade on the top deck and then down slope via the closure turf-lined bench shown on Detail 6/D3 of the 2016 FCPCMP (see Appendix A). The flow will then be directed along the bench (westerly) to a concrete downdrain at the (northwest) corner of the expanded north desilting basin. The runoff velocity is dissipated by a riprap pad at the bottom of basin. The total Top Deck/North Slope area is 1.24 acres, with a peak runoff of 5.39 CFS originating from nodes 1.40 through 1.50.

Landfill Deck Access Road and Portion of Top Deck

A portion (i.e., two-thirds) of the top deck area flow within the closure turf to two deck swales that direct deck flows to the upstream end of the deck access road closure turf-lined channel (see Detail 9/D1 on Figure 5). Flows are directed northerly along the inside edge of the deck access road to a paved interceptor that directs flow to a concrete inlet and downdrain (see Detail 7/D3 (inlet) and 1/D3 (downdrain) on Figure 9). The runoff will then be directed to a riprap dissipater into the existing basin. The total deck access road/top deck area is 2.30 acres, with a peak runoff of 8.05 CFS originating from nodes 1.00 through 1.35.

West Slope

A portion of the west drainage area originates near the top deck/slope hinge point at the northwesterly end of the landfill. The runoff is directed by grade to the bottom of the slope to a closure turf-lined drainage channel on the inside of the perimeter access road. The runoff flows northerly and will then confluence with the runoff from the northerly slope bench, and will flow to a concrete inlet and concrete downdrain and will direct the flow to the north desilting basin. The total West Slope area is 0.49 acres, with a peak runoff of 2.15 CFS originating from nodes 1.55 through 1.50.

Basins

A hydrology study was completed by Bryan A. Stirrat & Associates (BAS) in 2002 on the SCL to develop the flows of a 24-hour, 100-year storm event for the site, as they flow into the north and south retention basins, which is included in Appendix G of the 2016 FCPCMP (refer to Appendix A of this ROWD). A second study was done in 2012 by SWT for the final closure plan with modified areas and newly designed retention basins. The flows (Q=CFS) for these back-up calculations are based on the new capacity number from SWT.

The south basin has a new 0.75 acre-foot capacity and accepts all flows from the south and east sides of the landfill (3.94 acres) for a total Q of 13.59 CFS. This basin has an 18-inch corrugated outlet pipe, assuming it is at a minimum 1% exit slope, which can handle 10.5CFS with no head pressure. When the basin is filled with 30 inches of head pressure, the inlet control will take over and the water will have a driving force of up to 14.79 CFS flowing through the pipe. With 30 inches of head pressure, there is still a remaining 18 inches of freeboard prior to spilling over the basin.

The north basin was redesigned to have a new 2.01 acre-foot capacity and accepts all flows from the deck, north and west sides of the landfill (5.90 acres) for a total Q of 17.72 CFS. This basin has an 18-inch corrugated outlet price, assuming it is at a minimum 1% exit slope, which can handle 10.5 CFS with no pressure head. When the pipe is flowing full, there is 60 inches of freeboard prior to spilling over the basin.

The holding capacity of the retarding basins and the flow rate of the outlet pipes allows peak flows to be slowly released to downstream outlet pipes without the need to consider overflow. Pre-Landfill conditions are not exceeded by Post-Closure/Developed conditions.

Runoff Evaluation of Closure Turf

Based on the analysis, the effects of closure turf on landfill stormwater runoff, for 100 yr – 24 hr event both peak flow (CFS) and stormwater runoff volume, have been analyzed by SWT.

The 100 yr peak flow rate to the south basin is 13.04 CFS with vegetative cover and 13.59 CFS with closure turf which is a nominal increase of 4.2%. The 100 yr peak flow rate for the north basin increases by 2.7% from 17.26 CFS with vegetative cover to 17.72 CFS with closure turf. The proposed drainage system basins and outlet pipes exceeded the calculated flow rate to handle the negligible increase in peak flow rate. (see Table 1 in Appendix G-1 for hydrology analysis for both peak flow rate comparisons)

The stormwater runoff volumes for the south and north basins add volume from the 100 yr – 24 hr storm event both respectively increased by 10.3% or 0.19 acre-ft (306.53 C.Y.) of additional stormwater runoff volume (see Table 2 in Appendix G-1) from the vegetative cover to the proposed closure turf. Basin size change in runoff volume will easily be accommodated with the proposed basin.

As indicated above the change in design utilizes closure turf rendering a slight increase in surface water volume. However, the additional water generated by using this vegetative layer component is well within the capacity of the basins. Therefore, no additional increase in capacity of the basins is necessary or needed.

3.3 Final Cover

The purpose of a final cover is to provide long-term minimization of surface water intrusion, to accommodate settlement and subsidence and to isolate wastes from the ground surface. The final cover also provides a base for vegetation which will reduce drainage velocities, erosion and infiltration. The 2016 FCPCMP is included as Appendix A and provides detailed information on the final cover design.

3.3.1 Proposed Final Cover Design

Several factors were taken into consideration in establishing the final cover design for the SCL including the geometry of the existing landfill, local climatic conditions, potential landfill settlement, final cover material availability and desired performance criteria, erosion protection, vegetative growth, construction cost, and end use at closure. Analyses performed by GLA (2012) concluded that an alternative final cover design utilizing the geomembrane system was the most appropriate cover system for the site. A copy of GLA's analyses is included as Appendix A in the 2016 FCPCMP (refer to Appendix A of this ROWD).

The requirements of 27 CCR and Subtitle D indicate that landfill final covers be constructed according to identified minimum standards. In California, 27 CCR regulations take precedence because they prescribe more restrictive standards. For unlined Class III landfills, these standards include a two-foot thick foundation layer, a minimum one-foot-thick low-permeability layer, and a minimum one-foot-thick vegetative layer. Alternatives to these prescribed standards are allowed in 27 CCR, Section 21090 which states that:

“The RWQCB can allow any alternative final cover design that it finds will continue to isolate the waste in the unit from precipitation and irrigation water at least as well as would a final cover built in accordance with applicable prescriptive standards.”

The purpose of the 2012 GLA geotechnical analysis was to evaluate existing and proposed final closure design and construction conditions at the SCL and to re-examine preliminary slope stability analyses completed by an earlier consultant for the County. Recognizing that earlier studies of the site employed literature values for material strength properties rather

than site-specific data, GLA's work included a subsurface exploration and laboratory testing program to better characterize existing and potential future slope stability conditions. The data collected in this investigative program indicated that the SCL is underlain by fault gouge and alluvial/colluvial soils that have significantly higher shear strengths than were assumed in the earlier studies of the site. Slope stability analyses were then completed to assess the stability of the native western slope abutting the landfill and to evaluate alternative landfill cover configurations. Based on these analyses, it was concluded that adequate slope stability, as well as 27 CCR compliant closure, could be achieved with a minor reconsolidation of wastes away from the western slope, and by using an alternative final cover configuration consisting of (from bottom to top):

- ◆ a two-foot thick foundation layer above the existing landfill cover soils, and additional onsite and/or off-site soil or other suitable materials as allowed under 27 CCR (the existing soils will be scarified and recompact).
- ◆ a 60-mil linear low-density polyethylene (LLDPE) Super Grip Net geomembrane; and
- ◆ closure turf geotextile with sand infill ballast.

This configuration recognized that only limited borrow soils are available on the property because the landfill cover barrier layer, a geomembrane, will be imported to the site. Since this cover configuration requires only minor refuse reconsolidation and minimizes the volume of import soils, it was considered an optimal approach for closure of the SCL.

A typical cross-section of the proposed closure turf final cover system is shown on Figure 5 - Details 1 and 2 of the 2016 FCPCMP (refer to Appendix A of this ROWD). The proposed final cover section will be placed over all areas within the limits of refuse at a maximum grade of 2:1 (horizontal to vertical) and minimum grade of 3% in accordance with slope stability analyses completed as required by 27 CCR 21750(f)(5), included in GLA's analyses, included as Appendix A of the 2016 FCPCMP (see Appendix A of this ROWD). The proposed final grading for the SCL is shown on Figure 6 in the 2016 FCPCMP and profiles of the gabion wall are shown on Figure 6A of the 2016 FCPCMP.

Given that the foundation layer is proposed in accordance with the prescriptive standard, the proposed engineered alternative component of the selected final cover design will consist of a LLDPE geomembrane barrier layer (with associated overlying geosynthetics, closure turf geotextile with sand infill ballast material). DOT selected the use of a closure turf material in lieu of the vegetative soil layer as discussed below. In accordance with 27 CCR, Sections 20080(b) and 21140(b), the County is requesting approval for the proposed engineered alternative based on the LLDPE's higher performance characteristics when compared to the prescriptive standard.

3.3.2 Sources of Cover Material

Foundation layer soils shall be obtained from the on-site borrow area (stormwater basin enlargement), existing deck stockpiles shown on Figure 4, basin access excavation of the 2016 FCPCMP (refer to Appendix A) and local import soils. The stormwater basin borrow source is located immediately north of the refuse limits and the stockpile is located within the refuse limits, adjacent to the borrow source. Basin access excavation is at the southeast side of the landfill. The total volume from these sources is estimated to be approximately 18,500 cubic yards (cy), which would have necessitated import of additional cover soil from a local borrow source to complete the final cover construction vegetative soil layer. A cost for import soils was estimated using a 50-mile radius to transport the materials. The cost was to include

excavation, loading, and transport. The County found that a viable source was not available and undertook a design change to alternative final cover utilizing a closure turf in lieu of vegetative and underlying sod.

Soil samples were obtained from the on-site borrow areas and tested. The Final Closure Evaluation prepared by GLA in 2003 (included as Appendix A of the 2016 FCPCMP - refer to Appendix A of this ROWD) includes the results of laboratory analyses for material type, grain size analysis, moisture-density relationship, and strength properties (i.e., shear strength, cohesion) of the on-site soils. The GLA report, as well as experience with the existing intermediate cover, verifies that the material is appropriate for use in random compacted fills and for foundation layer soils. Import soils will be required to have similar material properties pursuant to project specifications.

Geosynthetic materials (i.e., geomembrane, (Super Grip Net), geotextile) shall be provided from approved manufacturers as required to meet the performance specifications that will be included in the construction specifications. Appendix D of the 2016 FCPCMP (see Appendix A of this ROWD) includes typical manufacturer's data for the types of geosynthetics which will be used in construction and meet the design properties required by the slope stability analyses (which have become less stringent due to the reduction of load above the LLDPE Geomembrane to almost zero). As discussed above, a closure turf material in lieu of the vegetative layer component of the final cover will be utilized. Product information on performance and specifications is included in Appendix D-1 of the 2016 FCPCMP.

3.3.3 Final Cover Construction

Prior to final grading and placement of the final cover, existing vegetative materials will be removed from the surface without disturbing the underlying refuse. The materials removed during clearing and grubbing operations will be used as interim cover for refuse excavation areas, as well as within the refuse reconsolidation area. The balance of this material will be disposed of within the reconsolidation area.

The thickness of existing interim cover over the refuse area was evaluated by potholing, conducted by GLA in 2002. According to this evaluation, the measured cover thickness at the SCL is an average of 20 inches over most of the refuse fill area, but varies from six inches to 96 inches thick. The approximate locations of test pits which penetrated the soil cover together with cover thickness contours are shown on Figure 4 of GLA's analysis included as Appendix A of the 2016 FCPCMP (refer to Appendix A of this ROWD). Due to the irregularity of the waste placement, the thickness of the vegetation/root systems is assumed that more of the interim cover soil will be lost to root zone clearing and grubbing. Therefore, additional cover material may need to be placed to achieve the full two-foot foundation soil layer over substantial areas of the refuse prism and additional soil placement to provide proper drainage control may be necessary.

The final grading plan design assumes no utilization of existing interim cover soils for the construction of the final cover section. Project specifications are written to indicate that the project is a thickness and gradient project and not to elevations shown on the construction drawings. Hike-up stakes or potholing will be used to verify thickness of foundation layer placement during construction.

The foundation layer construction will be conducted in accordance with 27 CCR, Section 21090(a)(1) and the project specifications. Construction will be verified and documented

through the implementation of the Construction Quality Assurance (CQA) Plan (GLA, 2012) included in Appendix E in 2016 FCPCMP (refer to Appendix A of this ROWD).

On-site borrow and import soils to be utilized for the final cover foundation soil layer shall be placed in loose lifts with a maximum uncompacted thickness of six to eight inches and brought to within one to three percent of dry optimum moisture content and compacted to 90 percent of the maximum dry density as determined by ASTM D1557.

The LLDPE geomembrane barrier layer for the SCL will consist of a 60-mil LLDPE Super Grip Net geomembrane placed over prepared subgrade (foundation soil layer), which will be overlain by closure turf geotextile. The 60-mil LLDPE Super Grip Net has integrated spikes on the bottom side of the geomembrane with integrated drainage studs on the top of the geomembrane. The bottom spikes provide enhanced interface shear for stability of the geomembrane cover, and the drainage studs provide a path for storm water run-off when overlain by closure turf geotextile. The Super Grip Net and closure turf geotextile (integral geocomposite) will facilitate down slope drainage of any infiltration accumulating over the LLDPE. The LLDPE Closure Turf system flows down slope to perimeter drainage ditches as shown on Figure 5 (Details 3/D1, 5/D1, 6/D1, 7/D1 and 9/D1), Figure 8 Detail 4/D2; or the North Bench on Figure 9 Detail 6/D3. A landfill gas venting system is proposed to be placed below the geomembrane barrier layer as discussed previously.

Closure turf material serves as a separator geotextile to hold the sand infill ballast material on top of the geosynthetic, then completes the drainage geocomposite function of the Super Grip Net geomembrane, and provides an aesthetically pleasing surface as well. Erosion over closure turf is virtually non-existent, therefore stormwater run-off from the closure turf site is much cleaner than a comparable prescriptive landfill closed site. There is no vegetative/protective soil layer in a closure turf final cover system (see Figure 5 Detail 1/D1 and 2/D1 for Final Cover section – Slope and Deck).

North Coast Regional Water Quality Control Board – Closure Turf Information Requests

The following discussion presents information to address RWQCB technical information on the closure turf with utilization of a closure turf material in lieu of a typical vegetative layer. The following outlines the issues voiced by the RWQCB and information proposed by DOT's consultant (SWT Engineering) and the closure turf manufacturer to the acceptability for this material use as the vegetative layer component of the proposed alternative final cover. It should be noted that this material (closure turf) has been utilized successfully at a number of closed non-hazardous solid waste landfills in the U.S. The following outlines the RWQCB issues and provides information addressing the issues from the June 10, 2016 conference call with the RWQCB.

- ◆ Drainage and Erosion – see Appendix D-1 in 2016 FCPCMP.
- ◆ 401 Permitting – 401 permitting is not necessary for use of the cover component in 2016 FCPCMP.
- ◆ Increased Run-off – see Appendix D-1 in 2016 FCPCMP.
- ◆ Visual Aesthetics – the closure turf is the shade of green which will blend into the surrounding native plant community with ease, creating a pleasant pasture-like setting.
- ◆ Sand (Ballast)/Sand Maintenance – see Appendix D-1 and Section 4.6 in 2016 FCPCMP.
- ◆ Turf bunching/wrinkling - Section 4.6 in 2016 FCPCMP.

-
- ◆ Surface Water Ponding - Section 4.6 in 2016 FCPCMP.
 - ◆ Exposed Membrane Potential - Section 4.6 in 2016 FCPCMP.
 - ◆ Fire – See Appendix D-1 in 2016 FCPCMP.
 - ◆ Turf Cover Shelf Life – Manufacturer to provide
 - ◆ Long Term Maintenance (Post-Closure Maintenance Period) - Section 4.6 in 2016 FCPCMP.

3.4 Access Roads

The current access road to the landfill will be used throughout the operational life of the landfill. Internal roads will be designed by the Mendocino County Public Works Department as the landfill operations proceed. These road systems will be strategically located and designed to provide efficient and safe unloading areas.

**SECTION 4.0
OPERATIONS PLAN**

4.0 OPERATIONS PLAN (27 CCR, SECTION 21760)

In accordance with 27 CCR, Section 21760, Section 4.0 provides information relevant to the site's Operation Plan. This section describes the contingency plans in place at the SCL, as well as a description of the inspection and maintenance programs undertaken during the post-closure maintenance period.

4.1 Emergency Response Plan

The Emergency Response Plan (ERP) was developed for the SCL to identify events that may exceed the site's control capacities and thereby endanger public health or the environment. The ERP also sets forth actions that will be taken by the DOT to minimize the effects of these events. The provisions of the ERP will be carried out immediately whenever an event occurs, such as a fire, explosion, flood, earthquake, surface drainage problems, vandalism, or release of any waste product which may threaten public health and/or the environment. The responsibility for assuring that the ERP is implemented lies with the Site Engineer or their designated alternative. The ERP will be reviewed and can be amended in accordance with the criteria listed in 27 CCR, Section 21130. Whenever the ERP is amended, a written copy will be submitted to the LEA, the RWQCB, and CalRecycle. The ERP will be kept in the operating record at the main office of the DOT. This ERP is also included as Section 5.0 of the 2016 FCPCMP (refer to Appendix A of this ROWD).

4.2 Erosion Protection

The closed landfill must withstand erosion caused by stormwater so that the function of the final cover will not be compromised within the post-closure performance period. The criterion of acceptability is that the annual erosion rate on the landfill slope should not exceed 2.0 tons/acre/year, as estimated using the Universal Soil Loss Equation (USLE).

As discussed in the 2016 FCPCMP, as the entire waste footprint is covered by closure turf, the only areas requiring erosion protection are supporting exterior slopes, transition areas, and roadway fills.

Closure turf is an effective drainage and erosion control system which has been installed over the entire the site. The operating measures to control drainage include gravel bags, which are used and maintained to trap sediment and reduce erosion at the landfill. The existing and proposed drainage control system for the SCL is discussed in Section 3.2. 1.

4.3 Surface Water Plan

As discussed in Section 3.7.1.3, of the 2016 FCPCMP, deck flows are not concentrated, but do flow to the perimeter closure turf-lined channels, and paved perimeter roads. Maintenance of flow and elimination of sags are essentially a function of the final cover (closure turf) maintenance.

4.4 Operating Site Maintenance Procedures

In addition to an equipment maintenance program, 27 CCR, Section 20750 requires an operator to implement a preventative maintenance program to monitor and promptly repair all defective or deteriorating conditions and/or facilities at the landfill. All environmental monitoring and control facilities, ancillary features (i.e., access roads, signs, gates, fencing, landscaping), and all other on-site structures are inspected and maintained, as necessary. The landfill final cover will also be inspected on a regular basis for surficial slumping,

sags/depressions, etc., and will be repaired, as necessary. Ongoing site maintenance will be conducted after closure in accordance with an approved final post-closure maintenance plan. The 2016 FCPCMP (see Section 4.0 for post-closure maintenance activities) for the SCL is included as Appendix A to this ROWD.

**SECTION 5.0
REFERENCES**

5.0 REFERENCES

1. California Code of Regulations, Title 22, Division 4, Chapter 30.
2. California Code of Regulations, Title 27.
3. EPA Regulations Title 40 Code of Federal Regulations, Parts 257 and 258 (Subtitle D).
4. California Integrated Waste Management Board, 1995, "Solid Waste Facilities Permit No. 23-AA-0018."
5. California Regional Water Quality Control Board – Central Valley Region, 1995, "Waste Discharge Requirements Order No. 77-23."
6. Geo-Logic Associates, 2011, Second (Spring) Quarter 2011 Detection Monitoring Program, South Coast Landfill.
7. Keeton Kreitzer Consulting, 2013, Draft Initial Study Proposed Mitigated Negative Declaration for the Proposed Final Closure/Post-Closure Maintenance Plan, South Coast Landfill.
8. Mendocino County Solid Waste Division, 1996, Report of Disposal Site Information.
9. SHN Consulting Engineers & Geologists, Inc., 2016, Second Quarter 2016 Monitoring Report, South Coast Landfill.
10. SHN Consulting Engineering & Geologists, Inc., 1991, Report of Waste Discharges, South Coast Landfill.
11. SWT Engineering, 2016, Final Closure/Post-Closure Maintenance Plan for the South Coast Landfill.



TABLES

**TABLE 1
SOUTH COAST LANDFILL
BREAKDOWN OF WASTES RECEIVED***

WASTE TYPE	ANNUAL TONNAGE	OPERATING DAY TONNAGE
Municipal (90%)	1530 tons	5.9 tons
Commercial (5%)	85 tons	0.3 tons
Demolition (5%)	85 tons	0.3 tons
Total	1700 tons	6.5 tons

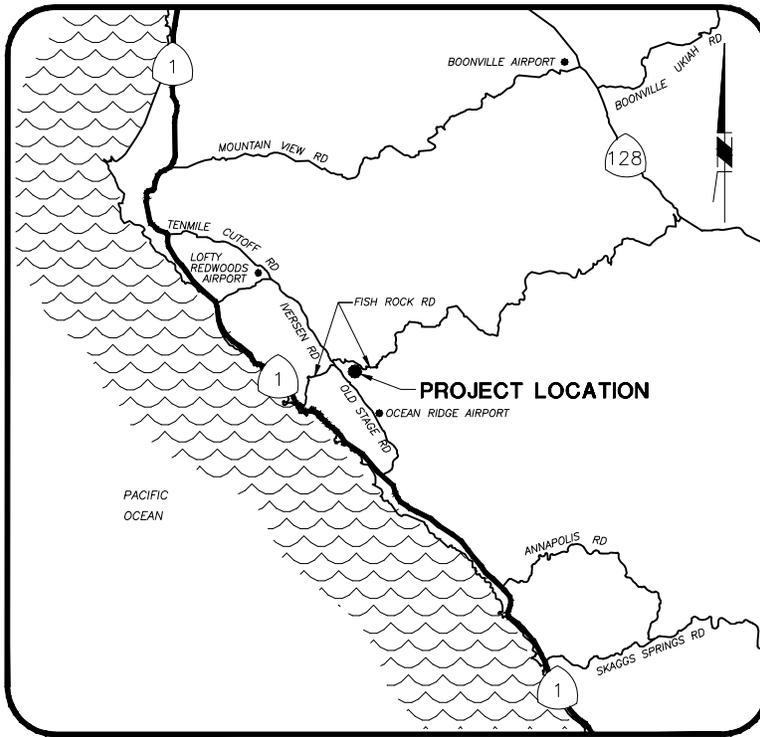
*Estimate based on site observations made by County personnel (1996)

**TABLE 2
SOUTH COAST LANDFILL
WELL COMPLETION DATA SUMMARY**

Well Information	94-1	94-2	94-3	94-4	91-1	87-1	87-2	87-3	87-5
Top of Casing Elevation (feet)	472.25	473.67	437.01	453.93	456.28	513.1	506.73	443.72	494.72
Total Depth of Well (feet)	29	61	28	29.5	29	18.5	17	25.5	19
Diameter of Well Casing (inches)	2	2	2	2	4	4	4	4	4
Total Depth of Well Casing (feet)	28	50	28	29	28	18.5	14	25.5	19
Depth and Type of Perforations	18' to 28' Inch slotted screen	40' to 50' Inch slotted screen	18' to 28' Inch slotted screen	18.5' to 28.5' Inch slotted screen	8' to 28' 0.02" slots	8.5 to 18.5 0.02" slots	6' to 14' 0.02" slots	8' to 25.5' 0.02" slots	9' to 19' 0.02" slots
Name of Well Driller	Anderson Consulting Group	Anderson Consulting Group	Anderson Consulting Group	Anderson Consulting Group	All Terrain	Herzog & Associates	Herzog & Associates	Herzog & Associates	Herzog & Associates
Year of Well Construction	1994	1994	1994	1994	1991	1987	1987	1987	1987
Use of Well	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Depth and Type of Seals	0' to 13' C5B 13' to 16' BP	0' to 35' C5B 35' to 38' BP	0' to 13' C5B 13' to 16' BP	0' to 13.5' C5B 13.5' to 16.5' BP	0' to 4.5' C5B 4.5' to 6' BP	0' to 3.5' C5B 3.5' to 5' BP	0' to 3.5' C5B 3.5' to 5' BP	0' to 4.5' C5B 4.5' to 6' BP	0' to 5.5' C5B 5.5' to 7' BP
Type(s) of Well Logs	SEL	SEL	SEL	SEL	SEL	SEL	SEL	SEL	SEL
Depth to First Groundwater, from ground surface (feet)	27.5	26.00	12.80	20.60	10	8.25	17	14	Not Recorded
Water Quality Sampling	1994 to current	1994 to current	1994 to current	1994 to current	1991 to current	1987 to current	1987 to current	1987 to current	1987 to current

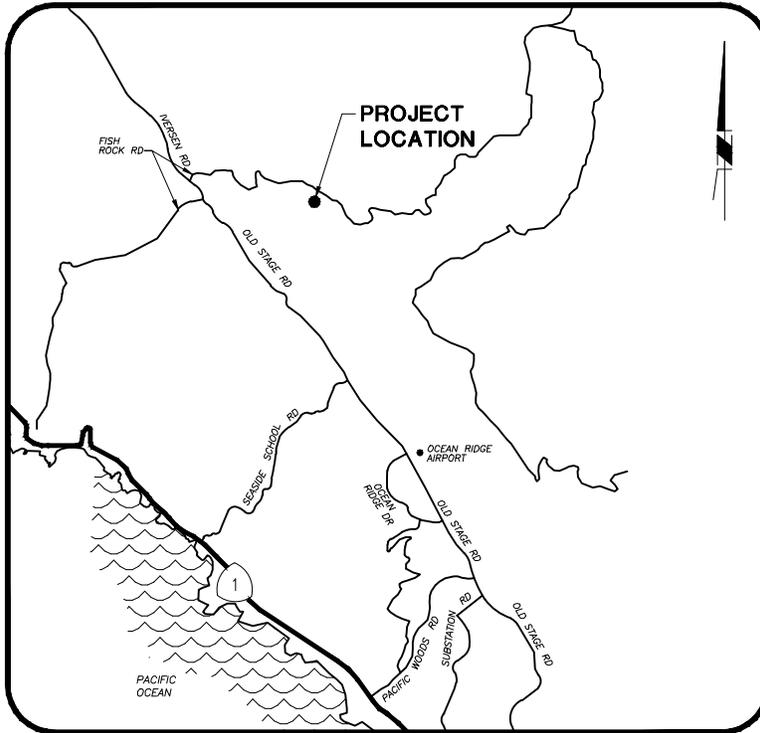
C5B = Cement with 5% Bentonite
SEL = Subsurface Exploration Log
BP = Bentonite Pellets

FIGURES



VICINITY MAP

SCALE: 1"=8 MI



LOCATION MAP

SCALE: 1"=1.5 MI

SITE ADDRESS:
 40855 FISH ROCK ROAD
 GUALALA, CA 95445
 ASSESSOR'S PARCEL NO.
 141-080-26

FIGURE 1

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<p>SOUTH COAST LANDFILL</p> <hr/> <p>REPORT OF WASTE DISCHARGE</p> <hr/> <p>SITE VICINITY AND LOCATION MAP</p>

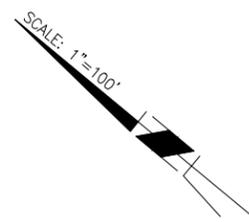


LEGEND

- | | | | |
|-------------------|-------------------------------|--------------------|-----------------------------------|
| — — — — — | APPROXIMATE PROPERTY BOUNDARY | — — — — — | RIDGE LINE |
| - · - · - · - · - | PERMITTED LIMIT OF REFUSE | — C _F — | CUT/FILL TRANSITION |
| × × | EXISTING FENCE | ▬ | FINISHED BENCH |
| —500— | EXISTING GRADE CONTOUR | ▬▬▬ | GABION WALL |
| —500— | FINISHED GRADE CONTOUR | 7 Δ 513.6 | HORIZONTAL/VERTICAL CONTROL (HVC) |
| — — — — — | TOE OF SLOPE | ⊗ P-3 | LFG PROBE |
| - - - - - | DAYLIGHT LINE | ■ LFGW-1 | GAS MONITORING PROBE |

ABBREVIATIONS

LFG LANDFILL GAS



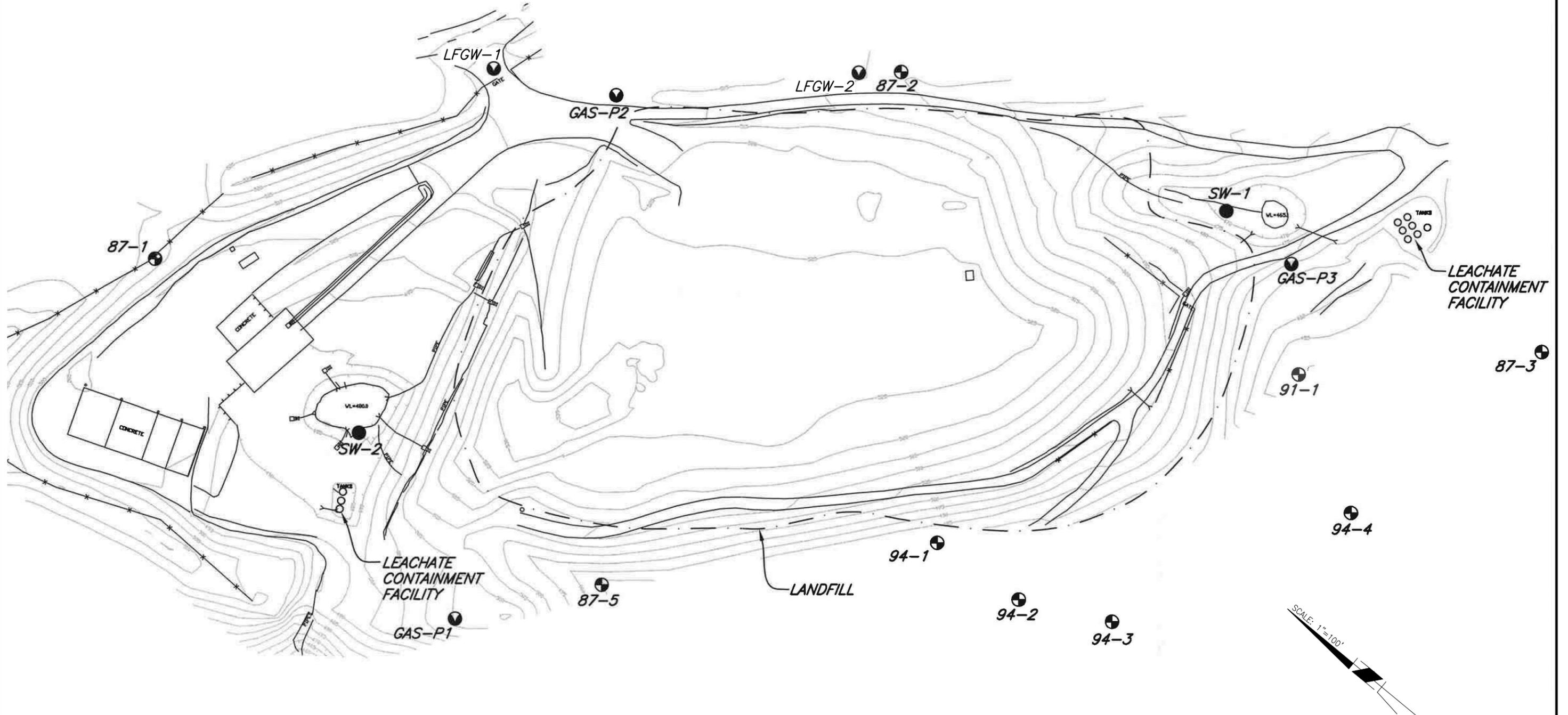
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FIGURE 2

SOUTH COAST LANDFILL
 REPORT OF WASTE DISCHARGE
 SITE PLAN

EXPLANATION

- ⊕ MONITORING WELL LOCATION
87-1 AND DESIGNATION
- GAS MONITORING PROBE
LFGW-2 LOCATION AND DESIGNATION
- SURFACE WATER MONITORING
SW-1 STATION LOCATION AND DESIGNATION

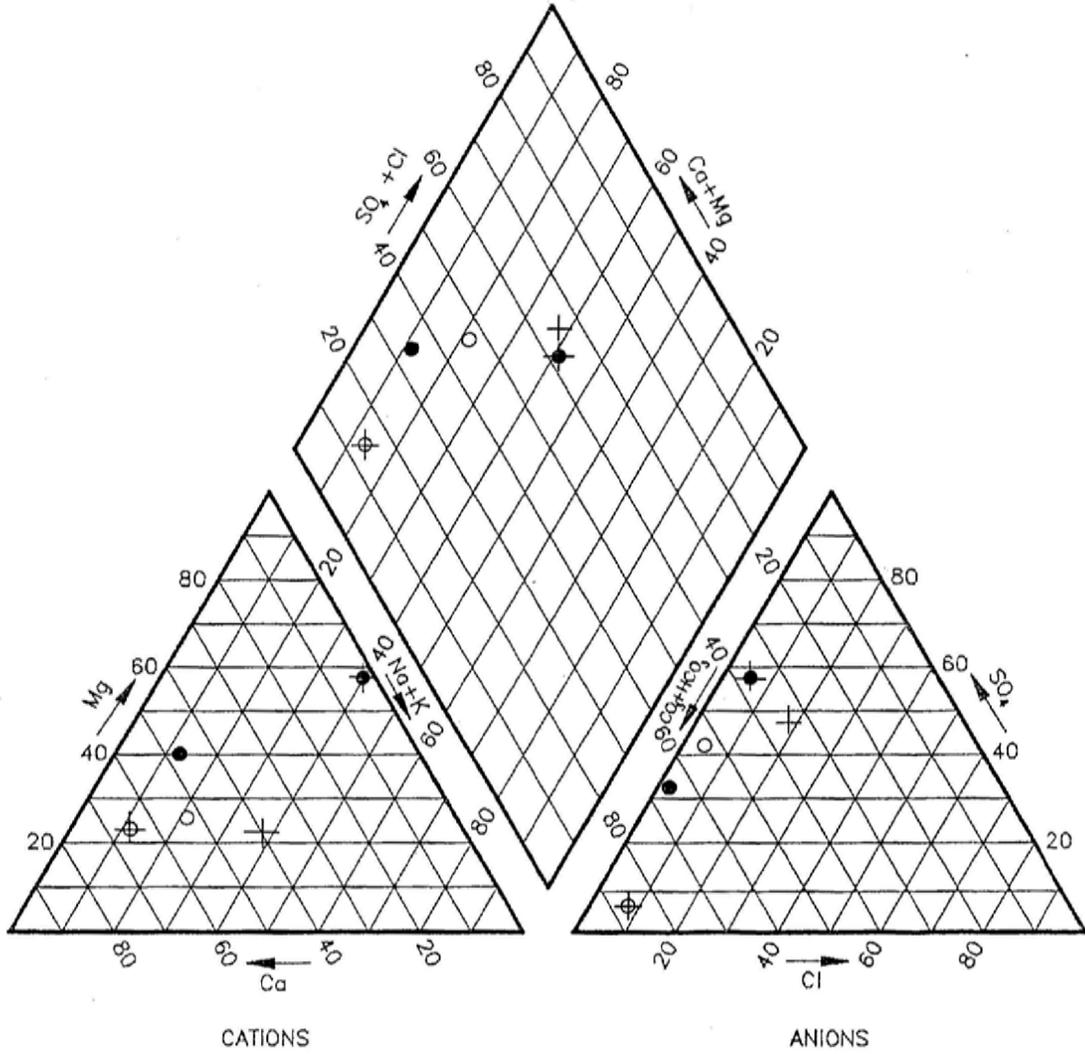


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SOURCE: SHN CONSULTING
 ENGINEERS AND GEOLOGISTS, INC.

SOUTH COAST LANDFILL
 REPORT OF WASTE DISCHARGE
 MONITORING WELL LOCATIONS/LANDFILL
 GAS PROBE LOCATIONS

FIGURE 3



PERCENT OF TOTAL EQUIVALENTS PER MILLION

PLOTS OF GROUNDWATER FROM MONITOR
WELLS 87-1, 87-2, 87-3, 87-5, (1/22/91);
PLOT OF SURFACE WATER FROM SEDIMENTATION
POND L-1 (3/6/91)

EXPLANATION

- ⊕ 87-1
- 87-2
- ⊕ 87-3
- 87-5
- ⊕ L-1

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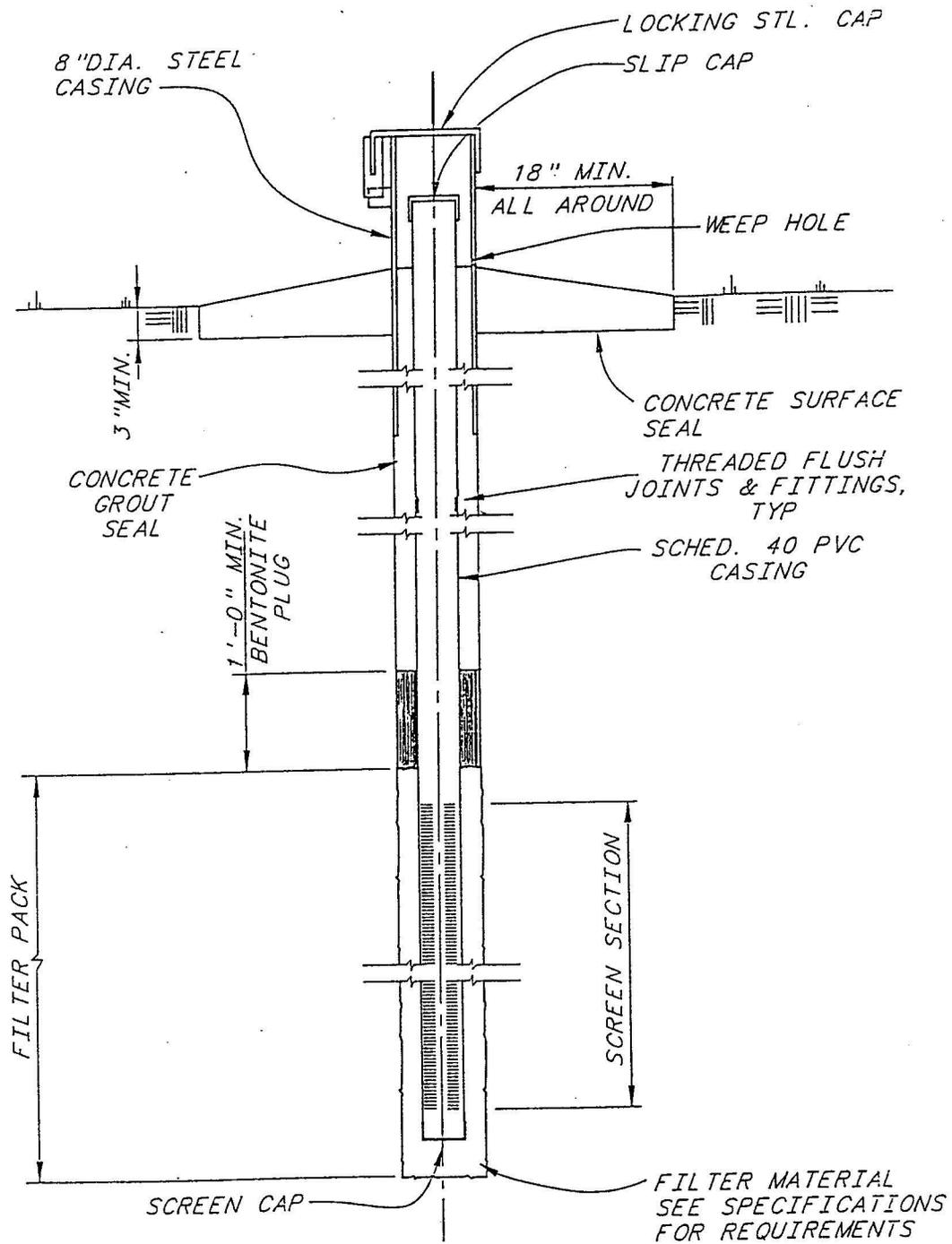


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SOURCE: REPORT OF WASTE
DISCHARGE (SHN CONSULTING 1991)

FIGURE 4

<p>SOUTH COAST LANDFILL</p> <p>REPORT OF WASTE DISCHARGE</p> <p>TRILINEAR DIAGRAM</p>



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SOURCE: REPORT OF WASTE DISCHARGE (SHN CONSULTING 1991)

FIGURE 5

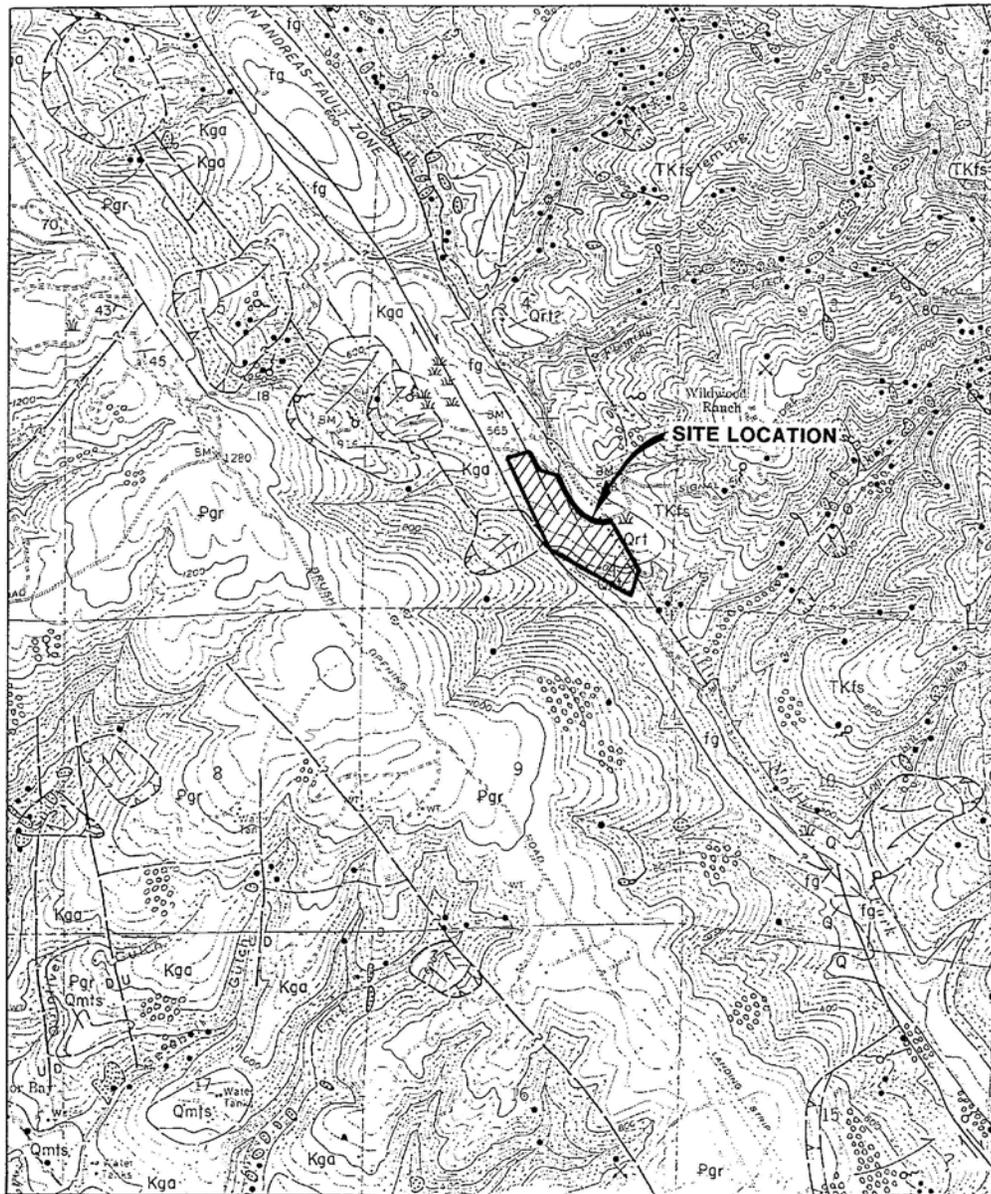
SOUTH COAST LANDFILL

REPORT OF WASTE DISCHARGE

TYPICAL MONITOR WELL CONSTRUCTION

EXPLANATION

	TRANSLATIONAL/ROTATIONAL SLIDE	Q ALLUVIUM (Holocene): unconsolidated silt, sand, and gravel deposited by streams above active channel; characteristically vegetated; locally includes Qsc.
	EARTHFLOW	Qr1 ALLUVIAL TERRACE DEPOSITS (Quaternary): poorly consolidated flat-lying deposits of silt, sand, and gravel elevated above present streams and rivers; includes anomalous gravel flat located between Little North Fork Gualala and South Fork Garcia Rivers.
	DEBRIS SLIDE	Qmts MARINE TERRACE DEPOSITS (Quaternary): poorly to moderately consolidated deposits of marine silts, sands, and quartz-rich pea gravels forming extensive flat benches paralleling the coastline; probably much more extensive than mapped; overlain in many places by unconsolidated alluvial fan/colluvial deposits.
	DEBRIS FLOW/TORRENT TRACK	fg SAN ANDREAS FAULT GOUGE (Quaternary): highly sheared, chaotic, and unconsolidated mixture of various pre-Quaternary rock types bounded by active or inactive strands of the San Andreas fault system; may be more extensive than mapped; outcrops resemble colluvium.
	DEBRIS SLIDE SLOPE	Pgr GERMAN RANCHO FORMATION (Paleocene-Eocene): consolidated, moderately hard, coarse-grained sandstone interbedded with minor mudstone and less common conglomerate; overlain in many places by undifferentiated marine terrace sands; highly sheared and colluvial in appearance near the San Andreas fault system.
	ACTIVE SLIDE: too small to delineate at this scale.	Kgc ANCHOR BAY MEMBER, GUALALA FORMATION (Cretaceous): well consolidated, silicified mudstone interbedded with smaller amounts of sandstone near the coast; inland exposures consist of consolidated, moderately hard, coarse-grained micaceous sandstone; overlain in many places by undifferentiated marine terrace sands; highly sheared and colluvial in appearance near the San Andreas fault system.
	DISRUPTED GROUND	TKfs COASTAL BELT FRANCISCAN (Tertiary-Cretaceous): well consolidated sandstone interbedded with smaller amounts of siltstone, mudstone, and minor conglomerate; pervasively sheared; commonly highly weathered, and tends to easily disaggregate, resulting in numerous debris slides along creeks and roads within debris slide amphitheaters/slopes.
	LITHOLOGIC CONTACT: dashed where approximately located, queried where uncertain.	
	FAULT: dashed where approximately located, dotted where concealed or inferred, queried where uncertain; U on upthrown side, D on downthrown side.	
	RIGHT LATERAL STRIKE-SLIP FAULT	
	STRIKE AND DIP OF BEDDING	
	LINEAMENT: linear feature of unknown origin observed on aerial photographs.	
	SPRINGS OR SEEPS	
	MARSH, SAG POND, OR OTHER SMALL POND	
	BORROW AREA	



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SOURCE: DAVENPORT, C.W., 1984, GEOLOGY AND GEOMORPHIC FEATURES RELATED TO LANDSLIDING - GUALALA 7.5 QUADRANGLE, MENDOCINO COUNTY, CALIFORNIA; CALIFORNIA DIVISION OF MINES AND GEOLOGY, OPEN FILE REPORT 84-48-SF SCALE 1:24,000.

FIGURE 6

SOUTH COAST LANDFILL

REPORT OF WASTE DISCHARGE

REGIONAL GEOLOGY MAP

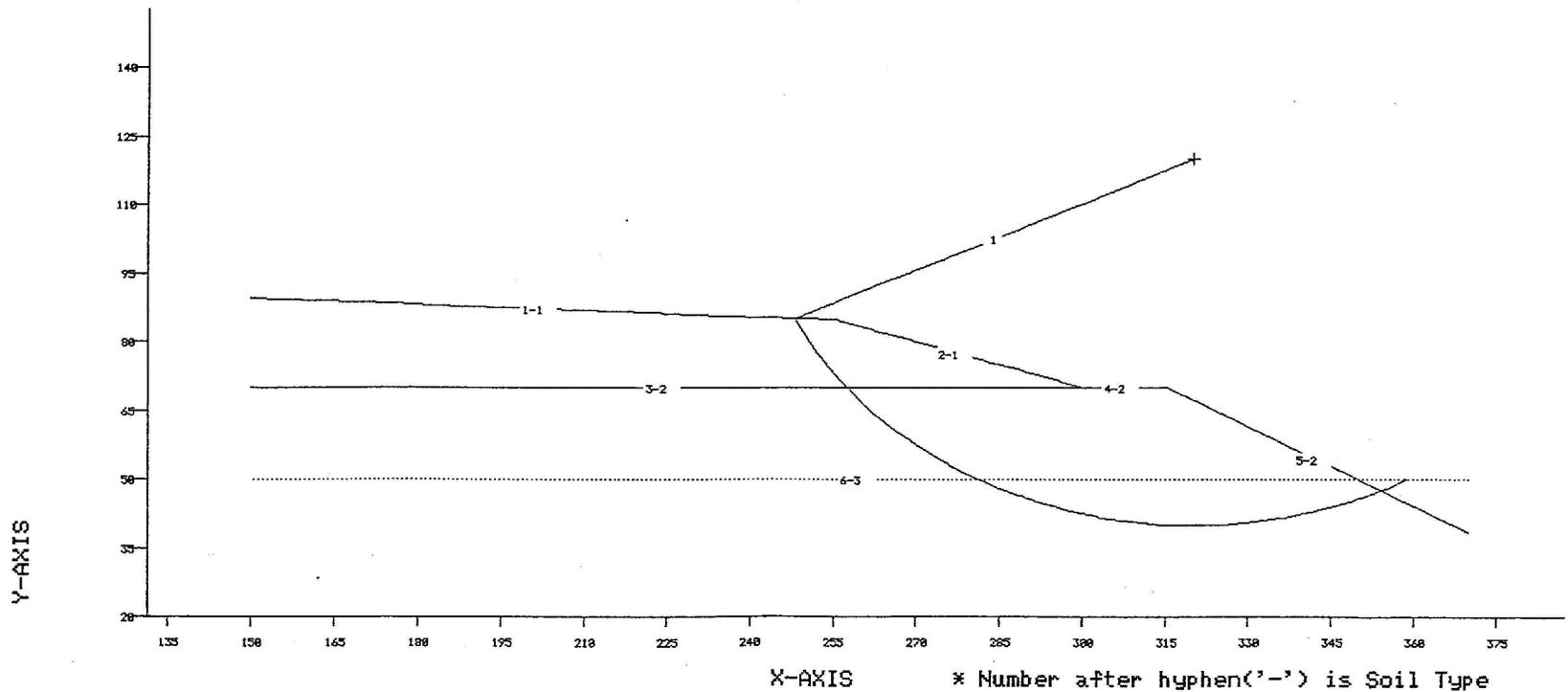
SB-SLOPE

Simplified Bishop Slope Stability Analysis

PROJECT: Mendocino Landfills
 LOCATION: South Coast
 FILE: SCST-SS
 COMPLETE SLOPE CROSS SECTION

SOIL*	DENSITY	COHESION	PHI
1	50.0	600.0	22.0
2	135.0	1500.0	25.0
3	72.0	1000.0	25.0

CIRCLE	X	Y	RADIUS	FS
1	320.0	120.0	80.0	4.33



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SOURCE: REPORT OF WASTE
 DISCHARGE (SHN CONSULTING 1991)

FIGURE 7

SOUTH COAST LANDFILL
 REPORT OF WASTE DISCHARGE
 STEADY STATE CONDITION

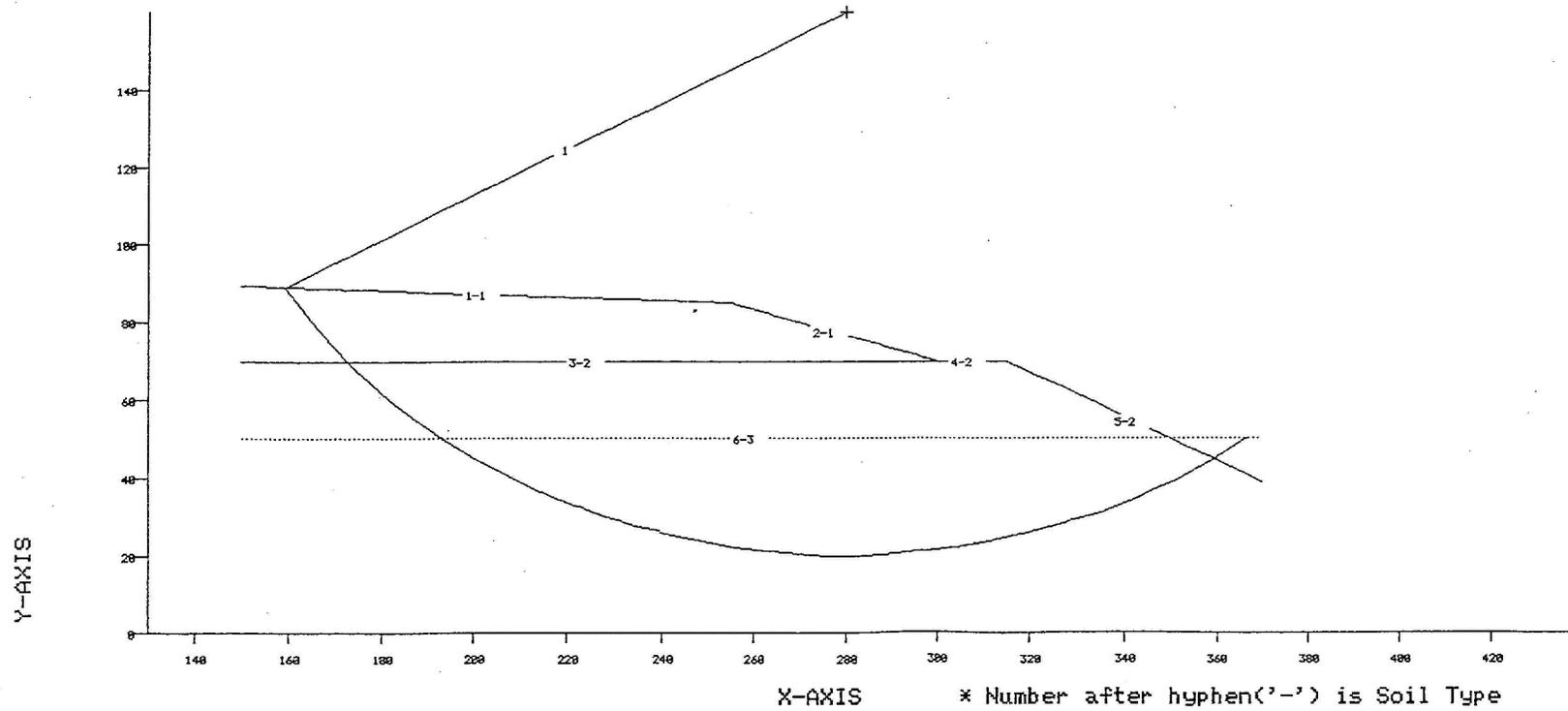
SB-SLOPE

Simplified Bishop Slope Stability Analysis

PROJECT: Mendocino Landfills
 LOCATION: South Coast
 FILE: SCST-EQ
 COMPLETE SLOPE CROSS SECTION

SOIL*	DENSITY	COHESION	PHI
1	50.0	900.0	22.0
2	135.0	2000.0	25.0
3	135.0	1500.0	25.0

CIRCLE	X	Y	RADIUS	FS
1	280.0	160.0	140.0	1.51



PREPARED BY:



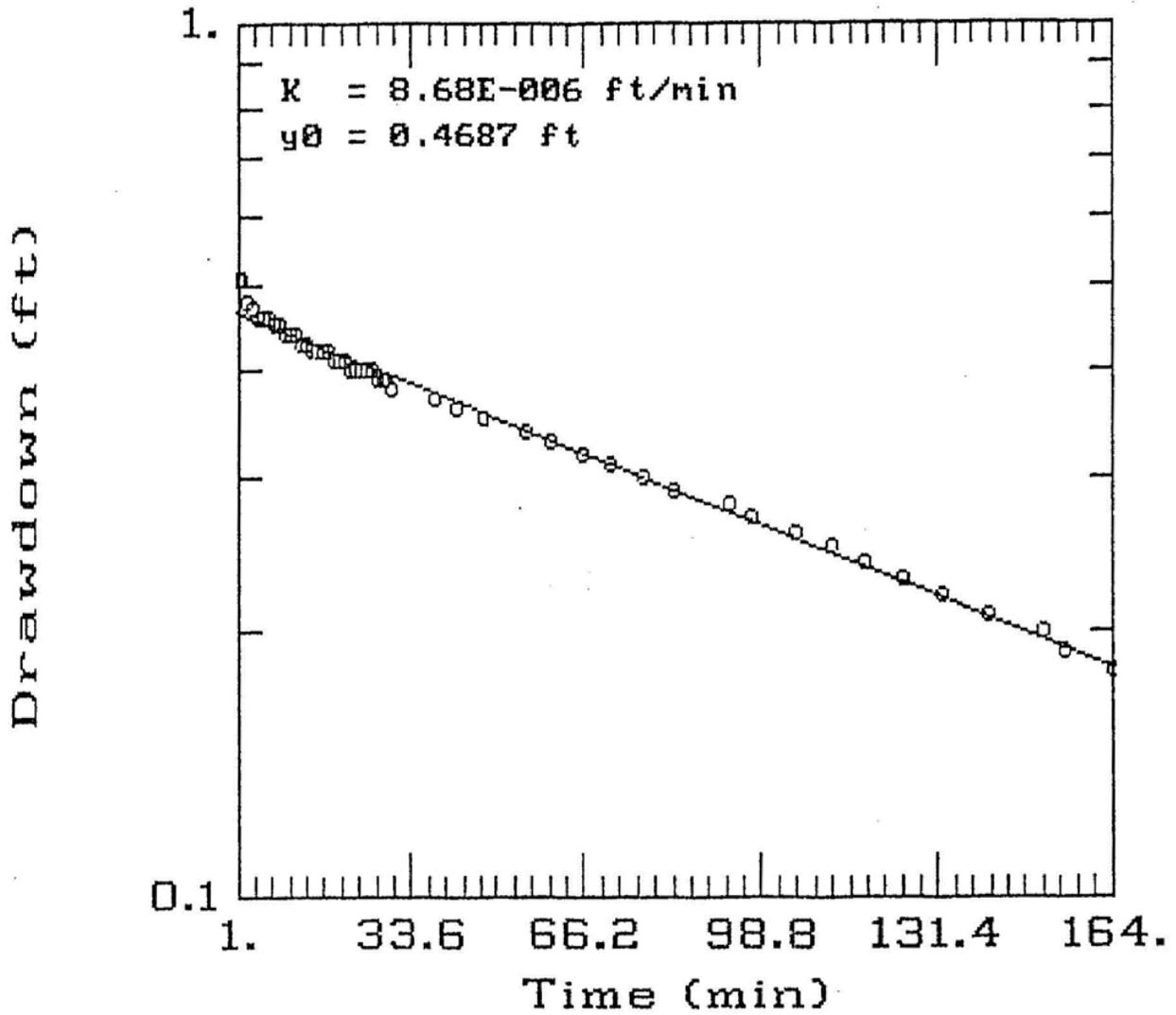
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SOURCE: REPORT OF WASTE
 DISCHARGE (SHN CONSULTING 1991)

FIGURE 8

SOUTH COAST LANDFILL
REPORT OF WASTE DISCHARGE
EARTHQUAKE CONDITION

WELL 91-1



NOTE: PERMEABILITY VALUE (K)
CONVERTS TO 4.4×10^{-6}
CM/SEC.

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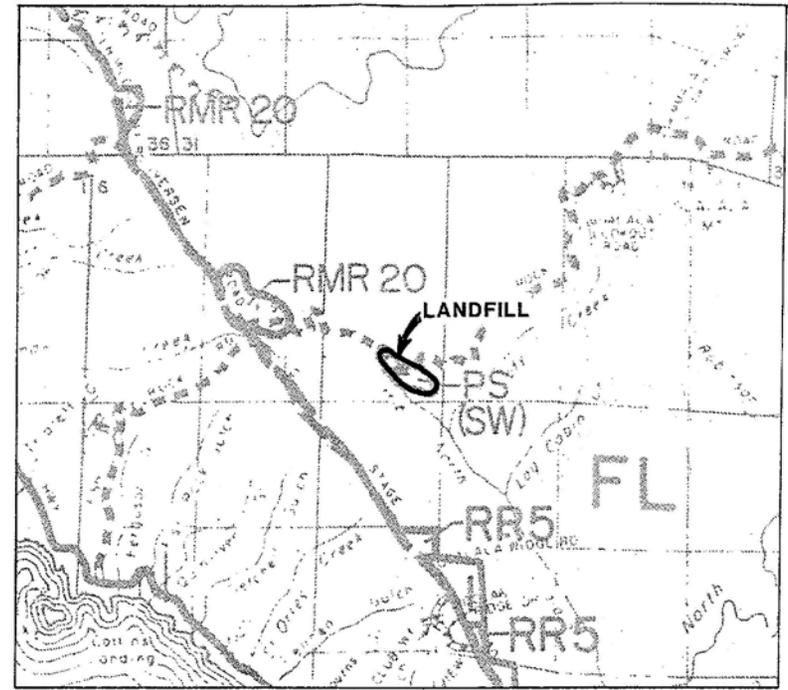
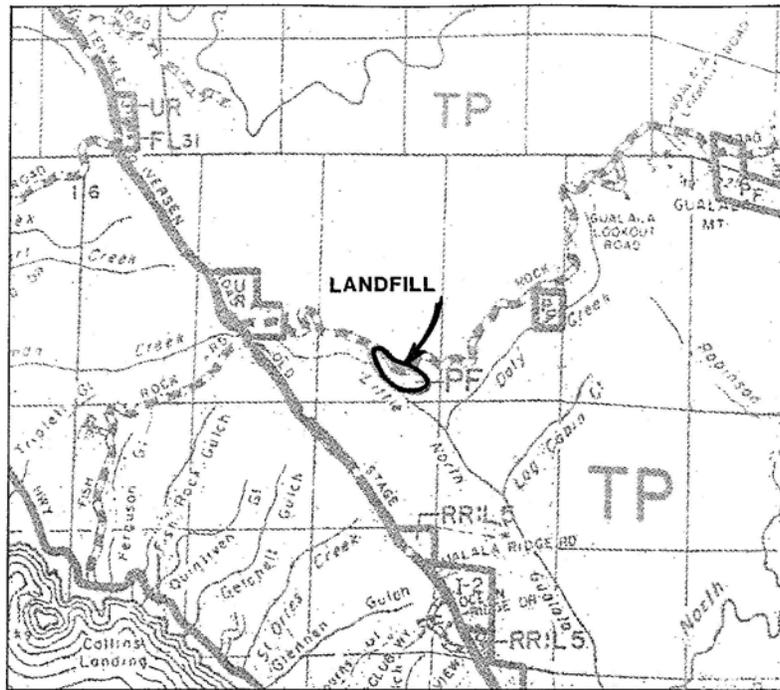
SOURCE: REPORT OF WASTE
DISCHARGE (SHN CONSULTING 1991)

FIGURE 9

SOUTH COAST LANDFILL

REPORT OF WASTE DISCHARGE

SLUG TEST PERMEABILITY CURVE



MENDOCINO COUNTY ZONING DISPLAY MAPS

SYMBOL	ZONING DISTRICTS	MINIMUM LOT SIZE
AG	AGRICULTURAL	40 Acre Minimum
FL	FOREST LAND	160 Acre Minimum
RL	RANGELAND	160 Acre Minimum
TP	TIMBER PRESERVE	160 Acre Minimum
UR	UPLAND RESIDENTIAL	20 Acre Minimum
RR	RURAL RESIDENTIAL	40,000 Square Foot Minimum
RC	RURAL COMMUNITY	*4,000, 6,000, 12,000, 40,000 Square Foot Minimum
SR	SUBURBAN RESIDENTIAL	*4,000, 6,000, 12,000 40,000 Square Foot Minimum
R1	SINGLE FAMILY RESIDENTIAL	6,000 Square Foot Minimum
R2	TWO FAMILY RESIDENTIAL	6,000 Square Foot Minimum
R-3	MULTIPLE FAMILY RESIDENTIAL	6,000 Square Foot Minimum, 4,000 Square Foot Minimum for Mobile Home Parks and Manufactured Home Subdivisions
C1	LIMITED COMMERCIAL	(If residential use - 6,000 Square Foot Minimum)
C2	GENERAL COMMERCIAL	(If residential use - 6,000 Square Foot Minimum)
I1	LIMITED INDUSTRIAL	None required
I2	GENERAL INDUSTRIAL	None required
OS	OPEN SPACE	No divisions permitted unless it can be demonstrated that the division furthers the intent of OS
PF	PUBLIC FACILITIES	None required

MENDOCINO COUNTY GENERAL PLAN	
LAND USE	
AG	AGRICULTURAL 40 ac. min.
C	COMMERCIAL
FL	FOREST LANDS 160 ac. min.
I	INDUSTRIAL
IS	ISOLATED SERVICE
PL	PUBLIC LANDS
PS	PUBLIC SERVICE
RL	RANGE LANDS 160 ac. min.
RMR	REMOTE RESIDENTIAL min. size
RC	RURAL COMMUNITY
RR	RURAL RESIDENTIAL min. size
SP	SPECIAL PLANNING AREA
SR	SUBURBAN RESIDENTIAL, see GP text
SW	SOLID WASTE DUMP
OS	OPEN SPACE



PREPARED BY:

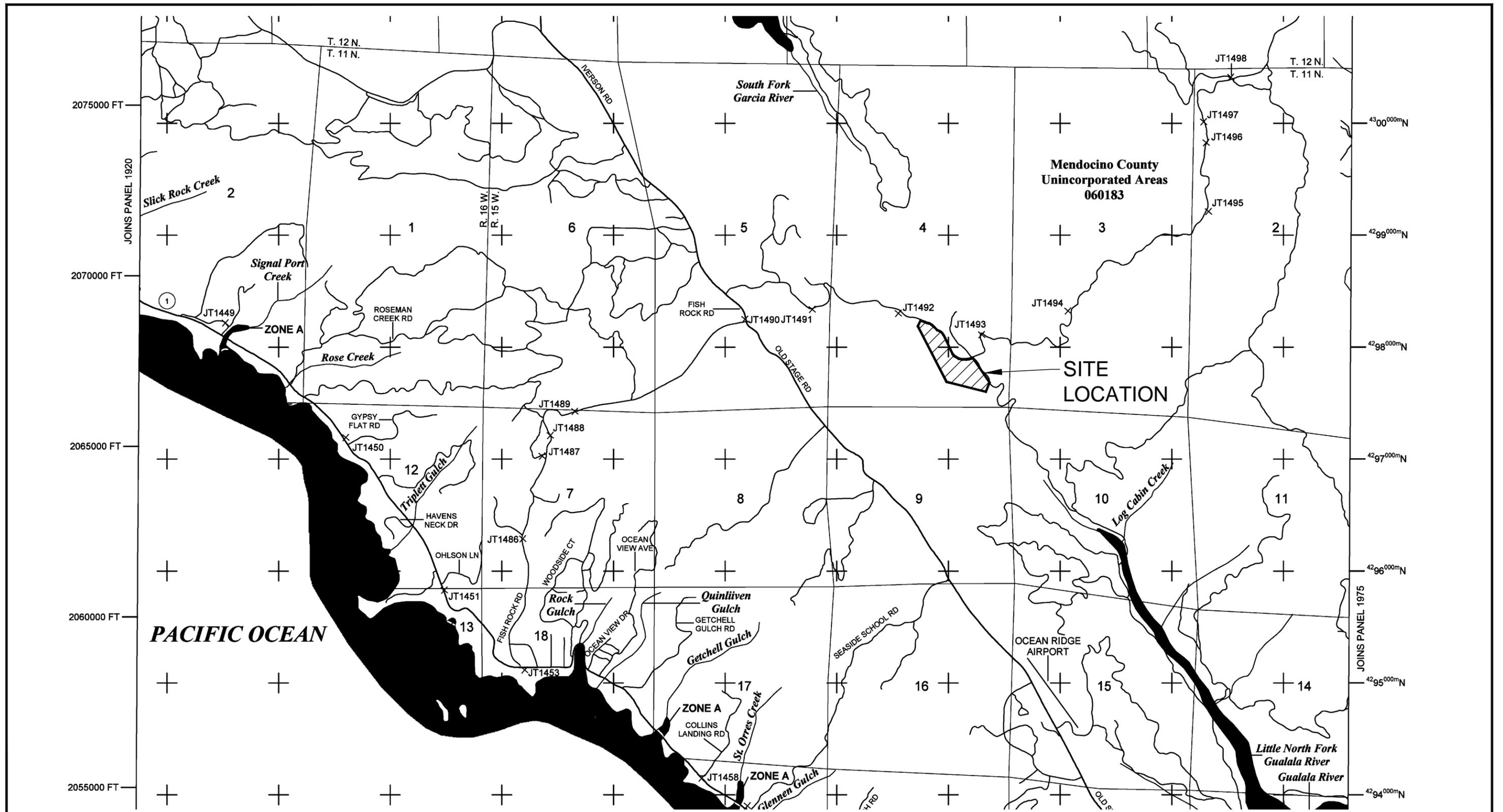


800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

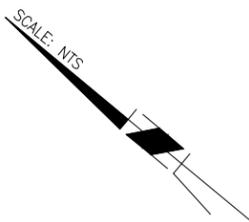
FIGURE 10

SOUTH COAST LANDFILL
REPORT OF WASTE DISCHARGE
LAND USE & ZONING MAP

SOURCE: REPORT OF WASTE DISCHARGE (SHN CONSULTING 1991)



PREPARED BY:
SWT Civil & Environmental Engineering
 800-C SOUTH ROCHESTER AVENUE
 ONTARIO, CALIFORNIA 91761



SOURCE: FEDERAL EMERGENCY MANAGEMENT AGENCY
 FLOOD INSURANCE RATE MAP AND FLOOD WAY MAP
 SERIES, MENDOCINO COUNTY, CALIFORNIA AND
 INCORPORATED AREAS, JUNE 2, 2011

SOUTH COAST LANDFILL
 REPORT OF WASTE DISCHARGE
 100 YEAR FLOOD PLAIN MAP

FIGURE 11

APPENDICES

APPENDIX A

FINAL CLOSURE/POST-CLOSURE MAINTENANCE PLAN
(SWT, 2016)

SUBMITTED UNDER SEPARATE COVER IN FEBRUARY 2016

**APPENDIX B
CLIMATOLOGICAL DATA**

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and
Information Service

Annual Climatological Summary (2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: UKIAH, CA US

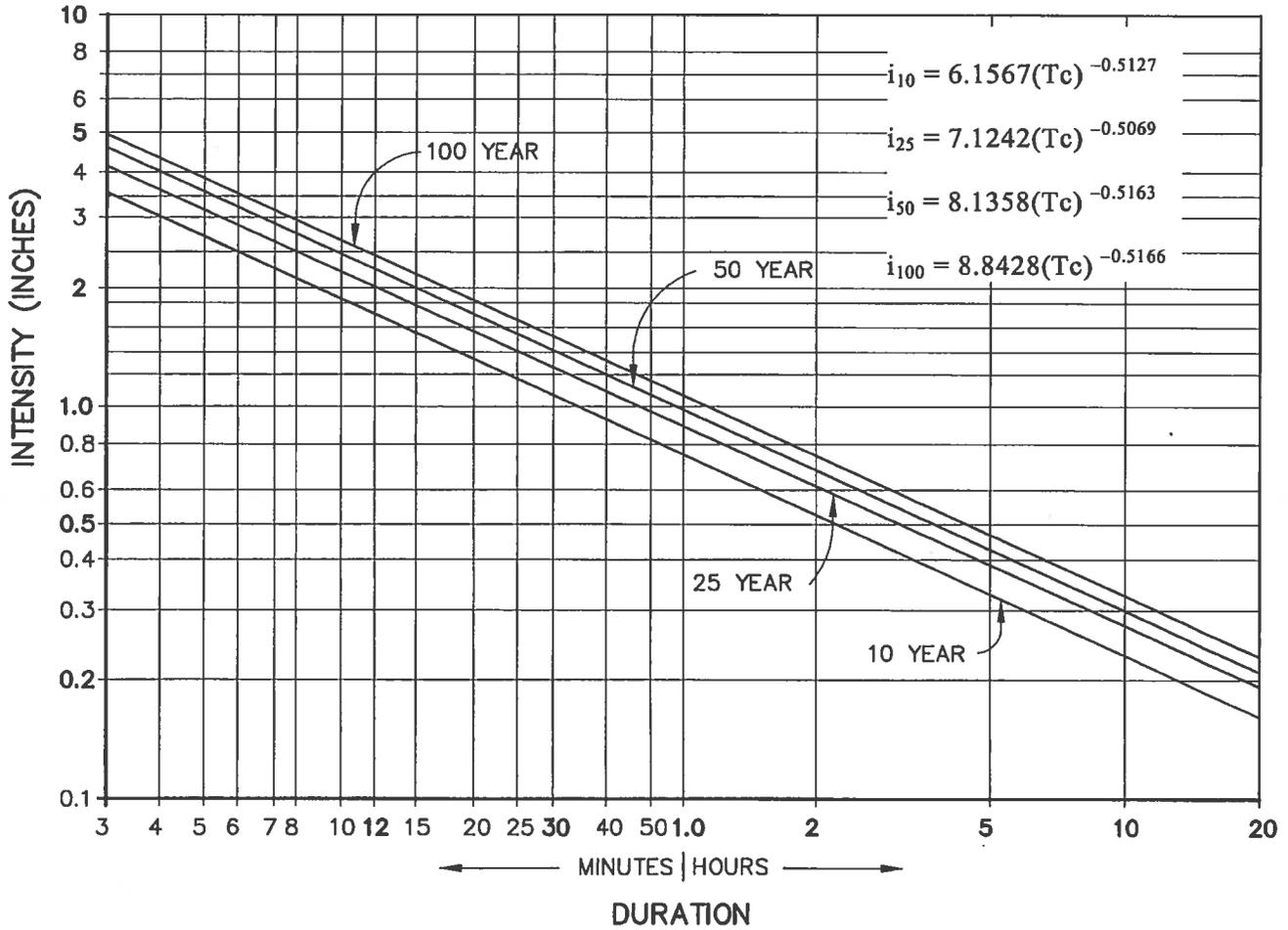
Elev: 636 ft. Lat: 39.147° N Lon: 123.210° W
COOP:049122

Date	Temperature (°F)										Precipitation (inches)										
	MMXT Mean Max.	MMNT Mean Min.	MNTM Mean	DPNT Depart. from Normal	HTDD Heating Degree Days	CLDD Cooling Degree Days	EMXT Highest Date	EMNT Lowest Date	DT90 Max >=90°	DX32 Max <=32°	DT32 Min <=32°	DT00 Min <=0°	TPCP Total	DPNP Depart. from Normal	EMXP Greatest Observed Day	TSNW Total Fall	MXSD Max Depth	DP01 Max Date	DP05 >=.50	DP10 >=1.0	
1	58.3X	34.6X	46.5X	-0.1		0	66	07	22	17	0	12	0			0.0					
2	61.6X	36.9X	49.3X	-0.3		0	74	21	27	27	0	7	0			0.0					
3	59.8X	36.8X	48.3X	-3.9		0	75	04	28	07	0	8	0			0.0					
4	68.2X	43.0X	55.6X	-0.3			90	21	31	07	1	2	0			0.0					
5																0.0					
6	80.6X	47.6X	64.1X	-3.6			102	17	41	07	2	0	0			0.0					
7	89.8X	53.4X	71.6X	-1.4			100	11	48	06	14	0	0	0.00X		0.0			0	0	
8							105	13	51	17						0.0					
9							96	30	42	23						0.0					
10	78.1X	48.2X	63.2X	2.0			100	01	40	21	4	0	0	0.65X		0.65	22	0.0	1	1	
11	63.0X	42.3X	52.7X	1.6		0	81	05	32	11	0	2	0	8.67A	3.27	2.20	30	0.0	6	4	
12																					
Annual	69.9*	42.9*	56.4*		0*		105*	Aug	22*	Jan	21*	0*	31*	0*	9.32*	2.20*	Nov	0.0*	7*	5*	4*

Notes

- (blank) Data element not reported or missing.
- + Occurred on one or more previous dates during the month. The date in the Date field is the last day of occurrence. Used through December 1983 only.
- A Accumulated amount. This value is a total that may include data from a previous month or months or year (for annual value).
- B Adjusted total. Monthly value totals based on proportional available data across the entire month.
- E An estimated monthly or annual total.
- X Monthly means or totals based on incomplete time series. 1 to 9 days are missing. Annual means or totals include one or more months which had 1 to 9 days that were missing.
- T Trace of precipitation, snowfall, or snowdepth. The precipitation data value will equal zero.
- Elem Element types are included to provide cross-reference for users of the NCDC CDO system. Station is identified by: COOP ID, Station Name, State
- S Precipitation amount is continuing to be accumulated. Total will be included in a subsequent monthly or yearly value. Example: Days 1-20 had 1.35 inches of precipitation, then a period of accumulation began. The element TPCP would then be 00135S and the total accumulated amount value appears in a subsequent monthly value.
- * Annual value missing; summary value computed from available month values

INTENSITY-DURATION-FREQUENCY CHART



STATION DATA	
LONGITUDE:	123.183
LATITUDE:	39.233
ALTITUDE:	670
YEARS OF DATA:	1972-1986



INTENSITY/DURATION/FREQUENCY CHART UKIAH-LAKE MENDOCINO DAM

MENDOT
STD. NO.
D11G

APPENDIX C
WASTE DISCHARGE REQUIREMENTS
ORDER NO. 77-23

Calif. Regional Water Quality Control Board
North Coast Region

Order No. 77-23

WASTE DISCHARGE REQUIREMENTS

for

COUNTY OF MENDOCINO
SOUTH COAST SOLID WASTE DISPOSAL SITE

Mendocino County

RECEIVED

AUG 2 1977

MENDOCINO COUNTY
SOLID WASTE DIVISION

The California Regional Water Quality Control Board, North Coast Region, finds that:

1. The County of Mendocino (hereinafter referred to as the discharger) is the owner and operator of a Class II-2 solid waste disposal site located approximately five miles east of Highway 1 in the S $\frac{1}{2}$ of Section 4, T11N, R15W, MDB&M, as shown on Attachments "A" and "B" incorporated herein and made a part of this order.
2. The disposal site property contains approximately 47 acres located adjacent to the North Fork Gualala River. The current active portion of the disposal site only includes approximately 10 acres.
3. The discharger is operating the site as a fill and cover operation with waste being placed in layers behind a compacted earth barrier that is keyed into the native soils. Surface drainage is diverted around the fill area as shown on Attachment "B".
4. Area topsoil consists of a two to four foot thickness of silty, sandy clay which is weathered bedrock. Immediately underlying the thin soil mantle, Jura-Cretaceous marine sediments of the Franciscan formation exist to an unknown depth. Underlying rocks appear to be deeply weathered sandstone with some thin interbedded deposits of shale. The primary structural feature in the vicinity of the site is the projected trace of the San Andreas Fault. The fault is located within five miles of the disposal site. Observation wells installed and monitored by the discharger have shown maximum ground-water elevation in the disposal area to be approximately 484 feet.
5. Land within 1000 feet of the disposal site is unimproved forest and range land.
6. The disposal site meets criteria contained in the California Administrative Code, Title 23, Chapter 3, Subchapter 15, for classification as a Class II-2 disposal site suitable to receive groups 2 and 3 wastes.
7. **The Regional Board finds that this project will not cause adverse environmental impacts if conducted in accordance with the limitations and provisions contained in this order.**
8. The Regional Board adopted Order No. 75-123, Waste Discharge Requirements for County of Mendocino South Coast Solid Waste Disposal Site, on May 29, 1975.
9. Order No. 75-123 prohibited the discharge of waste outside of a designated area that corresponded with the active disposal area at the time of the order's adoption. That area was limited to the south half of the disposal area shown on Attachment "B" of this order. The discharger has recently notified the Board that the disposal operations are presently being expanded to the new limits delineated on Attachment "B" of this order. In addition, the discharger has indicated that a detailed developmental study to establish the ultimate disposal area boundaries will be conducted during the summer of 1977.

Order No. 77-23

10. The Regional Board adopted the Water Quality Control Plan for the North Coastal Basin on March 20, 1975.
11. Beneficial uses of the Gualala River include:
 - a. municipal water supply
 - b. scientific study, research, training, and marine life refuge
 - c. industrial water supply
 - d. recreation
 - e. aesthetic enjoyment
 - f. preservation and enhancement of fish, wildlife, and other aquatic resources.
12. The Board notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this waste discharge.
13. The Board in a public meeting heard and considered all comments pertaining to the discharge.

THEREFORE, IT IS HEREBY ORDERED that Order No. 75-123 be rescinded and that the County of Mendocino shall comply with the following:

A. DISCHARGE SPECIFICATIONS:

1. The treatment or disposal of wastes shall not cause a pollution or a nuisance as defined in Section 13050 of the California Water Code.
2. Group 1 wastes shall not be deposited at this site.
3. No wastes shall be deposited outside of the disposal area boundary as shown on Attachment "B".
4. No Group 2 wastes shall be deposited in any area at an elevation that does not at all times provide a minimum vertical separation of at least five feet between the waste and groundwater unless a low permeability barrier approved by the Executive Officer is placed beneath the waste.
5. No Group 2 wastes shall be placed in ponded water from any source whatsoever.
6. During the rainy season only the active area of waste placement shall be left exposed to rainfall. The active area shall not be excessively large for daily waste placement operation. The inactive area shall be capped with at least one foot of earth compacted to a permeability of 10^{-6} cm/Sec. or less.
7. The exterior surfaces of the disposal area shall be graded to promote lateral runoff of precipitation and to prevent ponding.
8. Surface drainage from tributary areas, and internal site drainage from surface or subsurface sources shall not contact or percolate through Group 2 wastes discharged at this site.
9. A liquid control barrier shall be constructed and maintained down gradient from the disposal area to prevent leachate or other liquid wastes from entering surface waters.

Order No. 77-23

10. Leachate control facilities shall be maintained below a volume equal to 75% of the total liquid storage capacity of the facilities.
11. There shall be no discharge of leachate or other liquid waste to the Gualala River or any tributaries thereof.
12. The disposal area shall be protected from any washout or erosion of wastes or covering materials, and from inundation which could occur as a result of floods having a predicted frequency of once in 100 years.
13. No liquids shall be deposited at this site, and water used during the disposal site operation shall be limited to a minimal amount reasonably necessary for dust control, compaction and fire control.
14. Annually, prior to the anticipated rainfall period, all necessary runoff diversion facilities shall be in place to prevent erosion or flooding of the site.
15. The discharger shall remove and relocate any wastes which are discharged at this site in violation of these requirements.

B. PROVISIONS:

1. The discharger shall comply with the Monitoring and Reporting Program No. 77-23 and the General Provisions for Monitoring and Reporting as specified by the Executive Officer.
2. The discharger shall submit to the Board a copy of the disposal site developmental study upon its completion.
3. The discharger shall maintain a copy of this order at the site so as to be available at all times to site operating personnel.
4. The discharger shall file with this Board a report of any material change or proposed change in the character, location or quantity of this waste discharge. For the purpose of this requirement this includes any proposed change in the boundaries, contours, or ownership of the disposal area.
5. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the discharger, the discharger shall notify the succeeding owner or operator of the existence of this order by letter, a copy of which shall be forwarded to this Board.
6. At least 90 days prior to permanently closing this site the discharger shall submit a technical report to the Board describing the methods and controls to be used to assure protection of the quality of surface and groundwaters of the area during final operations and with any proposed subsequent use of the land. This report shall be prepared by or under the supervision of a registered engineer or a certified engineering geologist. The method used to close the site and maintain protection of the quality of surface and groundwaters shall comply with waste discharge requirements established by the Regional Board.

7. The discharger shall permit the Regional Board:
 - a. entry upon premises in which an effluent source is located or in which any required records are kept;
 - b. access to copy any records required to be kept under terms and conditions of this order;
 - c. inspection of monitoring equipment or records; and
 - d. sampling of any discharge.

8. In the event the discharger is unable to comply with any of the conditions of this order due to:
 - a. breakdown of waste treatment equipment;
 - b. accidents caused by human error or negligence; or
 - c. other causes such as acts of nature;

the discharger shall notify the Executive Officer by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within two weeks of the telephone notification. The written notification shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to correct the problem and the dates thereof, and what steps are being taken to prevent the problem from recurring.

9. This Board considers the property owner to have a continuing responsibility for correcting any problems which may arise in the future as a result of this waste discharge or water applied to this property during subsequent use of the land for other purposes.

10. The discharger shall comply with the Contingency Planning and Notification Requirements Order No. 74-151.

Certification

I, David C. Joseph, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region, on February 24, 1977.

ORIGINAL SIGNED BY

David C. Joseph
Executive Officer

California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM NO. 77-23

for

COUNTY OF MENDOCINO
SOUTH COAST SOLID WASTE DISPOSAL SITE

Mendocino County

MONITORING*

1. A monitoring well shall be installed within 200 feet and down gradient from the disposal area shown on Attachment "B". The well shall extend at least five feet below the elevation of groundwater and the casing shall be perforated within the groundwater zone. The top of the well casing shall be at least 1 foot above ground surface to preclude surface water inflow and shall be capped to preclude other pollutants. The well casing shall be of inert material, shall have a minimum inside diameter of 4 inches, and shall be backfilled with gravel to prevent the plugging of perforations with earth. The following shall constitute the monitoring program:

Bimonthly a grab sample shall be collected from the well as follows:

Immediately prior to sampling, the elevation of the water standing in the casing shall be determined, the well shall then be pumped for 5 minutes or until excavated. A grab sample shall then be taken from the inflowing water and analyzed for the following constituents:

<u>Constituent</u>	<u>Units</u>
Chemical Oxygen Demand	mg/l
Total Hardness (Ca CO ₃)	mg/l
Total Iron	mg/l
Specific Conductance	micromhos/cm @25°C
Total Dissolved Solids	mg/l

2. In addition, the elevation of groundwater shall be determined monthly in observation well W-2 located up gradient from the disposal area.
3. The approximate volume of leachate or other liquid wastes collected by the liquid control barrier shall be determined each month.
4. The approximate remaining capacity of the solid waste disposal site shall be determined annually.

* Compliance with item No. 1 of the monitoring program shall be delayed pending completion of the discharger's developmental study for the site; however, compliance shall not be delayed past January 1, 1978.

Monitoring and Reporting
Program No. 77-23

REPORTING

Monitoring reports shall be submitted to the Regional Board monthly by the 15th day of the following month. In reporting the monitoring data, the discharger shall arrange the data in tabular form on an 8 $\frac{1}{2}$ by 11 inch sheet so that the date, the constituents, and the concentrations are readily discernible. If the discharger is unable to collect samples because the sampling point is dry, the monitoring report shall so indicate. The monitoring and any necessary narrative reports shall be transmitted in accordance with specifications of Resolution No. 71-5 adopted by the Board on February 3, 1971.

Ordered by _____

ORIGINAL SIGNED BY _____

David C. Joseph
Executive Officer

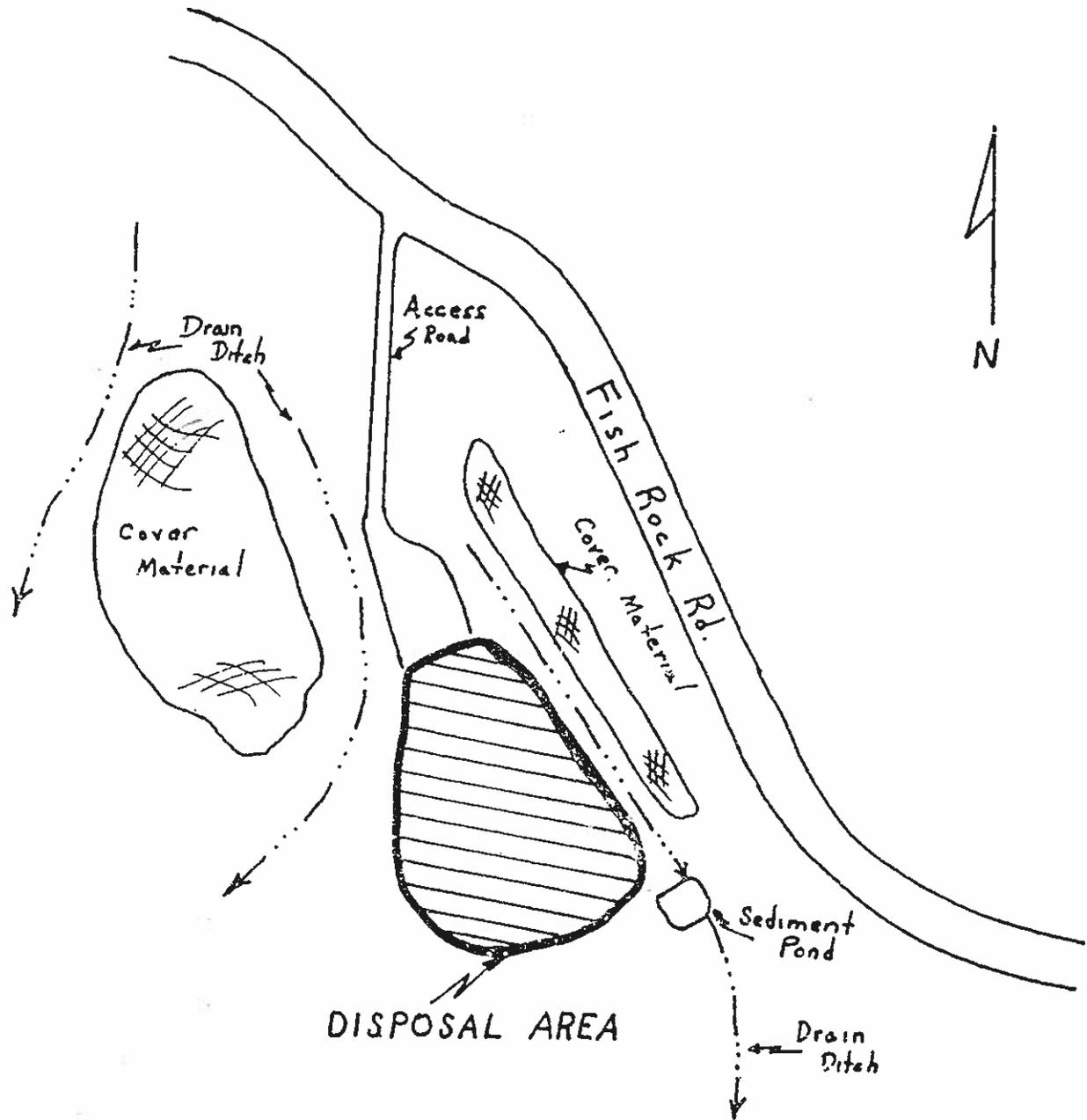
February 24, 1977



Disposal Area

Attachment - "A"

SOUTH COAST SWDS



Attachment - "B"



MEMORANDUM

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
501 LOW GAP ROAD, ROOM 1440
UKIAH, CALIFORNIA 95482

August 29, 1996

TO: Randy Forbes, Solid Waste Division

FROM: Pamela Townsend, Planner II

SUBJ: Land Use Consistency- South Coast Landfill

The South Coast Landfill (AP# 141-080-26) is located on property consistent with the General Plan classification Public Services, Solid Waste (PS-SW) and zoning district Public Facilities (PF) which permits landfills, transfer stations recycling and accessory uses as a permitted use.

RECEIVED
AUG 30 1996
MENDOCINO COUNTY
SOLID WASTE DIVISION

June 19, 1970
1409

Upon motion by Commissioner Hulbert, and seconded by Commissioner York, and approved by the following roll call vote, the Planning Commission recommended that the Board of Supervisors APPROVE the Ascherman rezoning to F-C:

AYES: (3) Commissioners Cleland, Hulbert and York
NOES: (2) Commissioners King and Stoddard
ABSENT: (2) Commissioners Butler and Rowland

2. VIRGIL KEITH (Wehrman Estate) - Approximately 2miles north of Laughlin Way on both sides of US 101/A-1 to F-C

The public hearing was declared open by Vice Chairman York.

Mr. Keith was not present, and staff advised that they could give a report on Mr. Keith's property but they would rather that the applicant be present at the hearing and present his own case for rezoning.

Upon motion by Commissioner Cleland, seconded by Commissioner King, and unanimously approved, the Virgil Keith rezoning was CONTINUED to July 17, 1970. Staff was instructed to contact the applicant on the above matter.

PUBLIC HEARING - LAND USE PERMITS

1. Use Permit 26-70 - County of Mendocino/Refuse Disposal Site on Fish Rock Road, 1/2 mile East of Iversen Road Gualala.

Vice Chairman York declared the public hearing open.

Mr. C. F. Campbell, Director of Public Works, was present and described the location of the 52 acre site; that the County has right of entry and a statement of willingness of the Gualala Redwood Company to negotiate for selling price upon approval of the Planning Commission of the site; that the clearing would be extensive, but a screen of trees could be left so that the dump would not be visible from the road; that the ownerships around the dump are large and no homes are in the area.

Supervisor Scaramella was present to support the approval of the dump site and strongly urged that the Commission approve of the site if the facts and findings of the adaptability of the site are appropriate.

Mr. Ralph Penock, Mayor of Point Arena, was present and stated that he agrees with Supervisor Scaramella's statement, and he also advised that Point Arena has been given a cease and desist order to stop dumping raw sewage into the ocean, therefore provision must be made for refuse disposal in the near future.

June 19, 1970
1410

Miss Sue Rogers, Point Arena resident, was present and asked if the cut and fill operation as noted by Mr. Campbell would include burning. Mr. Campbell explained the cut and fill operation and advised that the amount of burning would be up to the individuals and nature, that there could never be complete control over the burning.

Mrs. Joyce ^{Schacter} ~~Shafter~~ commented on the condition of the dumps in the County; suggested that this dump be covered every day in order to eliminate the smell, flies and scattered papers; asked that the gate be locked, and open only during certain hours, and asked if there was to be a charge for dumping. Mrs. Shafter also read a number of titles of Federal Grants whereby the Commission can obtain additional funds to develop a dump the County could be proud of.

Mr. John Bower, North Gualala Water Company, was present and advised that he was concerned with the location of the dump because it is located at the head of the watershed for the North Fork of the Gualala River; and inquired as to who will be responsible in the event substantial water pollution is caused by this dump site. Mr. Campbell advised that the County would be required to fulfill all responsibilities of all regulating agencies. Mr. Bower asked who would be responsible if the County met the requirements of all agencies, but there is still a problem with water pollution.

Mr. Falkenberg asked if there couldn't be property found that would not have so much public road frontage. Mr. Campbell replied that they chose this location in order to stay out of the drainage area.

Mrs. Rogers asked how long this dump would last, and was advised by Mr. Campbell that a time limit could not be estimated at this time.

Deputy District Attorney Williams summarized Section 20-77 of the Mendocino County Code for the benefit of the Commission.

Staff advised that one letter of opposition had been received from a Mr. Holm.

Vice Chairman York closed the public hearing.

Commissioner Hulbert inquired as to what the mileage was from Point Arena and was advised that the dump site was approximately 13 miles from Point Arena and 7 to 8 miles from Gualala.

Commissioner Stoddard asked if it would be possible to have the dump franchised and not allow the general public to use the dump.

Mr. Campbell stated that the policy on County dumps is unwritten. If this site is approved it would be their intention to study the full extent of the site, that it would unquestionably be costly, but would eliminate most of the objections to the method of operation. He will suggest that the property be manned, that there will be access at only certain spots and controlled. If there is to be a fee charge or franchised, the Board of Supervisors has not established a policy.

June 19, 1970
1411

Commissioner York asked if the Commission established some conditions would it cover the 20-77 Section of the County Code, and Deputy District Attorney Williams advised that yes, this would cover Section 20-77.

A discussion followed on the differences between a modified land fill and a land fill dump and a buffer zone around the site for water pollution problems.

Commissioner Cleland moved that the Planning Commission approve Land Use Permit #26-70 for a period of 25 years. Commissioner King inquired as to whether this motion would be proper under Section 20-77 of the Mendocino County Code, Deputy District Attorney Williams advised that it is the decision of the Commission as to whether the motion is in accordance with Section 20-77. Commissioner Cleland's motion failed for lack of a second.

Upon motion by Commissioner Hulbert, seconded by Commissioner King, and approved by the following roll call vote, the Planning Commission APPROVED Land Use Permit #26-70, subject to the following conditions:

- (a) that this permit shall expire and be void at the expiration of twenty-five (25) years from and after the date of issuance hereof or such longer period as may be approved by the Planning Commission prior to the expiration of said twenty-five (25) years;
- (b) applicant may file at least thirty (30) days in advance of said expiration date for continuance of operation, construction and maintenance;
- (c) that successful negotiations be made with Gualala Redwoods
- (d) approval of the Division of Forestry
- (e) approval of the Department of Public Health
- (f) approval of the California Regional Water Quality Control Board
- (g) approval of other State and County agencies involved
- (h) 100 foot natural screen be provided on all sides of site
- (i) that it be a cut and fill operation
- (j) that the dump be manned at all times during hours of operation.
- (k) that burning be excluded
- (l) that the Board of Supervisors define in detail the cut and fill operation of a dump site.

The Commission may grant a continuance of the permit for any period it deems reasonable:

AYES: (4) Commissioners Hulbert, King, Stoddard and York
NOES: (1) Commissioner Cleland
ABSENT: (2) Commissioners Butler and Rowland

Supervisor Scaramella advised that the Public Works Department is the petitioner and has the right of appeal to the Board of Supervisors.

2. Use Permit # 24-70 - P. C. Winters/50 space travel trailer, campers, tents, dormitory and related facilities/S side of Hwy 128 at Dry Creek.

APPENDIX D
REGIONAL BOARD'S LETTER

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
NORTH COAST REGION10 GUERNEVILLE ROAD
MANTA ROSA, CA 95403
(707) 576-2220

Jul 20 1 31 PM '90



July 19, 1990

RECEIVED
PUBLIC WORKS
DEPARTMENTMr. Randy Forbes
Mendocino County Department
of Public Works
Courthouse
Ukiah, CA 95482

Dear Mr. Forbes:

Subject: South Coast Landfill

I appreciated the opportunity of meeting with you on May 10, 1990, to discuss matters related to the South Coast landfill in Mendocino County. I would also like to thank you for providing me with several documents related to the site which were missing from our files.

As we discussed I will be the Regional Board staff person working on the South Coast landfill case from this time forward. I have reviewed the case history and find a number of items of unfinished business which I would like to bring to your attention. Specific areas of interest include completing the SWAT Report, updating the current waste discharge requirements, revising the current monitoring and reporting program, and correction of leachate production problems in accordance with Cleanup and Abatement Order No. 87-44 which is currently in effect.

SWAT REPORT

We received the original draft of the SWAT report in July of 1988. Comments regarding the draft were sent to your office on October 10, 1988. The response to our comments was dated November 1988 and the revised SWAT Report was dated April 1989. These last two documents were among those missing from our files and as such we have yet to respond to them. The response to comments was largely a statement that additional sampling would be performed as soon as groundwater conditions permitted. The revised SWAT Report has been reviewed and our comments are as follows:

1. The waste characterization table found on page 8 of the report is an excerpt from the County Solid Waste Management Plan and is not entirely accurate. The table indicates that the South Coast site receives 188 tons of manure every year, 361 tons of crop residues, 28 tons of fish processing slurry, and 5 tons of liquid chemical wastes. The table should be revised to describe what is actually received at the site.
2. The name of the access road on the site plan has still not been corrected. The access road is Fish Rock Road not Signal Hill Road.

July 19, 1990

3. The response to comments indicated that water elevations in monitoring wells had been measured quarterly for a year to determine seasonal fluctuations of the gradient. The revised SWAT report contains data from only two measurements.
4. The revised SWAT report still contains no results from sampling of surface runoff or leachate.
5. The revised SWAT report still does not contain sufficient groundwater data to consider the report complete. Samples need to be collected from all of the SWAT wells over the period of one year or one hydrologic cycle. If the wells do not permit collection of samples then new wells which function properly will need to be installed. The primary purpose of the Solid Waste Assessment Test is to determine whether or not hazardous wastes have migrated from the site. Until the groundwater is sampled it will not be known whether or not the site leaks and, therefore, the SWAT report is to be considered incomplete.

At this time it is appropriate for the County to prepare a workplan for completing the SWAT report. Please provide a written workplan and time schedule for completing remaining SWAT work on or before August 15, 1990.

WASTE DISCHARGE REQUIREMENTS UPDATE

We are aware that the County of Mendocino recently issued a contract for the preparation of Reports of Waste Discharge (ROWD) for the County's three landfills. Please submit a revised time schedule for submittal of the ROWD for the South Coast landfill.

MONITORING AND REPORTING PROGRAM

The South Coast landfill is presently regulated under Board Order No. 77-23, Waste Discharge Requirements. The associated monitoring program predates the installation of the five SWAT wells. In order to begin gathering the data necessary to complete the SWAT report, Monitoring and Reporting Program No. 77-23 has been revised. A copy of the revised program is enclosed and effective immediately.

LEACHATE CONTROL

Cleanup and Abatement Order No. 87-44 was issued in response to leachate control problems at the landfill. We are aware that corrective measures were taken in response to the Order but we are also aware that leachate production is still a problem at the site. During our recent inspection on April 6, 1990, a pond containing leachate was observed below the active face area. During the inspection we requested that the pond be pumped empty and the contents hauled to an appropriate treatment or disposal facility. At this time we request that a plan be prepared for controlling leachate production which is to be anticipated this coming winter. The plan should contain a time schedule for installing any necessary control facilities and should be submitted by September 1, 1990.

One final point involves collection of samples from wells with poor yield. We have stated in the past that monitoring wells should be purged prior to sample collection by removing at least three well volumes before collecting samples. The reason for purging is to assure that the sample is representative of the aquifer water rather than water

Mr. Randy Forbes

Page 3

July 19, 1990

which has been sitting in the well casing exposed to the air. During our recent inspection you indicated that many of the SWAT wells pump dry before three well volumes have been removed and, therefore, you have not collected samples from them. In the future please follow a procedure of pumping low yield wells to nearly dry and then sample the water which initially re-enters the well. This water can be considered representative of the aquifer and will provide data with which to complete the SWAT work.

In closing I would again like to thank you for your cooperation in getting the remaining work at the South Coast landfill back on line. If you have any questions or comments regarding this matter, please give me a call.

Sincerely,

David S. Evans

for David S. Evans
Associate Water Resource
Control Engineer

DSE:pcg/forbes

Enclosure

cc: Mendocino County Health Department
California Integrated Waste Management Board

**APPENDIX E
LOGS OF ON-SITE WELLS**

GROUNDWATER MONITORING WELLS

87-SERIES

Other laboratory	Dry Density (pcf)	Moisture Content (%)	Blows/ Foot "	Depth (feet)	Equipment: 12" Hollow Auger ** Elevation: 512	Start Date: 8-10-87 Finish Date: 8-10-87
				2	BROWN CLAYEY GRAVEL(GC) medium dense, moist	
			14	4	GRAY-GREEN TO ORANGE-BROWN SERPENTINITE sheared, firm, friable, highly weathered	
				6		
				8		
			17	8	DARK GRAY SHALE, extremely closely spaced fractures, moderately hard, moderately strong Water Level 8-19-87	
				10	Water level 10-15-87	
				12		
			22	14	DARK GRAY SHEARED SHALE firm, plastic, highly weathered	
				16		
			35	18		
					BOTTOM OF BORING 1 @ 18.5 FEET Hole Converted to Monitoring Well 87-1	

Converted to equivalent standard penetration blow counts.

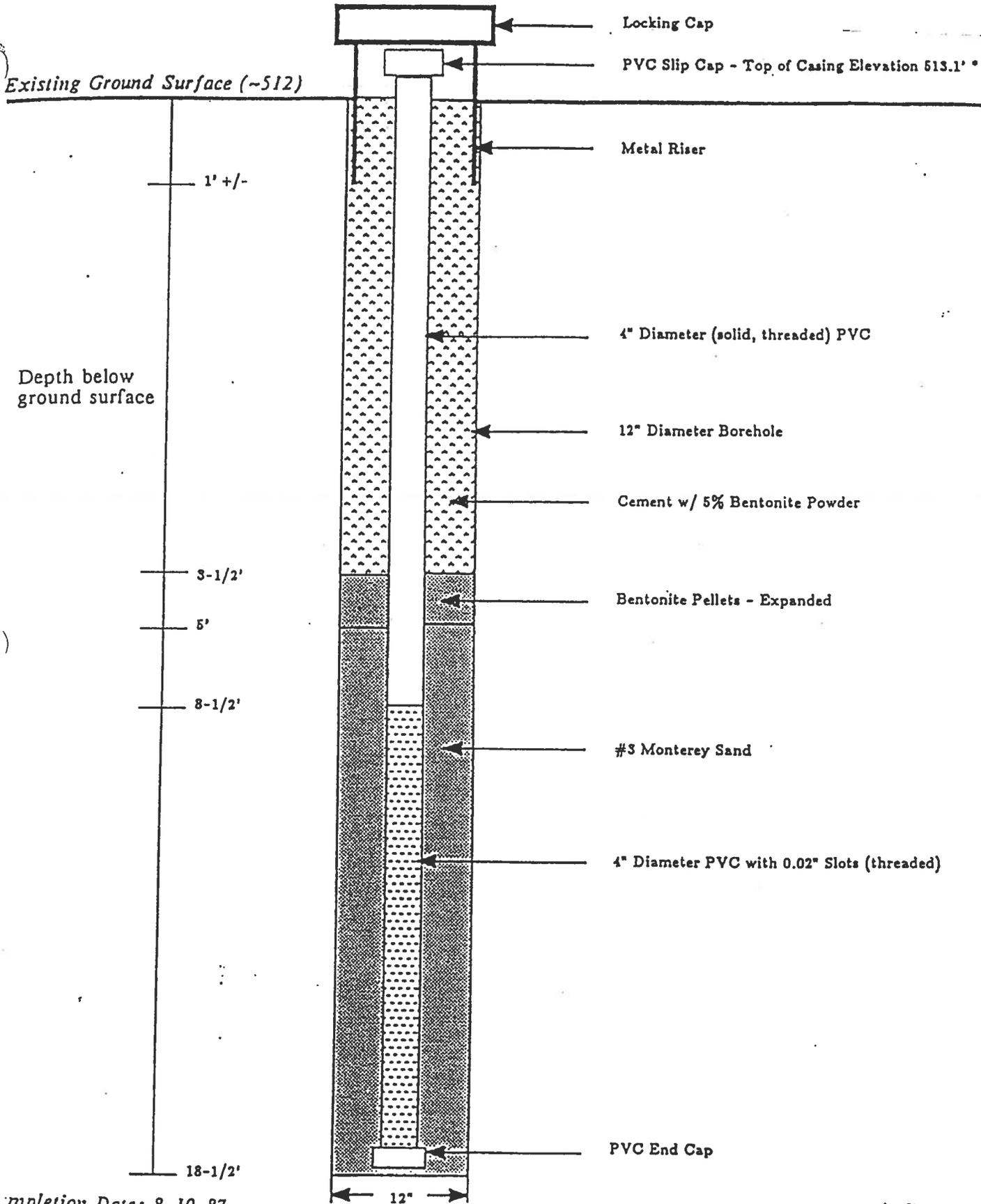
** Elevations extrapolated from Site Plan.

RONALD
HERZOG
& ASSOCIATES
GEOLOGICAL AND
GEOTECHNICAL AND

Job No:
15040.01.00.7
Appr: *CWL* Drwn: PD
Date:

LOG OF BORING 1
SOUTH COAST LANDFILL

PLATE
2



Completion Date: 8-19-87

* Ref: EBA Survey 11-6-8

DONALD
HERZOG
& ASSOCIATES
GEOTECHNICAL ENGINEERS

Job No:
15040.01.00.7
Appr: *gjk* Dwn: PD
Date:

MONITORING WELL 87-1 DETAILS

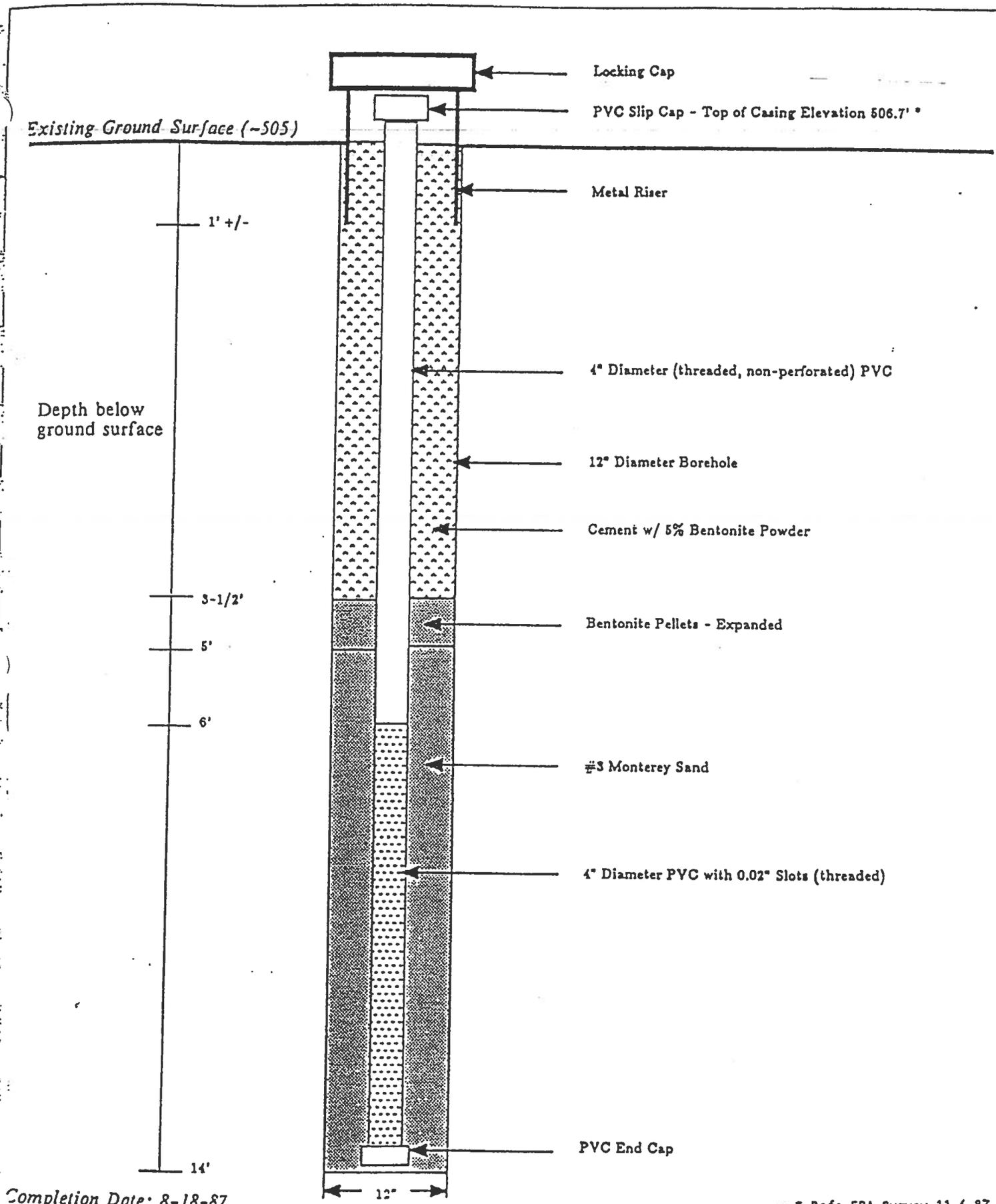
SOUTH COAST LANDFILL

PLATE

10

Soil Laboratory Tests	Dry Density (pcf)	Moisture Content (%)	Blows/ Foot *	Depth (feet)	Equipment: 12" Hollow Auger Elevation: 505	Start Date: 8-18-87 Finish Date: 8-18-87
				2	ORANGE-BROWN SANDY CLAY(CL) medium stiff, moist	
				4	DARK GRAY-BROWN SHEARED SHALE MELANGE firm, friable, highly weathered	
			22	6		
				8	Water Level 10-15-87 becoming dark gray to black, clayey with talc	
			12	10		
				12	drilling becoming occasionally hard and rocky	
			11	14		
				16	Water Level 8-18-87 Refusal to 12" Hollow Auger	
					BOTTOM OF BORING 2 @ 17 FEET Hole Converted to Monitoring Well 87-2	

Permeability Test Data,
see Plate 9



Completion Date: 8-18-87

* Ref: EBA Survey 11-6-87

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ASSOCIATES

Job No:
15040.01.00.7
Appr: *ck* PD
Drawn:
Date:

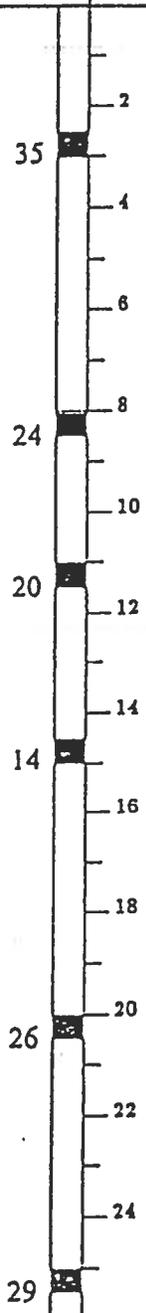
MONITORING WELL 87-2 DETAILS

SOUTH COAST LANDFILL

PLATE

the laboratory Tests	Dry Density (pcf)	Moisture Content (%)	Blows/ Foot *	Depth (feet)	Equipment: 12" Hollow Auger ** Elevation: 442	Start Date: 8-19-87 Finish Date: 8-19-87
----------------------------	-------------------------	----------------------------	------------------	-----------------	--	---

Permeability Test Data,
see Plate 9



MOTTLED BROWN SANDY CLAY(CL)
stiff, moist

BROWN CLAYEY GRAVEL(GC)
medium dense, wet

DARK GRAY TO BLACK CLAY(CL)
stiff, wet to saturated, with talc and rock fragments

Water Level 10-15-87

BOTTOM OF BORING 3 @ 25.5 FEET
Hole Converted to Monitoring Well 87-3

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GEOTECHNICAL AND

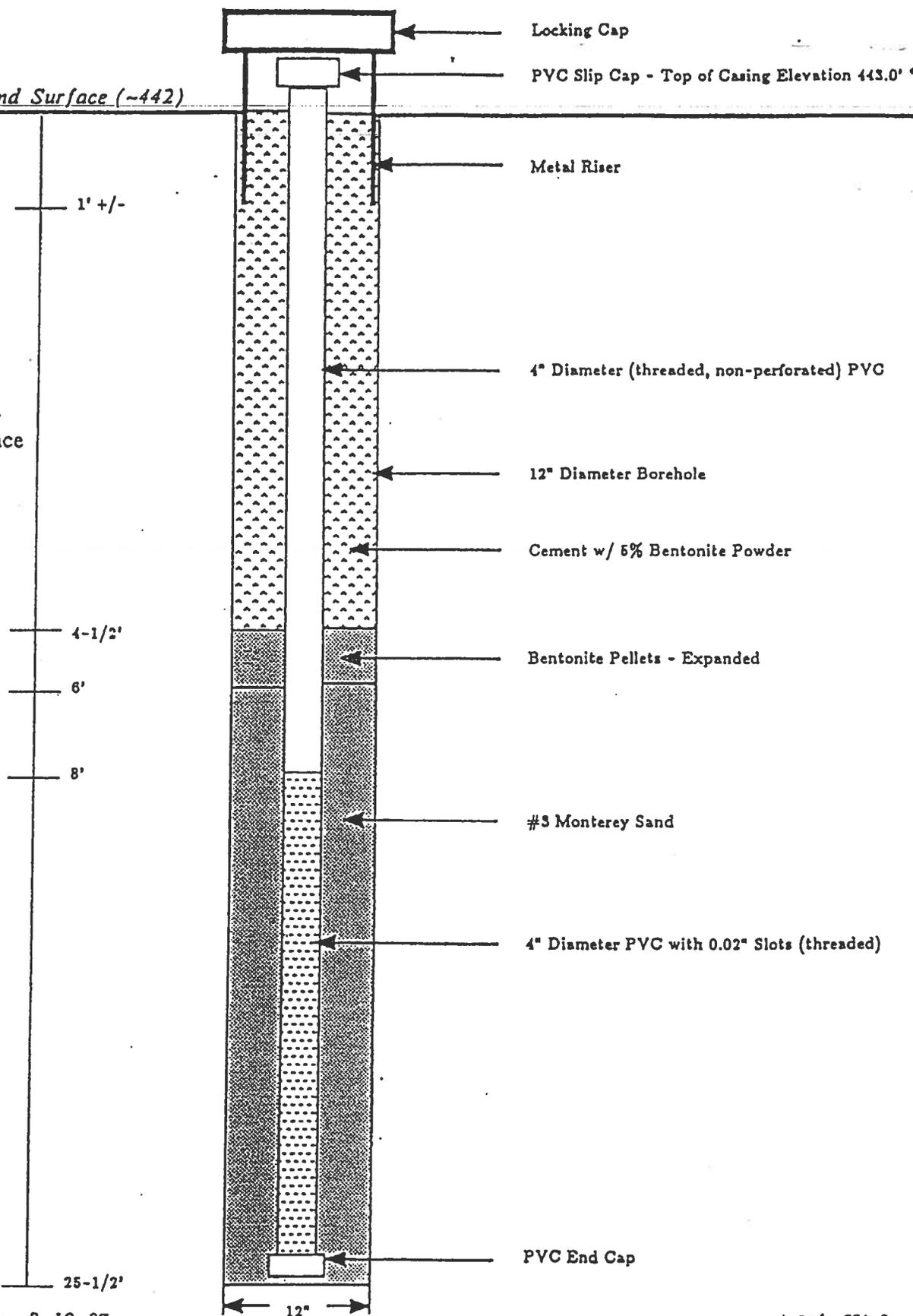
Job No:
15040.01.00.7
Appr: *AR* Drwn: PD
Date:

LOG OF BORING 3
SOUTH COAST LANDFILL
Culata, California

PLATE
4

Existing Ground Surface (~442)

Depth below ground surface



Locking Cap

PVC Slip Cap - Top of Casing Elevation 443.0'

Metal Riser

4" Diameter (threaded, non-perforated) PVC

12" Diameter Borehole

Cement w/ 5% Bentonite Powder

Bentonite Pellets - Expanded

#3 Monterey Sand

4" Diameter PVC with 0.02" Slots (threaded)

PVC End Cap

1' +/-

4-1/2'

6'

8'

25-1/2'

12"

Completion Date: 8-19-87

* Ref: EBA Survey 11-6-87

Job No:
15040.01.00.7

Appr: *AK* Drwn: PD

Date:

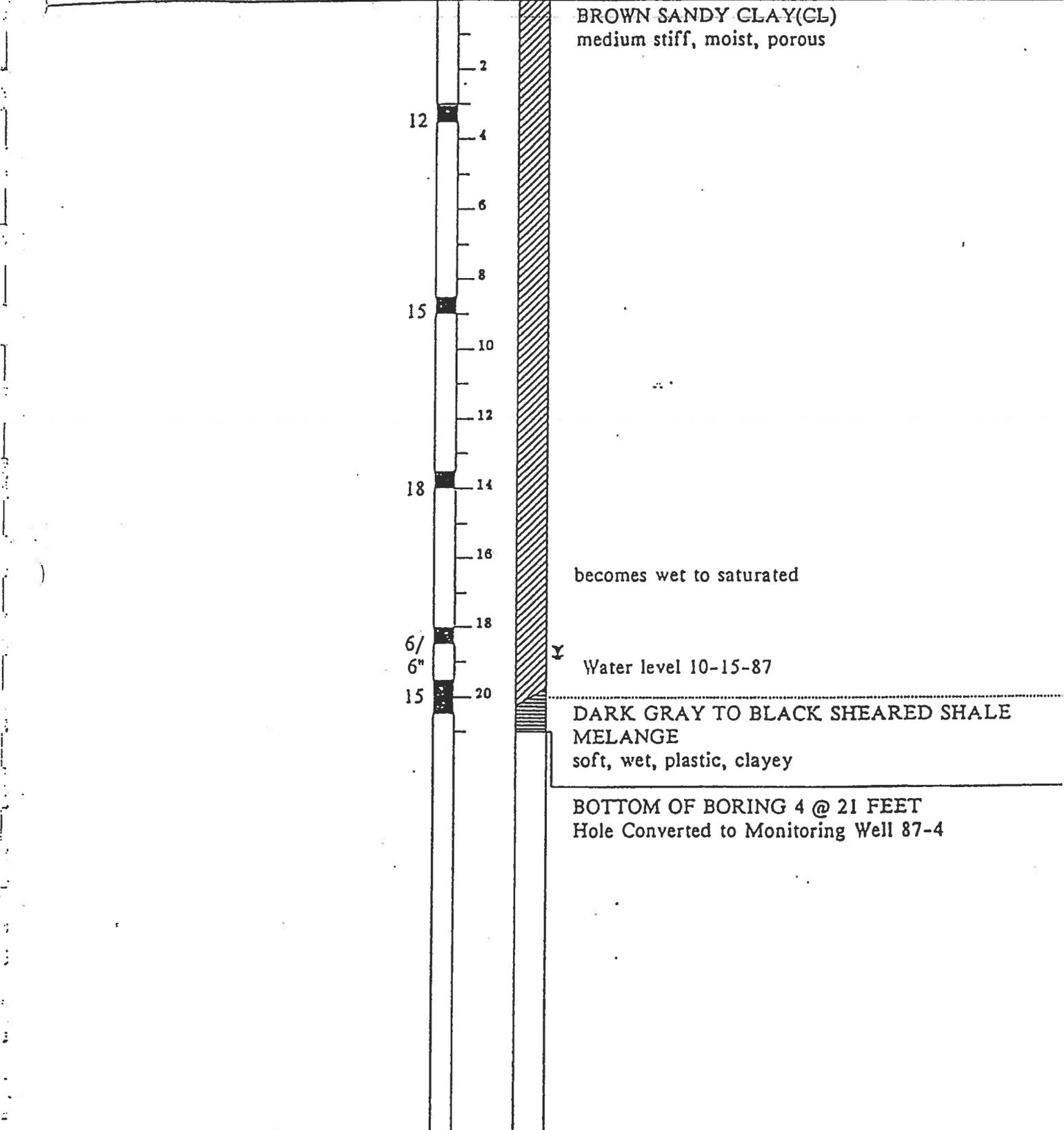
MONITORING WELL 87-3 DETAILS

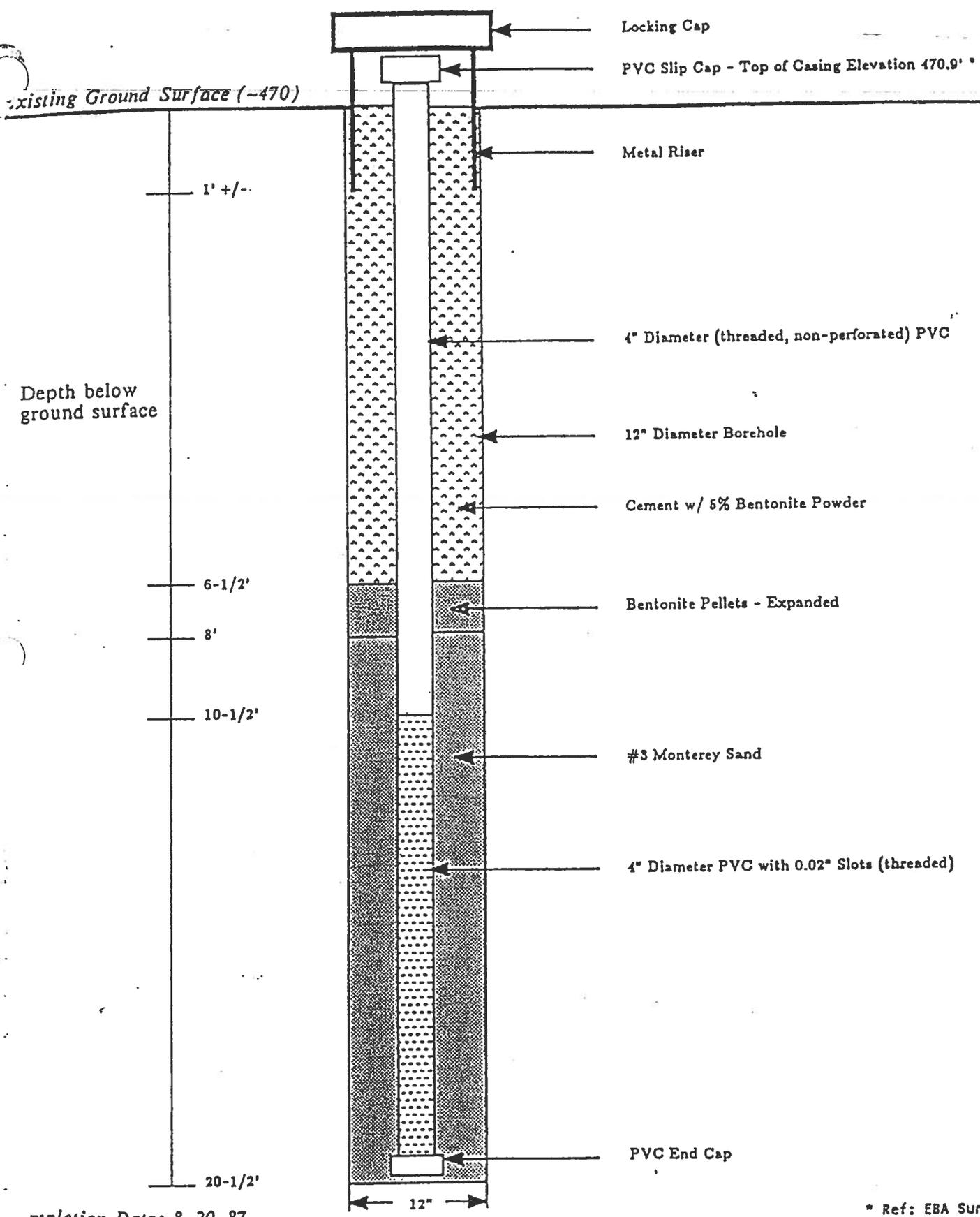
SOUTH COAST LANDFILL

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HERZOG
ASSOCIATES
POTTSVILLE, PA

PLATE

12





Completion Date: 8-20-87

Ref: EBA Survey 11-6-

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& ASSOCIATES

Job No:
15040.01.00.7
Appr: *AK*
Drwn: PD

MONITORING WELL 87-4 DETAILS

SOUTH COAST LANDFILL

PLATE

13

ther
laboratory
Tests

Dry
Density
(pcf)

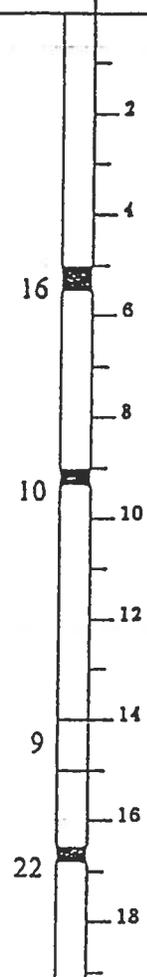
Moisture
Content
(%)

Blows/
Foot *

Depth
(feet)

Equipment: 12" Hollow Auger
** Elevation: 494

Start Date: 8-20-87
Finish Date: 8-20-87



BROWN SANDY GRAVELLY CLAY(CL)
medium stiff, moist, porous, (Fill)

BROWN GRAVELLY CLAY(CL)
stiff, wet

DARK GRAY TO BLACK SHEARED SHALE
soft, plastic

Water Level 10-15-87

BOTTOM OF BORING 5 @ 19 FEET
Hole Converted to Monitoring Well 87-5

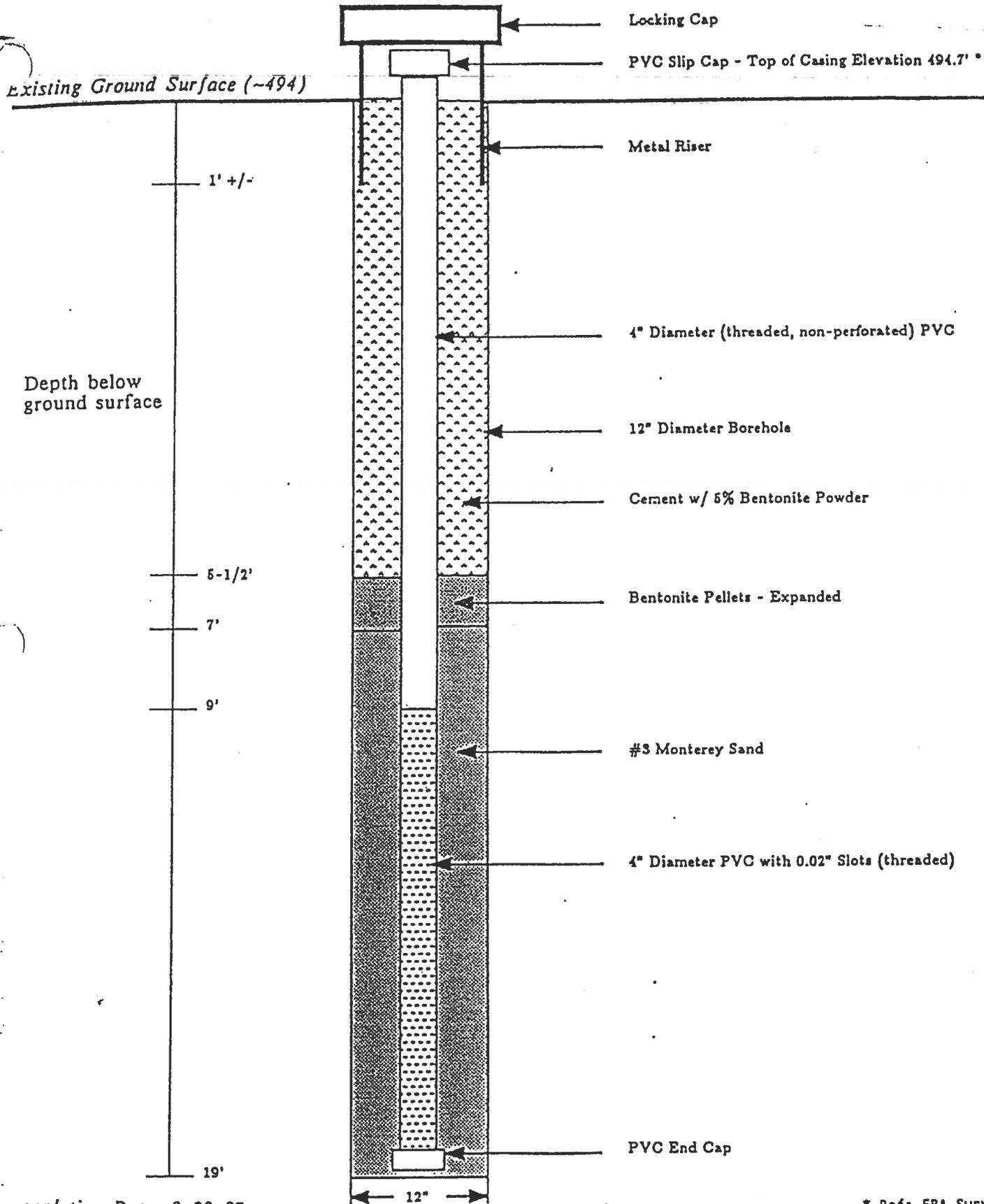
RONALD
HERZOG
& ASSOCIATES
GEOTECHNICAL AND

Job No:
15040.01.00.7
Appr: *CWL*
Date:

Drwn:
PD

LOG OF BORING 5
SOUTH COAST LANDFILL

PLATE
6



Completion Date: 8-20-87

* Ref: EBA Survey 11-6-8

DONALD
HERZOG
& ASSOCIATES

Job No:
15040.01.00.7
Appr: *OH* Drwn: PD

MONITORING WELL 87-5 DETAILS

SOUTH COAST LANDFILL

PLATE

14

MAJOR DIVISIONS					TYPICAL NAMES
COARSE GRAINED SOILS More Than Half > #200 Sieve	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP		POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC		CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS, GRAVELLY SANDS
			SP		POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC		CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS More Than Half < #200 sieve	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
		CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
		OL		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
		CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
		OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS		Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS	

UNIFIED SOIL CLASSIFICATION SYSTEM

Consol	Consolidation	Tx	320 (2600)	Unconsolidated Undrained Triaxial
LL	Liquid Limit (in %)	TxCU	320 (2600)	Consolidated Undrained Triaxial
PL	Plastic Limit (in %)	DS	2750 (2000)	Consolidated Drained Direct Shear
PI	Plasticity Index	FVS	470	Field Vane Shear
G _s	Specific Gravity	UC	2000	Unconfined Compression
SA	Sieve Analysis	LVS	700	Laboratory Vane Shear
	Undisturbed Sample	SS	Shrink Swell	
	Bulk or Disturbed Sample	EXP	Expansion	
	Standard Penetration Test	P	Permeability	
	Sample Attempt with No Recovery			

KEY TO TEST DATA

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& ASSOCIATES

Job No:
15040.01.00.7
Appr: *AK* Drwn: PD

SOIL CLASSIFICATION CHART AND KEY TO TEST DATA

SOUTH COAST LANDFILL

PLATE

ROCK SYMBOLS



SHALE OR CLAYSTONE



CHERT



SERPENTINITE



SILTSTONE



PYROCLASTIC



METAMORPHIC ROCKS



SANDSTONE



VOLCANIC



ALTERED ROCKS



CONGLOMERATE



PLUTONIC



SHEARED ROCKS

LAYERING

JOINT, FRACTURE, OR SHEAR SPACING

MASSIVE	Greater than 6 feet
THICKLY BEDDED	2 to 6 feet
MEDIUM BEDDED	8 to 24 inches
THINLY BEDDED	2-1/2 to 8 inches
VERY THINLY BEDDED	3/4 to 2-1/2 inches
CLOSELY LAMINATED	1/4 to 3/4 inches
VERY CLOSELY LAMINATED	Less than 1/4 inch

VERY WIDELY SPACED	Greater than 6 feet
WIDELY SPACED	2 to 6 feet
MODERATELY SPACED	8 to 24 inches
CLOSELY SPACED	2-1/2 to 8 inches
VERY CLOSELY SPACED	3/4 to 2-1/2 inches
EXTREMELY CLOSELY SPACED	Less than 3/4 inch

HARDNESS

SOFT - Pliable; can be dug by hand

FIRM - Can be gouged deeply or carved with a pocket knife

MODERATELY HARD - Can be readily scratched by a knife blade; scratch leaves heavy trace of dust and is readily visible after the powder has been blown away

HARD - Can be scratched with difficulty; scratch produces little powder and is often faintly visible

VERY HARD - Cannot be scratched with pocket knife; leaves a metallic streak

STRENGTH

PLASTIC - Capable of being molded by hand

FRIABLE - Crumbles by rubbing with fingers

WEAK - An unfractured specimen of such material will crumble under light hammer blows

MODERATELY STRONG - Specimen will withstand a few heavy hammer blows before breaking

STRONG - Specimen will withstand a few heavy ringing hammer blows and usually yields large fragments

VERY STRONG - Rock will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments

DEGREE OF WEATHERING

HIGHLY WEATHERED - Abundant fractures coated with oxides, carbonates, sulphates, mud, etc., thorough discoloration, rock disintegration, mineral decomposition

MODERATELY WEATHERED - Some fracture coating, moderate or localized discoloration, little to no effect on cementation, slight mineral decomposition

SLIGHTLY WEATHERED - A few stained fractures, slight discoloration, little or no effect on cementation, no mineral decomposition

FRESH - Unaffected by weathering agents, no appreciable change with depth

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& ASSOCIATES

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15040.01.00.7
Appr: WJL Drwn: PD

ENGINEERING GEOLOGY
ROCK TERMS
SOUTH COAST LANDFILL

PLATE

8

GROUNDWATER MONITORING WELL

91-1



CONSULTING ENGINEERS
& GEOLOGISTS
2630 Harrison Ave. (707) 444-0427
Eureka, CA 95501 FAX (707) 444-0193

HOLE NUMBER 91-1

PROJECT Mendocino County JOB NUMBER 900189.100
 LOCATION South Coast Landfill DATE DRILLED 2/23/91
 GROUND SURFACE ELEVATION _____ SAMPLER TYPE 5' Dry Core
 EXCAVATION METHOD CME-95 12"
 LOGGED BY JLA TOTAL DEPTH OF HOLE 29ft.

REMARKS	DEPTH (ft.)	SAMPLES	% RECOVERY	GRAPHIC LOG	USCS CLASS	MATERIALS DESCRIPTION	WELL DIAGRAM
	1				ML	SILT, sandy, clayey, stiff, slightly moist, yellowish gray. Trace carbonized wood fragments to 1/8" maximum dimension, some roots.	
	2						
	3						
	4				CL	CLAY, silty, sandy, gravelly, slightly moist, very stiff, subangular to sub-rounded, slickenslided gravel to 3/4" maximum dimension.	
	5						
	6						
	7						
	8						
	9						
	10						
	11				CL	SILTSTONE/SANDSTONE, dark gray (fresh) to yellowish gray (weathered), fractured, slickenslides, free water present along fractures.	
	12						
	13					CLAY, gravelly, moist to wet, stiff, black, angular, slickenslided gravel to 1.5" maximum dimension; free water in voids around gravels.	
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24					Increase in gravel.	
	25						
	26						
	27						
	28					SILTSTONE/SANDSTONE, dry to moist, fractured, gray, slickenslided.	
	29						
	30					Bottom of boring at 29 feet. Note: over drilled hole from 28 to 29 feet to open hole.	

2/23/91
3/6/91

BORING LOG KEY

SAMPLE TYPES



DISTURBED
SAMPLE



HAND
DRIVEN TUBE
SAMPLE



1.4" I.D.
STANDARD
PENETRATION
TEST SAMPLE
(SPT)



2.5" I.D.
MODIFIED
CALIFORNIA
SAMPLE
(NOT RETAINED)



MODIFIED
CALIFORNIA
SAMPLE
(RETAINED)



CORE
BARREL
SAMPLE
(NOT RETAINED)



CORE
BARREL
SAMPLE
(RETAINED)

SYMBOLS



INITIAL WATER LEVEL



STABILIZED WATER LEVEL



GRADATIONAL CONTACT



WELL DEFINED CONTACT

LANDFILL BOREHOLE PROBES

LOG OF BORING

Boring No.: Probe1
 Date: 6/29/93

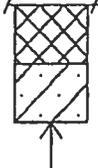
Project: 3200-77-31
 Elevation: ~513

ELEV	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	Sample Number	Density p.c.f.	Moisture %
DEPTH							
0			Landfill Waste				
5							
10							
15							
20							
25				Drilling eased - leachate anticipated			
28				First sample - No Recovery Sampler full of water	p1-1		
29			Landfill Waste Rubber fragments with rock	Second sample poor recovery rock and trash, saturated	p1-2		
30	Boring Continues						

LOG OF BORING

Boring No.: Probe1
 Date: 6/29/93

Project: 3200-77-31
 Elevation: ~513

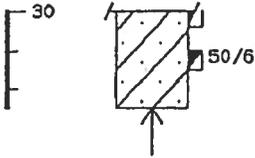
ELEV	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	Sample Number	Density p.c.f.	Moisture %
DEPTH							
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">  </div> <div>  </div> </div>			<p>Light orange/brown, moist, clayey Sand with gravel Bottom grey, dry Rock</p>	<p>Rock recovery in sampler Dry - no evidence of water Native Soil Appeared that water is confined to landfill mass</p>			

Bottom of Boring at 33 feet

LOG OF BORING

Boring No.: Probe2
 Date: 6/29/93

Project: 3200-77-31
 Elevation: ~520

ELEV DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	Sample Number	Density p.c.f.	Moisture %
				Native material appeared to have lower water content than waste	p2-3		

Bottom of Boring at 31 feet, Sample extended to 32.5

LOG OF BORING

Boring No.: Probe3
 Date: 6/30/93

Project: 3200-77-31
 Elevation: ~515

ELEV	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	Sample Number	Density p.c.f.	Moisture %
DEPTH							
[30							

End of Boring at 31 feet

LOG OF BORING

Boring No.: Probe5
Date: 6/30/93

Project: 3200-77-31
Elevation: ~515

ELEV	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	Sample Number	Density p.c.f.	Moisture %	
DEPTH								
0			Landfill waste					
5								
10								
15								
16				Landfill waste Dry to moist	Noticable change in drilling - softer material	p5-1		
18				Predominantly soil material, with areas of refuse, wet		p5-2		
20				Red/brown, moist with free moisture in sample, fine silty Sand	Native Soil - County requesting to continue to groundwater	p5-4		
25				Red/brown with crystalline fragments, moist, soft, bitly Sand with green soil intrusion		B5-5		
26			Dark green with orange, moist soft, sandy Clay, top of sample moist to wet	Moist to wet material small similar to leachate May be drilling intrusion	p5-6			
28				Worn washer found in middle of sample, may have been introduced from drilling Small paper fragment found in sample	p5-7			
30			Saturated fragmented rock	Water bearing zone	p5-8			
	Boring Continues							

LOG OF BORING

Boring No.: Probe5
 Date: 6/30/93

Project: 3200-77-31
 Elevation: ~515

ELEV	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	Sample Number	Density p.c.f.	Moisture %
DEPTH							
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>30</p> </div> <div> </div> </div>			<p>Grey, saturated silty sand with clay and rounded rock fragments</p> <p>Black, moist to wet, stiff Clay, with rock fragments</p>	<p>waste fragment noted in soil introduced by drill bit Necessary to steam clean bit once in native soil</p>	<p>p5-9</p> <p>p5-10</p>		

Bottom of Boring at 33 feet

LOG OF BORING

Boring No.: Probe6
Date: 7/1/93

Project: 3200-77-31
Elevation: ~515

ELEV DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	Sample Number	Density p.c.f.	Moisture %	
0			Landfill waste					
5				Drill bit came up wet No Recovery				
10				Only recovery in shoe - waste wet		p6-1		
11						p6-2		
12					No Recovery	p6-3		
13					Drill bit full of trash			
15								
18				Dark grey/brown, wet soil with large pieces of plastic - waste		p6-4		
19					No Recovery	p6-5		
20			Landfill waste (plastic, glass)		p6-6			
21				Large plastic piece on bottom of drill bit				
25				Bottom of refuse				
26			Red light brown, dry fine sandy Silt with fragments of sandstone		p6-7			
27			Red light brown, damp fine sandy Silt with fragments of sandstone	Sampler came up dry	p6-8			
28				Water bearing zone				
29			Light red brown, wet, dense fine sandy Silt with weathered wet sandstone		p6-9			
30								

Bottom of Boring at 30 feet

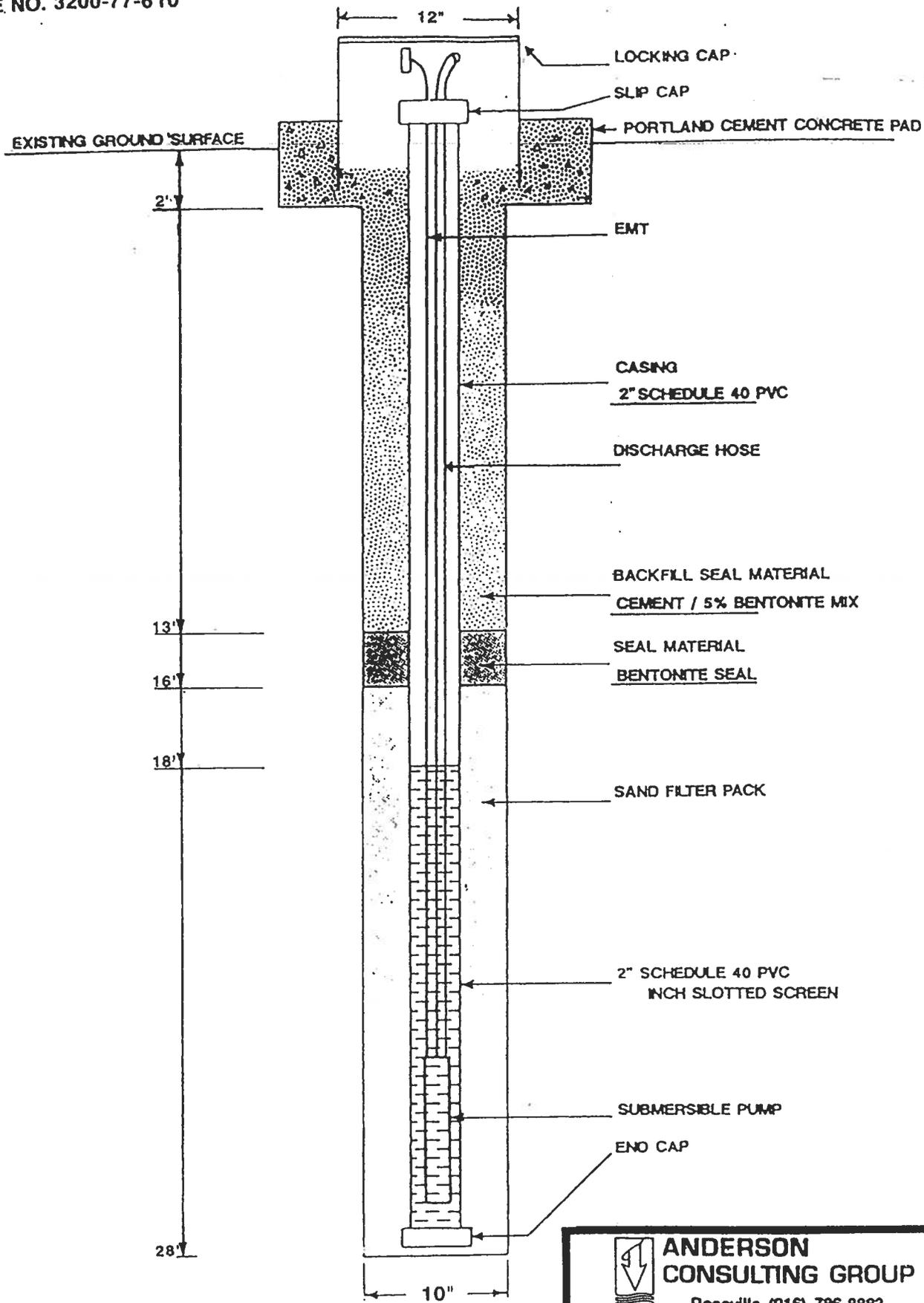
Figure Number 5

GROUNDWATER AND GAS MONITORING WELLS

94-SERIES

GROUNDWATER MONITORING WELL DIAGRAM
94-1

FILE NO. 3200-77-610



**ANDERSON
CONSULTING GROUP**

Roseville (916) 786-8883
Grass Valley (916) 273-SOIL

LOG OF BORING: 94-2

Project: South Coast Landfill Gas & GW MW

File: 3200-77-610

Date: October 6, 1994

Elevation: feet

Surface: Cleared area

Water: None encountered

ELEV	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)
DEPTH								
0			sc	Reddish brown, moist, stiff, clayey, silty Sand with gravel consisting of siltstone/claystone.				
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11		26/12	1-1					
12								
13								
14								
15								
16								
17								
18		15/12	1-2					
19								
20								
21		13/12	1-3		Light red brown, moist to wet, sandy Clay with gravel.			
22					Wet zones throughout sample; more at shoe			
23		13/8	1-4		Free water in sample voids			
24		24/12	1-5		Increase in clay content - some shale fragments			
25								
26								
27								
28		27/12	1-6		Reddish brown, with red mottling, moist, dense, Sand with clay, some gravel.			
29								
30								
31	17/12	1-7	cl	Dark gray, moist, firm, Clay with sand and shale fragments				
32	42/12	1-8						
33								

Site description and comments: ~ 5 feet from 94-1



**ANDERSON
CONSULTING
GROUP**

Boring: 94-2
Depth: 61.0 ft
Figure:

LOG OF BORING: 94-2 (Continued)

Project: South Coast Landfill Gas & GW MW

File: 3200-77-610

ELEV	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)
DEPTH								
33								
36		20/12	1-9					
41		22/12	1-10		Dark gray with light gray mottling, stiff, moist, Clay with some sand and small rock fragments			
42		47/12	1-11					
43					Small zone of wet material			
44		31/12	1-12	sc	Light gray/dark gray, moist to wet, weathered shale with clayey Sand matrix.			
45		56/12	1-13		Small wet zone throughout sample			
47		54/12	1-14		~5" wet to saturated sample, same material Sampler came up moist			
48		56/12	1-15		Only 4" recovery from sample. Moist to wet - wet to saturated on outside of sample. Back to stiff, moist, clay with one wet zone.			
49		25/12	1-16					
53		21/12	1-17		Dark gray, moist, clay with sand and gravel. Section of loosen gravel (weathered shale) were typically moist. Upper sample sections were dry. No free water - one small zone of moist to wet - more light green mottling.			
55		26/12	1-18					
59		29/12	1-19		Back into small wet zones - same formation.			

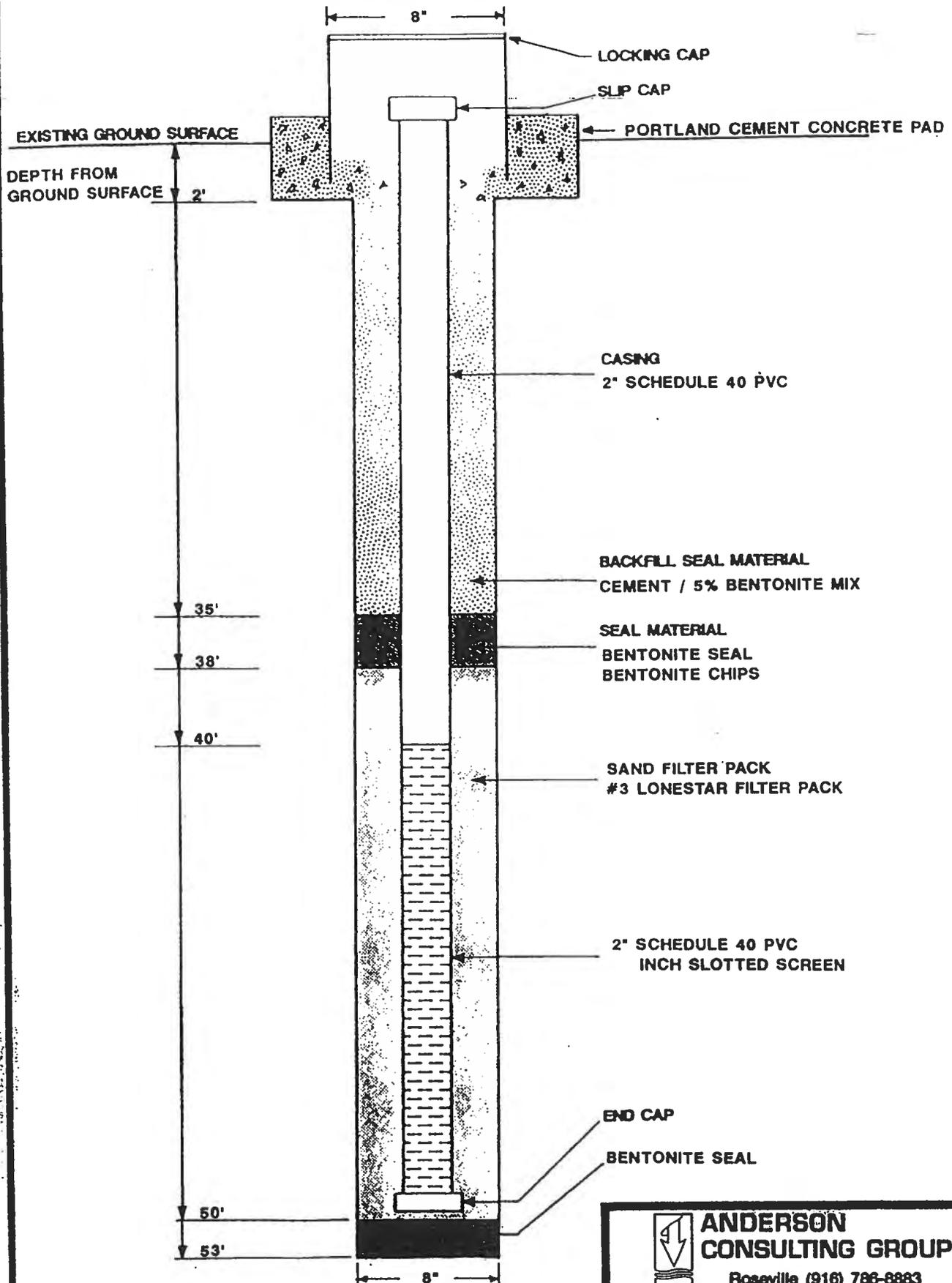
Boring terminated at 61 feet due to refusal at very stiff clay formation.



**ANDERSON
CONSULTING
GROUP**

Boring: 94-2
Depth: 61.0 ft
Figure:

GROUNDWATER MONITORING WELL DIAGRAM, 94-2
 FILE NO. 3200-77-610 SOUTH COAST LANDFILL, MENDOCINO COUNTY



**ANDERSON
 CONSULTING GROUP**

Roseville (916) 786-8883
 Grass Valley (916) 273-SOIL

LOG OF BORING: 94-3

Project: South Coast Landfill Gas & GW MW

File: 3200-77-610

Date: October 7, 1994

Elevation: feet -----

Surface:

Water: None encountered

ELEV	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)	
DEPTH									
0			sc	Light reddish brown, moist, dense, sandy Clay with gravel (siltstones/sandstones/claystone)					
4		12/12	2-1						
11		13/12	2-2	sc	Dark gray, clayey Sand/sandy Clay - pockets of sand				
13		16/12	2-3		Light yellow brown, moist to wet, clayey Sand with gravel, wet zone within layer				
14		33/12	2-4		No recovery				
16		33/12	2-5		No recovery				
17		9/12	2-6		Dark gray, moist, firm sandy Clay, with wet zones at top of sample.				
19		21/12	2-7	gc	Milky white, moist to wet, sandy Gravel/gravelly Sand				
20		26/12	2-8						
21		28/12	2-9	sc	Dark gray, moist, gravelly, sandy Clay.				
22					Dark gray, firm, moist to wet, clayey, gravelly Sand.				
23		19/12	2-10		Little to no recovery				
24	20/12	2-11		No recovery - sampler coming up wet					
25				Saturated sample - only recovery ~2" fractured rock - metamorphic - crystalline & quartz veins					
27	30/12	2-12		Gray, saturated, gravelly, silty Sand					
28				Boring terminated at 28 feet					

Site description and comments: Downhill of Boring
94-1/94-2

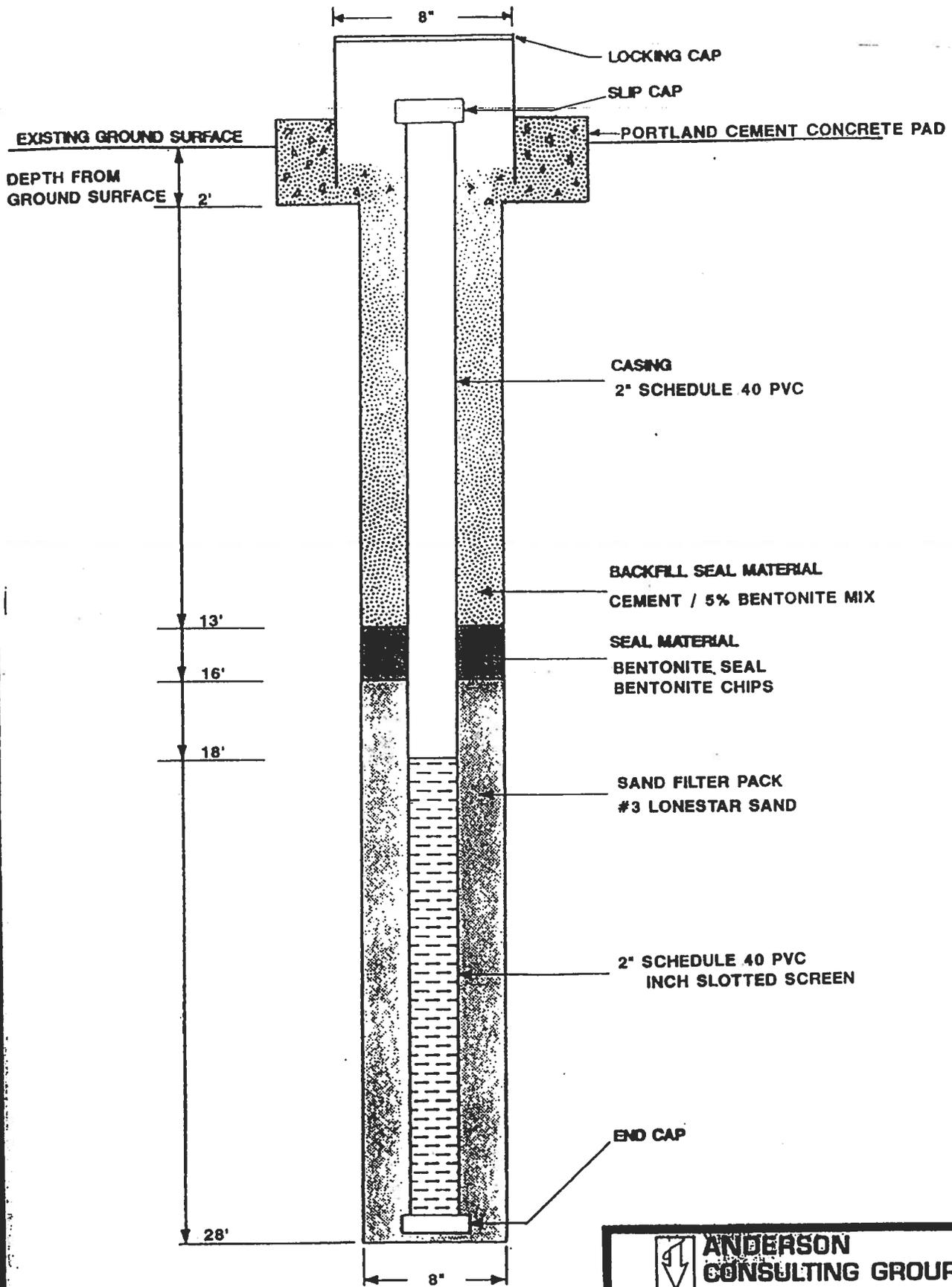


**ANDERSON
CONSULTING
GROUP**

Boring: 94-3
Depth: 28.0 ft
Figure:

GROUNDWATER MONITORING WELL DIAGRAM, 94-3
SOUTH COAST LANDFILL, MENDOCINO COUNTY

FILE NO. 3200-77-610



**ANDERSON
CONSULTING GROUP**

Roseville (916) 786-8883
Grass Valley (916) 273-SOIL

LOG OF BORING: 94-4

Project: South Coast Landfill Gas & GW MW

File: 3200-77-610

Date: October 7, 1994

Elevation: feet

Surface:

Water: None encountered

ELEV	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)	
DEPTH									
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 5px;">0</div> <div style="margin-bottom: 5px;">1</div> <div style="margin-bottom: 5px;">2</div> <div style="margin-bottom: 5px;">3</div> <div style="margin-bottom: 5px;">4</div> <div style="margin-bottom: 5px;">5</div> <div style="margin-bottom: 5px;">6</div> <div style="margin-bottom: 5px;">7</div> <div style="margin-bottom: 5px;">8</div> <div style="margin-bottom: 5px;">9</div> <div style="margin-bottom: 5px;">10</div> <div style="margin-bottom: 5px;">11</div> <div style="margin-bottom: 5px;">12</div> <div style="margin-bottom: 5px;">13</div> <div style="margin-bottom: 5px;">14</div> <div style="margin-bottom: 5px;">15</div> <div style="margin-bottom: 5px;">16</div> <div style="margin-bottom: 5px;">17</div> <div style="margin-bottom: 5px;">18</div> <div style="margin-bottom: 5px;">19</div> <div style="margin-bottom: 5px;">20</div> <div style="margin-bottom: 5px;">21</div> <div style="margin-bottom: 5px;">22</div> <div style="margin-bottom: 5px;">23</div> <div style="margin-bottom: 5px;">24</div> <div style="margin-bottom: 5px;">25</div> <div style="margin-bottom: 5px;">26</div> <div style="margin-bottom: 5px;">27</div> <div style="margin-bottom: 5px;">28</div> <div style="margin-bottom: 5px;">29</div> </div>			<p>sc</p> <p>3-1</p> <p>3-2</p> <p>3-3</p> <p>3-4</p> <p>3-5</p> <p>3-6</p> <p>3-7</p>	<p>Light reddish brown, moist, dense, sandy Clay with gravel (siltstone/sandstone/claystone).</p> <p>Strong brown, moist, dense, fractured Shale with Clay matrix - iron oxides (red mottling and some sandstone rock fragment)</p> <p>Grayish, yellowish, brown, moist, dense, clayey Sand with sand lenses</p> <p>Dark gray, moist, sandy Clay with rock fragments in cuttings.</p> <p>Dark gray, moist, stiff, sandy, gravelly Clay - grades to</p> <p>Dark gray, wet to saturated, clayey Sand with gravel of pieces of quartz. Sampler came up wet 1" recovery</p> <p>3" recovery</p> <p>Dark medium gray, wet, loose, clayey Sand Sand grains are largely quartz with darker fines (silt and clay)</p>					
				<p>Drilling become extremely difficult boring terminated at 29 feet.</p>					

Site description and comments:

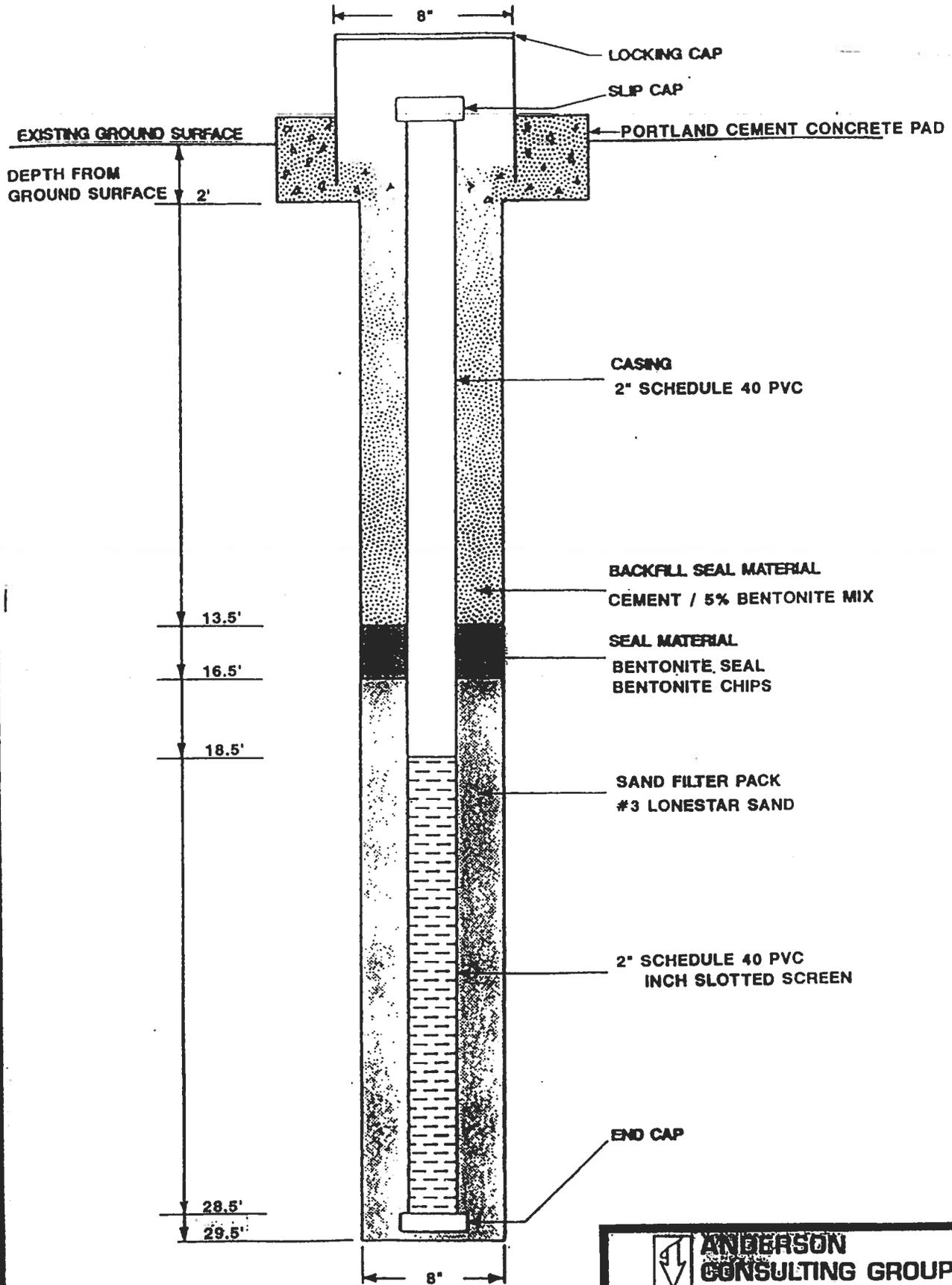


**ANDERSON
CONSULTING
GROUP**

Boring: 94-4
Depth: 29.0 ft
Figure:

GROUNDWATER MONITORING WELL DIAGRAM, 94-4
SOUTH COAST LANDFILL, MENDOCINO COUNTY

FILE NO. 3200-77-610



**ANDERSON
CONSULTING GROUP**

Roseville (916) 788-8883
Grass Valley (916) 273-SOIL

LOG OF BORING: LFGW-1

Project: South Coast Landfill Gas & GW MW

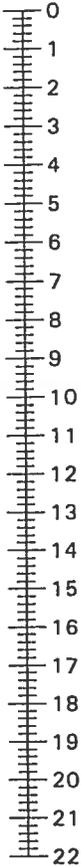
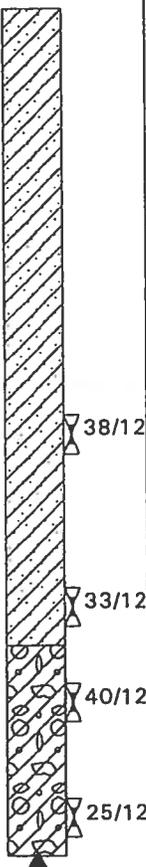
File: 3200-77-610

Date: October 7, 1994

Elevation: feet

Surface:

Water: None encountered

ELEV	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)
DEPTH								
			sc	Reddish brown, moist, dense, clayey Sand with gravel. Drilling more difficult than drilling at other borehole areas.				
	38/12	4-1						
	33/12	4-2						
	40/12	4-3	gc	Sandy, clayey Gravel - high in iron oxide stains.				
	25/12	4-4		Moist to wet gravel zones - same formation.				
				Boring terminated at 22 feet, filled bottom with 2' bentonite plug.				

Site description and comments: Left side of entrance road.



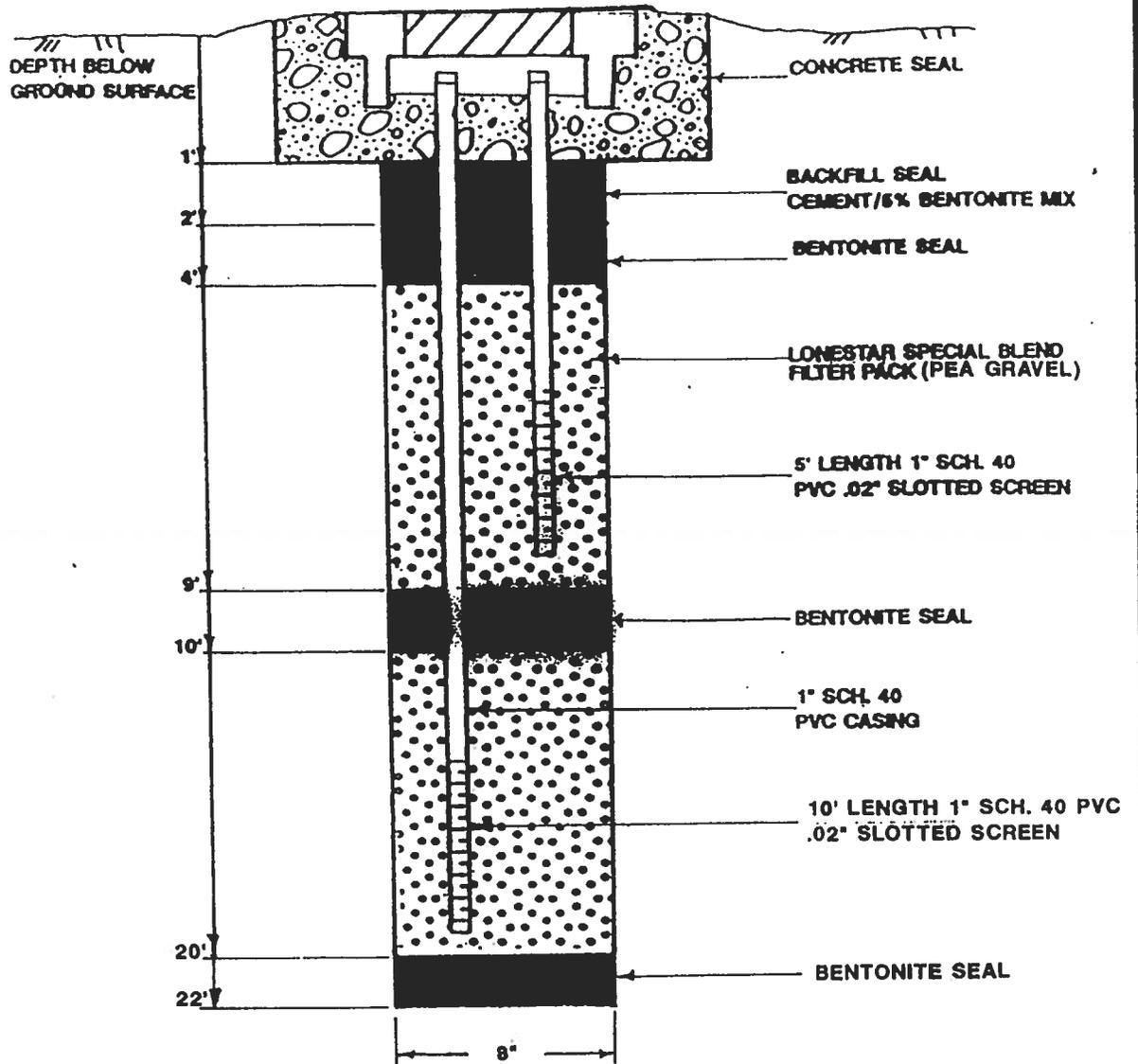
**ANDERSON
CONSULTING
GROUP**

Boring: LFGW-
Depth: 22.0 ft
Figure:

GAS MONITORING WELL DIAGRAM
SOUTH COAST LANDFILL, MENDOCINO COUNTY

FILE NO. 3200-77-610

LFGW-1



**ANDERSON
CONSULTING GROUP**

Roseville (916) 786-8883
Grass Valley (916) 273-SOIL

LOG OF BORING: LFGW-2

Project: South Coast Landfill Gas & GW MW

File: 3200-77-610

Date: October 7, 1994

Elevation: feet

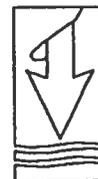
Surface:

Water: None encountered

ELEV	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)	
DEPTH									
0			sc	Light reddish brown with gray and red mottling, moist, dense, sandy Clay, clayey Sand with sandstone					
1									
2									
3									
4									
5									
6			5-1						
7									
8									
9									
10				cl	Dark gray, moist, stiff, sandy Clay				
11			5-2						
12									

Dark gray, moist, stiff, sandy Clay at 12 feet more gravelly, with wet zone. Boring terminated at 12 feet, filled bottom with bentonite plug.

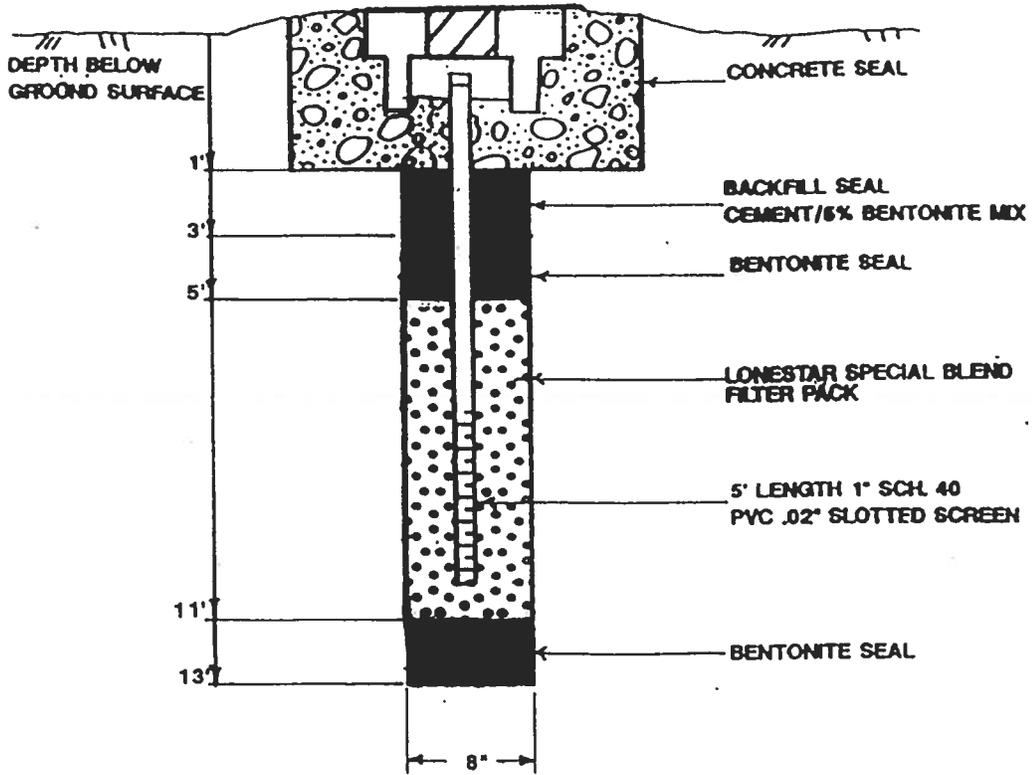
Site description and comments: Near existing groundwater monitoring well 87-2



**ANDERSON
CONSULTING
GROUP**

Boring: LFGW-2
Depth: 12.0 ft
Figure:

LFGW-2



**ANDERSON
CONSULTING GROUP**

Roseville (916) 786-8883
Grass Valley (916) 273-SOIL

APPENDIX F
SOIL CHARACTERIZATION DATA (SHN, 1991)



CONSULTING ENGINEERS
 SELVAGE • HEBER • NELSON & ASSOCIATES, INC.
 2630 HARRISON AVENUE • EUREKA • CA 95501

PERMEABILITY TEST DATA SHEET

JOB NAME Mendocino County - South Bank JOB NO. 900189.100

DATE TESTED 3-15-91 BY RK & AIC COMPUTED BY AIC CHECKED BY RK

DESCRIPTION OF SOIL Max Dry Density = 108.5 pcf at 16.5% moisture

90% COMPACTION 97.7 pcf %, HEIGHT CHANGE -

TEST METHOD

VOLUME USED

MOISTURE CONTENT

$3.81 \text{ lb} \times \frac{453.6 \text{ g}}{1 \text{ lb}} = 1728.2 \text{ g}$

Calculated Actual

SAMPLE NUMBERS				
wt. in lbs.	Mold and Moist Soil	13.12		13.11
	Mold	9.31		9.31
	Moist Soil	3.81		3.80
Factor (1/Vol. of Soil, cu. ft.)		30		30
WET DENSITY, pcf		114.3		114.0
Drying Dish Number				
wt. in gms.	Moist Soil and Dish			
	Dry Soil and Dish			
	Moisture			
	Dish			
	Dry Soil			
MOISTURE CONTENT, %		16.5	16.5	
DRY DENSITY, pcf		98	98	
		90%	90%	

REMARKS

SAMPLE NO.	DEPTH (FT.)	PRESSURE (FT.)	psi	K - COEFFICIENT OF PERMEABILITY (cm)
			13.6	2.79×10^{-7}
			13.6	2.76×10^{-7}
			13.6	2.89×10^{-7}
			11.2	3.27×10^{-7}
			19.0	5.01×10^{-7}
			19.0	5.03×10^{-7}
			20.3	5.01×10^{-7}
			12.2	5.60×10^{-7}
			12.2	4.78×10^{-7}
				$K = 4.2 \times 10^{-7} \text{ cm/s}$

REMARKS



CONSULTING ENGINEERS
 SELVAGE • HEBER • NELSON & ASSOCIATES, INC.
 2630 HARRISON AVENUE • EUREKA • CA 95501

PERMEABILITY TEST DATA SHEET

JOB NAME Mendocino County - West Bank JOB NO. 900189.100

DATE TESTED 3-15-91 BY AK & RK COMPUTED BY AK CHECKED BY RK

DESCRIPTION OF SOIL Max Dry Density = 109 pcf at 18.5% moisture

90% COMPACTION = 98.1 pcf, HEIGHT CHANGE -

TEST METHOD

VOLUME USED

MOISTURE CONTENT

$3.87 \text{ lb} \times \frac{453.6 \text{ g}}{1 \text{ lb}} = 1755.4 \text{ g}$

		Calculated	Actual
SAMPLE NUMBERS			
wt. in lbs.	Mold and Moist Soil	13.18	13.17
	Mold	9.31	9.31
	Moist Soil	3.87	3.86
Factor (1/Vol. of Soil, cu. ft.)		30	30
WET DENSITY, pcf		116.1	115.8
Drying Dish Number			
wt. in gms.	Moist Soil and Dish		
	Dry Soil and Dish		
	Moisture		
	Dish		
Dry Soil			
MOISTURE CONTENT, %		18.5	18.5
DRY DENSITY, pcf			98.0
		90%	90%

REMARKS

SAMPLE NO.	DEPTH (FT.)	PRESSURE (FT.)	psi	K - COEFFICIENT OF PERMEABILITY (cm/s)
		12.2	12.2	2.17×10^{-6}
			12.2	2.39×10^{-6}
			11.3	3.73×10^{-6}
			11.5	3.62×10^{-6}
			9.2	3.89×10^{-6}
			17.9	3.65×10^{-6}
			17.9	3.76×10^{-6}
				$K = 3.6 \times 10^{-6} \text{ cm/s}$

REMARKS

ATTERBERG LIMITS

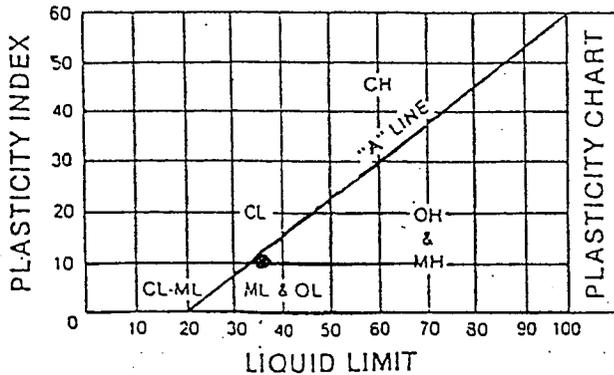
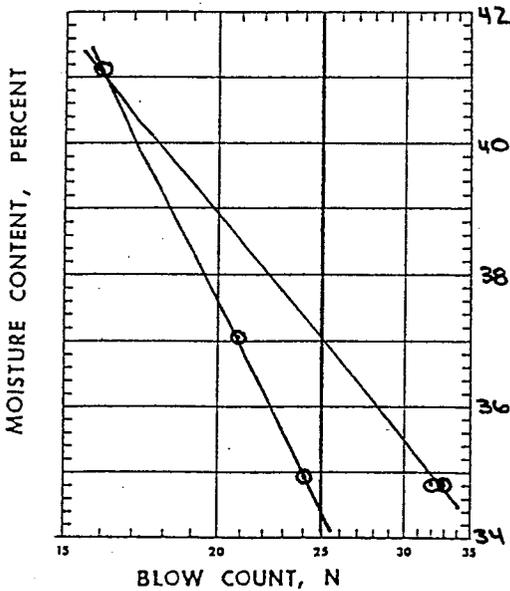
PERFORMED FOR: Mendocino County LOCATION: South Bank
 PROJECT: _____ JOB NO: 900189.100
 BORING NO: _____ SAMPLE NO: South Bank DEPTH: _____ FT
 DESCRIPTION OF SOIL: Light Brown Sandy Silt
 PERFORMED BY: BK
 DATE OF TEST: 2-28-91

PLASTIC LIMIT DETERMINATION

LIQUID LIMIT DETERMINATION

Line No.		Trial No. 1	Trial No. 2	Trial No. 3	Trial No. 1	Trial No. 2	Trial No. 3	Trial No. 4	
1	MOISTURE TIN NO.	S	U	R	2	66	2	D	A
2	WT MOISTURE TIN (Tare Weight) (g)	14.6	11.8	16.0	16.0	14.8	14.3	14.4	15.9
3	WT WET SOIL + TARE (g)	22.0	16.6	23.9	24.9	23.3	22.8	22.4	25.2
4	WT DRY SOIL + TARE (g)	20.5	15.6	22.2	22.6	21.1	20.5	20.2	22.8
5	WT WATER (Line 3 - Line 4), W_w (g)	1.5	1.0	1.7	2.3	2.2	2.3	2.4	2.4
6	WT DRY SOIL (Line 4 - Line 2), W_s (g)	5.9	3.8	6.2	6.6	6.3	6.2	5.8	6.9
7	MOISTURE CONTENT (Line 5 ÷ Line 6), w	25.4%	26.3%	27.4%	34.8%	34.9%	37.1%	41.4%	34.8
8	NUMBER OF BLOWS, N				32	24	21	16	33

LIQUID LIMIT DETERMINATION



w_p Avg. Plastic Limit = $\frac{\sum w}{\text{Number of Trials}}$ = $\frac{26}{1}$ %

w_l LIQUID LIMIT = 36 % at N = 25 BLOWS

PLASTICITY INDEX = $w_l - w_p = 10$ %



ATTERBERG LIMITS

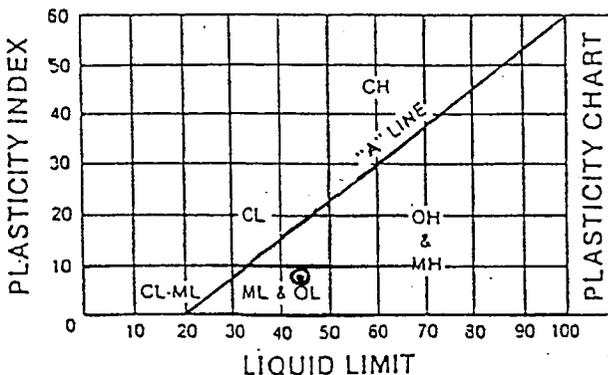
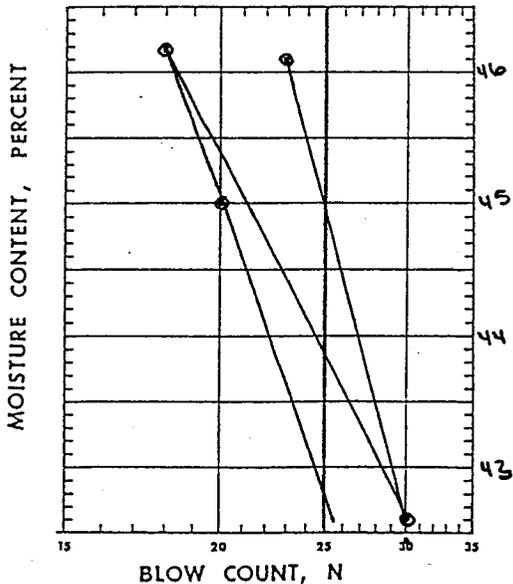
PERFORMED FOR: Mendocino County LOCATION: West Bank
 PROJECT: _____ JOB NO: 900189.100
 BORING NO: _____ SAMPLE NO: West Bank DEPTH: _____ FT
 DESCRIPTION OF SOIL: light brown Sandy Silt (ML)
 PERFORMED BY: RK
 DATE OF TEST: 2-28-91

PLASTIC LIMIT DETERMINATION

LIQUID LIMIT DETERMINATION

Line No.		Trial No. 1	Trial No. 2	Trial No. 3	Trial No. 1	Trial No. 2	Trial No. 3	Trial No. 4	
1	MOISTURE TIN NO.	A	V	R	R	2	2	V	A
2	WT MOISTURE TIN (Tare Weight) (g)	15.9	14.2	16.0	16.0	14.3	16.0	14.2	15.9
3	WT WET SOIL + TARE (g)	24.4	21.9	24.3	23.6	23.0	25.4	21.9	28.9
4	WT DRY SOIL + TARE (g)	22.1	19.9	22.1	21.2	20.3	22.6	19.6	24.8
5	WT WATER (Line 3 - Line 4), W _w (g)	2.3	2.0	2.2	2.4	2.7	2.8	2.3	4.1
6	WT DRY SOIL (Line 4 - Line 2), W _s (g)	6.2	5.7	6.1	5.2	6.0	6.6	5.4	8.9
7	MOISTURE CONTENT (Line 5 ÷ Line 6), w	37.1%	35.1%	36.1%	46.2%	45.0%	42.4%	42.6%	46.1
8	NUMBER OF BLOWS, N				18	20	30	30	23

LIQUID LIMIT DETERMINATION



w_p Avg. Plastic Limit = $\frac{\Sigma w}{\text{Number of Trials}}$ = $\frac{36}{3}$ %

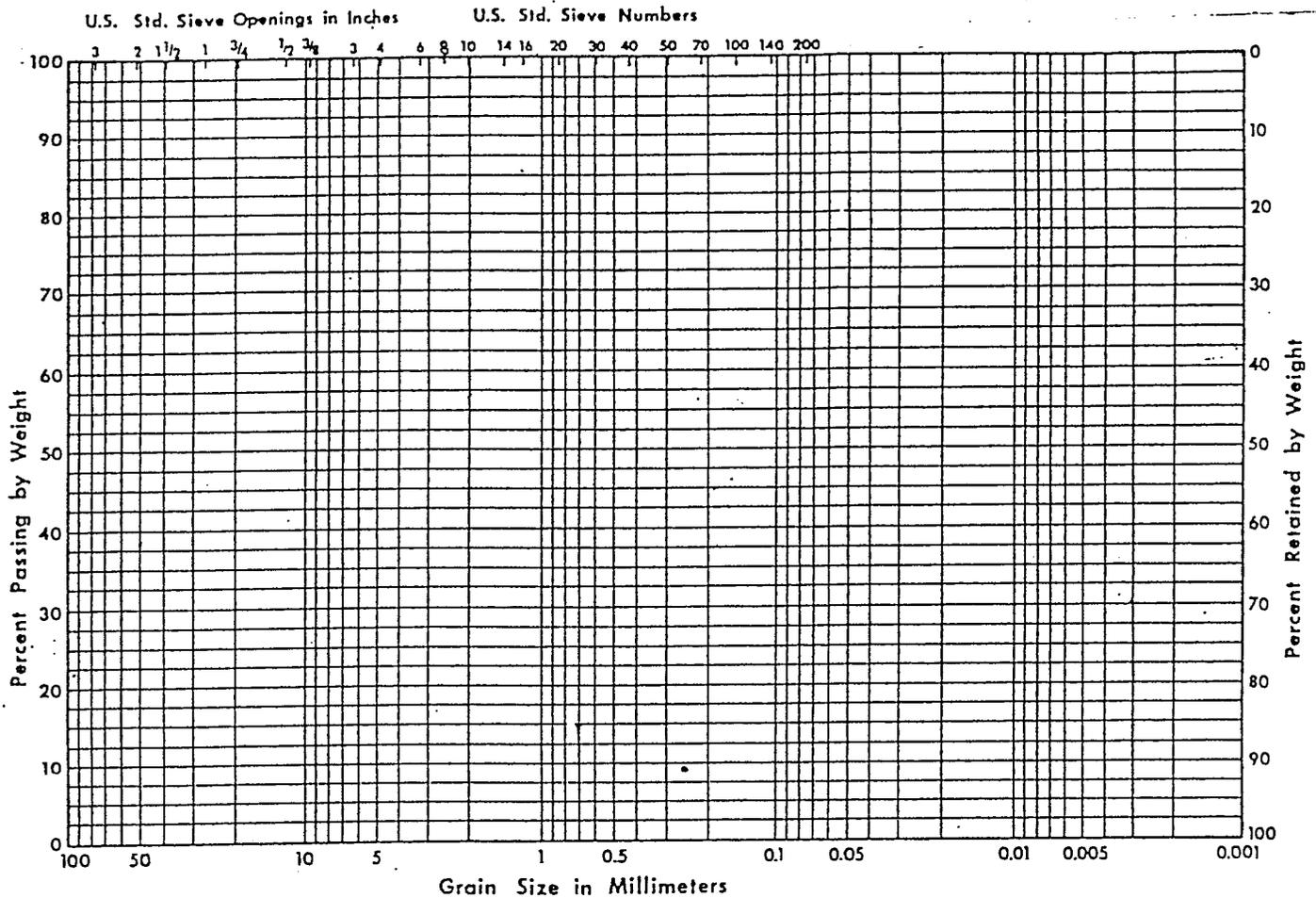
w_l LIQUID LIMIT = 44 % at N = 25 BLOWS

PLASTICITY INDEX = $w_l - w_p = 8$ %



GRADATION TEST RESULTS

MECHANICAL ANALYSIS GRAPH



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

PROJECT NAME: _____

PROJECT NUMBER: _____

BORING/TEST PIT/SAMPLE NO. _____

DEPTH: _____

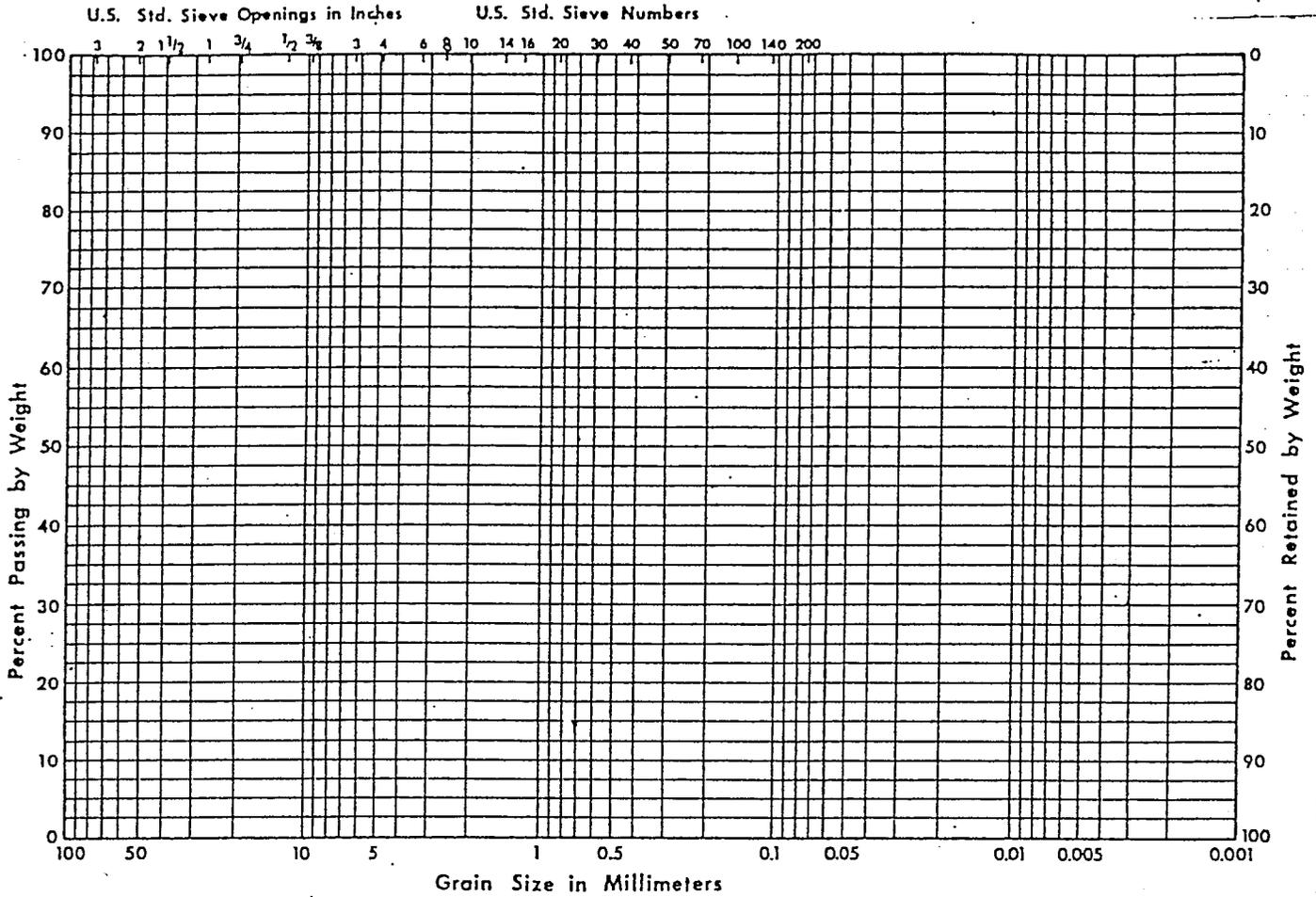
SOIL TYPE: _____

Mendo So
Coast
West Bank



GRADATION TEST RESULTS

MECHANICAL ANALYSIS GRAPH



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

PROJECT NAME: _____

PROJECT NUMBER: _____

BORING/TEST PIT/SAMPLE NO. _____

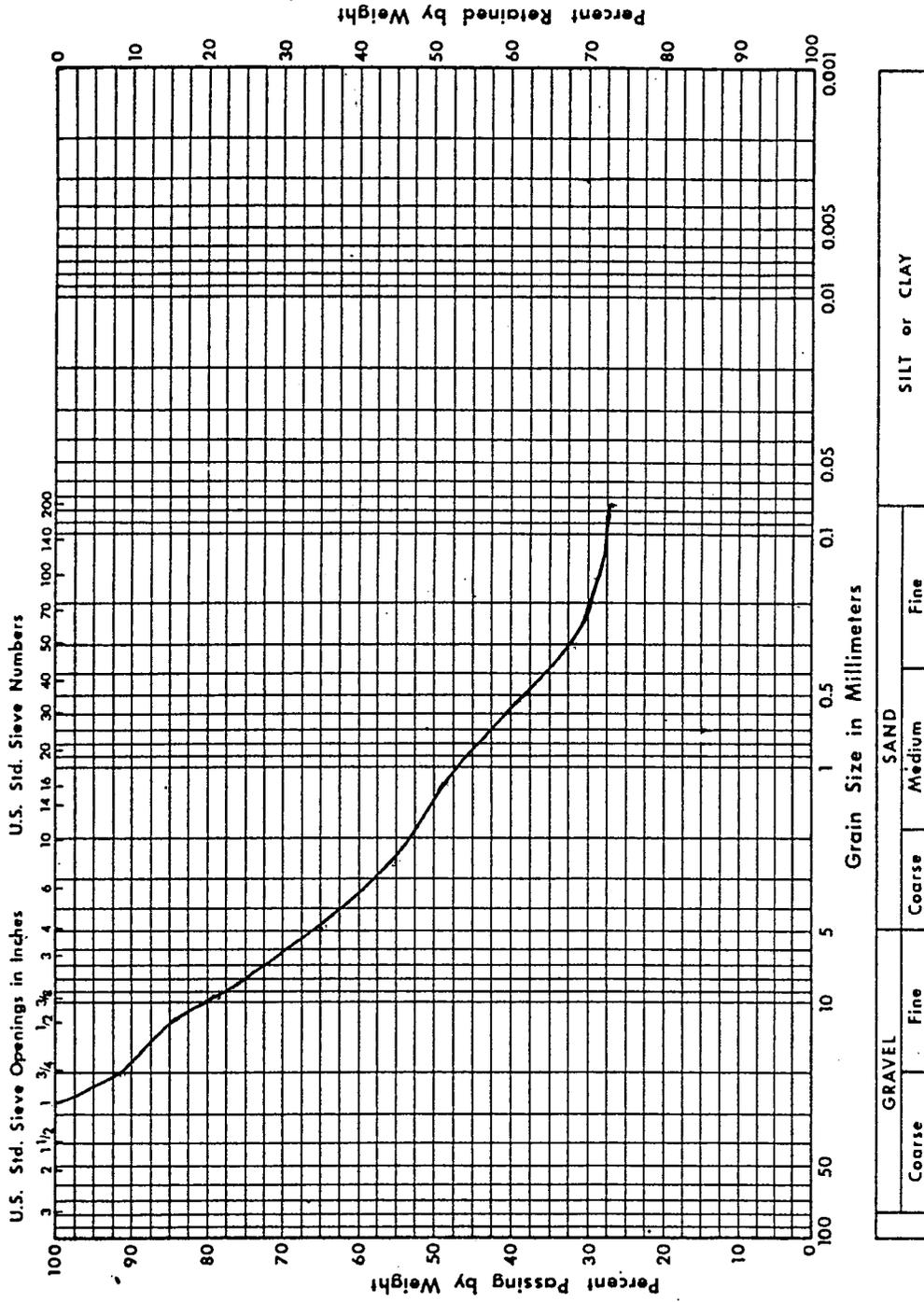
DEPTH: _____

SOIL TYPE: _____

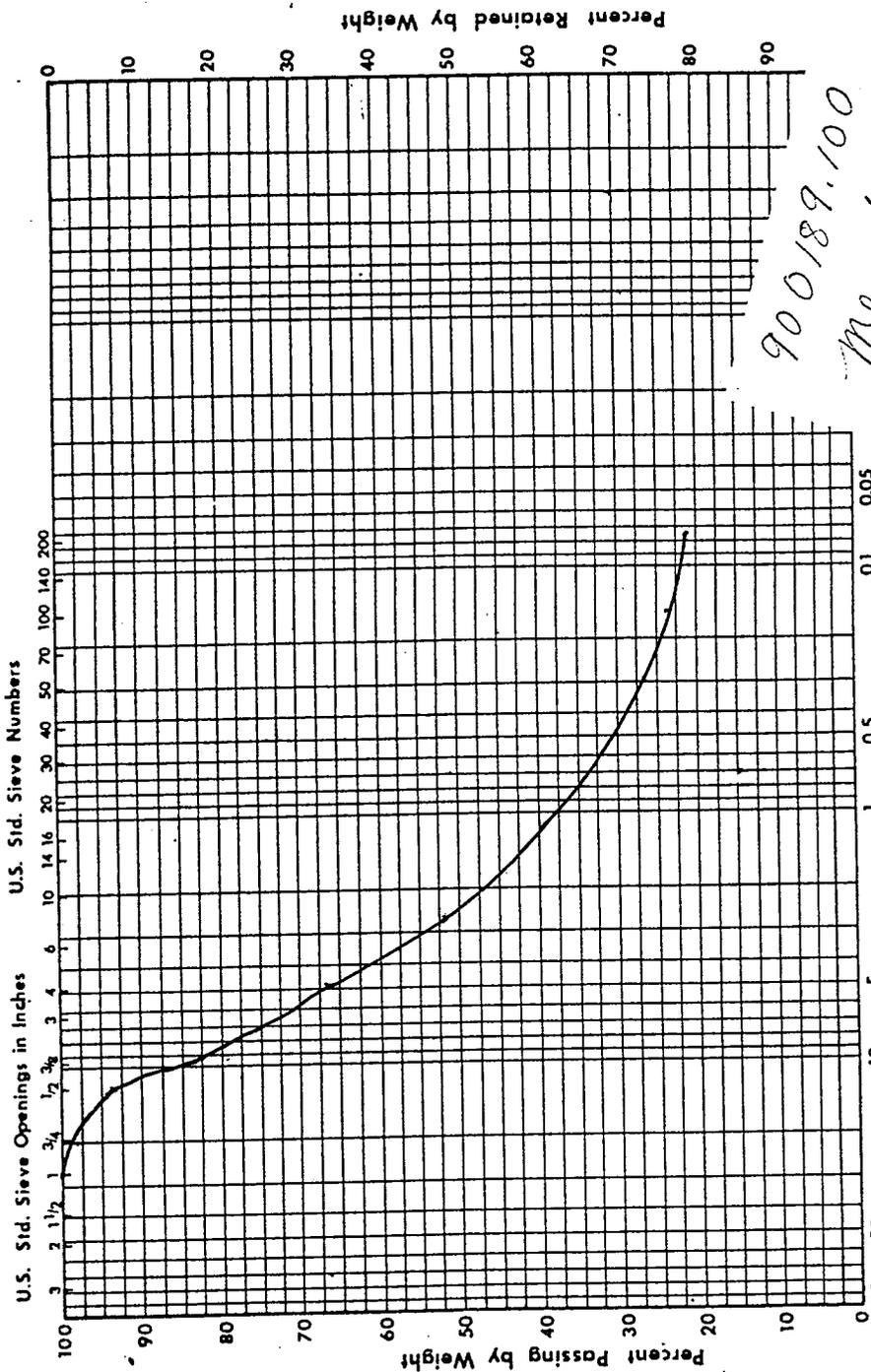
Mendo
So Coast
South
BAND



MECHANICAL ANALYSIS GRAPH



MECHANICAL ANALYSIS GRAPH





COMPACTION TEST DATA SHEET

JOB NAME Mendocino County JOB NO. 900189.100

DATE TESTED 3-5-91 BY AK+RK COMPUTED BY RK CHECKED BY AK

DESCRIPTION OF SOIL West Bank

INITIAL GRADATION: + 3/4" 1.5 %, #4 x 3/4" 32.1 %, #200x#4 45.0 %, - #200 21.4 %

PORTION TESTED: All , - 3/4" , - #4 , + 3/4" Repl. with #4 x 3/4"

TEST METHOD

- STANDARD AASHO—ASTM D 698
5.5 lb hammer, 12" drop, 3 layers
- MODIFIED AASHO—ASTM D 1557
10 lb hammer, 18" drop, 5 layers

CHECK ONE

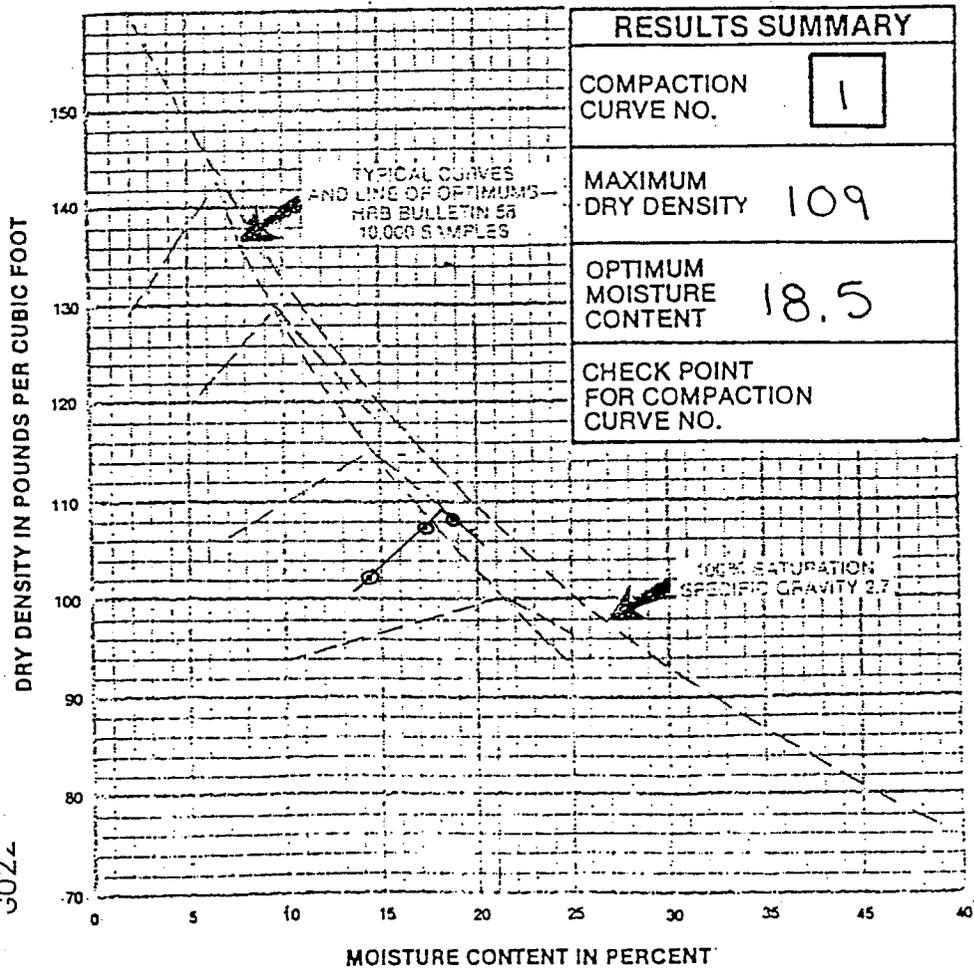
-
-
-
-

ASTM METHOD	SOIL FRACTION	MOLD DIA. CUBIC FT.	NO. OF BLOWS PER LAYER
A	#4	4"	25
B	#4	6"	56
C	- 3/4"	6"	56
D	*	6"	56

* - 3/4", with + 3/4" repl. by #4x 3/4"

TEST DATA

wt. in lbs.	Mold and Moist Soil	13.21	13.51	13.59
	Mold	9.31	9.31	9.31
	Moist Soil	3.90	4.20	4.28
Factor (1/Vol. of Soil, cu. ft.)		30	30	30
WET DENSITY, pcf		117.0	126.0	128.4
Drying Dish Number		55-14	55-8	55-10
wt. in gms.	Moist Soil and Dish	787.9	831.0	762.0
	Dry Soil and Dish	713.2	737.7	673.3
	Moisture	74.7	93.3	88.7
	Dish	193.7	197.3	196.2
	Dry Soil	519.5	540.4	477.1
MOISTURE CONTENT, %		14.4	17.3	18.6
DRY DENSITY, pcf		102.3	107.4	108.3



RESULTS SUMMARY	
COMPACTION CURVE NO.	1
MAXIMUM DRY DENSITY	109
OPTIMUM MOISTURE CONTENT	18.5
CHECK POINT FOR COMPACTION CURVE NO.	

REMARKS
SOURCE OF SOIL,
LOCATION OF SAMPLE,
USE OF SOIL

COMPACTION TEST DATA SHEET

JOB NAME Mendocino County JOB NO. 900189.100

DATE TESTED 3-5-91 BY AK+RK COMPUTED BY RK CHECKED BY AK

DESCRIPTION OF SOIL South Bank

INITIAL GRADATION: + 3/4" 8.4 %, #4 x 3/4" 26.7 %, #200x#4 37.9 %, - #200 27.0 %

PORTION TESTED: All , - 3/4" , - #4 , + 3/4" Repl. with #4 x 3/4"

TEST METHOD

TEST DATA

- STANDARD AASHTO—ASTM D 698
 5.5 lb hammer, 12" drop, 3 layers
- MODIFIED AASHTO—ASTM D 1557
 10 lb hammer, 18" drop, 5 layers.

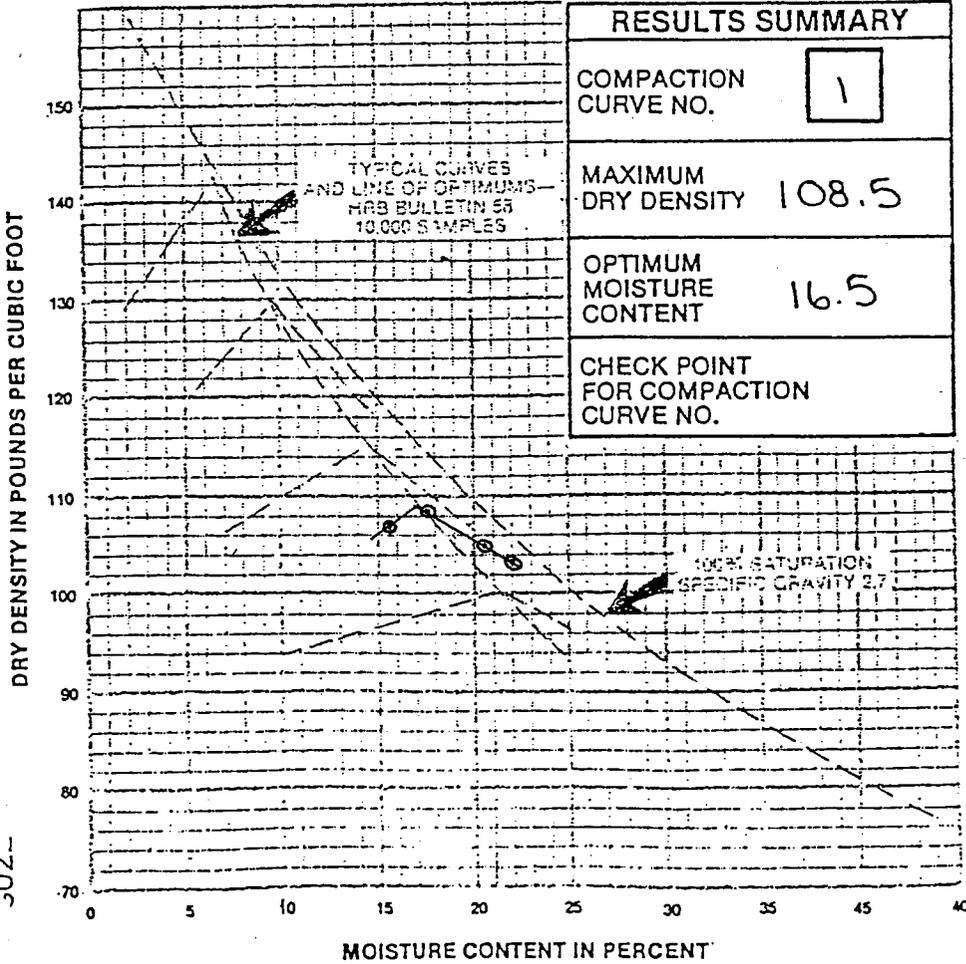
CHECK ONE

-

ASTM METHOD	SOIL FRACTION	MOLD DIA. CUBIC FT.	NO. OF BLOWS PER LAYER
<input checked="" type="checkbox"/> A	#4	4"	25
<input type="checkbox"/> B	#4	6"	56
<input type="checkbox"/> C	- 3/4"	6"	56
<input type="checkbox"/> D	*	6"	56

* - 3/4", with + 3/4" repl. by #4x 3/4"

wt. in lbs.	Mold and Moist Soil	13.53	13.52	13.55	13.44
	Mold	9.31	9.31	9.31	9.31
	Moist Soil	4.22	4.21	4.24	4.13
Factor (1/Vol. of Soil, cu. ft.)		30	30	30	30
WET DENSITY, pcf		126.6	126.3	127.2	123.9
Drying Dish Number		55-1	55-7	55-11	55-9
wt. in gms.	Moist Soil and Dish	836.1	830.4	836.8	826.5
	Dry Soil and Dish	726.9	715.7	740.7	741.1
	Moisture	109.2	114.7	96.1	85.4
	Dish	195.8	193.8	193.4	193.7
MOISTURE CONTENT, %		20.6	22.0	17.6	15.6
DRY DENSITY, pcf		105.0	103.5	108.2	107.2



RESULTS SUMMARY	
COMPACTION CURVE NO.	1
MAXIMUM DRY DENSITY	108.5
OPTIMUM MOISTURE CONTENT	16.5
CHECK POINT FOR COMPACTION CURVE NO.	

REMARKS
 SOURCE OF SOIL,
 LOCATION OF SAMPLE,
 USE OF SOIL

900189.100 SOUTH COAST

Boeing B-1 Field Permeability Test
(GRAVITY METHOD)

$$K = \text{ft/sec}$$

$$Q = 0.175 \frac{\text{gal}}{\text{min}} \cdot \frac{\text{ft}^3}{7.48 \text{ gal}} \cdot \frac{\text{min}}{60 \text{ sec}} = 3.89 \times 10^{-4} \text{ ft/sec}$$

$$r = \text{radius of Boeing} = 0.333$$

$$D = H = A = 5.3$$

$$u = 7.9$$

$$T_u = 7.3$$

$$\frac{A}{H} = 1$$

zone 2

$$C_u = 40$$

$$C_s = 32$$

$$K = \frac{2Q}{(C_s + 4)r T_u}$$

$$K = \frac{(0.000389) 2}{(32 + 4)(0.333)(7.3)} = 8.89 \times 10^{-6} \frac{\text{ft}}{\text{sec}}$$

$$8.89 \times 10^{-6} \frac{\text{ft}}{\text{sec}} \times \frac{30.48 \text{ cm}}{\text{ft}} = 2.71 \times 10^{-4}$$

900189.100 SOUTH COAST STANDING HEAD PPM
3/12/91 JPH

Boeing B-1

START TEST 11:36

ADD H₂O

11:36 5 GAL (-4.4) Below SURFACE

11:37 5 GAL (-2.7) "

11:38 5 GAL (-0.9) "

11:39 2 GAL (0.3)

TOTAL 17 GAL

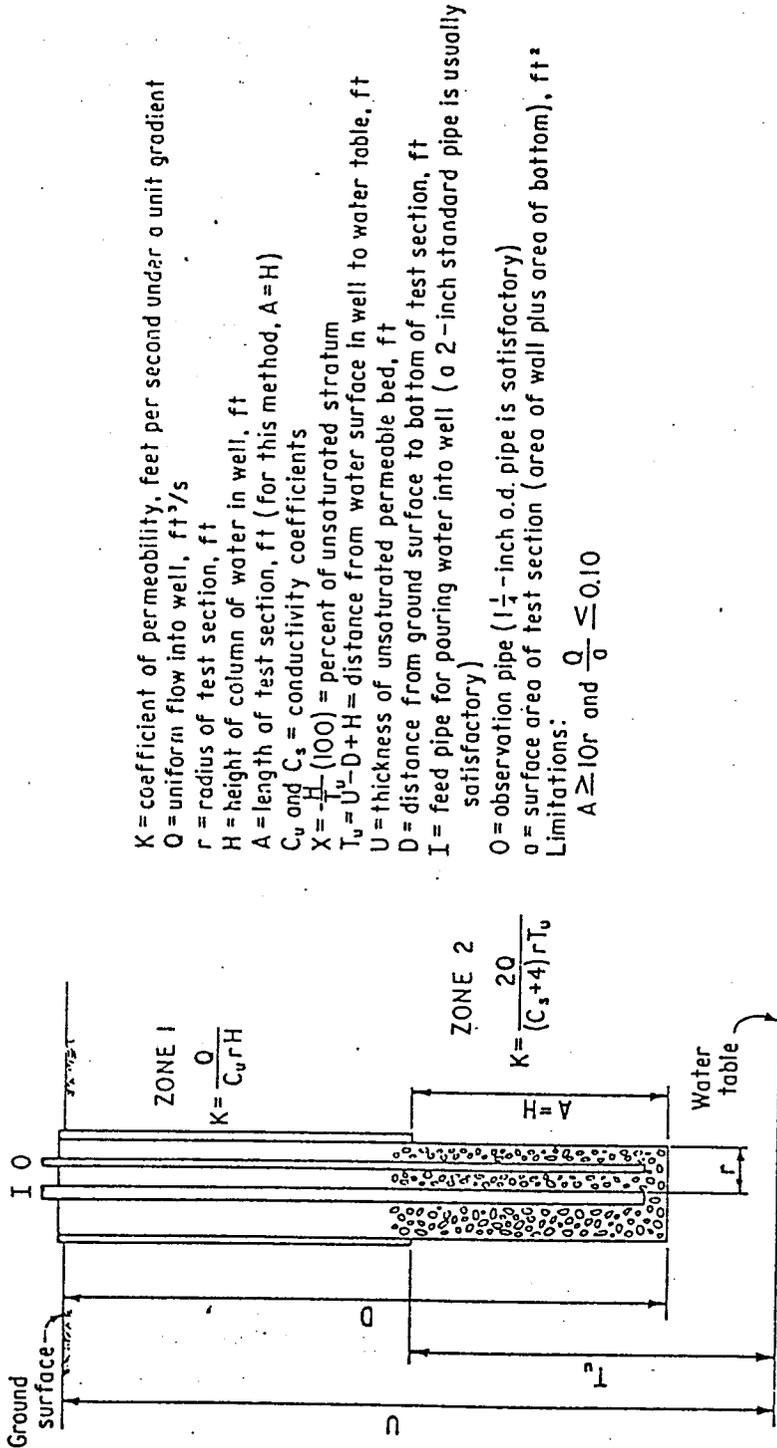
11:42 (-0.6) START TEST TD = 6.4

RATE 1) 32:2 SEC / 12.02

2) 5:31:88 / 1 GAL @ 11:50

✓ 5:15:31 FALL in Bucket (HEAD LOSS)

12:09 END TEST TD = 4.2



K = coefficient of permeability, feet per second under a unit gradient
 Q = uniform flow into well, ft^3/s
 r = radius of test section, ft
 H = height of column of water in well, ft
 A = length of test section, ft (for this method, $A=H$)
 C_u and C_s = conductivity coefficients
 $X = \frac{H}{D+H}$ (100) = percent of unsaturated stratum
 $T_u = U - D + H$ = distance from water surface in well to water table, ft
 U = thickness of unsaturated permeable bed, ft
 D = distance from ground surface to bottom of test section, ft
 I = feed pipe for pouring water into well (a 2-inch standard pipe is usually satisfactory)
 O = observation pipe (1 1/4-inch o.d. pipe is satisfactory)
 a = surface area of test section (area of wall plus area of bottom), ft^2

Limitations:
 $A \geq 10r$ and $\frac{Q}{a} \leq 0.10$

FIGURE 10-12.—Gravity permeability test—Method 1. 103-D-1481.

$u = 7.9$ $D = A = H = 5.3$
 900,89.200
 South Coast

bottom of pipe (O) at the bottom of the hole without support. The gravel should be placed back slowly. The face to be measured should be inside the casing. It is to be used to measure the

A meter or three or more valves, of the plus or minus so that the but is more of the hole.

to obtain the b. Consolidated material saturated, the test is carried out in the

c. General selected so that the bottom of the

The conductivity in the field can be determined which the test is shown in figures 10-6 and 10-7.

Data required for the test until the hole has been completed include:

1. Radius of pipe
2. Depth of hole
3. Depth to bottom of hole
4. Depth of water table
5. Depth to bottom of gravel pack
6. Length of test section
7. Depth to water table

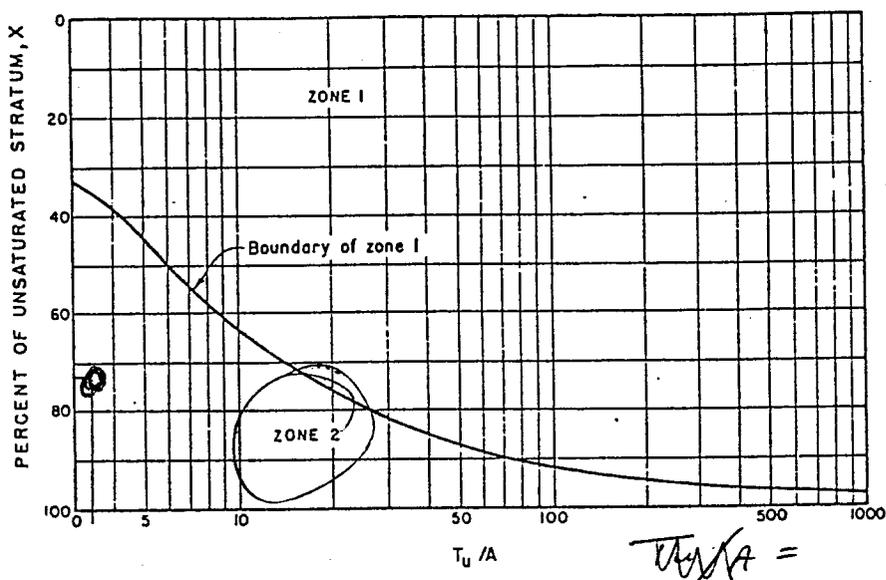


FIGURE 10-6.—Location of zone 1 lower boundary for use in unsaturated materials. 103-D-1475.

From figure 10-4: Head loss L for a 1/4-inch pipe at 20 gal/min is 0.76 per 10-foot section. If the distance from the Bourdon gage to the bottom of the pipe is 22 ft, the total L is $(2.2)(0.76) = 1.7$ ft.

$H = h_1 + h_2 - L = 32 + 57.8 - 1.7 = 88.1$ ft of effective head.
 $T_u = U - D + H = 75 - 25 + 88.1 = 138.1$

$X = \frac{5.3}{7.3} = 72.6\%$

$X = \frac{H}{T_u} (100) = \frac{88.1}{138.1} (100) = 63.8$ percent

$\frac{T_u}{A} = \frac{138.1}{10} = 13.8$

$\frac{T_u}{A} = 1.38$

The values for X and $\frac{T_u}{A}$ lie in zone 1 (fig. 10-6). To determine the conductivity coefficient C_u from figure 10-7:

$\frac{H}{r} = \frac{88.1}{0.5} = 176.2$

$\frac{A}{H} = \frac{10}{88.1} = 0.11$ and $C_u = 62$

==
ZONE 2

Then,

$K = \frac{Q}{C_u r H} = \frac{0.045}{(62)(0.5)(88.1)} = 0.000016$ ft/s

900189 100
 SOUTH COAST

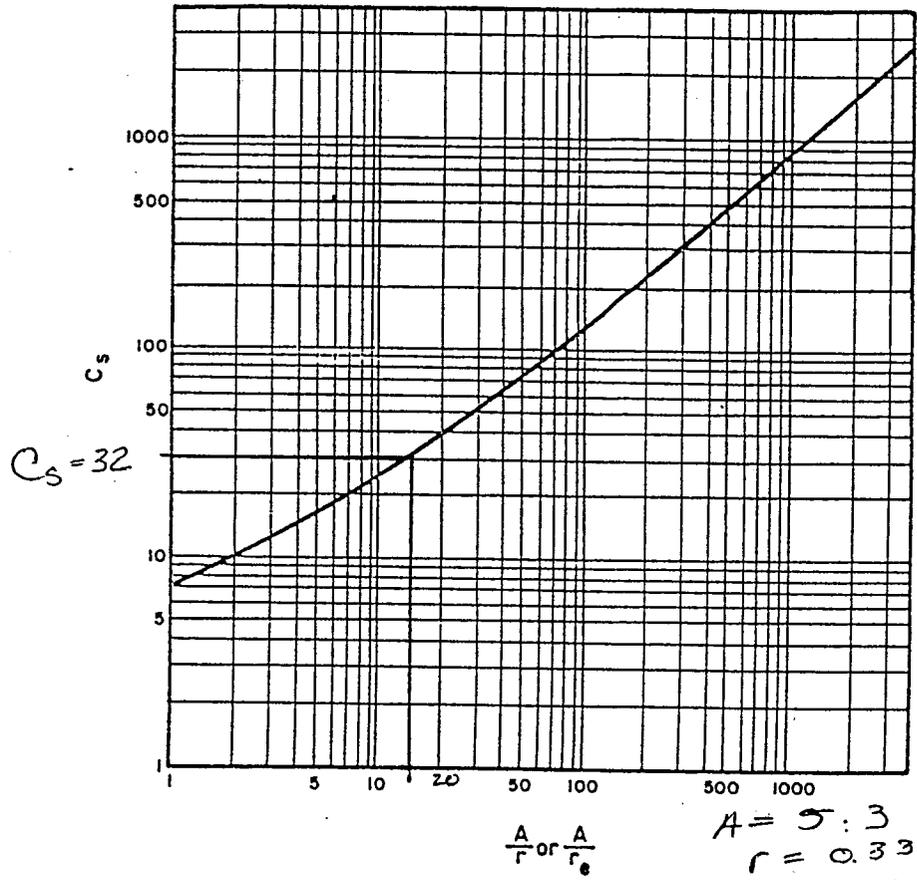
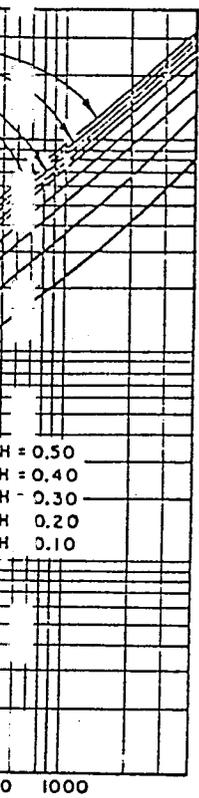


FIGURE 10-8.—Conductivity coefficients for semispherical flow in saturated materials through partially penetrating cylindrical test wells. 103-D-1477.

$$\frac{A}{r} = \frac{10}{0.5} = 20 \text{ and } C_s = 39.5$$

Method 1

$$K = \frac{2Q}{(C_s + 4)r(T_u + H - A)} = \frac{(2)(0.045)}{(39.5 + 4)(0.5)(135.1 + 125.1 - 10)} = 0.000016 \text{ ft/s}$$

Method 2

$$K = \frac{2Q}{(C_s r)(T_u + H - A)} = \frac{(2)(0.045)}{(39.5)(0.5)(135.1 + 125.1 - 10)} = 0.000018 \text{ ft/s}$$

Example 3:

Zone 3

Given: U , A , r , h_2 , Q , and L are as given in example 1.

$D = 100 \text{ ft}$, $h_1 = 82 \text{ ft}$, and $S = 60 \text{ ft}$.

where:

T = transmissivity of test section, ft²/s,
 V = volume of water entering test section in period Δt , ft³ (1-foot decline in 1½-inch pipe = 0.01 ft³),
 s = decline in water level in period Δt , ft, and
 Δt = period of time, seconds, between successive water level measurements; that is, $t_1 - t_0$, $t_2 - t_1$, etc.

(6) If the log indicates the test section is uniform without obvious points of probable concentrated leakage, the average permeability of the test section in feet per second can be estimated from $K = T/A$ where A is the length of the test section in feet. If the log indicates a predominantly impervious test section but with a zone or zones of probable concentrated flow, the average K of the zones can be estimated from $K = T/A'$ where A' is the thickness of the permeable zone or zones in feet.

(7) After each test, deflate packers, raise test string 10 feet, and repeat until entire hole below the static water level has been tested.

(8) *Tests in Unsaturated Materials Above the Water Table.*—Tests above the water table require somewhat different procedures and analyses than tests in the saturated zone. Tests made in sections straddling the water table or slightly above it will give computed values somewhat too high if the equations in section 10-4(a) are used and somewhat low if the following equations (4) and (5) are used. For tests above the water table, the following procedure is used:

- (1) Install a 10-foot static packer at bottom of hole if hole is dry or with the top of bottom packer at the water table if it contains water. Inflate the packer.
- (2) Fill drop pipe with water to surface if possible, otherwise to level permitted by capacity of the pump.
- (3) Measure water level in drop pipe and record with time of measurement. Make two or more similar measurements while water table declines.
- (4) On completion of a test, raise packer 10 feet and repeat procedure until all desired or unconsolidated hole is tested.
- (5) The equation for analysis of each test section is an adaptation of one derived by Jarvis [3]:

$$K = \frac{r_1^2}{2\lambda\Delta t} \left[\frac{\sinh^{-1}A}{2} \log_e \left(\frac{2H_1 H_2 - A H_1^2}{2H_1 H_2 - A H_2^2} \right) - \log_e \left(\frac{2H_1 H_2 - A H_1^2}{2H_1 H_2 - A H_2^2} \right) \right] \quad (4)$$

where:

K = average permeability of the test section, ft/s,
 A = length of test section, ft,
 r_1 = inside radius of drop pipe, ft (0.0675 ft for 1½-inch pipe),
 r_2 = effective radius of test section, ft (0.125 ft for 3-inch hole),

Δt = time intervals ($t_1 - t_0$, $t_2 - t_1$), seconds,

\sinh^{-1} = inverse hyperbolic sine,

\log_e = natural logarithm, and

H = length of water column from bottom of test interval to water surface in standpipe, ft (H_0 , H_1 , H_2 lengths at time of measurements t_0 , t_1 , t_2 , etc.)

(6) For the particular equipment specified, and a 10-foot test section, equation (4) may be simplified as follows:

$$K = \frac{1.663 \times 10^{-1}}{\Delta t} \left[2.5 \log_e \left(\frac{H_1 H_2 - 5}{H_1 H_2 - 5} \right) - \log_e \left(\frac{H_1 H_2 - 5 H_1^2}{H_1 H_2 - 5 H_2^2} \right) \right] \quad (5)$$

10-5. Bibliography.—

- [1] Ahrens, T. P., and Bralow, A. C., "Permeability Tests Using Drill Holes and Wells, including Comments Regarding Equipment, etc.," Bureau of Reclamation Geology Report No. G-97, January 5, 1951.
- [2] Ferris, J. G., Knowles, D. B., Brown, R. H., and Stallman, R. W., "Theory of Aquifer Tests," U.S. Geological Survey Water-Supply Paper 1530-E, pp. 104-105, 1962.
- [3] Jarvis, D. H., "Theory of Falling Head Permeometer in Unsaturated Material," Memorandum to C. W. Jones, Bureau of Reclamation, May 5, 1949.

MENDOCINO COUNTY
 Department of Public Works
 SOUTH COAST LANDFILL
 MONTHLY WELL LOG
 1991

B-1
NEAC Vicinity
 $U = \frac{8.7}{7.9} = 0.0$

22-Feb-91

ALL MEASUREMENTS IN FEET

Sheet 1 of 2

Sample Date	WELL 87-1		WELL 87-2		WELL 87-3	
	Depth to Water	GM Elev	Depth to Water	GM Elev	Depth to Water	GM Elev
JANUARY 1/16	10.5	502.6	10.4	496.3	8.0	435.7
FEBRUARY 2/21	8.7	504.4	8.9	497.8	9.9	433.8
MARCH						
APRIL						
MAY						
JUNE						
JULY						
AUGUST						
SEPTEMBER						
OCTOBER						
NOVEMBER						
DECEMBER						
maximum	10.5	504.4	10.4	497.8	9.9	435.7
minimum	8.7	502.6	8.9	496.3	8.0	433.8

D= Top of casing to well bottom H= top of casing to grade

PERMEABILITY TEST DATA

SAMPLE SOURCE: Boring 2 @ 5.0 feet

SAMPLE DESCRIPTION: Dark Gray-Brown Gravelly Clayey Sand(SC)

TEST DATA

Initial Dry Density (pcf): 116.0 Moisture Content (%): 14.6

Final Dry Density (pcf): 123.7 Moisture Content (%): 19.2

Coefficient of Permeability (cm/sec): 1.0 x 10⁻⁷ (5.5 x 10⁻⁸ actual)

Remarks: _____

SAMPLE SOURCE: Boring 3 @ 2.5 feet

SAMPLE DESCRIPTION: Mottled Brown Sandy Clay(CL)

TEST DATA

Initial Dry Density (pcf): 94.3 Moisture Content (%): 14.8

Final Dry Density (pcf): 97.8 Moisture Content (%): 24.4

Coefficient of Permeability (cm/sec): 1.0 x 10⁻⁴ (1.4 x 10⁻⁵ actual)

Remarks: _____

SAMPLE SOURCE: _____

SAMPLE DESCRIPTION: _____

TEST DATA

Initial Dry Density (pcf): _____ Moisture Content (%): _____

Final Dry Density (pcf): _____ Moisture Content (%): _____

Coefficient of Permeability (cm/sec): _____

Remarks: _____

**APPENDIX G
SLUG TEST DATA
(SHN, 1991)**

900189.100 SOUTH COAST July 1987

#7 MEN100

well 91-1

SE1000B
Environmental Logger
03/15 15:21

Unit# 00711 Test# 3

INPUT 1: Level (F)

Reference 0.00
Scale factor 9.99
Offset - 0.03

Step# 0 03/12 10:57

INITIAL DRAWDOWN
RADIUS OF CASING 0.167
RADIUS OF WELL 0.5
SATURATED THICKNESS
COLLUM LENGTH 20.0
STATIC HEIGHT OF WATER

Elapsed Time Value

DRAWDOWN

Elapsed Time	Value
0.0000	18.74 - 10:58
1.0000	18.74
2.0000	18.75
3.0000	18.74
4.0000	18.74
5.0000	18.74
6.0000	18.74
7.0000	18.74
8.0000	18.73
9.0000	18.73
10.0000	18.72
11.0000	18.72
12.0000	18.71
13.0000	18.70
14.0000	18.69
15.0000	18.69
16.0000	18.69
17.0000	18.68
18.0000	18.68
19.0000	18.68
20.0000	18.68
21.0000	18.68
22.0000	18.67
23.0000	18.67
24.0000	18.67
25.0000	18.67
26.0000	18.67
27.0000	18.67
28.0000	18.66
29.0000	18.66
30.0000	18.66
31.0000	18.66
32.0000	18.66
33.0000	18.66
34.0000	18.65
35.0000	18.65

36.0000	18.65
37.0000	18.65
38.0000	18.65
39.0000	18.65
40.0000	18.65
41.0000	18.65
42.0000	18.65
43.0000	18.65
44.0000	18.65
45.0000	18.65
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48.0000	18.65
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56.0000	18.64
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61.0000	18.64
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63.0000	18.64
64.0000	18.64
65.0000	18.64
66.0000	18.64
67.0000	18.64
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69.0000	18.63
70.0000	18.63
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72.0000	18.63
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75.0000	18.63
76.0000	18.63
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89.0000	18.63
90.0000	18.63
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97.0000	18.62
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100.000	18.63
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107.000	18.63
108.000	18.63
109.000	18.63
110.000	18.63
111.000	18.63
112.000	18.63
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117.000	18.63
118.000	18.63
119.000	18.63
120.000	18.63
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129.000	18.63
130.000	18.63
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134.000	18.64
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187.000	18.66
188.000	18.66
189.000	18.67
190.000	18.67
191.000	18.67
192.000	18.67
193.000	18.67
194.000	18.67

men/wq1

305 - 369

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196.000	18.67
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199.000	18.67
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237.000	18.30
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242.000	18.31
243.000	18.31
244.000	18.31
245.000	18.31
246.000	18.32
247.000	18.32

→ slug out

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250.000	18.33
251.000	18.33
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304.000	18.42
305.000	18.42
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307.000	18.42
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360.000	18.49
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364.000	18.50
365.000	18.50
366.000	18.50
367.000	18.50
368.000	18.50
369.000	18.50

END

MEN 900189.100 South Coast 91-1

MEN1SC

slugt1

0.58

0.167

0.5

slugt2

18.6

20

10.37

tsdata

2	0.51	1
3	0.48	1
4	0.47	1
5	0.46	1
6	0.46	1
7	0.46	1
8	0.45	1
9	0.45	1
10	0.44	1
11	0.44	1
12	0.44	1
13	0.43	1
14	0.43	1
15	0.42	1
16	0.42	1
17	0.42	1
18	0.42	1
19	0.41	1
20	0.41	1
21	0.41	1
22	0.4	1
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26	0.4	1
27	0.39	1
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29	0.39	1
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31	0.38	1
32	0.38	1
33	0.38	1
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40	0.37	1
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46	0.35	1
47	0.35	1
48	0.34	1
49	0.34	1
50	0.34	1
51	0.34	1
52	0.34	1
53	0.34	1
54	0.34	1
55	0.34	1
56	0.33	1
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58	0.33	1
59	0.33	1
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61	0.32	1
62	0.32	1
63	0.32	1
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65	0.32	1
66	0.32	1
67	0.31	1
68	0.31	1
69	0.31	1
70	0.31	1
71	0.31	1
72	0.3	1
73	0.3	1
74	0.3	1
75	0.3	1
76	0.3	1
77	0.3	1
78	0.29	1
79	0.29	1
80	0.29	1
81	0.29	1
82	0.29	1
83	0.29	1
84	0.28	1
85	0.28	1
86	0.28	1
87	0.28	1
88	0.28	1
89	0.28	1
90	0.28	1
91	0.28	1
92	0.28	1
93	0.28	1
94	0.27	1
95	0.27	1
96	0.27	1
97	0.27	1

98	0.26	1
99	0.26	1
100	0.26	1
101	0.26	1
102	0.26	1
103	0.26	1
104	0.26	1
105	0.26	1
106	0.25	1
107	0.25	1
108	0.25	1
109	0.25	1
110	0.25	1
111	0.25	1
112	0.25	1
113	0.24	1
114	0.24	1
115	0.24	1
116	0.24	1
117	0.24	1
118	0.24	1
119	0.23	1
120	0.23	1
121	0.23	1
122	0.23	1
123	0.23	1
124	0.23	1
125	0.23	1
126	0.22	1
127	0.22	1
128	0.22	1
129	0.22	1
130	0.22	1
131	0.22	1
132	0.22	1
133	0.21	1
134	0.21	1
135	0.21	1
136	0.21	1
137	0.21	1
138	0.21	1
139	0.21	1
140	0.21	1
141	0.21	1
142	0.2	1
143	0.2	1
144	0.2	1
145	0.2	1
146	0.2	1
147	0.2	1
148	0.2	1
149	0.2	1
150	0.2	1

151	0.2	1
152	0.19	1
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154	0.19	1
155	0.19	1
156	0.18	1
157	0.18	1
158	0.18	1
159	0.18	1
160	0.18	1
161	0.18	1
162	0.18	1
163	0.18	1
164	0.18	1

900189.100 SOUTH COAST Well 91-1 Slug Test
3/12/91 JPH

INITIAL DRAWDOWN

RADIUS OF CASING 0.167

RADIUS OF WELL 0.5

SATURATED THICKNESS 18.6

SCREEN LENGTH = 20.0

STATIC WATER Level = $12.25(3/12/91)$ = 10.37
- 1.9

TOC ELEV 456.28

GND ELEV 454.4

SD. = 1.9

Slug - in 18.18 → 18.73 = 0.55 DISPLACEMENT
@ 10:53

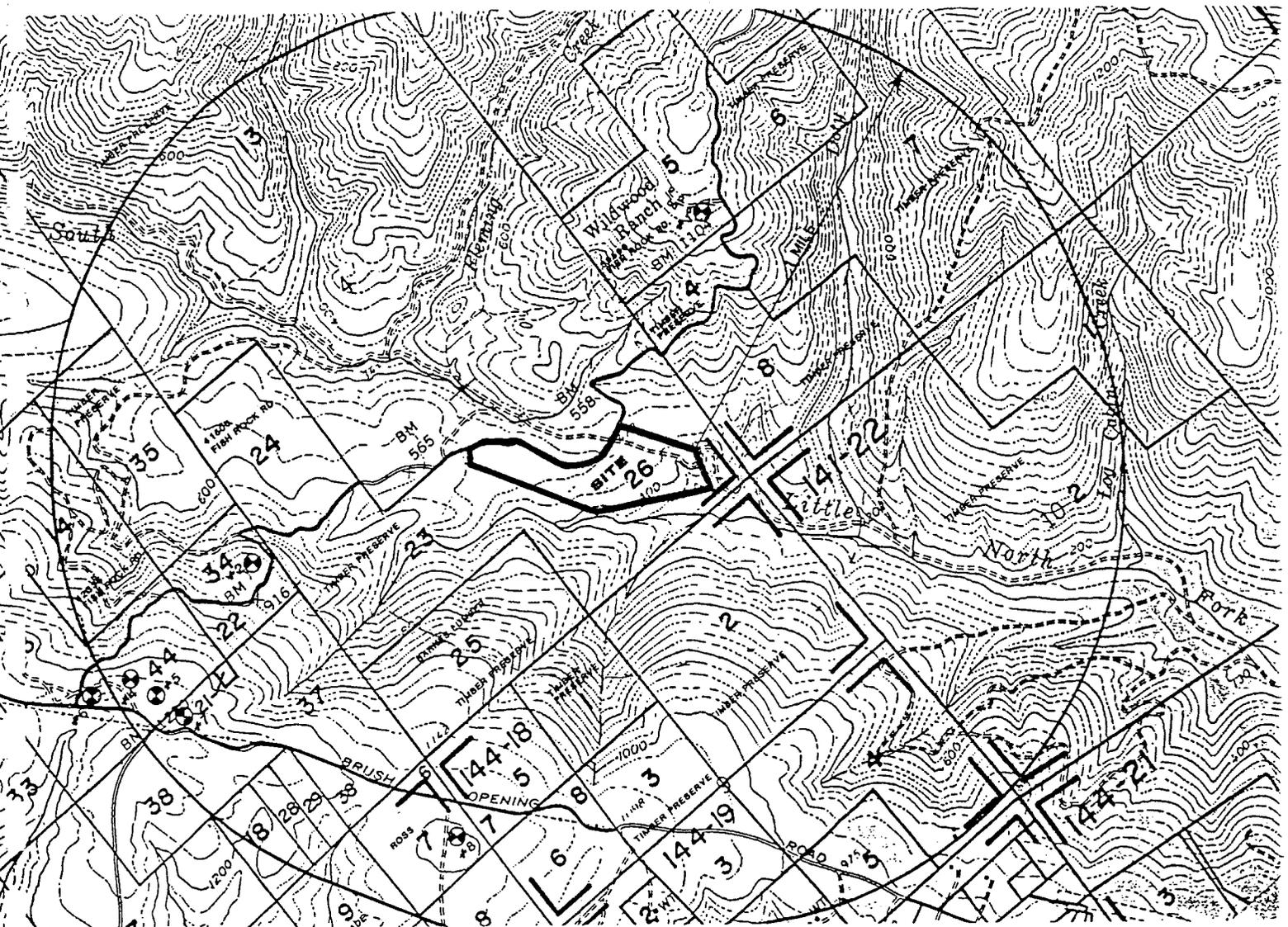
Slug - out 18.63 → 18.05 = 0.58 DISPLACEMENT
14:25

File A: memo men ISC

APPENDIX H
VICINITY WELL SURVEY INFORMATION

ASSESSOR'S BOOK	PAGE	ASSESSOR'S PARCEL NUMBERS
141	080	13, 14, 17, 18, 21, 22, 23, 24, 25, 26, 28, 29, 34, 35, 37, 38, 43, 44
141	170	01, 04, 05, 06, 07, 08, 11
141	220	01, 02
143	260	07, 08, 09
144	180	01, 02, 03, 05, 06, 07, 08
144	190	02, 03, 04, 05, 06, 08, 09

WELL NO.	A.P. NO.	WELL DRILLER'S REPORT NO.
1	141-170-05	62453
2	141-080-33	132959
3	141-100-08	132920
4	141-080-44	12076
5	141-080-44	12078
6	141-080-44	132917
7	141-080-45	132916
8	143-260-07	132991

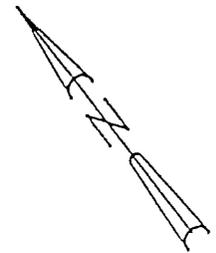


LEGEND

- 141-22 BOOK & PAGE
- 2 PARCEL NO.
- ⊙ WELL LOCATION

Reduced to 1" = 2,000' from:

SOUTH COAST LANDFILL
PERIMETER
WATER WELL LOCATION MAP



EBA ELJUMAILY & BUTLER ASSOCIATES
 Waste Management Consultants
 825 SONOMA AVENUE PO BOX 4600 1500 E. TROPICANA SUITE 125
 SANTA ROSA CA 95404 (707) 544-0784 LAS VEGAS, NEVADA 89119 (702) 798-1007



CONSULTING ENGINEERS
& GEOLOGISTS

DECEMBER 17, 1990

John R. Selva, P.E.
K. Jeff Nelson, P.E.
Gerald Jaramillo, P.E.
Roland S. Johnson, Jr., C.E.G.

2630 Harrison Ave. 480 Hemsted Drive
Eureka, CA 95501 Redding, CA 96002
(707) 444-0427 (916) 221-5424
FAX (707) 444-0193 FAX (916) 221-0135

Reference: 900189.100

AP# 144-180-01
141-080-25

December 17, 1990

Barnes Lumber Co
P. O. Box 397
Cloverdale, CA 95425

SUBJECT: WATER WELL SURVEY

Dear Property Owner:

SHN Consulting Engineers and Geologists (SHN) is under contract with Mendocino County to prepare an assessment of the South Coast Landfill for submission to the Regional Water Quality Control Board. As part of the data collection process, SHN is required to gather information regarding location, usage, and construction details of existing wells within 2000 feet of the southwest section of the landfill site.

Groundwater contamination has not been found at the landfill. Groundwater monitor wells are monitored on a quarterly basis and the results are reported to the State (Regional Water Quality Control Board). This survey is solely intended to establish a inventory of the wells in the vicinity of the landfill.

County Assessor records indicate that you are the owner of Assessor Parcel Numbers 144-180-01 and 141-080-25. Could you please advise us whether or not there are any wells on these parcels by checking the appropriate box at the bottom of this letter and returning it in the enclosed, self-addressed, stamped envelope. Two copies of this letter are provided for your convenience.

If water wells exist, we would appreciate it if you could note the location on the map provided, and return a copy of the map. If water wells exist, and the location is within 2000 feet of the landfill, we will contact you later for additional information regarding usage and construction details.

Please complete the necessary information, sign, and return one copy of this letter to SHN. The other copy is for your records.



Barnes Lumber Company
December 17, 1990
Page -2-

Your cooperation with this survey is greatly appreciated. If you have any questions or comments regarding this work, please feel free to contact Ed Belliston from the Mendocino Public Works Department at (707) 463-4363 or me at (707) 444-0427.

Sincerely,

SHN CONSULTING ENGINEERS AND
GEOLOGISTS

Neil Sherman
Environmental Specialist

To the best of my knowledge, no water wells exist on the Assessor's parcels identified above. *only Springs location unknown.*

Water wells exist on Assessor's parcel numbers _____ . We have identified the approximate location on the attached map.

We are no longer owners of the subject parcels.

Name of person providing information: *Ed Mitchell*

Date: *12-19-90*

Enclosures
cc: Mendocino County



CONSULTING ENGINEERS
& GEOLOGISTS

John R. Selvage, P.E.
K. Jeff Nelson, P.E.
Gerald Jaramila, P.E.
Roland S. Johnson, Jr., C.E.G.

2630 Harrison Ave. 480 Hemsted Drive
Eureka, CA 95501 Redding, CA 96002
(707) 444-0427 (916) 221-5424
FAX (707) 444-0193 FAX (916) 221-0135

Reference: 900189.100

AP# 144-180-02
141-220-02
141-080-23
141-170-08

January 16, 1991

Gualala Redwoods, Inc.
P. O. Box 197
Gualala, CA 95445

SUBJECT: WATER WELL SURVEY

Dear Property Owner:

SHN Consulting Engineers and Geologists (SHN) is under contract with Mendocino County to prepare an assessment of the South Coast Landfill for submission to the Regional Water Quality Control Board. As part of the data collection process, SHN is required to gather information regarding location, usage, and construction details of existing wells within 2000 feet of the southwest section of the landfill site.

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County Assessor records indicate that you are the owner of Assessor Parcel Numbers 144-180-02, 141-080-23, 141-170-08, and 141-220-02. Could you please advise us whether or not there are any wells on these parcels by checking the appropriate box at the bottom of this letter and returning it in the enclosed, self-addressed, stamped envelope. Two copies of this letter are provided for your convenience.

If water wells exist, we would appreciate it if you could note the location on the map provided, and return a copy of the map. If water wells exist, and the location is within 2000 feet of the landfill, we will contact you later for additional information regarding usage and construction details.

Please complete the necessary information, sign, and return one copy of this letter to SHN. The other copy is for your records.



Gualala Redwoods, Inc.
January 16, 1991
Page -2-

Your cooperation with this survey is greatly appreciated. If you have any questions or comments regarding this work, please feel free to contact Ed Belliston from the Mendocino County Public Works Department at (707) 463-4363 or me at (707) 444-0427.

Sincerely,

SHN CONSULTING ENGINEERS AND
GEOLOGISTS

Neil Sherman
Environmental Specialist

To the best of my knowledge, no water wells exist on the Assessor's parcels identified above.

Water wells exist on Assessor's parcel numbers _____
_____. We have identified the approximate location on the attached map.

We are no longer owners of the subject parcels.

Name of person providing information:

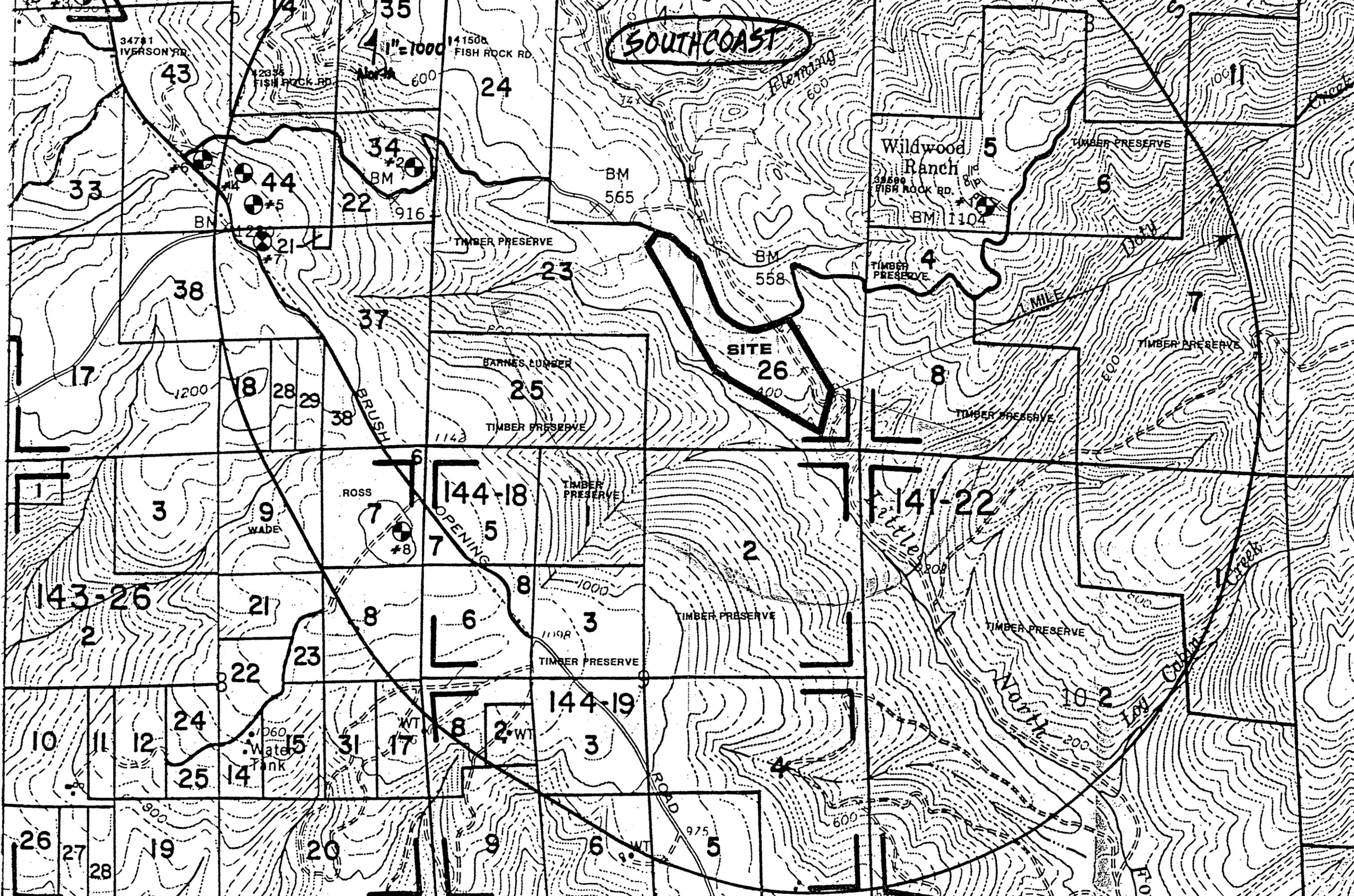
Date:

1/21/91

Enclosures

cc: Mendocino County

SOUTHCOAST



**APPENDIX I
ENVIRONMENTAL CHECKLIST**

ENVIRONMENTAL REVIEW CHECKLIST

Lead Agency _____

Case File Number(s) South Coast Solid Waste Disposal Site

Owner/Applicant/Agent Mendocino County Public Works Department

This checklist is provided to allow determination of potential environmental problems, in relation to the above noted project(s). It is to be used in determining whether an Environmental Impact Report or Negative Declaration should be prepared in accordance with state and local environmental review procedures. To allow multiple use of the checklist, the following codes have been established:

1. No significant environmental effects will occur.
2. No significant environmental problems will occur if mitigation measures are adopted (list suggested mitigation measures).
3. Significant environmental problems are possible. More information needed (supply specific nature of information requested).
4. Significant environmental problems are likely (indicate why).

Answer the appropriate listed questions and then supply a code number. For all questions answered "YES" and supplied with Code Number 2, 3, or 4, provide written explanations.

- | | <u>YES</u> | <u>NO</u> | <u>CODE</u> |
|---|------------|-----------|-------------|
| 1. <u>EARTH</u> | | | |
| a. Will the project require major earth moving activities? | <u>X</u> | ___ | <u>2</u> |
| b. Will the project increase any types of erosion? | <u>X</u> | ___ | <u>2</u> |
| c. Is the project located in areas of geologic hazard (earthquake faults, slides, etc.)? | <u>X</u> | ___ | <u>3</u> |
| 2. <u>AIR</u> | | | |
| a. Will the project breach any established air quality standards or create any objectionable odors? | ___ | <u>X</u> | ___ |
| b. Will the project alter the local climatic conditions? | ___ | <u>X</u> | ___ |

3.	<u>WATER</u>	<u>YES</u>	<u>NO</u>	<u>CODE</u>
a.	Will the project change the present drainage characteristics of the project area?	<u>X</u>	___	<u>2</u>
b.	Will the project alter water courses or movement?	<u>X</u>	___	<u>2</u>
c.	Will the project alter groundwater movements or availability?	___	<u>X</u>	___
d.	Will the project create any adverse water quality problems, either on site or off site?	<u>X</u>	___	<u>2</u>
e.	Will the project alter supplies to a community water system?	___	<u>X</u>	___
f.	Will the project be located in an area prone to water related hazards? (eg. flooding or tsunami)?	___	<u>X</u>	___
4.	<u>PLANT LIFE</u>			
a.	Will the project substantially alter local plant conditions by requiring removal?	<u>X</u>	___	<u>2</u>
b.	Will the project reduce the acreage of agricultural crops?	___	<u>X</u>	___
c.	Will the project affect any listed rare and/or endangered or locally unique plant species?	___	<u>X</u>	___
5.	<u>WILDLIFE</u>			
a.	Will the project substantially alter the existing wildlife habitat characteristics in the area?	<u>X</u>	___	<u>3</u>
b.	Will the project interfere with migration of wildlife?	<u>X</u>	___	<u>3</u>
c.	Will the project affect any listed rare and/or endangered or locally unique animal species?	<u>X</u>	___	<u>3</u>

6.	<u>NOISE</u>	<u>YES</u>	<u>NO</u>	<u>CODE</u>
a.	Will the project substantially increase ambient noise levels?	___	<u>X</u>	___
b.	Will the project breach any existing noise standards?	___	<u>X</u>	___
7.	<u>NATURAL RESOURCES</u>			
a.	Will the project increase/decrease the natural resource base of the project site?	___	<u>X</u>	___
b.	Does the project involve the extraction of non-renewable resources?	___	<u>X</u>	___
c.	Will the project result in removal from or alteration of a resource protection zone (i.e. Agriculture Preserve or TPZ)?	___	<u>X</u>	___
d.	Does the project have the potential to interfere with natural resource production either on site or off site?	___	<u>X</u>	___
e.	Will the project detract or adversely affect any areas of significant biological importance?	<u>X</u>	___	<u>3</u>
f.	Will the project interfere with or conflict with any state or federal land use policies or land use designations (i.e. Wild and Scenic Rivers)?	___	<u>X</u>	___
8.	<u>AESTHETICS</u>			
a.	Will the proposal significantly alter any scenic view scape, viewshed, or publicly recognized view characteristics in the project area?	___	<u>X</u>	___
b.	Does the project differ significantly with existing visual characteristics in the area?	<u>X</u>	___	<u>2</u>

9.	<u>ARCHAEOLOGICAL/HISTORICAL</u>	<u>YES</u>	<u>NO</u>	<u>CODE</u>
a.	Will the project result in an alteration of a significant archaeological or historical site, structure, object, or building?	___	<u>X</u>	___
b.	Will the proposal result in adverse physical or aesthetic effects to a pre-historic or historic building, structure, or object?	___	<u>X</u>	___
c.	Does the proposal have the potential to cause a physical change which would affect unique, ethnic, cultural values?	___	<u>X</u>	___
d.	Will the proposal restrict existing religious or sacred uses within the potential impact area?	___	<u>X</u>	___
10.	<u>ENERGY</u>			
a.	Will the project create any significant energy impacts?	___	<u>X</u>	___
11.	<u>TRANSPORTATION/CIRCULATION</u>			
a.	Will the project create substantial amounts of increased traffic?	___	<u>X</u>	___
b.	Will the project substantially affect existing transportation systems?	___	<u>X</u>	___
c.	Will the project increase traffic hazards in the project area?	___	<u>X</u>	___
d.	Does the project comply with transportation plans for the area?	<u>X</u>	___	<u>N/A</u>
12.	<u>PLANNING CRITERIA</u>			
a.	Does the project comply with appropriate land use plans for the area?	<u>X</u>	___	<u>N/A</u>
b.	Will the proposal affect local population location, distribution, density, or growth rates?	___	<u>X</u>	___
c.	Will the proposal result in changes in the housing supply or demand in the project area?	___	<u>X</u>	___

	<u>YES</u>	<u>NO</u>	<u>CODE</u>
d. Will the project result in abnormal demands on recreation facilities?	___	<u>X</u>	___
e. Will the proposal adversely affect local government services (e.g. sewer, water, fire protection) or utility delivery?	<u>X</u>	___	<u>2</u>
f. Will the project increase the possibility of, or be located in an area subject to wildfire occurrence?	<u>X</u>	___	<u>2</u>
g. Will the project involve any activities which may create unsafe, hazardous, or objectionable conditions (e.g. excessive glare, noise, handling of hazardous materials, etc.)?	<u>X</u>	___	<u>2</u>

CHECKLIST PREPARED BY: Neil Sherman, Environmental Specialist,
SHN Consulting Engineers & Geologists

- 1a) Earth will be moved during excavation and during cover activities. Mitigation measures include minimizing the amount of times earth is moved, spraying water for dust control when necessary, and revegetating as soon after disturbance as possible.
- 1b) Earth movement through excavation will cause erosion. Erosion will be mitigated by revegetation and the use of sedimentation basins.
- 1c) The site is located on the San Andreas Fault Zone and may be susceptible to ground shaking.
- 3a) The landfill will result in a change of topography and thus a change in drainage. A drainage management system is in place at the landfill.
- 3b) Currently, surface water from the northern area of the landfill is being diverted to a river without the use of a sedimentation basin. A sedimentation basin is recommended.
- 3d) All landfills have the potential to contaminate groundwater. A monitoring well network is in place at the site, and is sampled quarterly to provide an early warning for migration of potential contaminants in groundwater.
- 4a) Construction of the landfill has involved and will involve the removal of trees and shrubs. The site will be revegetated upon completion.

5a)-5c)
and 7e)

The Mendocino County Planning Department was contacted for information regarding the presence of rare and endangered, or locally unique wildlife species near the site. Steelhead, Silver Salmon, and Rainbow Trout fisheries are located downstream of the site, in the Little North Fork of the Gualala River. Additional studies may be needed to evaluate this category.

8b) The final landfill configuration will result in a modified topography. The landfill has been designed to conform with visual characteristics of the surrounding area.

12e) The potential for fires exist. The local Fire Department may need to be called to suppress refuse fires. The potential for fires are mitigated by covering the waste on a frequent basis and by screening all loads that are received for burning materials.

12f) The site is located in a forested area. Fire breaks have been constructed around the landfill perimeters.

12g) A load checking program is conducted at the site to ensure that no hazardous materials are disposed of.

**APPENDIX J
MITIGATED NEGATIVE DECLARATION
(KKC, 2013)**

***Draft Initial Study
Proposed Mitigated Negative Declaration***

**PROPOSED FINAL CLOSURE/
POST-CLOSURE MAINTENANCE PLAN
SOUTH COAST LANDFILL**

***Mendocino County Department of Transportation
Solid Waste Division***

Prepared by:

*Keeton Kreitzer Consulting
P. O. Box 3905
Tustin, CA 92781-3905*

June 2013

**DRAFT INITIAL STUDY
PROPOSED MITIGATED NEGATIVE DECLARATION**

**PROPOSED FINAL CLOSURE/
POST-CLOSURE MAINTENANCE PLAN
SOUTH COAST LANDFILL**

Prepared for:

**Mendocino County Department of Transportation
Solid Waste Division
340 Lake Mendocino Drive
Ukiah, CA 95482**

Contact: Mr. Geoffrey Brunet, P.E., (707 463-4566

Prepared by:

**Keeton Kreitzer Consulting
P. O. Box 3905
Tustin, CA 92781-3905
Contact: Mr. Keeton K. Kreitzer, Principal (714) 665-8509**

JUNE 2013

**PROPOSED FINAL CLOSURE/
POST-CLOSURE MAINTENANCE PLAN
SOUTH COAST LANDFILL**

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CHAPTER 1.0 – INTRODUCTION AND PURPOSE

1.0 INTRODUCTION

1.1 CEQA Compliance

The County of Mendocino Department of Transportation (DOT) Solid Waste Division (SWD) is the lead agency under the California Environmental Quality Act (CEQA) for the proposed South Coast Landfill Final Closure Plan (the “Project”) located at 40855 Fish Rock Road, Gualala, CA 95455 (AP No. 141-080-26). In accordance with Section 15070 through Section 15075, Negative Declaration Process, of the CEQA Guidelines, this Initial Study/Proposed Mitigated Negative Declaration (IS/PMND) has been prepared by the County of Mendocino. Section 15070 of the CEQA Guidelines states the following with respect to the preparation of a Mitigated Negative Declaration:

"A public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:

- (a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
- (b) The initial study identifies potentially significant effects, but:
 - (1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect would occur, and
 - (2) There is no substantial evidence, in light of the whole record before the agency that the project as revised may have a significant effect on the environment.

As prescribed in Section 15070, an Initial Study has been prepared that analyzes the potential project-related impacts anticipated to occur as a result of implementing the Final Closure and Post Closure Maintenance Plan for the South Coast Landfill as proposed by the County of Mendocino. Pursuant to Section 15071 of the CEQA Guidelines, the Initial Study/Proposed Mitigated Negative Declaration includes:

- A description of the proposed project (refer to Section 2.0);
- The location of the project (refer to Section 2.1);
- A list of the environmental factors potentially affected by project implementation (Refer to Section 3.0);
- A comprehensive analysis of each environmental topic included in the County's environmental checklist (refer to Chapter 4.0);
- A proposed finding that the project will not have a significant effect on the environment (refer to Section 5.1); and
- Mitigation measures (refer to Section 5.2).

1.2 Incorporation by Reference

As allowed under by Section 15150 of the State CEQA Guidelines, this initial study incorporates the Final Closure Plan for the South Coast Landfill by reference. The closure plan and technical appendices were utilized during the preparation of the Initial Study. The relevant information and/or analysis that has been incorporated by reference into this initial study has been summarized. The Final Closure Plan is available for

CHAPTER 1.0 – INTRODUCTION AND PURPOSE

review at the Mendocino County Department of Transportation (DOT), located at 340 Mendocino Drive, Ukiah, California 95482.

1.3 Purpose

The Final Closure and Post Closure Maintenance Plan (FCPCMP) for the South Coast Landfill (SCL) was prepared for the Mendocino County DOT – Solid Waste Division (SWD) by SWT Engineering, Inc. (SWT) for submittal to the California Department of Resources Recycling and Recovery (CalRecycle), the Mendocino County Department of Public Health Environmental Health Division acting as the Local Enforcement Agency (LEA), and the California Regional Water Quality Control Board (CRWQCB). The Mendocino County SWD is the permitted owner of the SCL.

The environmental document that follows is an Initial Study and Mitigated Negative Declaration (IS/MND) for the South Coast Landfill FCPCMP project proposed by the Mendocino County SWD. An initial study is a preliminary analysis prepared by the SWD to determine whether an environmental impact report (EIR) or negative declaration (ND) must be prepared to assess potential environmental impacts in accordance with the California Environmental Quality Act (CEQA) and State CEQA Guidelines (Section 15000 *et seq.*). It is intended to determine if the project may have a significant effect on the environment. A negative declaration is a written statement prepared by the SWD that briefly describes the reasons why a proposed project will not have a significant effect on the environment and, therefore, does not require the preparation of an EIR.

As indicated above, the County of Mendocino SWD is proposing the final closure of the SCL, which would be implemented upon the Mendocino County Board of Supervisor's adoption of the IS/PMND prepared in support of the Final Closure of the SCL. This IS/MND has been prepared in accordance with the CEQA, Public Resources Code 21000 *et seq.*, and the State CEQA Guidelines, California Code of Regulations, Section 15000 *et seq.* The IS/MND provides a description of the project setting and characteristics, includes an environmental evaluation/checklist that identifies the potential environmental impacts associated with implementation of the FCPCMP, and includes a discussion of the checklist responses and findings.

Much of the project description information and analysis presented in the Initial Study was derived from the FCPCMP prepared for the SCL by SWT Engineering, Inc in April 2013. The FCPCMP and technical studies prepared to support that document are incorporated by reference.

1.4 Determination of No Significant Impacts

This Initial Study/Mitigated Negative Declaration has been prepared pursuant to Section 15070 through Section 15075 of the CEQA Guidelines as prescribed in Section 1.1, above. As indicated in Chapter 5.0 (Conclusions) of the document, no significant impacts will occur as a result of project implementation with the incorporation of appropriate mitigation measures and conditions of approval that will be incorporated into the project design. The Mendocino County Board of Supervisors and, if necessary, other responsible agencies identified in the IS/MND will consider the information contained in this document prior to making a final decision on the proposed FCPCMP.

CHAPTER 2.0 – PROJECT DESCRIPTION

2.0 PROJECT DESCRIPTION

2.1 Project Location

The South Coast Landfill (SCL) is located in Mendocino County, east of Highway 1 on Fish Rock Road (refer to Exhibit 2-1) in the southeast $\frac{1}{4}$ of the south $\frac{1}{2}$ of Section 4, Township 11 north, Range 15 west, Mount Diablo Base and Meridian. The address of the SCL is 40855 Fish Rock Road, Gualala, California 95445 (Assessor's Parcel No. 141-080-26).

2.2 Environmental Setting

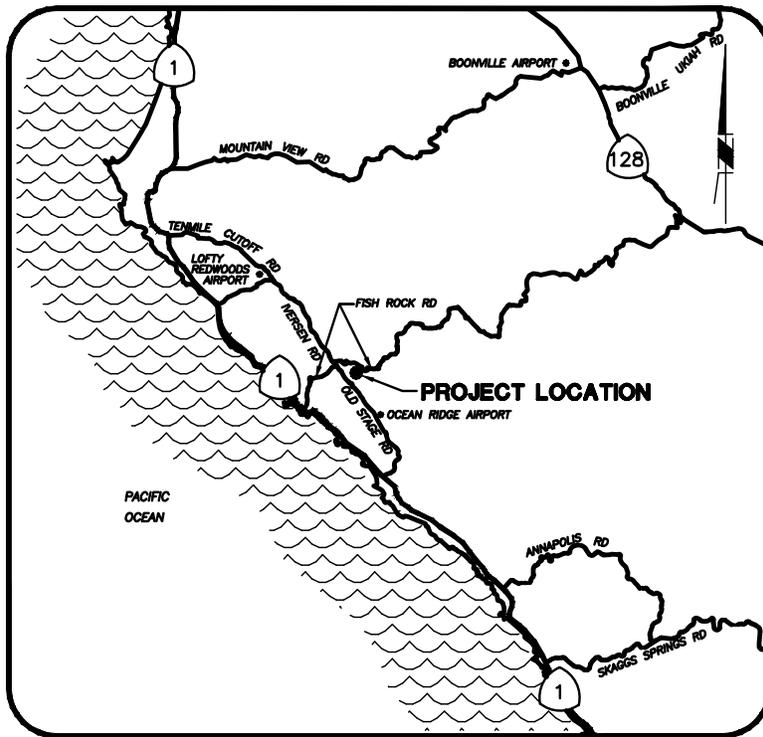
The entire property, consisting of 47.65 acres, is owned by the Mendocino County Department of Transportation – Solid Waste Department (SWD). Approximately six acres were utilized for waste disposal. Exhibit 2-2 shows the disposal area footprint. There are no structures within 1,000 feet of the site property boundary. The subject property is designated as Public Service for Solid Waste (PS[SW]) by the Mendocino County General Plan and is zoned Public Facility (PF). The land surrounding the SCL is zoned Timber Production Zone (TPZ), with a minimum parcel size of 160 acres.

SCL is located in the Coastal Mountain range in heavily forested rugged mountain terrain. The landfill is situated at an elevation of about 500 feet above mean sea level (amsl) and approximately 200 feet northeast of the Little North Fork of the Gualala River.

The SCL is located in the San Andreas Fault Zone in the northern area of the Coast Ranges. The northwest-southeast trending faults and folds have created the ridges and valleys of the fault zone. The site is underlain by the Guinda formation, consisting of marine sandstone and mudstone, which are part of the late Cretaceous unit of the Franciscan assemblage. The rocks have been locally sheared with much clay gouge present in the vicinity of the site.

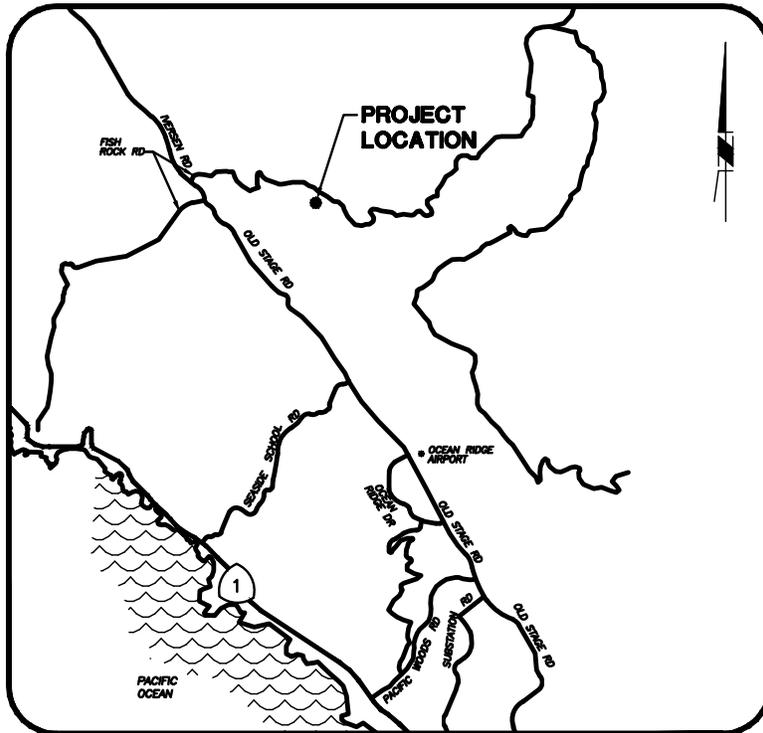
East of the landfill and east of the Little North Fork, Cretaceous-age marine sandstones and sheared shales of the Coastal Belt Franciscan Formation are the most dominant lithology. West of the site and west of the Little North Fork, marine mudstones and sandstones of the Cretaceous-age Anchor Bay Member of the Gualala Formation and marine sandstones of the Tertiary-age German Rancho Formation crop out. Within the relatively flat-lying central and eastern portions of the property, unconsolidated, well-graded Recent-age alluvial terrace deposits of mixed clays, silts, sands and gravel are exposed.

Although a number of landslides have been mapped near the site, no landslide features have been identified on the SCL property. Most of the large-scale landslides in the region have relatively deep-seated failure surfaces with a rotational/transitional mode of movement along planar joints or bedding. In many cases, slope failure appears to be related to erosional processes at the toe of slopes. The fact that landslides are not typically mapped within fault gouge in the area may be related to the nearly vertical textural fabric of shears within the unit.



VICINITY MAP

SCALE: 1"=8 MI



LOCATION MAP

SCALE: 1"=1.5 MI

SITE ADDRESS:
40855 FISH ROCK ROAD
GUALALA, CA 95445
ASSESSOR'S PARCEL NO.
141-080-26

PREPARED BY:

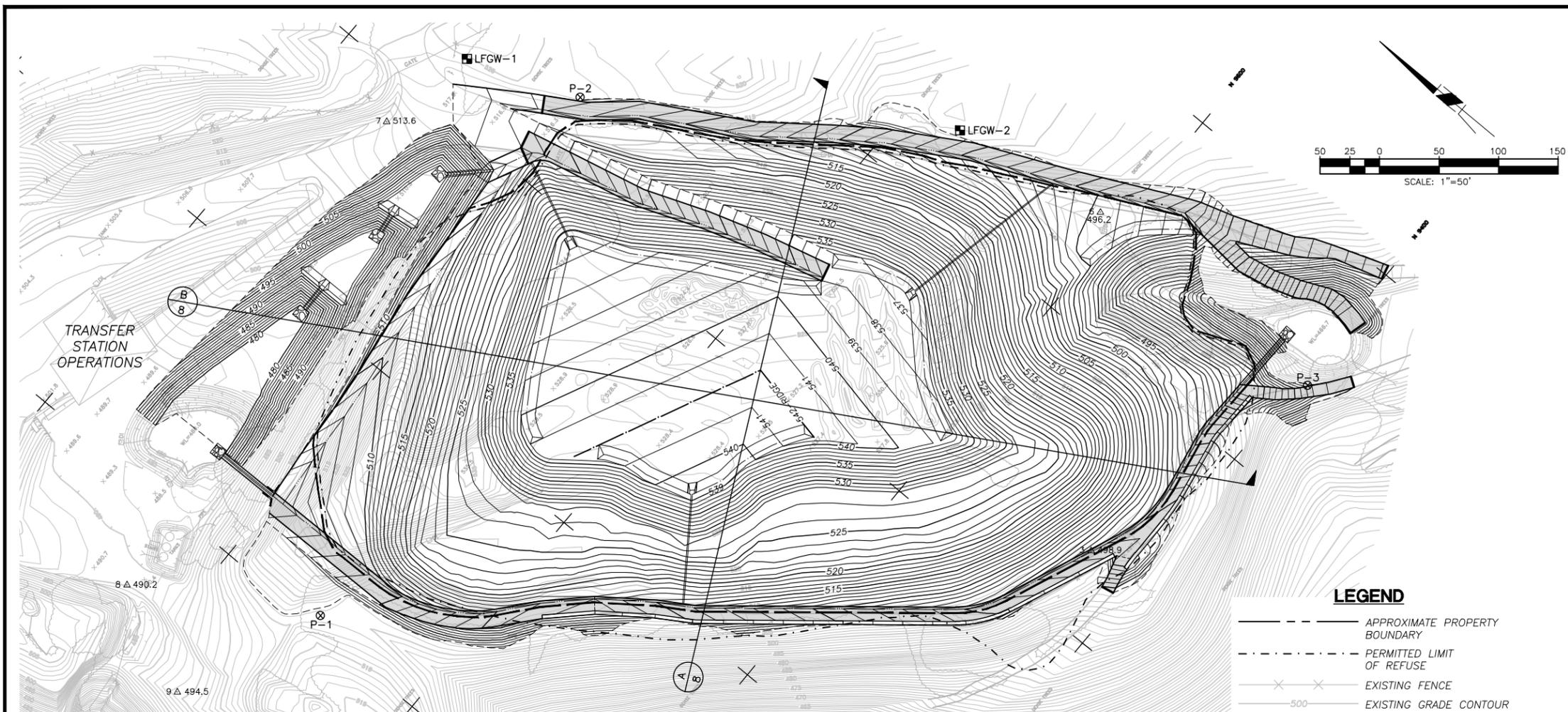


800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

EXHIBIT 2-1

SOUTH COAST LANDFILL

SITE VICINITY AND LOCATION MAP



CONSTRUCTION NOTES

- 1 CLEAR AND GRUB
- 2 PROTECT IN PLACE
- 3 REMOVE EXISTING STRUCTURES
- 4 ADJUST TO FINAL GRADE
- 5 PERFORM REFUSE EXCAVATION AND PLACE IN DESIGNATED RECONSOLIDATION AREA SHOWN PER PLAN
- 6 PERFORM UNCLASSIFIED EXCAVATION AT STOCKPILE AREAS AND BORROW AREA FOR FINAL COVER
- 7 CONSTRUCT FINAL COVER SECTION - SLOPE $\frac{1}{D1}$
- 8 CONSTRUCT FINAL COVER SECTION - DECK $\frac{2}{D1}$
- 9 CONSTRUCT HDPE EDGE DRAIN COLLECTOR (BELOW FINAL COVER LLDPE) $\frac{3}{D1}$
- 10 CONSTRUCT DRAINAGE COLLECTOR $\frac{4}{D1}$
- 11 CONSTRUCT FINAL COVER SLOPE TERMINATION $\frac{5}{D1}$
- 12 CONSTRUCT GABION WALL, TIE-BACK GEOGRIDS AND SLOPE COVER TERMINATION PER PROFILE ON SHEET NO. 5 AND $\frac{1}{D3}$
- 13 CONSTRUCT BENCH LINER TERMINATION $\frac{4}{D3}$
- 14 CONSTRUCT FINAL COVER TERMINATION - NORTH PERIMETER ROAD $\frac{6}{D1}$
- 15 CONSTRUCT HDPE EDGE DRAIN COLLECTOR (ABOVE FINAL COVER LLDPE) $\frac{3}{D1}$
- 16 CONSTRUCT TOP DECK BERM $\frac{8}{D1}$
- 17 CONSTRUCT TOP DECK MCCARTHY DRAINAGE INLET $\frac{1}{D2}$
- 18 CONSTRUCT DECK ACCESS ROAD $\frac{9}{D1}$
- 19 CONSTRUCT AC DOWNDRAIN $\frac{8}{D2}$
- 20 CONSTRUCT CONCRETE DOWNDRAIN/CHANNEL $\frac{5}{D2}$
- 21 CONSTRUCT RIP RAP PAD $\frac{4}{D2}$
- 22 CONSTRUCT BASIN BERM AND DOWNDRAIN INLET AT STORMWATER BASIN $\frac{3}{D3}$
- 23 RELOCATE/ADJUST SURVEY MONUMENT TO GRADE PER PROJECT SPECIFICATIONS AND $\frac{2}{D3}$
- 24 CONSTRUCT HDPE BOOT $\frac{7}{D1}$
- 25 CONSTRUCT BENTONITE PLUG $\frac{7}{D1}$
- 26 CONSTRUCT 4" SOLID HDPE PIPE (SDR 17)
- 27 EXTEND PIPE AND JOIN TO EXISTING LEACHATE OUTFALL PIPING/TANK
- 28 JOIN EXISTING DOWNDRAIN WITH ABOVE LINER 4" SOLID HDPE SDR 17 PIPE
- 29 CONSTRUCT METAL FLUME DOWN DRAIN $\frac{2}{D2}$
- 30 CONSTRUCT 12"x12" DEEP LIFT AC TERMINATION
- 31 CONSTRUCT 3" AC OVER 4" CLASS 2 BASE $\frac{6}{D1}$ OR $\frac{9}{D1}$ OR $\frac{1}{D3}$
- 32 CONSTRUCT SPLASHWALL $\frac{5}{D3}$
- 33 PROTECT/ADJUST LFG GAS PROBE TO FINAL GRADE; INSTALL 3 EACH PIPE BOLLARDS AT EACH PROBE $\frac{8}{7}$
- 34 CONSTRUCT VERTICAL LANDFILL GAS WELL PER $\frac{3}{7}$
- 35 CONSTRUCT LANDFILL GAS VENT PER $\frac{2}{7}$
- 36 INSTALL LANDFILL GAS TRENCH COLLECTION GALLERY WITH 2 CF/LF TRENCH GRAVEL, 4" SLOTTED HDPE PIPE AND 8 OZ/SY GEOTEXTILE WRAP $\frac{2}{7}$
- 37 CONSTRUCT LLDPE SKIRT AND SLEEVE $\frac{7}{7}$
- 38 CAP END OF PIPE
- 39 CONSTRUCT ANCHOR TRENCH WITH LFG COLLECTION TRENCH $\frac{8}{D1}$
- 40 INSTALL LFG/SEEP COLLECTOR $\frac{10}{D1}$
- 41 CONSTRUCT TYPE A AC DIKE PER CALTRANS STD PLAN A87B
- 42 HYDROSEED ON SITE AREA
- 43 INSTALL FIBER ROLL PER $\frac{2}{D4}$ $\frac{3}{D4}$
- 44 INSTALL GRAVEL BAG CHEVRON PER $\frac{1}{D4}$ $\frac{2}{D4}$ $\frac{3}{D4}$

NOTICE TO CONTRACTOR

1. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. THESE LOCATIONS ARE APPROXIMATE AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR SO THAT ANY NECESSARY ADJUSTMENT CAN BE MADE IN ALIGNMENT AND/OR GRADE OF THE PROPOSED IMPROVEMENT. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE EXACT DETERMINATION AS THE LOCATION OF ALL EXISTING UTILITIES. FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT AT 1-800-422-4133 AND SHALL PROVIDE THE CONSTRUCTION MANAGER WITH VERIFICATION NUMBERS ISSUED.
3. THE FACT THAT ANY UTILITY FACILITY IS SHOWN OR NOT SHOWN UPON THE PLANS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY UNDER SECTION 8-1.10 "UTILITY AND NON-HIGHWAY FACILITIES," OF THE STATE STANDARD SPECIFICATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY, PURSUANT THERETO, TO ASCERTAIN THE LOCATION OF ANY UTILITY FACILITY WHICH MAY BE SUBJECT TO DAMAGE BY REASON OF THE CONTRACTOR'S OPERATIONS.

4. REGARDING SIGNED DRAWING VERSUS ELECTRONIC COPY: SHOULD THE CONTRACTOR OR CONTRACTOR'S SURVEYOR FIND A CONTOUR LABEL OR ELEVATION DISCREPANCY BETWEEN THE SIGNED DRAWING AND THE ELECTRONIC VERSION (WHICH HAVE BEEN PROVIDED AS A COURTESY FOR EASE OF CONSTRUCTION STAKING), THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF THE DISCREPANCY SO THAT THE DISCREPANCY MAY BE RESOLVED, PRIOR TO CONSTRUCTION. THE SIGNED DRAWING SUPERSEDES THE ELECTRONIC VERSION.

NOTES

1. TOPOGRAPHIC DATA COMPILED FROM 15 FEBRUARY 2012 AERIAL PHOTOGRAPHY BY DELTA GEOMATICS CORPORATION.
2. ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL, NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).
3. GRID COORDINATES CORRESPOND TO THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, ZONE 3, NAD83.
4. LOCATIONS OF STOCKPILES ARE APPROXIMATE.
5. EQUIPMENT AND MATERIAL STAGING AREA(S) TO BE DETERMINED BY OWNER.
6. ALL EXISTING STRUCTURES SUCH AS BUILDINGS, POLES, FENCES, PIPES, DITCHES, PONDS, ETC. WITHIN LIMIT OF EARTHWORK SHALL BE REMOVED AS REQUIRED BY THE OWNER.

COORDINATE CONTROL POINTS

PT NO	NORTHING	EASTING	ELEVATION
3	9443.63	10064.07	498.9
6	9618.41	10287.41	496.2
7	10128.71	9963.78	513.6
8	10049.25	9525.71	490.2
9	9959.54	9483.59	494.5

ABBREVIATIONS

FL	FLOWLINE	LFG	LANDFILL GAS
HP	HIGH POINT	TS	TOP OF SLOPE
LP	LOW POINT	GB	GRADE BREAK
PP	POWER POLE	UD	UNDERDRAIN
INV	INVERT OF PIPE	CHDPE	CORRUGATED HIGH DENSITY POLYETHYLENE

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- - - PERMITTED LIMIT OF REFUSE
- X X EXISTING FENCE
- 500 EXISTING GRADE CONTOUR
- 500 FINISHED GRADE CONTOUR
- - - TOE OF SLOPE
- - - DAYLIGHT LINE
- - - RIDGE LINE
- - - C_F CUT/FILL TRANSITION
- FINISHED BENCH
- GABION WALL
- HDPE EDGE DRAIN
- DRAINAGE COLLECTOR
- LFG/SEEP COLLECTOR
- 3:1 DIRECTION AND RATE OF SLOPE
- 1 D1 DETAIL NUMBER SHEET SHOWN ON
- 7 Δ 513.6 HORIZONTAL/VERTICAL CONTROL (HVC)
- ◆ FINAL COVER SETTLEMENT MONUMENT
- ⊗ P-3 LFG PROBE
- VERTICAL PASSIVE VENT GAS WELL
- LANDFILL GAS PASSIVE VENT RISER LOCATION
- LANDFILL GAS PASSIVE TRENCH BELOW 60 MIL LLDPE
- END OF LANDFILL GAS PASSIVE TRENCH
- LFGW-1 GAS MONITORING PROBE

NO.	REVISION DESCRIPTION	DATE

PREPARED BY:

SWT Engineering Civil & Environmental

800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

REG. (SEAL) PROFESSIONAL ENGINEER
MICHAEL A. CULLINANE
No. 41981
CIVIL
STATE OF CALIFORNIA

PREPARED UNDER THE SUPERVISION OF _____ DATE _____

MENDOCINO COUNTY
SOUTH COAST LANDFILL

**FINAL CLOSURE CONSTRUCTION PROJECT
SITE PLAN**

DESIGNED BY : R.M.G.	SCALE : AS SHOWN	PROJECT NO. : -
DRAWN BY : J.P.J.	DATE : 01-2013	
CHECKED BY :	DATE :	
APPROVED BY :	DATE :	SHEET 2 OF 13

EXHIBIT 2-2

CHAPTER 2.0 – PROJECT DESCRIPTION

Groundwater at the site occurs within fractured gouge zone materials. Data from previous investigation of the site indicated that groundwater was encountered at depths ranging from 8 to 23 feet below ground surface. Along the west side of the property, groundwater was encountered in two recent borings that were excavated to depths of 17 and 12.5 feet, but was not encountered in two other borings that were extended to depths of 12 and 38.5 feet. Groundwater is interpreted to flow from the northeast to the southwest at a hydraulic gradient of approximately 0.08 ft/ft. However, this pattern is expected to be locally interrupted by well-developed shears within the gouge zone matrix with resultant anisotropic (i.e., exhibiting different properties and/or values) flows directed in a more southerly direction.

2.3 Background and History

The SCL is a Class III solid waste disposal facility. The County began landfill operations in 1970. The SCL ceased landfill operations in 2000. The SCL is owned and was operated by the SWD. The SCL served the residents of Mendocino County South Coast Area, which is the State Route 1 corridor from the Sonoma County Line to the Navarro River. This area includes the towns of Elk, Irish Beach, Manchester, Point Arena and Gualala. The landfill was constructed in a shallow ravine, using the area fill method to place, compact and cover refuse on a daily basis.

The site operated in accordance with State Minimum Standards for a Class III disposal facility as established by the State Water Resources Control Board (SWRCB) and the California Integrated Waste Management Board (CIWMB) under the California Code of Regulations, Title 27 (27 CCR). The site accepted mixed municipal refuse, classified non-hazardous solid waste and inert waste as defined in the 27 CCR, Sections 20220 and 20230. No liquid or hazardous waste was knowingly accepted at the site. Tires, scrap metal, wood, plastic, aluminum and glass were separated and collected at the landfill. Wastes at the landfill generally consisted of municipal refuse including residential refuse (90 percent), commercial refuse (5 percent), and construction/demolition waste (5 percent). A Preliminary Closure Plan/Post Closure Maintenance Plan was prepared in 1995 to establish cost estimates for both closure of the landfill and post closure maintenance after closure for a minimum period of 30 years. The County permitted a Medium Volume Transfer Station (MVTs) in 2000, which is located on the landfill property. The MVTs was permitted and was constructed to be operational upon cessation of refuse disposal operation. The MVTs is located north of the refuse footprint on native ground. This facility's operation consists of refuse unload from customers and reloading by SWD staff into larger bins/containers for transport to an approved landfill. SWD also conducts recycling, material diversion, processing, and storage of separated/recycled materials. The fully permitted MVTs will continue operations beyond final closure of the SCL to provide continued waste management services to the South Coast area of Mendocino County.

2.4 Existing Environmental Control Systems

Landfill Gas Monitoring and Control System

The SCL currently does not have a landfill gas (LFG) control system. Two LFG migration monitoring probes for the detection of methane (the major potentially hazardous element of LFG) were installed on the site in accordance with 27 CCR, Section 20925. Perimeter gas monitoring wells were not installed to the south and west of the site due to the steep gradient down to the Gualala River, which prohibits easy access for construction of the wells. Currently, the LFG probes are monitored on a quarterly basis. In addition, the gas probes are pressure tested annually to ensure proper functionality. In addition to the two existing LFG probes described above, Mendocino County Solid Waste Division (SWD) completed construction of three additional gas probes in June 2012. The probes were installed according to the gas probe design information

CHAPTER 2.0 – PROJECT DESCRIPTION

described in the 2003 Final Closure/Post Closure Maintenance Plan (FCPCMP).

Due to the negligible levels of organic contaminants in the LFG and no hazardous levels of LFG present at the landfill, an active LFG control system is not proposed for the site. Alternatively, a passive vent LFG system will be installed under the final cover to prevent buildup of LFG under the linear low-density polyethylene (LLDPE) geomembrane and provide passive venting (under natural pressure conditions) of any potential gas generated within the refuse prism. In the event that LFG production warrants extraction, this passive system can be retrofitted into an active system. This LFG system is further discussed in Section 3.8.

Groundwater/Surface Water Monitoring System

The groundwater monitoring system at the SCL was initiated in 1987 at which time five monitoring wells were installed to establish high water elevation gradient, flow direction, and background water quality. One additional well was installed in 1991 to further delineate the down gradient hydrological conditions at the site. In 1994, monitoring well 87-4 was destroyed and four new monitoring wells were installed. The depths of the monitoring wells vary from 15.4 feet to 50 feet. The groundwater monitoring wells are sampled in accordance with Waste Discharge Requirements (WDR) Order No. 77-23, as amended, which complies with 27 CCR, Subchapter 3, Article 1 requirements. Quarterly water quality monitoring reports are submitted to the North Coast Regional Water Quality Control Board (RWQCB). Surface water runoff at the site is sampled seasonally at two locations, including one that is located along the south side of the landfill where runoff discharges to a surface water detention basin and then into the natural drainage course. The second basin is located near the northwest corner of the landfill where runoff discharges to an adjacent ravine and then into the Little North Fork of the Gualala River.

Stormwater Monitoring and Reporting

The County of Mendocino submitted a Notice of Intent (NOI) to comply with the National Pollutant Discharge Elimination System (NPDES) regulations implemented by the RWQCB for monitoring and reporting storm water discharges. Stormwater sampling is performed at the two surface water discharge locations as noted above during the first significant storm and at the end of the rainy season in accordance with NPDES requirements.

Leachate Collection and Removal System

The existing leachate collection and removal system (LCRS) consists of a leachate infiltration gallery, and polyethylene and polyvinyl pipe that are used to transport leachate collected from minor surface seeps. Any collected liquid is then transported to the containment system (tank farm). The leachate collection gallery was constructed to completely surround the end of the drainage trench at the edge of refuse. This feature intercepts the drainage trench, captures the leachate and transports the leachate to the leachate containment/storage facility. The leachate collection gallery consists of two-inch rock which is enveloped in filter fabric and is located under the perimeter road, at the edge of refuse. The leachate drains into a vertical 36-inch CMP riser wrapped in filter fabric, located six feet from the edge of the perimeter road. The leachate is gravity fed into two 3-inch PVC drains which connects to a 2-inch PVC pipe and then to a 2-inch PEP pipe and into the leachate containment facility (tank farm). The leachate containment facility is outfitted with a suction coupling for the off-chance the leachate needs to be evacuated from the pipes. During the wet season, leachate is regularly transported by truck and disposed of at the Gualala Community Service District Wastewater Treatment Plant. In 2012, 87,000 gallons of leachate were collected and disposed of at this permitted waste water treatment plant.

CHAPTER 2.0 – PROJECT DESCRIPTION

The leachate containment facility consists of 12 3,000-gallon plastic tanks with a combined capacity of 36,000 gallons of leachate, consisting of three tanks at the north end with a 9,000-gallon capacity, and nine plastic tanks at the south end, with the capacity 27,000 gallons. The containment facility is surrounded by an earthen containment structure in the event that a tank(s) develops a leak. The tanks are periodically pumped by tanker truck and leachate is disposed of at the Gualala Community Service District Sewage Treatment Plant (GCSD) in Gualala, California. The County has entered into a contractual agreement with the GCSD for the disposal of the leachate. Pumping of the tanks during the wet season is more frequent. Leachate samples are collected annually in the fourth quarter of each year from the collection tanks located along the south side of the landfill. Results are also included in the quarterly water quality monitoring reports submitted to the RWQCB.

2.5 Project Characteristics/Description

Closure of the South Coast Landfill (SCL) will be performed in accordance with the applicable regulatory standards prescribed in the California Code of Regulations (CCR) (i.e., 27 CCR, Chapters 3 and 4 and 40 CFR, Subpart F). The components and systems required for closure of the SCL include the final cover and grading design to control stormwater, potential infiltration and accommodate future settlement, landfill slope stability, construction quality assurance, drainage and erosion control systems, LFG control and monitoring systems, groundwater/surface water monitoring systems, and site security. A description of each of these closure components proposed for construction of the SCL closure improvements is presented below.

Final Closure Plan

Final Cover Design Criteria – 27 CCR

The purpose of a final cover is to provide long-term minimization of surface water intrusion, to accommodate settlement and subsidence and to isolate wastes from the ground surface. The final cover also provides a base for vegetation which will reduce drainage velocities, erosion and infiltration. The proposed final cover design for the SCL includes: (1) a foundation layer that has a minimum two-foot thick layer of approved soil having the appropriate engineering properties so as to provide a relatively unyielding surface upon which to place and compact a low-hydraulic conductivity layer; (2) a low hydraulic-conductivity layer, which is composed of a minimum one-foot thick layer of clean low-hydraulic-conductivity soil containing no waste or leachate placed over the foundation layer. The low-hydraulic-conductivity (or low through-flow rate) soils are placed on top of the foundation layer and compacted to attain a hydraulic conductivity specification; and (3) an erosion-resistant layer that is a minimum 12-inch thick layer of soil containing no waste or leachate and which is placed on top of all portions of the low-hydraulic conductivity layer. The vegetative layer also minimizes erosion of the final cover by the use of a minimum 12-inches thick layer of earthen material that is capable of sustaining native plant growth.

Proposed Final Cover Design

Several factors were taken into consideration in establishing the proposed final cover design for the SCL including the geometry of the existing landfill, local climatic conditions, potential landfill settlement, final cover material availability and desired performance criteria, erosion protection, vegetative growth, construction cost and end use at closure. A series of geologic analyses conducted for the proposed closure plan concluded that adequate slope stability as well as 27 CCR compliant closure could be achieved with a minor reconsolidation of wastes away from the slopes along the western side of the landfill, and by using an alternative final cover configuration consisting of (from bottom to top):

CHAPTER 2.0 – PROJECT DESCRIPTION

- a two-foot thick foundation layer placed over the existing landfill cover soils of earthen materials or other suitable materials as allowed under 27 CCR. The existing soil base grade will be scarified and recompact;
- a barrier layer consisting of a 60-mil linear low-density polyethylene (LLDPE) Super Grip Net geomembrane;
- a separator geotextile; and
- a 2-foot thick vegetative/protective soil layer.

A typical cross-section of the proposed engineered alternative final cover system is shown on Exhibit 2-3. The proposed final cover section will be placed over all areas within the limits of refuse, at a maximum grade of 3:1 (horizontal to vertical) and minimum grade of 3% in accordance with the slope stability analyses completed for the final closure plan. The proposed final grading for the SCL is shown on Exhibit 2-4.

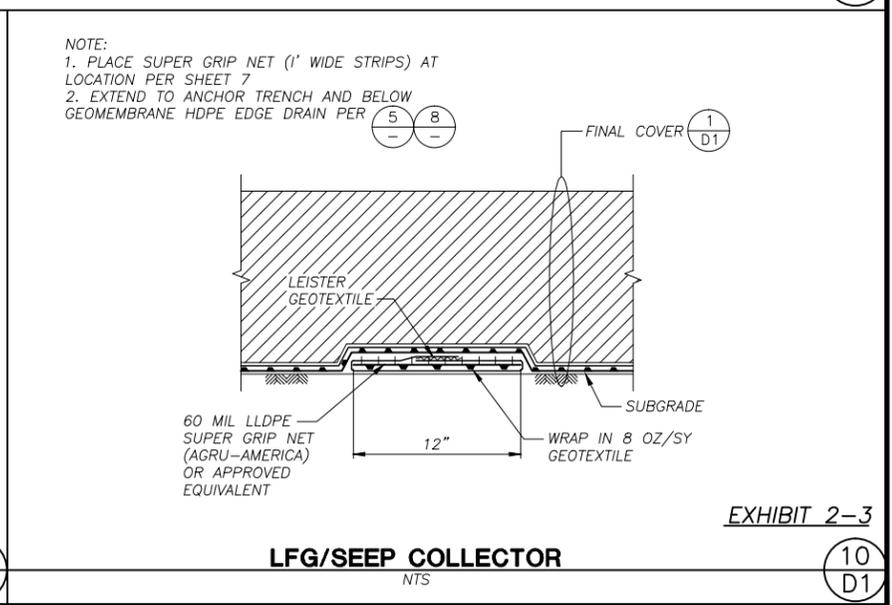
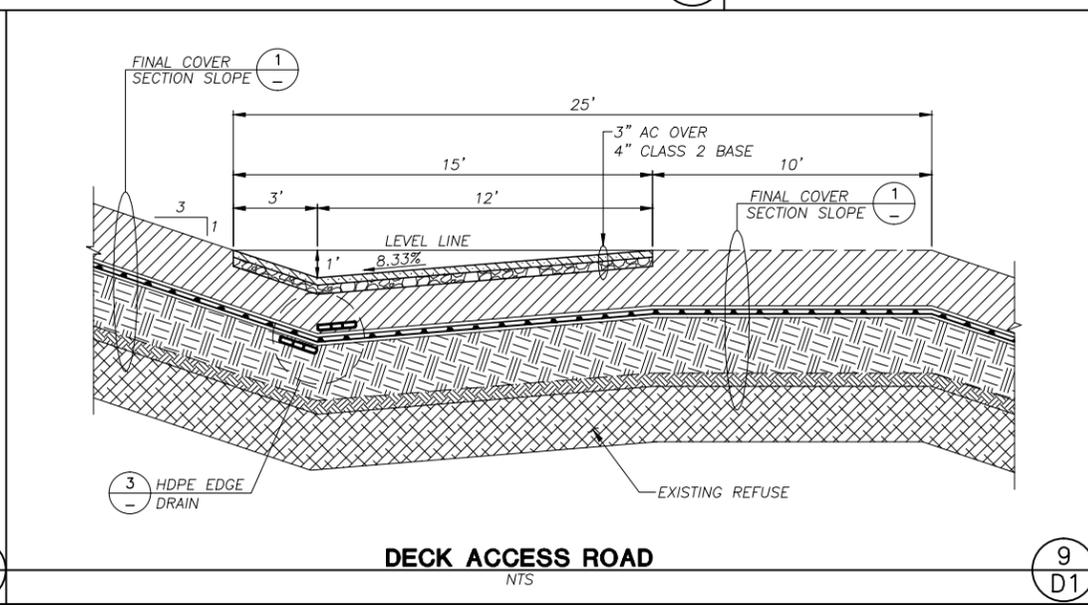
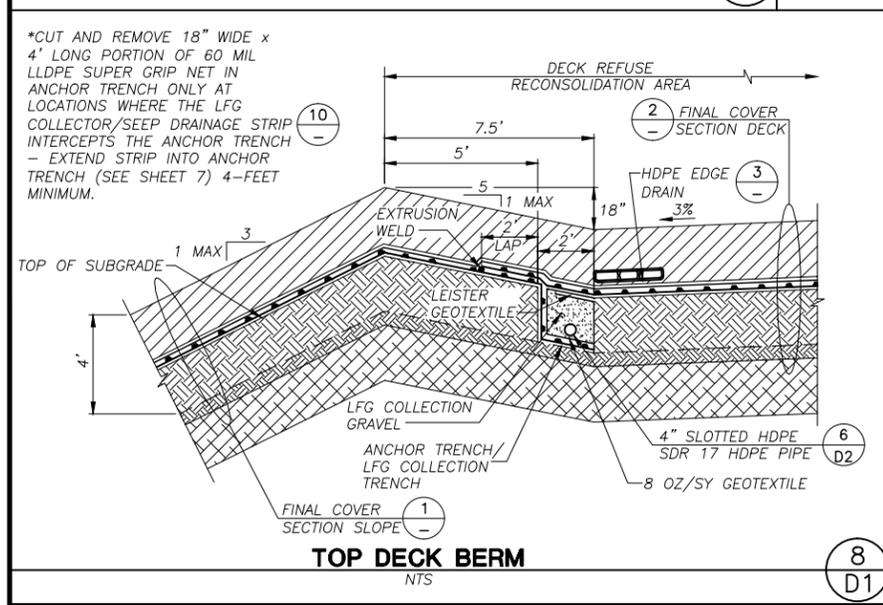
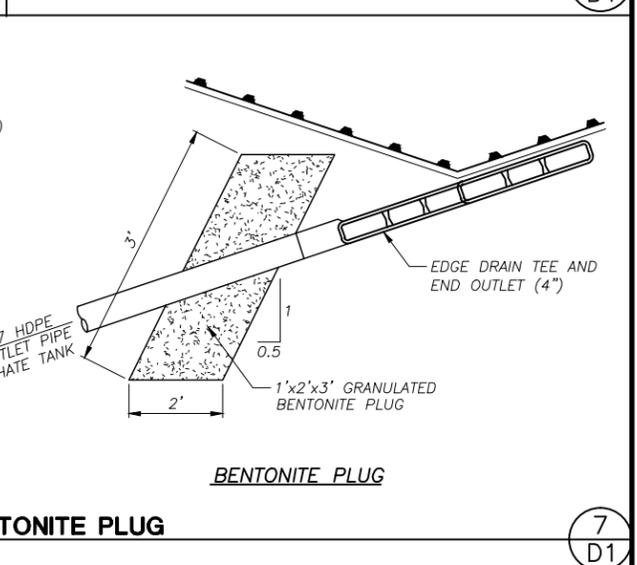
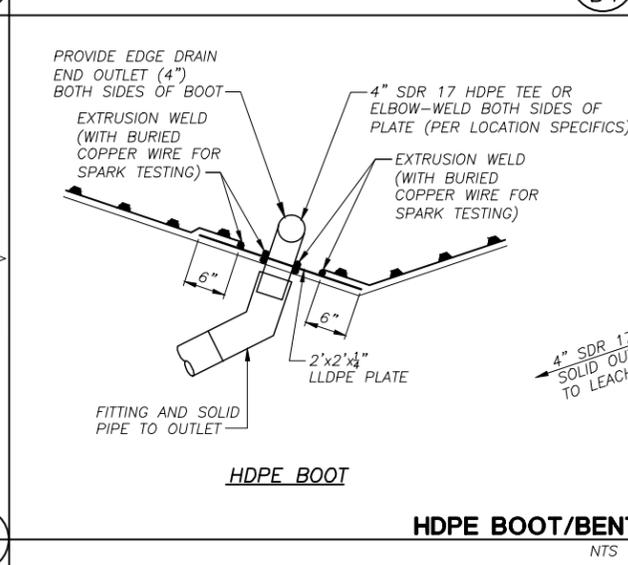
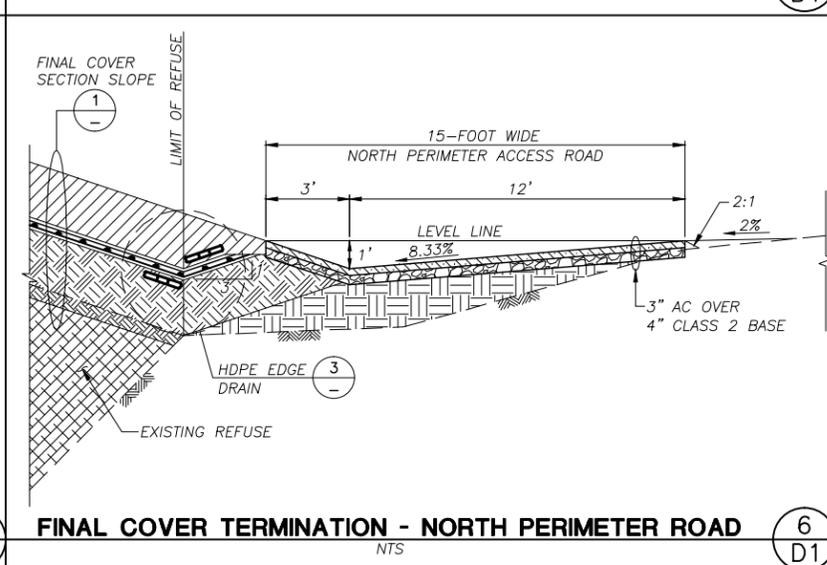
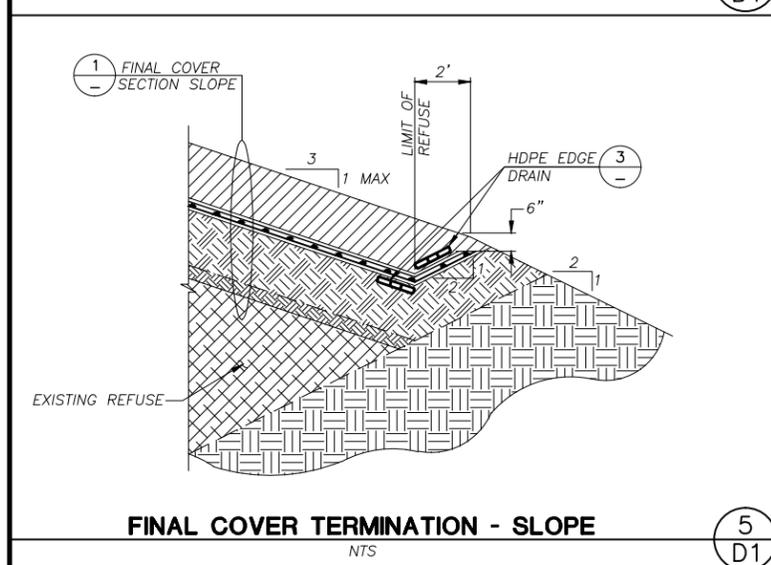
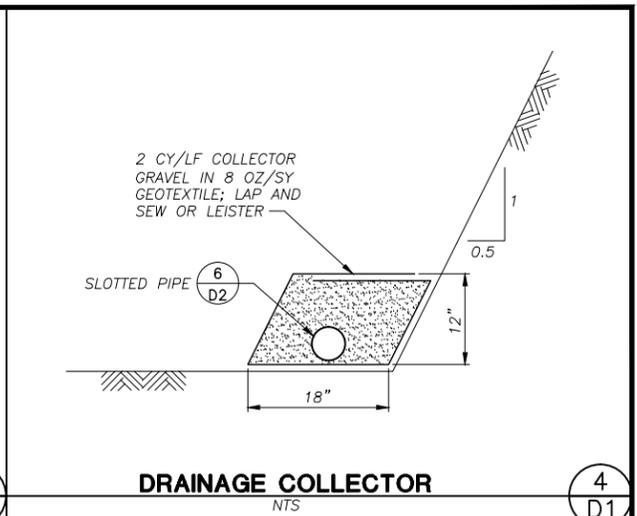
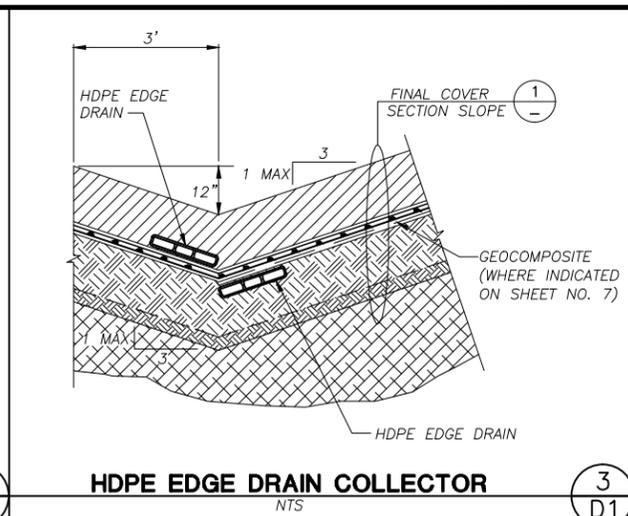
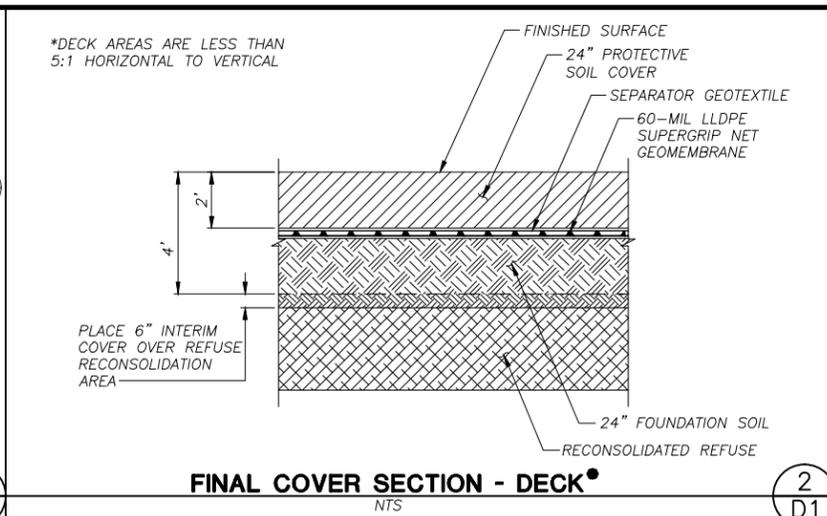
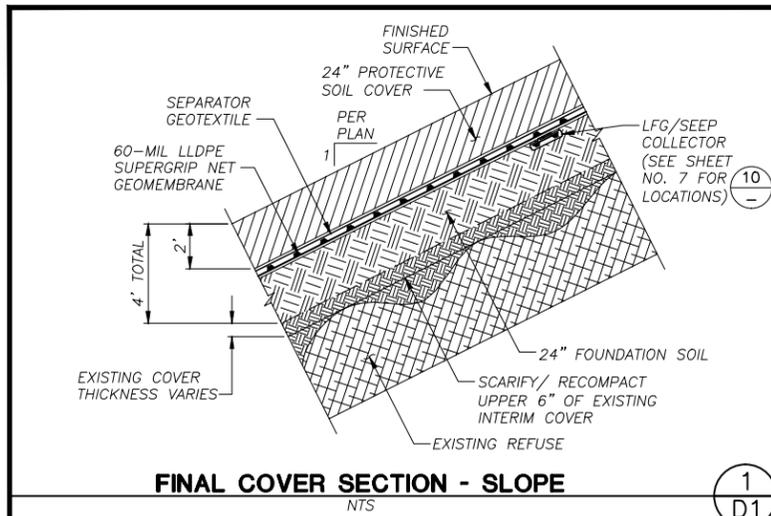
Because the foundation layer and vegetative layer are proposed in accordance with the prescriptive standard, the proposed engineered alternative component of the selected final cover design is the LLDPE geomembrane barrier layer (with associated overlying geosynthetics). In accordance with 27 CCR, Section 20080(b), and 27 CCR 21140(b), the County is requesting approval for the proposed engineered alternative based on the LLDPE's higher performance characteristics when compared to the prescriptive standard.

Final Grading

The limits of refuse were determined by a field investigation which involved the use of a backhoe to excavate test pits to find the limit of waste and a hollow-stem auger drill-rig to determine waste thickness. As discussed above, there are three areas located along the north, south, and west of the refuse footprint edges where the waste fill will be removed and reconsolidated as illustrated on Exhibit 2-4 and Exhibit 2-5. Once the waste has been removed and reconsolidated, the perimeter road will border the refuse footprint with no underlying waste.

Exhibit 2-4 (Final Grading Plan) illustrates the final landfill footprint, which encompasses approximately 6 acres. Additional foundation soil materials will be required to achieve the proposed final grades. The final grading plan shows the landfill configuration following placement of the final cover. The final grading configuration will promote lateral run-off of surface water and accommodate the effects of settlement within the refuse prism (i.e., maintaining positive surface water runoff). As indicated on the Final Grading Plan, the maximum elevation of the landfill is the crown of the upper deck that is at an approximate elevation of 542 feet above msl. This high point will be located at the center of the deck and will provide positive drainage flow to the east and west drainage control system features. The final deck area will have a minimum gradient of three percent to promote drainage and allow for future settlement. Minor filling and shaping of the final surfaces may be conducted to maintain the minimum design gradients.

Final refuse slopes will have a maximum gradient no steeper than 3:1. A minimum 10-foot wide bench will be located around a majority of the perimeter of the landfill. The east, south and north slopes (including the reconsolidation height) are between 30 and 35-feet in height. The maximum vertical height (located at the southeast perimeter of the landfill) from the bottom of the landfill to the top of slope, including approximately 14-foot of reconsolidation area height, is 60 feet. This slope height is part of the alternative final cover design for the southeast slope face since 27 CCR requires a maximum exterior slope of height of 50 feet between benches, the toe of the slope, and/or the top deck.



NO.	REVISION DESCRIPTION	DATE

PREPARED BY:

SWT Engineering Civil & Environmental
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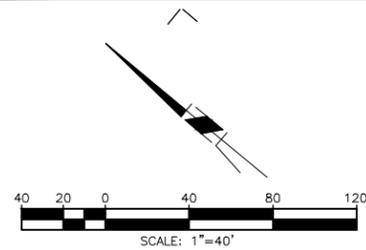
REG. (SEEP) PROFESSIONAL ENGINEER
 MICHAEL A. CULLWELL
 No. 41981
 CIVIL
 STATE OF CALIFORNIA

PREPARED UNDER THE SUPERVISION OF

MENDOCINO COUNTY
 SOUTH COAST LANDFILL
**FINAL CLOSURE CONSTRUCTION PROJECT
 DETAIL SHEET**

DESIGNED BY : R.M.G.	SCALE : AS SHOWN	PROJECT NO: -
DRAWN BY : J.P.J.	DATE : 01-2013	
CHECKED BY :	DATE :	
APPROVED BY :	DATE :	

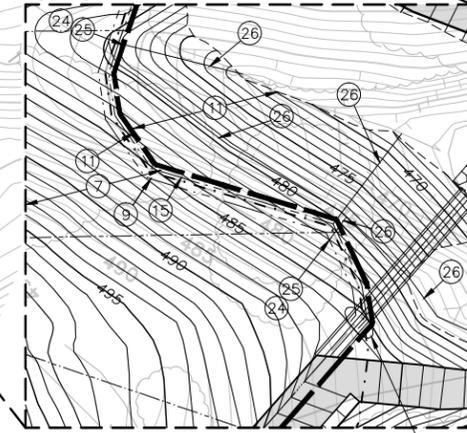
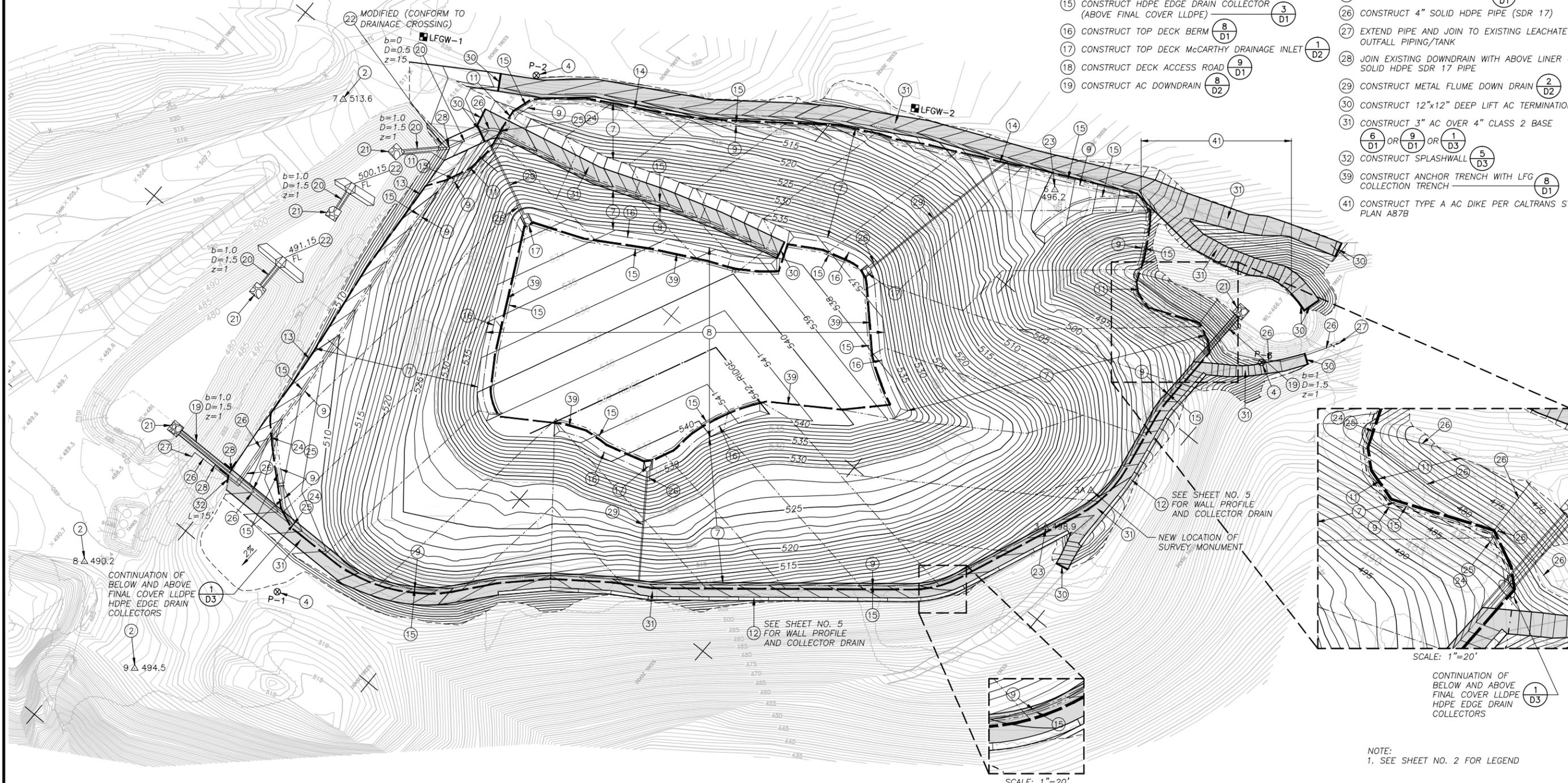
SHEET **D1** OF **13**



- ① CLEAR AND GRUB
- ② PROTECT IN PLACE
- ④ ADJUST TO FINAL GRADE
- ⑦ CONSTRUCT FINAL COVER SECTION - SLOPE $\frac{1}{D1}$
- ⑧ CONSTRUCT FINAL COVER SECTION - DECK $\frac{2}{D1}$
- ⑨ CONSTRUCT HDPE EDGE DRAIN COLLECTOR (BELOW FINAL COVER LLDPE) $\frac{3}{D1}$

CONSTRUCTION NOTES

- ⑩ CONSTRUCT DRAINAGE COLLECTOR $\frac{4}{D1}$
- ⑪ CONSTRUCT FINAL COVER SLOPE TERMINATION $\frac{5}{D1}$
- ⑫ CONSTRUCT GABION WALL, TIE-BACK GEOGRIDS AND SLOPE COVER TERMINATION PER PROFILE ON SHEET NO. 5 AND $\frac{1}{D3}$
- ⑬ CONSTRUCT BENCH LINER TERMINATION $\frac{4}{D3}$
- ⑭ CONSTRUCT FINAL COVER TERMINATION - NORTH PERIMETER ROAD $\frac{6}{D1}$
- ⑮ CONSTRUCT HDPE EDGE DRAIN COLLECTOR (ABOVE FINAL COVER LLDPE) $\frac{3}{D1}$
- ⑯ CONSTRUCT TOP DECK BERM $\frac{8}{D1}$
- ⑰ CONSTRUCT TOP DECK McCARTHY DRAINAGE INLET $\frac{1}{D2}$
- ⑱ CONSTRUCT DECK ACCESS ROAD $\frac{9}{D1}$
- ⑲ CONSTRUCT AC DOWNDRAIN $\frac{8}{D2}$
- ⑳ CONSTRUCT CONCRETE DOWNDRAIN/CHANNEL $\frac{5}{D2}$
- ㉑ CONSTRUCT RIP RAP PAD $\frac{4}{D2}$
- ㉒ CONSTRUCT BASIN BERM AND DOWNDRAIN INLET AT STORMWATER BASIN $\frac{3}{D3}$
- ㉓ RELOCATE/ADJUST SURVEY MONUMENT TO GRADE PER PROJECT SPECIFICATIONS AND $\frac{2}{D3}$
- ㉔ CONSTRUCT HDPE BOOT $\frac{7}{D1}$
- ㉕ CONSTRUCT BENTONITE PLUG $\frac{7}{D1}$
- ㉖ CONSTRUCT 4" SOLID HDPE PIPE (SDR 17)
- ㉗ EXTEND PIPE AND JOIN TO EXISTING LEACHATE OUTFALL PIPING/TANK
- ㉘ JOIN EXISTING DOWNDRAIN WITH ABOVE LINER 4" SOLID HDPE SDR 17 PIPE
- ㉙ CONSTRUCT METAL FLUME DOWN DRAIN $\frac{2}{D2}$
- ㉚ CONSTRUCT 12"x12" DEEP LIFT AC TERMINATION
- ㉛ CONSTRUCT 3" AC OVER 4" CLASS 2 BASE $\frac{6}{D1}$ OR $\frac{9}{D1}$ OR $\frac{1}{D3}$
- ㉜ CONSTRUCT SPLASHWALL $\frac{5}{D3}$
- ㉝ CONSTRUCT ANCHOR TRENCH WITH LFG COLLECTION TRENCH $\frac{8}{D1}$
- ㉞ CONSTRUCT TYPE A AC DIKE PER CALTRANS STD PLAN A87B



CONTINUATION OF BELOW AND ABOVE FINAL COVER LLDPE HDPE EDGE DRAIN COLLECTORS

SEE SHEET NO. 5 FOR WALL PROFILE AND COLLECTOR DRAIN

SEE SHEET NO. 5 FOR WALL PROFILE AND COLLECTOR DRAIN

NEW LOCATION OF SURVEY MONUMENT

CONTINUATION OF BELOW AND ABOVE FINAL COVER LLDPE HDPE EDGE DRAIN COLLECTORS

NOTE:
1. SEE SHEET NO. 2 FOR LEGEND

DATE OF TOPOGRAPHY: FEBRUARY 15, 2012

EXHIBIT 2-4

NO.	REVISION DESCRIPTION	DATE

PREPARED BY:

SWT Engineering Civil & Environmental

800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

PREPARED UNDER THE SUPERVISION OF

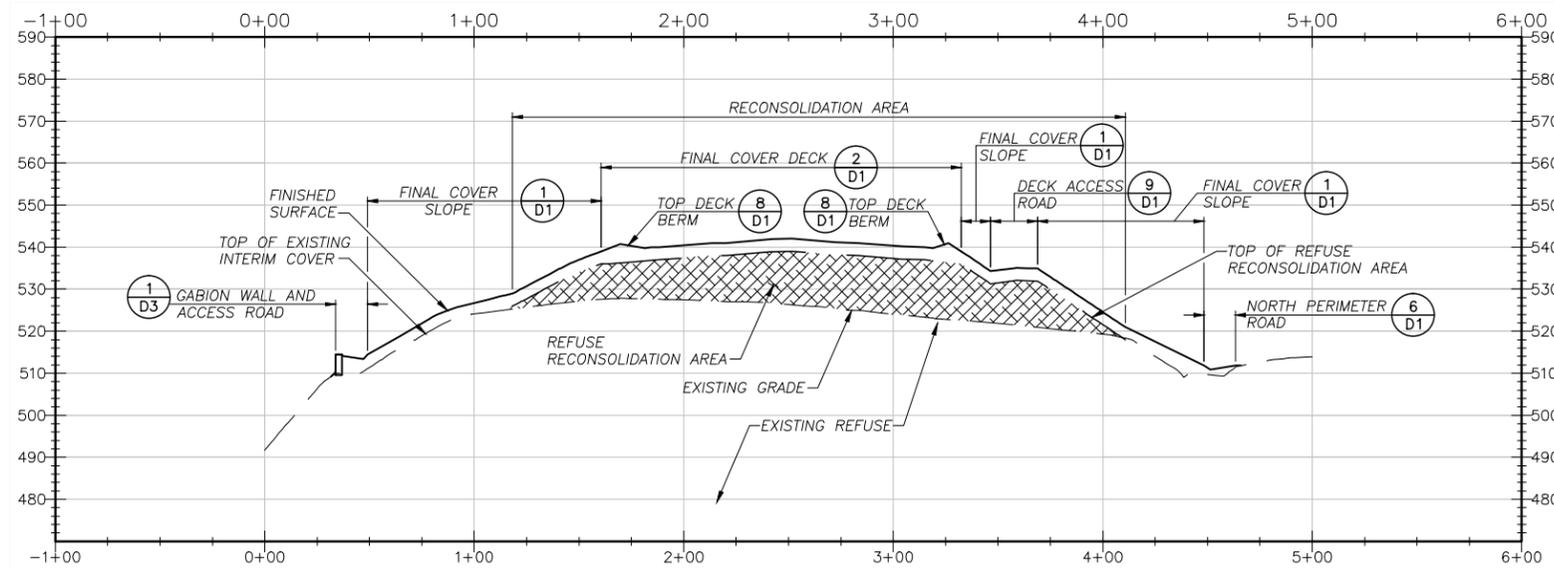
DATE

MENDOCINO COUNTY
SOUTH COAST LANDFILL

**FINAL CLOSURE CONSTRUCTION PROJECT
FINAL GRADING PLAN**

DESIGNED BY : R.M.G.	SCALE : AS SHOWN	PROJECT NO: -
DRAWN BY : J.P.J.	DATE : 01-2013	
CHECKED BY :	DATE :	
APPROVED BY :	DATE :	

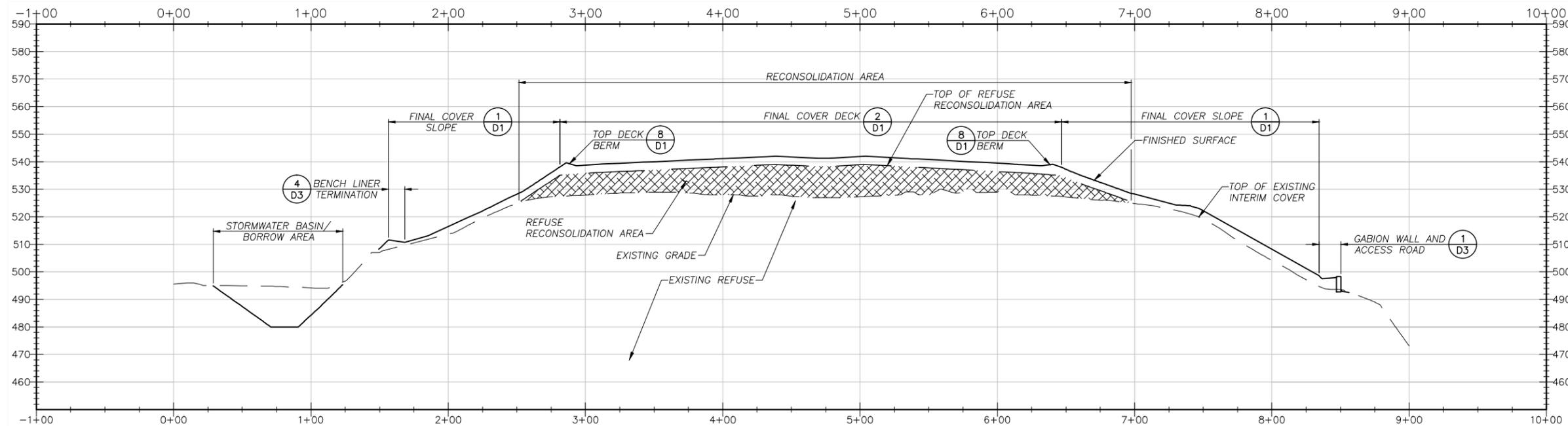
SHEET **6** OF **13**



SECTION A

SCALE: HORIZ. 1"=40'
VERT. 1"=20'

A
8



SECTION B

SCALE: HORIZ. 1"=40'
VERT. 1"=20'

EXHIBIT 2-5

B
8

NO.	REVISION DESCRIPTION	DATE

PREPARED BY:

SWT Engineering Civil & Environmental
800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761



PREPARED UNDER THE SUPERVISION OF

DATE

MENDOCINO COUNTY
SOUTH COAST LANDFILL
FINAL CLOSURE CONSTRUCTION PROJECT SECTIONS

DESIGNED BY : R.M.G.	SCALE : AS SHOWN	PROJECT NO: -
DRAWN BY : J.P.J.	DATE : 01-2013	
CHECKED BY :	DATE :	
APPROVED BY :	DATE :	

SHEET 8 OF 13

CHAPTER 2.0 – PROJECT DESCRIPTION

An intermediary bench on the north perimeter of the landfill to effectuate perimeter access will be constructed. The bench cross slope is 1 foot in 12 feet (8.33 percent) angled towards the landfill's exterior slopes. Therefore, collected storm water will be conveyed along the inside of the bench. Downdrains coinciding with deck inlet structures will be constructed along the slope areas of the disposal site to allow for conveyance of stormwater flows from the deck area to the toe of the slopes and into the perimeter drains. The perimeter drains will discharge into the desilting basins located at the southeast and northwest-most portions of the site.

The combined volume and surface area of the two desilting basins will be sufficient to entrap silt to improve water quality before discharging into the natural drainage course, the North Fork of the Gualala River.

Landfill Settlement

The landfill appears to be founded on native bedrock materials. Compressible soils (such as colluvial and alluvial soils) appear to have been largely removed for use as daily and interim cover soils over the active life of the landfill. As expected, the greatest settlement is expected to occur in areas where refuse thicknesses are greatest (i.e., within the center of the SCL). Comparison with final fill grades indicates that post-closure settlement could be as great as 5 feet within the center of the refuse fill. However, considering the elongation properties typical of the LLDPE geomembranes (e.g., >300%), this long term settlement will not affect the integrity of the proposed final cover system. Additionally, no significant settlement of the foundation subgrade underlying the SCL is anticipated.

Landfill Stability

The stability of the proposed final cover system was considered addressing both the steepest and highest slopes that will exist on the landfill. The construction specifications for final closure construction will outline the minimum material strength and other performance criteria required to agree with these analyses. The lowest interface strength occurs between the compacted final cover and the underlying non-woven geotextile. This is considered the critical failure surface within the proposed final cover geometry. The lowest static factor of safety for the proposed final cover is 1.95. The static factor of safety for the other final cover interfaces is greater than 2.0. Displacement analyses of the proposed final cover system indicate that movement along the LLDPE/foundation layer interface should be less than 12 inches. Considering the elongation properties of the LLDPE geomembrane barrier layer that will be employed in the landfill final cover, such displacement is acceptable.

Construction Quality Assurance

The implementation of the Construction Quality Assurance (CQA) Plan will provide documentation that suitable materials and standard construction practices are used to place the final cover and to document that placement is consistent with the closure plan design specifications in 27 CCR, Section 20323 and 20324. Elements of the CQA Plan include: project description and definitions, qualifications and responsibilities, requirements for the final cover evaluation, inspection standards, testing frequencies, meetings and documentation. This information will be collected during construction of the final closure and incorporated into the project's final closure construction CQA Report, which will be submitted to the appropriate agencies for recording and reporting purposes. The design professional who prepares the CQA Plan shall be a registered civil engineer or certified engineering geologist.

CHAPTER 2.0 – PROJECT DESCRIPTION

Drainage and Erosion Control

The primary function of the SCL drainage control system is to collect and convey storm water in a controlled manner to minimize erosion and potential infiltration of storm water into the refuse prism. The following sections describe the site hydrology, the existing drainage control features and the proposed drainage control system features. A hydrology study for the proposed conditions at the site was conducted in accordance with 27 CCR, Section 20365. The objective of the hydrology study was to calculate storm water run-off for sizing and location information for the site's storm drain facilities at closure.

Existing drainage ditches have been in place on the SCL for several years and have been sized through trial and error, to accommodate maximum flows. A perimeter ditch exists along the toe of the landfill and directs runoff into two desilting basins. Although no formal calculations have been prepared to identify sediment quantities, historical observations have shown that the existing ponds are adequate. Runoff is controlled using culverts and open ditches at the desilting basin outlets. Siltation fences are in place upstream from the desilting basins to limit the quantity of sediment allowed to enter the desilting basins, consequently, minimizing the quantity of sediment being discharged into and from the basins. Additional erosion control methods include hay bales, silt fences, straw and seed. Exhibit 2-6 illustrates the proposed Erosion Control Plan.

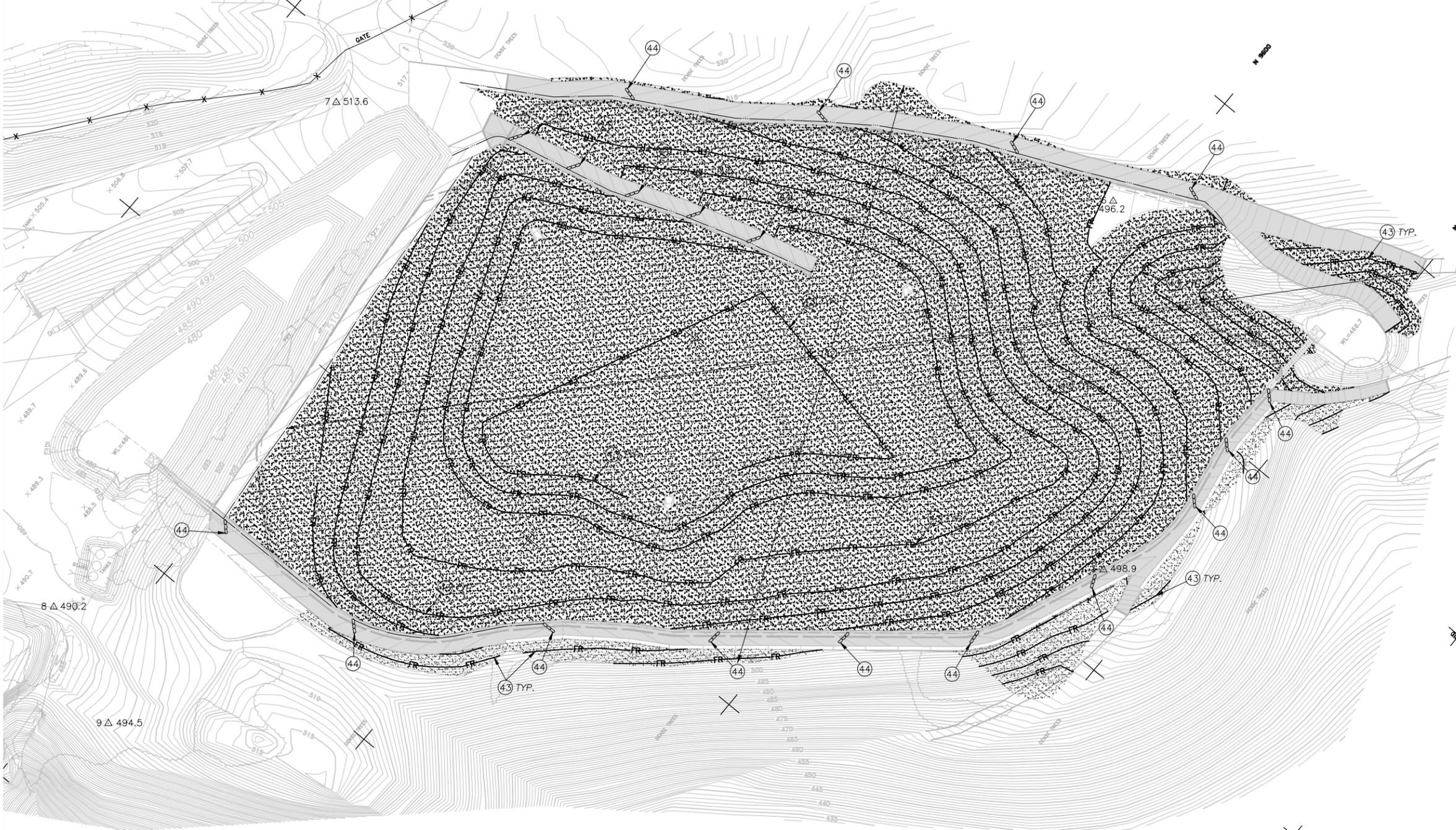
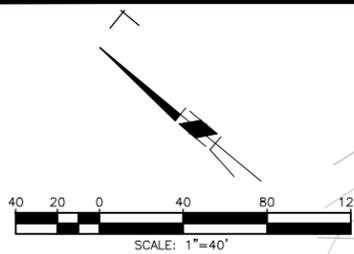
The following describes modifications to the existing drainage structures required for incorporation with the proposed final grades and final cover system. The existing drainage facilities will be either decommissioned or removed and relocated. All drainage structures have been sized to accommodate run-off from a 100-year, 24-hour storm event. The proposed final drainage system is shown on the Final Grading Plan (refer to Exhibit 2-4). The contributing drainage areas for the SCL are divided into four drainage areas; the South, East, North, and West Slopes.

South Slope

The south slope drainage area originates on the top deck. The runoff is concentrated by final grading and the top deck berm to a McCarthy inlet and then conveyed down the slope via a 12-inch metal flume to a concrete drainage channel on the inside of the perimeter access road. The drainage channel will collect runoff from the slope above and below the aforementioned confluence point and will then convey the runoff southerly along the inside of the perimeter road to a concrete downdrain. The runoff will then be directed to an energy dissipater made of riprap discharging into the existing basin. The total south area is 1.97 acres, with a peak run-off of 6.72 cubic feet per second (cfs) developed from nodes 1.30 through 1.34.

East Slope

The east slope drainage area originates on the top deck, however the contributing top deck sub-area for the east slope is divided into two sub-areas and are both directed by final grading and the top deck berm to two McCarthy inlets. The runoff is then directed down the slope via two 12-inch metal flume downdrains to a concrete drainage channel on the inside of the perimeter access road. The drainage channel will collect runoff from the slope above and below the aforementioned confluence point and will then convey the runoff southerly along the inside of the perimeter road to a concrete downdrain. The runoff will then be directed to an energy dissipater made of riprap and into the existing basin. The total east area is 2.65 acres, with a peak run-off of 9.05 cfs developed from nodes 1.40 through 1.45.



CONSTRUCTION NOTES

- ② PROTECT IN PLACE
- ④② HYDROSEED ON SITE AREA
- ④③ INSTALL FIBER ROLL PER

2	3
D4	D4
- ④④ INSTALL GRAVEL BAG CHEVRON PER

1
D4

LEGEND

- FR FIBER ROLL
- GRAVEL-BAG CHEVRON
- HYDROSEEDING

DATE OF TOPOGRAPHY: FEBRUARY 15, 2012

EXHIBIT 2-6

NO.	REVISION DESCRIPTION	DATE

PREPARED BY:

SWT Engineering Civil & Environmental 

800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

PREPARED UNDER THE SUPERVISION OF



DATE

MENDOCINO COUNTY SOUTH COAST LANDFILL		
FINAL CLOSURE CONSTRUCTION PROJECT EROSION CONTROL PLAN		
DESIGNED BY : R.M.G.	SCALE : AS SHOWN	PROJECT NO: -
DRAWN BY : J.P.J.	DATE : 01-2013	
CHECKED BY :	DATE :	
APPROVED BY :	DATE :	
		SHEET 9 OF 13

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CHAPTER 2.0 – PROJECT DESCRIPTION

North Slope

A portion of the north slope drainage area originates on the northerly portion of the top deck. The runoff is concentrated by final grading and the top deck berm to the top deck access road. The runoff will then be directed to the inside of the access road, down the road and to a concrete bench crossing. The flow will then be directed across the bench crossing to a concrete downdrain at the corner of the expanded north desilting basin. The runoff velocity is dissipated by a riprap pad at the bottom of basin. The total north area is 0.53 acres, with a peak run-off of 1.96 cfs originating from nodes 1.00 through 1.02.

West Slope

A portion of the west drainage area originates near the top deck at the northwesterly end of the landfill. The runoff then is directed by final grading to the bottom of the slope to a drainage channel on the inside of the perimeter access road. The runoff will then confluence with the runoff from the northerly slope at a wing wall inlet. The wing wall inlet will be connected to an existing 18 inch plastic corrugated pipe and will direct the flow to the north desilting basin. The total west area is 1.40 acres, with a peak run-off of 5.26 cfs originating from nodes 1.10 through 1.12 and 1.20 through 1.21.

The landfill closure design has three primary erosion control features that will reduce the potential for soil erosion due to water and wind. These features include landfill grading, vegetation, and a slope bench system. The decks will be graded for sheet flow run-off with a minimum slope of approximately three percent. Any large erosion gullies formed during storm events on the deck and slopes will be filled and the area track walked by a crawler tractor to replace and recompact the soil as part of post-closure maintenance activities.

A minimum 10-foot wide bench is located around the perimeter of the landfill. The landfill surface will be vegetated with native grasses. The vegetation will protect the upper soil layer and minimize erosion through the vegetation root masses. The vegetation will consist of primarily native grasses with some shallow root shrubs.

Hydroseed (slurry) components are required to provide an effective germination environment as well as a protective environment for the seed. Wood and/or paper mulches used for slope hydroseeding will provide a short-term growing zone for the new seedlings. In addition to the mulch, a tackifier (i.e., binder) will be used to help bind or hold the mulch and seed to the slope. An environmentally safe organic tackifier, which will not harm the short-term and long-term growth of grass, is recommended. The seed mix will be applied at an approximate rate of 100 lbs. per acre consisting of the following: 60 pounds per acre of Blando Brome, 20 pounds per acre of Zorro Annual Fescue, 10 pounds per acre of "RK" Rose Clover and 10 pounds per acre of "RK" Crimson Clover. To provide a short-term high quality soil environment, fertilizer shall be blended in the hydroseed mix to provide the following coverage: 300 pounds per acre Ureaform (38-0-0) and 215 pounds per acre of Potassium Sulfate (0-0-50). The erosion control plan is shown on Exhibit 2-6.

Landfill Gas Control

A LFG control system does not currently exist at the SCL. A traditional LFG control system is not proposed at closure; however, a LFG venting system is proposed to be placed below the geomembrane barrier layer. The venting system is designed to prevent potential LFG build-up under the LLDPE geomembrane. The system will be comprised of passive LFG vents constructed of HDPE pipe which are placed within the limits of the geomembrane cover section in the foundation layer and welded to the geomembrane to provide a water and gas tight seal. The gas will be collected in bilateral, perforated pipes placed in shallow gravel trenches located

CHAPTER 2.0 – PROJECT DESCRIPTION

at high points in the cover system, and vented by the HDPE riser pipes. In addition, a series of passive vertical collection wells will also be installed into the refuse prism at varying depths. Exhibit 2-7 shows a layout of the horizontal and vertical collection features and details.

Landfill Gas Monitoring System

27 CCR, Section 20925 requires that subsurface gas monitoring wells (probes) be installed as part of closure around the perimeter of the landfill within the property limits but outside the limits of refuse with a spacing not to exceed 1,000 feet. As previously indicated, two methane wells (probes) were installed at the site as part of the SWAT testing. The results of the SWAT investigation indicated negligible levels of organic contaminants in the LFG and no hazardous levels of LFG present at the landfill. In order to maintain compliance with 27 CCR, Section 20925, three additional multiple depth gas monitoring wells were also installed around the perimeter of the SCL in June 2012. The three probes were drilled and constructed in accordance with the well construction permit issued by the County. The locations of the gas monitoring probes are shown also shown on Exhibit 2-7.

Groundwater/Surface Water Monitoring System

The groundwater/surface water monitoring system discussed previously (refer to Section 2.4) will remain in-place at closure; therefore, no additional monitoring facilities will be required.

Site Security

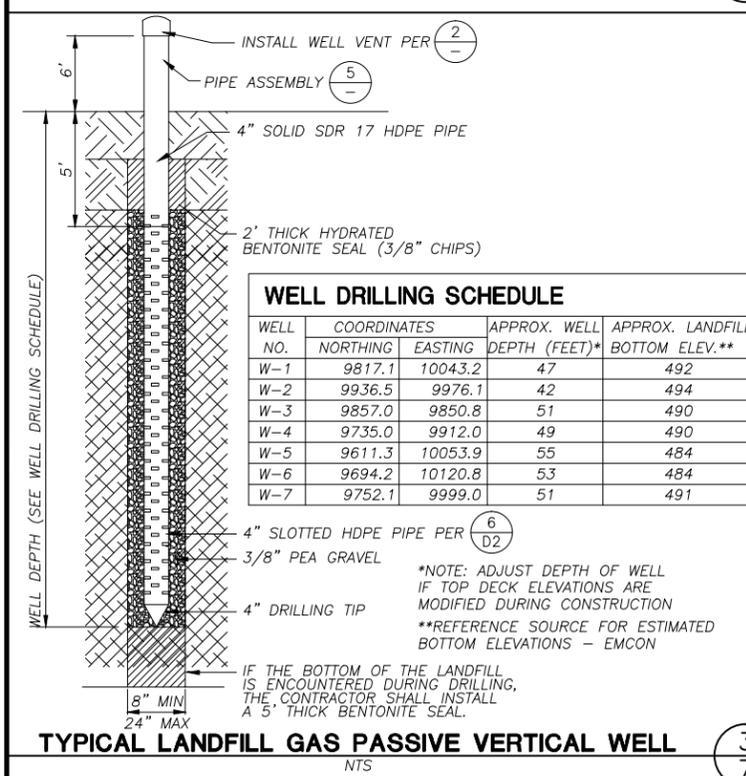
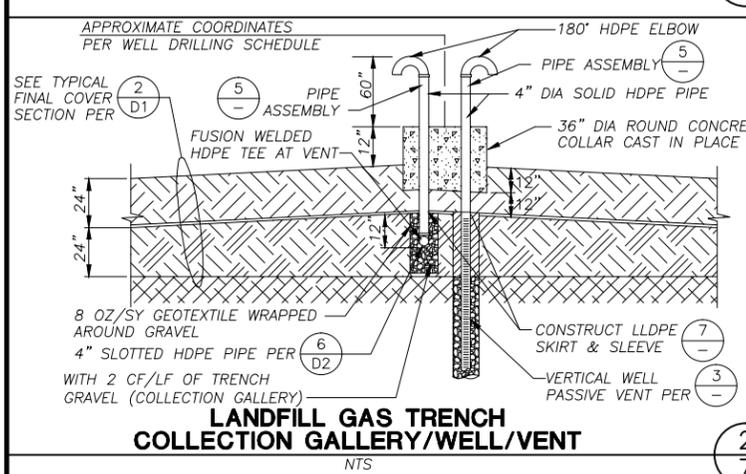
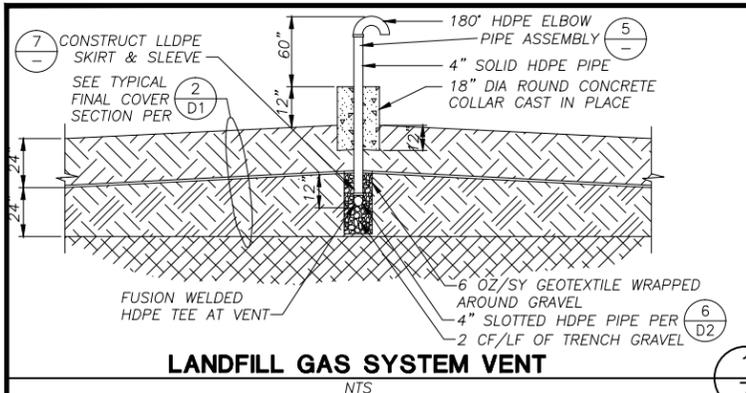
In accordance with 27 CCR, Section 21135, a sign will be posted at the entrance gate to the SCL indicating that the existing on-site transfer station will be the only solid waste management facility at that location, and a number to call in cases of emergency.

Since the SCL ceased landfill operations in 2000, all points of access to the site have been restricted as of the date of the final shipment of waste. Entrance to the site is secured along Fish Rock Road by a 6-foot high chain link fence, equipped with a locking gate at the entrance road to the transfer station/landfill to control site access. Since other sides of the property are surrounded by steep canyon sides and thick forest unauthorized entry is prevented. A sign will be installed at each access gate to indicate that no unauthorized access is allowed, and a number to call in case of emergency. These measures are intended to reduce incidents of vandalism and illegal disposal of wastes during the post-closure maintenance period.

Post-Closure Maintenance Plan

Post-closure maintenance of the closed SCL will be performed in accordance with applicable regulatory standards included in 27 CCR, Chapters 3 and 4, and 40 CFR Section 258.61. Post-closure maintenance activities for the SCL will consist of the following:

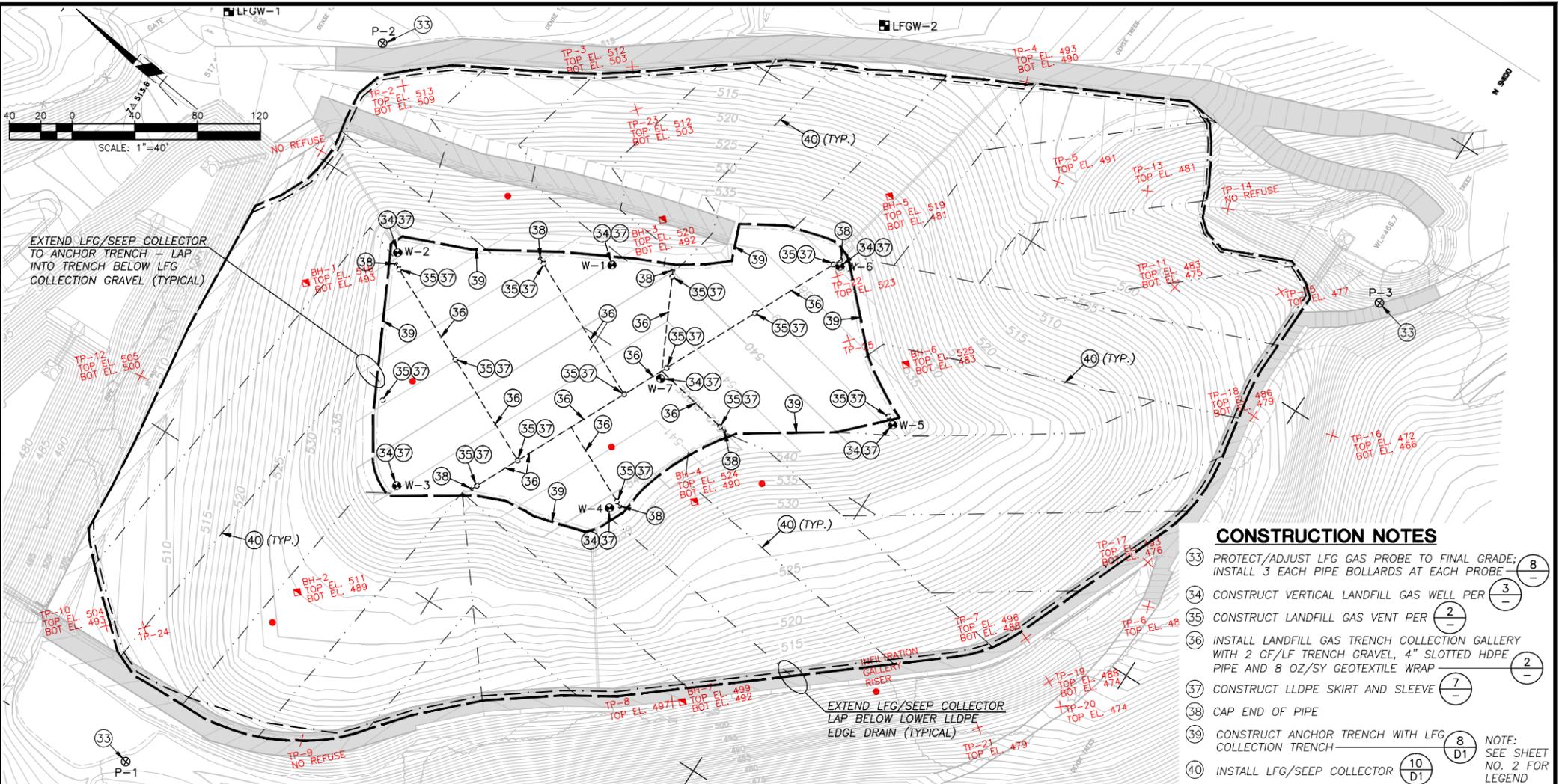
- Final Cover Inspection and Maintenance
- Landfill Settlement Monitoring and Maintenance
- Vegetative Cover Inspection and Maintenance
- LFG Monitoring and Maintenance
- LFG Passive Vent System Monitoring and Maintenance
- Groundwater/Surface Water Systems Monitoring and Maintenance
- Stormwater Monitoring
- Access Road/Bench Maintenance



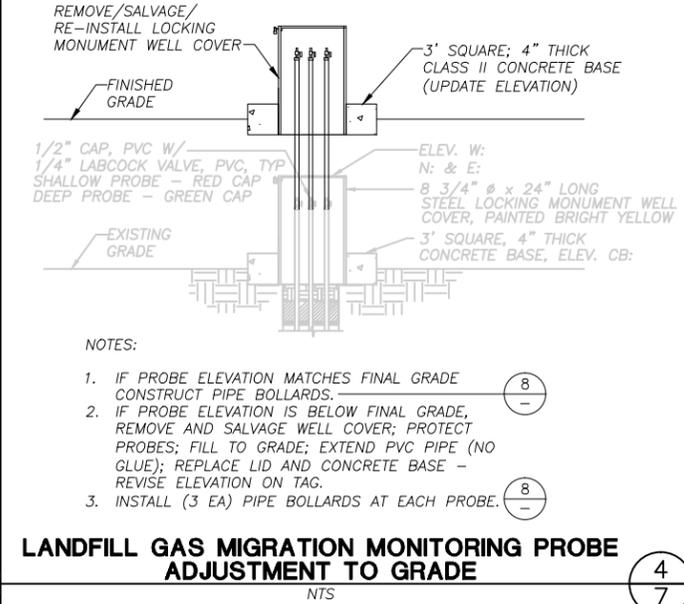
WELL DRILLING SCHEDULE

WELL NO.	COORDINATES	APPROX. WELL DEPTH (FEET)*	APPROX. LANDFILL BOTTOM ELEV.**
W-1	9817.1 10043.2	47	492
W-2	9936.5 9976.1	42	494
W-3	9857.0 9850.8	51	490
W-4	9735.0 9912.0	49	490
W-5	9611.3 10053.9	55	484
W-6	9694.2 10120.8	53	484
W-7	9752.1 9999.0	51	491

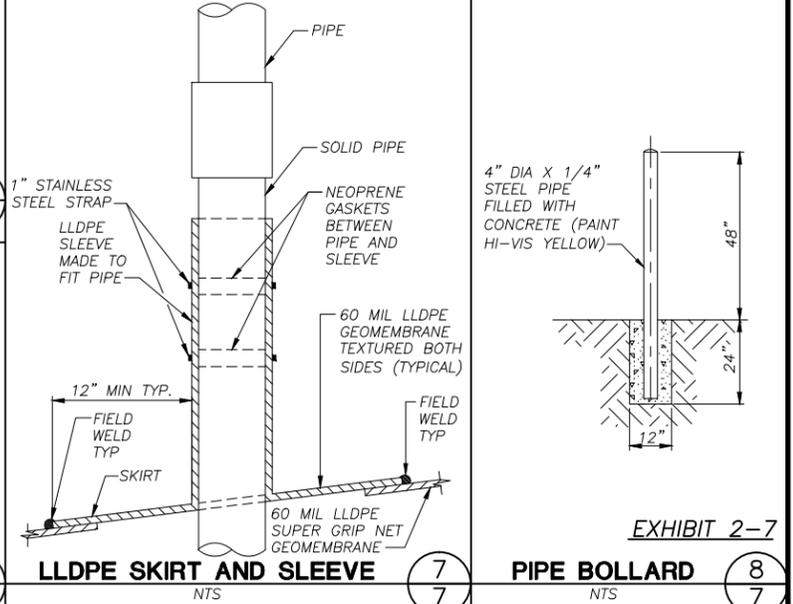
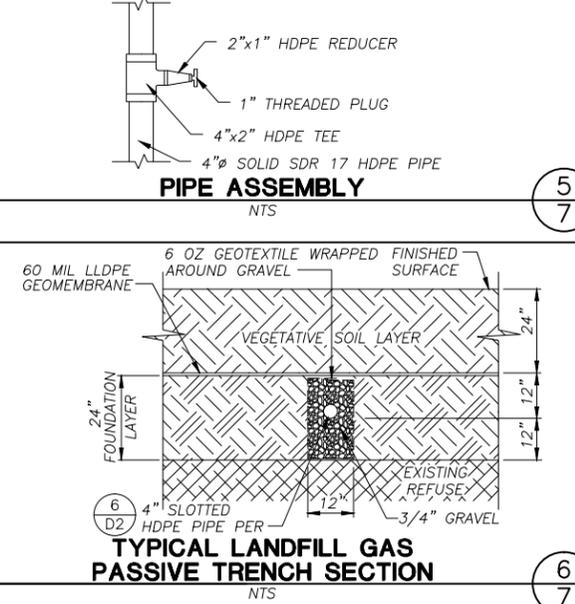
*NOTE: ADJUST DEPTH OF WELL IF TOP DECK ELEVATIONS ARE MODIFIED DURING CONSTRUCTION
**REFERENCE SOURCE FOR ESTIMATED BOTTOM ELEVATIONS - EMCON



- CONSTRUCTION NOTES**
- 33 PROTECT/ADJUST LFG GAS PROBE TO FINAL GRADE; INSTALL 3 EACH PIPE BOLLARDS AT EACH PROBE (8)
 - 34 CONSTRUCT VERTICAL LANDFILL GAS WELL PER (3)
 - 35 CONSTRUCT LANDFILL GAS VENT PER (2)
 - 36 INSTALL LANDFILL GAS TRENCH COLLECTION GALLERY WITH 2 CF/LF TRENCH GRAVEL, 4" SLOTTED HDPE PIPE AND 8 OZ/SY GEOTEXTILE WRAP (2)
 - 37 CONSTRUCT LLDPE SKIRT AND SLEEVE (7)
 - 38 CAP END OF PIPE
 - 39 CONSTRUCT ANCHOR TRENCH WITH LFG COLLECTION TRENCH (8)
 - 40 INSTALL LFG/SEEP COLLECTOR (10)
- NOTE: SEE SHEET NO. 2 FOR LEGEND



- NOTES:
- IF PROBE ELEVATION MATCHES FINAL GRADE CONSTRUCT PIPE BOLLARDS. (8)
 - IF PROBE ELEVATION IS BELOW FINAL GRADE, REMOVE AND SALVAGE WELL COVER; PROTECT PROBES; FILL TO GRADE; EXTEND PVC PIPE (NO GLUE); REPLACE LID AND CONCRETE BASE - REVISE ELEVATION ON TAG. (8)
 - INSTALL (3 EA) PIPE BOLLARDS AT EACH PROBE. (8)



NO.	REVISION DESCRIPTION	DATE

PREPARED BY:

SWT Engineering Civil & Environmental
800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

PREPARED UNDER THE SUPERVISION OF

REG. PROFESSIONAL ENGINEER
MICHAEL A. CULLINANE
No. 41981
CIVIL
STATE OF CALIFORNIA

MENDOCINO COUNTY
SOUTH COAST LANDFILL
FINAL CLOSURE CONSTRUCTION PROJECT
LANDFILL GAS PLAN

DESIGNED BY: R.M.G. SCALE: AS SHOWN PROJECT NO: -
DRAWN BY: J.P.J. DATE: 01-2013
CHECKED BY: DATE:
APPROVED BY: DATE:

SHEET **7** OF **13**

CHAPTER 2.0 – PROJECT DESCRIPTION

- Drainage Control System Inspection and Maintenance
- Site Security Inspection and Maintenance

2.6 Project Timing

In accordance with 27 CCR, Section 21790, the estimated maximum extent of the landfill that will ever require closure at any given time during the life of the landfill based on the current disposal area footprint is approximately six (6) acres.

As indicated above, landfill operations at the South Coast Landfill ceased at the SCL in 2000. SWD has commenced the final closure process with preparation of submittal of the FCPCMP. The final closure date is contingent upon approval of the Final Closure Plan. Each of the phases of the FCPCMP is identified and described below.

Final Closure Schedule

The closure implementation schedule for the SCL (refer to Table 2-1) delineates the estimated time frame to complete the closure tasks associated with each component of closure. The closure construction process will begin upon completion of final closure design and preparation and approval of the FCPCMP, selection of a qualified contractor and the subsequent issuance of a Notice to Proceed. This construction schedule may differ from the selected Contractor's schedule based on the Contractor's equipment and personnel resources.

Table 2-1

**Final Closure Schedule
South Coast Landfill FCPCMP**

Final Closure Activity	Estimated Cost	Duration of Activity¹
Clear and Grub	\$ 285,752.50	1 Week
Stockpile Removal	\$ 59,224.00	5 Weeks
Refuse Removal	\$ 220,000.00	4 Weeks
Import Soil	\$ 345,400.00	14 Weeks
Reinforced Slopes	\$ 187,137.50	4 Weeks
Tie Back Walls	\$ 85,800.00	4 Weeks
Foundation Layer	\$ 145,288.00	5 Weeks
Gas System	\$ 209,495.00	4 Weeks
Geosynthetics	\$ 392,221.50	4 Weeks
Final Cover	\$ 136,785.00	5 Weeks
Drainage Features	\$ 188,793.53	3 Weeks
Erosion Control	\$ 56,155.00	2 Weeks
Totals	\$2,312,052.03	23 Weeks
¹ Activities will overlap.		
SOURCE: SWT Engineering, Inc. (2013)		

CHAPTER 2.0 – PROJECT DESCRIPTION

The type of equipment and required personnel expected to be utilized during closure construction includes, but is not limited to, the following:

Types of Equipment

- Scrapers
- Dozers
- Loaders
- Compactors
- Dump Trucks (or End Dump Trailers)
- Water Pulls
- Soil Conditioning and Screening Equipment (Grizzlies)
- Forklift
- Weeding Machine
- Pickup Trucks

Personnel

- Construction Manager
- Field Inspector(s)
- Field Engineer(s)
- Geotechnical Technician(s)
- Labor Crews (including qualified geosynthetics welders)
- Equipment Operators
- Surveyors
- Fabricators
- Mechanics

Once enough equipment is on-site, clearing and grubbing of the landfill surface can begin, as mobilization continues. Rough grading can then begin in those areas that have been cleared and grubbed. During preparation of the site for final cover placement, the final cover materials will be excavated from an on-site borrow location and those areas within the refuse footprint with over thickened soil cover. The waste removal and reconsolidation activities will be conducted concurrent with clearing and grubbing and preliminary grading.

Placement of the final cover materials will begin after grading of the site. As placement of the final cover progresses, the LFG venting system and geonet drainage system required for closure can be integrated and constructed. The drainage facilities to be constructed during final cover placement will include the perimeter access road drainage systems, removal and relocation of the existing down drain and any ancillary drainage facilities (including the desilting basin structures). The drainage facilities and the LFG monitoring probes and survey monuments will be completed in conjunction with the final cover construction. Landscaping and placement of erosion control best management practices (BMPs) can begin upon completion of the final cover installation.

Upon completion of the tasks described for closure demobilization will begin. The estimated time frame for completion of all closure construction activities for the site is estimated to be 6 months which complies with the 180 day standard time frame required by 27 CCR, Section 21110 (e).

CHAPTER 2.0 – PROJECT DESCRIPTION

2.7 Project Objectives/Discretionary Approvals

This Final Closure/Post-Closure Maintenance Plan (FCPCMP) for the South Coast Landfill (SCL) has been prepared for submittal to the California Department of Resources Recycling and Recovery (CalRecycle) (formerly the California Integrated Waste Management Board [CIWMB]), the Mendocino County Department of Public Health (LEA), and the Regional Water Quality Control Board (RWQCB) – North Coast Region on behalf of the County of Mendocino Department of Transportation (County) Solid Waste Division (SWD), the operator of the landfill, by SWT Engineering (SWT).

The South Coast Landfill FCPCMP has been prepared in accordance with Title 27 of the California Code of Regulations (27 CCR), Chapters 3 and 4 and the Code of Federal Regulations (CFR) 40, Subpart F. The objectives of this FCPCMP identified below.

Project Objectives

- To provide a basis for the establishment of an accurate detailed cost estimate for closure and post-closure maintenance.
- To provide a detailed plan and schedule for closure implementation.
- To provide a plan and schedule for the inspection, maintenance and monitoring procedures to be implemented during the post-closure maintenance period.
- To allow the CalRecycle, the RWQCB, and the LEA to monitor closure and post-closure activities to determine that all landfill closure and post-closure maintenance and monitoring requirements are being followed in accordance with the approved plan.

Discretionary Approvals

Project implementation will necessitate the approval of the following discretionary actions by the Mendocino County Board of Supervisors:

- Conditional Use Permit
- Land Use Consistency Memo

2.8 Regulatory Permits/Approvals

- Solid Waste Facilities Permit
- Waste Discharge Requirements

CHAPTER 3.0 – ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact,” as indicated by the checklist on the following pages.

Aesthetics	Land Use and Planning
Agriculture and Forest Resources	Mineral Resources
Air Quality	Noise
Biological Resources	Population and Housing
Cultural Resources	Public Services
Geology and Soils	Recreation
Greenhouse Gas Emissions	Transportation/Traffic
Hazards and Hazardous Materials	Utilities and Service Systems
Hydrology and Water Quality	Mandatory Findings of Significance

Chapter 4.0 (Environmental Analysis) analyzes the potential environmental impacts associated with the proposed Final Closure/Post-Closure Maintenance Plan project. The issue areas evaluated in this Initial Study include:

- Aesthetics
- Agriculture and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities and Service Systems
- Mandatory Findings of Significance

The environmental analysis in Section 4.0 is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*, as amended, and used by the County of Mendocino in its environmental review process. For the preliminary environmental assessment undertaken as part of this Initial Study’s preparation, a determination that there is a potential for significant effects indicates the need to more fully analyze the development’s impacts and to identify mitigation.

For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated and an answer is provided according to the analysis undertaken as part of the Initial Study. The analysis considers the long-term, direct, indirect, and cumulative impacts of the development. To each question, there are four possible responses:

CHAPTER 3.0 – ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

- **No Impact.** The development will not have any measurable environmental impact on the environment.
- **Less Than Significant Impact.** The development will have the potential for impacting the environment, although this impact will be below established thresholds that are considered to be significant.
- **Less Than Significant Impact With Mitigation Incorporated.** The development will have the potential to generate impacts, which may be considered as a significant effect on the environment, although mitigation measures or changes to the development’s physical or operational characteristics can reduce these impacts to levels that are less than significant.
- **Potentially Significant Impact.** The development could have impacts, which may be considered significant, and therefore additional analysis is required to identify mitigation measures that could reduce potentially significant impacts to less than significant levels.

Where potential impacts are anticipated to be significant, mitigation measures will be required, such that impacts may be avoided or reduced to insignificant levels.

3.2 Environmental Determination

On the basis of this initial evaluation:

I find that the proposed use **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

I find that although the proposal could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

I find that the proposal **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

I find that the proposal **MAY** have a significant effect(s) on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a “potentially significant impact” or “potentially significant unless mitigated.” An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effect (a) have been analyzed adequately in an earlier EIR or **NEGATIVE DECLARATION**, pursuant to all applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or **NEGATIVE DECLARATION**, including revisions or mitigation measures are imposed upon the proposed project, nothing further is required.

**CHAPTER 3.0 – ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND
DETERMINATION**

Signature

Mendocino County Solid Waste Department
Agency

Printed Name/Title

Date

CHAPTER 4.0 – ENVIRONMENTAL ANALYSIS

4.0 ENVIRONMENTAL ANALYSIS

The purpose of Chapter 4.0 of this Initial Study/Proposed Mitigated Negative Declaration for the proposed South Coast Landfill Final Closure Plan to provide an analysis of the potential environmental consequences that are anticipated to occur as a result of implementation of that project in accordance with the environmental review process as implemented by the County of Mendocino. Specifically, the analysis contained in this chapter includes a discussion of the impacts associated with the implementation of the South Coast Landfill Final Closure Plan proposed on a 47.65-acre property located at 40855 Fish Rock Road, Gualala, California, and any impacts that result from that development, as described in Chapter 2.0 (Project Description).

4.1 Aesthetics

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?			<input checked="" type="checkbox"/>	
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			<input checked="" type="checkbox"/>	
c. Substantially degrade the existing visual character or quality of the site and its surroundings?			<input checked="" type="checkbox"/>	
d. Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?				<input checked="" type="checkbox"/>

Significance Criteria:

A project may be deemed to have a significance adverse aesthetic impact if it results in any of the following:

- Changes at the site substantially degrade the character of the site, degrade an existing public viewshed, or alter the character of a public viewshed by the introduction of anomalous structures or elements.
- Changes at the site would result in changes in the expectations of viewers (measured against the relative importance of those views) and would result in a negative impression of the viewshed. (The emphasis of this criterion is on views from public areas, not views from individual lots unless view easements are involved.)
- Changes at the site substantially conflict with and/or do not uphold the scenic and visual quality objectives for development, as articulated in the County’s General Plan goals, objectives and policies.

CHAPTER 4.0 – ENVIRONMENTAL ANALYSIS

Analysis:

a. Have a substantial adverse effect on a scenic vista?

Less than Significant Impact. As indicated in the Mendocino County Resources Management Element, Mendocino County is a predominantly rural county. Most of the land in the county is in forest or in agricultural production. Both forest and agricultural lands are considered open spaces that add to the quality of life of county residents and attract tourists. The various state and county parks protect areas with scenic value, particularly redwood groves. The coast is considered a scenic resource, and policies in the County's Coastal Element are designed to protect its scenic value. Some ecological communities in the county provide unique scenic value, including the pygmy forests. Many open space and scenic areas in Mendocino County are protected under easements managed by land trusts, including the Pacific Forest Trust (10,765 acres in Mendocino County), the Inland Mendocino County Land Trust (187 acres), Mendocino Land Trust (10 conservation easements total 3,501 acres), etc. Areas such as the forest lands and other open space areas have been identified as scenic resources in the County's Resource Management Element.

The existing property encompasses a permitted 47.66-acre property boundary and 6-acre refuse footprint. The SCL began refuse disposal operations in 1970 and ceased operations in 2000. While the site is located adjacent to forestlands, it has been significantly altered by past landfilling activities and is not considered to be a scenic or aesthetic resource in its altered condition. The proposed FCPCMP includes the design of an alternative final cover and continued utilization and installation of the necessary environmental control systems utilized to monitor potential impacts to air and/or groundwater quality. The final cover element of the project requires the importation of soil to complete the proposed final cover system, which will be composed of both a two-foot thick foundation and vegetative layer (as well as a synthetic barrier layer); no structures proposed on the surface of the final closure project create a visual element that would adversely affect the visual/aesthetic character of the project area, including the adjacent forestland.

Other features of the landfill include a landfill gas monitoring and control system, surface water control system, a groundwater and stormwater monitoring and reporting system/program, and a leachate collection and removal system. These environmental control systems are composed of surface features, including monitoring wells, pipes and related features. As indicated above, no significant vertical elements that would be visually obtrusive are proposed on the site as part of the final cover for the SCL. Therefore, no significant visual impacts will occur as a result of project implementation and no associated mitigation measures are required.

In addition to the open space and forest lands, the County's Scenic Highways Element has also identified two roadways, including SR-1 through the County and SR-162 from Longvale to Inspiration Point as official state scenic highways. However, as of 2007, no scenic designations had been adopted for any roads or highways in Mendocino County. Two State Scenic Byways pass through the forests of Mendocino County: the North Central Coast Heritage Corridor on SR 1 and the Tahoe-Pacific Heritage Corridor encompassing sections of SR 20 and U.S. 101. Although the SCL is located on Fish Rock Road, that roadway is not designated as a scenic highway and the project site is not located within the view corridor of any of the designated scenic facilities. As a result, project implementation will not affect any existing views from scenic corridors/roads.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less than Significant Impact. The SCL property is located in an area of Mendocino County that is removed from any scenic highways and is not identified as a scenic amenity or resources. The site has been substantially altered by past landfilling activities and is not characterized by any important or significant

CHAPTER 4.0 – ENVIRONMENTAL ANALYSIS

aesthetic resources such as rock outcroppings, historic buildings and/or landmark trees. Furthermore, the site is not located adjacent to or within the viewshed of any designated highways/roadways. Although a fully permitted Medium Volume Transfer Station (MVTS) is currently located and operated at the SCL, this facility is not located over the refuse footprint and is not part of the proposed project. Furthermore, operations of the MVTS were approved during the inactive phase of the SCL as well as during the post-closure maintenance period as approved by the LEA. Current closure and post-closure requirements limit end use options over the refuse footprint in order to maintain the integrity of the final cover surface. The proposed post-closure end use for the SCL refuse footprint will be non-irrigated vegetated open space. In addition, implementation of the proposed final closure plan and subsequent post-closure maintenance activities includes environmental control systems and related features that are intended to meet current closure requirements so that the site does not pose a health hazard or other adverse effects to the environment. No significant above-ground structures or other features are proposed that would either affect the existing site characteristics or the visual/aesthetic character of the site and/or area. As a result, no significant impacts are anticipated and no mitigation measures are required.

c. Substantially degrade the existing visual character or quality of the site and its surroundings?

Less than Significant Impact. As indicated above, no development (i.e., structures or vertical features) is proposed for the SCL FCPCMP that would affect the aesthetic character either of the subject property or the surrounding area (refer to Section 4.1a). Furthermore, the proposed project is consistent with Policy RM-128 of the Resources Management Element (i.e., protect the scenic values of the county's natural and rural landscapes, scenic resources, and areas of significant natural beauty). Therefore, no significant impacts will occur either to the aesthetic character of the site or to that of the surrounding area and no mitigation measures are required.

d. Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?

No Impact. The subject property is located in a remote area of Mendocino County and is removed from urbanization. Project implementation does not include any new lighting fixtures and/or features that would result in the creation of new lighting either on the site or in the project area. All construction activities will occur during the daylight hours, which would not require lighting. Upon completion of the final closure construction activities, site activities would then be limited to routine maintenance, monitoring, and repair of site features/facilities; however, no new lighting would be required and, therefore, is not incorporated into the project. As a result, no significant lighting impacts will occur and no mitigation measures are required.

Cumulative Impacts

As indicated in Chapter 2.0 (Project Description), no development is proposed that would result in either short- or long-term visual impacts. Closure of the SCL encompasses some excavation and relocation of refuse from a portion of the landfill to another area of the landfill in order to consolidate the landfill footprint. No structures are proposed over the limits of the refuse footprint that would contribute to the degradation of the aesthetic character of the area. Once completed, the SCL site would be characterized by native grasses and shrubs as well as the environmental control system features that are intended to address groundwater/leachate and air emissions. These systems and features would not contribute to the cumulative degradation of the visual/aesthetic character of the area; no significant cumulative impacts will occur as a result of project implementation.

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Mitigation Measures

Project implementation will not result in any potentially significant visual impacts. Therefore, no mitigation measures are required.

4.2 Agriculture and Forest Resources

<i>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				☑
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?				☑
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				☑
d. Result in the loss of forest land or conversion of forest land to non-forest use?				☑
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				☑

Significance Criteria:

A project may be deemed to have a significance adverse impact on agricultural soils if it results in any of the following:

- Loss or elimination of “prime” agricultural lands as designated by the State of California and/or County of Mendocino and such designated soils are capable of sustained, viable agricultural production.

CHAPTER 4.0 – ENVIRONMENTAL ANALYSIS

- Loss or elimination of forest land or conversion of forest land and/or timberland to non-forest uses.

Analysis:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The site is designated as “Grazing Land” (i.e., land on which the existing vegetation is suited to grazing of livestock) by the California Department of Conservation.¹ As such, the site does not support any prime farmland or farmland of state-wide or local importance. Furthermore, the property encompasses a closed sanitary landfill. Implementation of the proposed project will not result in the conversion of any prime farmland or farmland of State-wide importance. Therefore, no significant impacts to existing farmland resources will occur; no mitigation measures are required.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The subject property is not zoned for agricultural uses and, furthermore, is not bound by a Williamson Act contract. The site encompasses a closed Class III landfill and does not support any agricultural uses. Implementation of the proposed Final Closure/Post-Closure Maintenance Plan will not result in any conflicts with either the zoning or long-range land use plans adopted by the County of Mendocino for the site. No significant impacts to agricultural soils will occur as a result of the proposed project and no mitigation measures are required.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The project site is neither zoned nor designated as forest land. The site is the location of the SCL that was operational from 1970 through 2000. Although designated forest lands are located adjacent to the subject property, no direct or indirect impacts would occur as a result of the proposed landfill closure. Formal closure of the landfill will not result in any infrastructure extensions and/or future urban development that would encroach into the designated forest lands adjacent to the subject property. Therefore, project implementation would not result in the conversion of any forest land subject to the Public Resources Code. No impacts are anticipated and no mitigation measures are required.

d. Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As indicated above, the site encompasses the SCL; however, it is devoid of forest resources. No development or other activities are proposed or are anticipated to occur in the future as a result of project implementation that would affect any existing forest resources that would cause the conversion of existing forest land to urban development. Therefore, project implementation will not result in the site’s conversion of forest land to non-forest uses. No impacts are anticipated and no mitigation measures are required.

¹Mendocino County Important Farmland Map – 2010; California Department of Conservation.

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- e. *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?***

No Impact. Implementation of the project will result in the closure of the SCL. Because the site does not contain or support any agricultural resources, project implementation will not result in the conversion of existing important, designated agricultural resources for non-agricultural purposes or the conversion of forest land to non-forest land. There are no properties located in the vicinity of the project site that are designated for agricultural uses or are currently in agricultural use that would be adversely affected as a result of project implementation. Furthermore, the site, which has been substantially altered as a result of historic use as a landfill, does not support forest resources. Although forest lands do exist adjacent to the subject property, no significant direct or indirect impacts to the forest lands would occur that would result in their conversion to non-forest use.

Cumulative Impacts

Because neither designated/important farmlands nor forest resources exist within the limits of the subject property, no conversion or loss of such resources will occur. Therefore, implementation of the proposed project will not contribute to the cumulative loss of either important agricultural soils or forest resources. No significant cumulative impacts will occur.

Mitigation Measures

Project implementation will not result in any potentially significant impacts to either agricultural source or forestry resources. Therefore, no mitigation measures are required.

4.3 Air Quality

<i>Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?			<input checked="" type="checkbox"/>	
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			<input checked="" type="checkbox"/>	
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			<input checked="" type="checkbox"/>	
d. Expose sensitive receptors to substantial pollutant concentrations?			<input checked="" type="checkbox"/>	
e. Create objectionable odors affecting a substantial number of people?			<input checked="" type="checkbox"/>	

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Significance Criteria:

The proposed project would result in significant adverse environmental impacts if any of the following occur:

- The project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation.
- The project could result in population increases within the regional statistical area that would be in excess of that projected in the Air Quality Management Plan (AQMP).
- The project could generate vehicle trips that cause a localized violation of carbon monoxide (CO) standards.
- The project might have the potential to create or be subjected to objectionable odors.
- The project could have hazardous materials on-site and could result in an accidental release of air toxic emissions.
- The project could be occupied by sensitive receptors near a facility that emits air toxics or near CO “hot spots.”
- The project could emit carcinogenic air contaminants that could pose a cancer risk.

Analysis:

The firm of Giroux & Associates prepared an air quality assessment that evaluated the potential air quality impacts of the proposed SCL closure, based on the anticipated final closure construction activities. The findings and recommendations of the Air Quality Impact Analysis prepared by Giroux & Associates are summarized in this section of the initial study and are contained in Appendix A.

a. Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The project area is considered the “Mendocino County South Coast.” Because of the low population density of Mendocino County and because of the generally good air quality, there are only limited monitoring resources spread over a large area. The Mendocino County Air Quality Management District (MCAQMD) maintains a network of five air quality monitoring stations within its jurisdiction. The two nearest air monitoring stations to the Project Area are maintained in the City of Ukiah and at the Willits Station. The only ozone monitor in Mendocino County is at Ukiah-Gobbi Street. Particulates are monitored at the Willits-Main Street station.

The South Coast contains a very low density of residences. Land uses are primarily resource lands and parklands with a small amount of agriculture (ranching and some orchards). Almost all coastal area transportation occurs along Highway 1. Connections across the coastal mountains are almost non-existent. Highway 1 can become congested during summer weekends.

However, atmospheric mixing during the daytime in summer months is quite good. Winds are mainly parallel to the coastline from the northwest-north with average speeds of 10 miles per hour (mph). A secondary flow regime blows from the southeast-south, again with average speeds of 10 mph (data from Point Arena). These winds do not allow for localized air pollution stagnation because of strong turbulence and rapid ventilation.

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Any local air quality issues occur almost exclusively during light wind conditions on winter nights or early mornings. As cold air slowly pools on valley floors, it traps any locally generated air pollutants such as smoke from woodstoves or fireplaces. Fugitive dust from unpaved roads or from tilling or grading may also become trapped within a shallow layer near the ground.

The air quality within Mendocino County is generally good. Ozone levels rarely exceed standards. The state 1-hour ozone standard and the state 8-hour standard were each exceeded only once in the past six years. There were no violations of the 8-hour federal ozone standard during the same period. The South Coast area is designated as an attainment area for all pollutants with the exception of the state standard for PM₁₀ (particulate matter of 10 microns or less in diameter). There are no air quality monitoring resources within the South Coast area to confirm this assumption. However, meteorological conditions are sufficiently similar in the South Coast area to those areas of Mendocino County where PM₁₀ levels are sometimes observed to be exceeded as to lend credence to this assumption. Air quality planning for projects in the South Coast is, therefore, based upon a non-attainment assumption and a need to mitigate PM₁₀ impacts as much as possible. Although sampling for PM₁₀ is conducted every six days, there have been no exceedances of the PM₁₀ standard at the Willits station in the past 6 years. The air quality data for the South Coast area of the air basin are summarized in Table 4.3-1, which reflects the number of days standards were exceeded and the maximum levels during such violations.

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Table 4.3-1

**Air Quality Monitoring Summary – Mendocino County AQMD
South Coast Landfill FCPCMP**

Pollutant/Standard	2006	2007	2008	2009	2010	2011
Ozone (O₃)¹						
State 1-Hour >0.09 ppm	0	0	0	0	1	0
State 8-Hour >0.07 ppm	0	0	1	0	0	0
Federal 8-Hour >0.075 ppm	0	0	0	0	0	0
Max. 1-Hour Conc. (ppm)						
Max. 8-Hour Conc. (ppm)	0.081	0.080	0.090	0.094	0.097	0.066
Carbon Monoxide (CO)¹						
State 1-Hour >20.0 ppm	0	0	0	0	0	0
State/Federal 8-Hour >9.0 ppm	0	0	0	0	0	0
Max 1-Hour Conc. (ppm)	2.2	2.1	4.5	NA	NA	NA
Max. 8-Hour Conc. (ppm)	1.6	1.7	3.4	NA	NA	NA
Nitrogen Dioxide (NO₂)¹						
State 1-Hour >0.25 ppm	0	0	0	0	0	0
Max. 1-Hour conc. (ppm)	0.039	0.036	0.110	0.094	NA	NA
Inhalable Particulates (PM₁₀)²						
State 24-Hour > 50 µg/m ³	0/60	0/61	0/60	0/62	0/59	0/65
Federal 24-Hour > 150 (µg/m ³)	0/60	0/61	0/60	0/62	0/59	0/65
Max. 24-Hour Conc. (µg/m ³)	34.	33.	33.	37	47.	112.
Ultra-Fine Particulates (PM_{2.5})²						
Federal 24-Hour > 35 µg/m ³	N/A	N/A	N/A	0/108	0/352	0/352
Max. 24-Hour Conc. (µg/m ³)	N/A	N/A	N/A	35.0	20.9	25.7
¹ Data from the Ukiah Gobbi Street Air Quality Monitoring Station ² Data from the Willits Air Quality Monitoring Station N/A – Not Available SOURCE: California Air Resources Board (2011) Giroux & Associates (March 2013)						

The Mendocino County Air Quality Management District (MCAQMD) is currently listed by the Air Resources Board as “non-attainment” for the Annual Average PM₁₀ standard and the 24-hour PM₁₀ standard (exhaust emissions only). Although project implementation will result in short-term (i.e., construction) impacts, once the final cover and related closure plan features are completed, no additional air pollutant emissions will occur. The short-term emissions associated with construction activities required to implement the Final Closure Plan for the SCL would not exceed daily thresholds established by the Mendocino County Air Quality Management District (refer to Table 4.3-2) in Section 4.3.b below. The proposed project is consistent with Policy RM-37 of the Mendocino County General Plan Resource Management Element (i.e., public and private development shall not exceed MCAQMD emissions standards) and Policy RM-41 (i.e., reduce dust generation from unpaved roads). Final closure activities will be required to comply with all applicable measures (e.g., dust control measures on construction sites and unpaved roads, etc.) to further reduce particulate emissions

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in accordance with the long range plans of the MCAQMD. Therefore, project implementation would not conflict with adopted plans and programs; no significant impacts would occur.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than Significant Impact. Although exhaust emissions will result from on and off-site heavy equipment, the exact types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty.² Because of uncertainty as to the source of the final cover soil, emissions calculations reflect both a 10-mile hauling distance and a 50-mile haul. Table 4.3-2 summarizes the project-related construction impacts for each of the activities anticipated to occur during final closure of the South Coast Landfill.

Table 4.3-2

**Construction Activity Emissions – Maximum Daily Emissions (pounds/day)
South Coast Landfill FCPCMP**

Construction Activities	ROG	NO _x	CO	SO ₂	PM ₁₀ Exhaust	PM ₁₀ Total	PM _{2.5} Exhaust	PM _{2.5} Total
Clear and Grub	4.2	34.0	15.9	<0.1	1.3	1.4	1.3	1.3
Stock Pile Removal	2.2	17.3	10.5	<0.1	0.8	0.9	0.8	0.8
Refuse Removal	3.5	26.7	13.7	<0.1	1.1	1.2	1.1	1.1
Import Soil – 50 Miles	4.5	50.4	25.9	<0.1	1.7	103.8	0.3	2.0
Import Soil – 10 Miles	3.5	39.2	20.2	<0.1	1.3	82.1	1.3	1.5
Reinforced Slopes	3.5	26.7	13.7	<0.1	1.1	1.2	1.1	1.1
Tie Back Walls	0.6	4.8	3.6	<0.1	0.3	0.3	0.3	0.3
Foundation Layer	5.3	41.5	21.7	<0.1	1.7	1.9	1.7	1.7
Gas Systems	2.9	21.3	13.0	<0.1	1.0	1.2	1.0	1.0
Geosynthetics	1.1	7.9	6.0	<0.1	0.6	0.6	0.6	0.6
Final Cover	5.9	46.7	24.9	<0.1	1.9	5.8	1.9	3.8
Drainage Features	1.9	13.7	8.1	<0.1	0.7	1.0	0.7	0.7
Erosion Control	1.9	7.8	4.3	<0.1	0.3	0.4	0.3	0.3
Total All Phases¹	36.6	298.8	161.3	--	12.5	119.7	11.1	14.7
Thresholds	--	--	--	--	82	--	54	--
Exceeds Threshold (Yes/No)	--	--	--	--	No	--	No	--

¹Total emissions reflect “worst case” 50-mile haul for import.

SOURCE: Giroux & Associates (March 2013)
CalEEMod.2011.1.1 (Refer to Appendix A for output model runs)

As reflected in Table 4.3-2, Mendocino County AQMD CEQA significance thresholds for construction activities apply only to particulate exhaust. The soil import activity has the highest associated emissions, particularly when modeled with the higher haul trip mileage. Therefore, as a conservative estimate, only the longer haul distance is included. Emissions for PM₁₀ and PM_{2.5} exhaust are less than their respective thresholds. Even if all project components were to occur simultaneously (physically impossible), project construction emissions

²The CalEEMod2011.1.1 computer model was used to calculate emissions from the prototype construction equipment fleet and schedule as indicated in Table 4.3-2 as may be utilized to implement the closure plan.

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would not exceed applicable thresholds. However, the project schedule does indicate that several construction activities will happen concurrently (on the same day), but will not exceed applicable thresholds.

Overlapping activity emissions for these activities were combined and are shown in Table 4.3-3. This provides a more realistic scenario of worst case daily project emissions relative to Mendocino County AQMD thresholds.

Table 4.3-3

**Overlapping Construction Activity Emissions – Maximum Daily Emissions (pounds/day)
South Coast Landfill FCPCMP**

Overlapping Construction Activities	ROG	NOx	CO	SO₂	PM₁₀ Exhaust	PM₁₀ Total	PM_{2.5} Exhaust	PM_{2.5} Total
Clear and Grub/Stockpile Removal	6.4	51.3	26.4	<0.1	2.1	2.3	2.1	2.1
Stock Pile Removal/Refuse Removal/Import Soil/Reinforced Slope	13.7	121.1	63.8	<0.1	4.7	107.1	3.3	5.0
Import Soil/Reinforced Slopes/Tie Back Walls	8.6	81.9	43.2	<0.1	3.1	105.3	1.7	3.4
Tie Back Walls/Foundation Layer/Gas System	8.8	67.6	38.3	<0.1	3.0	3.4	3.0	3.0
Thresholds	--	--	--	--	82	--	54	--
Exceeds Threshold (Yes/No)	--	--	--	--	No	--	No	--

¹Total emissions reflect “worst case” 50-mile haul for import.

SOURCE: Giroux & Associates (March 2013)
CalEEMod.2011.1.1 (Refer to Appendix A for output model runs)

As indicated in the table, neither the PM₁₀ nor PM_{2.5} emissions thresholds would be exceeded by the phased activities identified below. The project-related construction particulate emissions would be substantially below the emissions thresholds established by the MCAQMD. Emission levels of “criteria” pollutants will be below MCAQMD significance thresholds. Presumably, the resulting ambient air pollution exposure will correspondingly be less than significant. Any possible impact significance would only derive from non-criteria air pollutants such as toxic air contaminants.

Toxic air contaminants would have a "substantial" exposure risk if they were generated by site activities, and if there was a sensitive population in the project vicinity. Exposure risk is expressed as a theoretical worst-case outdoor exposure of 24 hours/day, 365 days/year, and 70 years of exposure. However, this “cradle-to-grave analysis” procedure where a receptor is confined to the front porch for a lifetime is not a realistic assumption.

Any temporary surface disturbance may create dust that contains non-inert components. The most potentially significant “natural” pollutants in fugitive dust are naturally occurring asbestos (NOA) and crystalline silica (CS). NOA is a known human carcinogen. CS is a hazardous air contaminant. The possible presence of these materials depends upon the geomorphology of the underlying rock of a given site. NOA and/or CS are mainly associated with igneous and metamorphic rock formation. The project site is underlain by sedimentary marine sandstone and mudstone and sheared shales. This lithology contains little NOA, and

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generally low levels of CS. Dust generation from excavation and placement of final cover will have negligible potential for generation of any hazardous materials. Any public impact potential is further mitigated by the limited duration of the activity, and by the large distance buffer between on-site emissions and the nearest off-site receptors. These receptors are not along the prevailing northwest-southeast wind axis. As a result, potential impacts associated with NOA emissions are negligible and, therefore, less than significant.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact. Emission levels of “criteria” pollutants will be below AQMD significance thresholds. Presumably, the resulting ambient air pollution exposure will correspondingly be less-than-significant (refer to 4.3a and 4.3b). Any possible impact significance would only derive from non-criteria air pollutants such as toxic air contaminants (refer to 4.3d).

d. Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. The California Air Resources Board (CARB) regulates vehicle fuels with the intent to reduce emissions. Diesel exhaust is a serious concern throughout California. The CARB identified diesel engine particulate matter as a toxic air contaminant. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Many of these toxic compounds adhere to the diesel particles, which are very small and can penetrate deeply into the lungs. Diesel engine particulate matter has been identified as a human carcinogen. Mobile sources such as trucks, buses, and automobiles are some of the primary sources of diesel emissions. Studies show that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections. The cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. Diesel exhaust contains both pulmonary irritants and hazardous compounds that can affect sensitive receptors such as young children, senior citizens, or those susceptible to chronic respiratory disease such as asthma, bronchitis, and emphysema.

In 2005, the CARB approved a regulatory measure to reduce emissions of toxic and criteria pollutants by limiting the idling of new heavy-duty diesel vehicles, which altered five sections of Title 13 of the California Code of Regulations. The changes relevant to the proposed project are in Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, which limit idling of a vehicle’s primary diesel engine for greater than five minutes in any location (with some exceptions) or operation of a diesel-fueled auxiliary power system within 100 feet of residential areas.

Implementation of the proposed project would result in the use of diesel trucks to transport demolition debris and construction materials, and diesel-powered construction equipment would be operated on site. Combustion emissions include suspended fine particulates (PM_{2.5}). When these emissions are generated by diesel-powered equipment, they are referred to as diesel particulate matter (DPM), which contain substances that are known carcinogens.

DPM is classified by the Bay Area Air Quality Management District (BAAQMD) as a toxic air contaminant (TAC) and the BAAQMD CEQA Guidelines include quantitative thresholds to determine the significance of the project’s construction-related emissions, both on a project-specific and cumulative basis.

In 2010, the BAAQMD adopted updated CEQA significance thresholds, including health risk exposure guidelines. These guidelines were based upon information detailed in the *BAAQMD Thresholds Options and Justification Report (2009)*. The MCAQMD has elected to adopt these guidelines. Therefore, these thresholds

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are evaluated in this analysis. The recommended thresholds of significance for DPM emissions impacts are shown in Table 4.3-4 for construction activity emissions on/around the project site.

Table 4.3-4

**Risks and Hazards (Construction-Related Significance Thresholds)
South Coast Landfill FCPCMP**

Pollutant	Construction-Related Thresholds
Risks and Hazards – TACs and PM _{2.5} (Individual Project)	Increased cancer risk of >10.0 in one million Increased non-cancer risk of >1.0 Hazard Index (Chronic or Acute) Ambient PM _{2.5} increase: >0.3 µg/m ³ annual average
Risks and Hazards – TACs and PM _{2.5} (Cumulative – Source or Receptor)	Increased cancer risk of >100 in one million (from all local sources) Increased non-cancer risk of >1.0 Hazard Index (from all local sources) (Chronic or Acute) Ambient PM _{2.5} increase: >0.8 µg/m ³ annual average (from all local sources) Zone of Influence: 1,000-foot radius from property line of source or Receptor
SOURCE: Giroux & Associates (March 2013)	

Diesel Particulate Matter Impacts

A screening-level individual cancer analysis was conducted to determine the maximum PM_{2.5} concentration from diesel exhaust. This concentration was combined with the DPM exposure unit risk factor to calculate the inhalation cancer risk from project-related construction activities even though there are no sensitive uses in proximity to the project site.

Based on that analysis (refer to Appendix A), the predicted maximum one-hour DPM concentration is 0.0001 µg/m³ resulting from on-site total project DPM emissions of 0.10 tons of diesel exhaust for all project activities combined. The hourly to annual scaling factor is 0.1. The modeling conducted for the proposed project indicates that project construction will produce a maximum annual DPM concentration of 0.00001 µg/m³, which is less than the individual project PM_{2.5} significance threshold of 0.3 µg/m³ (refer to Table 4.3-4).

The excess individual cancer risk factor for DPM exposure is approximately 300 in one million per 1 µg/m³ of lifetime exposure. More recent research has determined that young children are substantially more sensitive to DPM exposure risk. If exposure occurs in the first several years of life, an age sensitivity factor (ASF) of 10 should be applied. For toddlers through mid-teens, the ASF is 3. Thus, the DPM exposure risk from construction exhaust depends upon the age of the receptor population. However, even with the application of ASFs, the exposure risk to off-site residences is below BAAQMD thresholds seen as reflected in Table 4.3-5. As indicated in the table, the maximum individual cancer risk would be below the 10 in one million significance threshold. Therefore, project implementation would not result in potentially significant impacts to sensitive receptors.

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Table 4.3-5

**DPM Exposure Risk from Construction Exhaust¹
Based on Age Sensitivity Factors**

Age Group	Excess Cancer Risk²
Infants	0.0004/1 million
Children	0.00013/1 Million
Adults	0.00004/1 Million
¹ Based on Age Sensitivity Factors ² DMP ($\mu\text{g}/\text{m}^3 \times \text{ASF} \times 300 \times 70 \text{ Years}$) SOURCE: Giroux & Associates (March 2013)	

The maximum individual cancer risk would be below the 10 in a million significance threshold.

Soil Hauling Diesel Exhaust Health Risk

It is anticipated that implementation of the Final Closure Plan may necessitate the importation of up to 50,000 cubic yards of final cover soil, which could generate approximately 5,000 truck trips (i.e., 20 cubic yards per truck x 2 trips in/out).³ Because any chronic health risk from diesel exhaust exposure is cumulative, the public health impact is the same if the import scenario is faster or slower.

The public exposure risk from truck pass-by was determined by calculating the predicted roadway edge exhaust concentration using a screening level dispersion model (AERSCREEN) combined with the unit risk factor for diesel particulate matter exposure. The resulting individual excess cancer risk was compared to the MCAQMD significance threshold of ten (10) in a million.

The peak 1-hour predicted DPM exposure is 0.001894 $\mu\text{g}/\text{m}^3$. Although hauling at this level would occur on only 100 days, the hourly prediction conservatively was scaled to an annual level assuming one year of hauling. An annual concentration of 0.0001894 $\mu\text{g}/\text{m}^3$ (10 percent of peak hour) produces the potential excess cancer reflected below.

$$\text{RISK (0.0001894 x 300 per million/70 years)} = 0.0008 \text{ in a million}$$

If the exposed population is under 16, the risk increases to 0.0024 in a million, and for babies the exposure risk increases to 0.008 in a million. Truck pass-by exposure health risk during soil hauling would be negligible at the edge of the selected haul route. Therefore, no significant impacts are anticipated to occur as a result of the proposed project and no mitigation measures are required.

e. Create objectionable odors affecting a substantial number of people?

Less than Significant Impact. The proposed project is designed to minimize local odor risk by insuring long-term landfill cover integrity. No substantial quantities of buried refuse will be disturbed by the proposed

³For calculational convenience, it was assumed that 100 haul days would generate 50 trips each (25 in/out over 8 hours, or 3 trucks in per hour and 3 trucks out).

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project. Furthermore, sensitive receptors (e.g., residential development) are not located in close proximity to the South Coast Landfill. In addition, enhancement of cover integrity as part of long-term closure will reduce water infiltration that could accelerate anaerobic decomposition and associated odor generation. Therefore, no significant odor impacts would occur.

Cumulative Impacts

As indicated in the preceding analysis, project implementation will not result in an exceedance of the construction emissions threshold adopted by the MCAQMD; no long-term (i.e., operational) impacts will occur and, therefore, implementation of the proposed project would not result in potentially significant cumulative impacts. Compliance with the applicable MCAQMD and policies and programs of the County as articulated in the General Plan will ensure that dust emissions are minimized during construction to further reduce short-term cumulative impacts. Furthermore, the project is consistent with the County's long-range plans for the subject property. Therefore, potential cumulative air quality impacts are less than significant.

Mitigation Measures

As indicated in the Air Quality Analysis prepared for the proposed FC/PCMP, project implementation will not result in any significant air quality impacts requiring mitigation. Nonetheless, use of effective dust control is mandated by Mendocino County AQMD Rule I-430 and shall be implemented during all phases of the project. The required dust control measures include:

- Water shall be applied by means of truck(s), hoses, and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emissions.
- All material excavated, stockpiled, or graded shall be sufficiently watered to prevent fugitive dust from leaving the property boundaries or causing a public nuisance. Watering should occur at least twice daily, however frequency of watering shall be based on the type of operation, soil, and wind exposure
- All on-site vehicles traffic shall be limited to 15 miles per hour (mph) on unpaved roads.
- All trucks hauling soil, sand, or other loose material on public roads will be covered or required to maintain at least 2 feet of freeboard.
- All land clearing, grading, or earth moving activities shall be suspended as necessary, based on site conditions, to prevent excessive windblown dust when winds are expected to exceed 20 mph.
- All inactive portions of the construction site shall be covered, seeded, or watered until a suitable cover is established. Alternatively nontoxic soil stabilizers can be applied to all inactive construction areas.
- Paved areas adjacent to construction sites shall be swept or washed as required to remove excess accumulations of silt and/or mud, which may have results from grading and construction activities.
- A publically visible sign shall be posted with the telephone number and person to contact regarding dust complaints.

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4.4 Biological Resources

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		☑		
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			☑	
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			☑	
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			☑	
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			☑	
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?			☑	

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if one or more of the following conditions occur as a result of implementation of the proposed project:

- Direct or indirect loss of individuals of a state- or federal-listed threatened or endangered species.
- Substantial adverse effect on a rare plant or animal species.
- Substantial adverse effect on a species or native plant or animal community.
- Substantial adverse effect on a habitat of concern.
- Substantial adverse effect on a critical, yet limited, resource utilized by state or federal listed threatened or endangered species.

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- Substantial adverse effect on the movement of any resident or migratory fish or wildlife species.

Analysis:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Less than Significant with Mitigation Incorporated. An Aquatic Biological Assessment of the Little North Fork Gualala River was prepared by Ross Taylor and Associates (RTA) to evaluate the potential impacts associated with the implementation of the Final Closure Plan/Post Closure Maintenance Plan for the proposed South Coast Landfill in 2012. That analysis included a description of the watershed and a discussion of potential impacts of the project on salmonid and amphibian habitats and recommendations to minimize and/or avoid the impacts. In addition, North Coast Resource Management (NCRM) also conducted a biological review, including botanical and wildlife surveys for the proposed project. The analysis presented in this section summarizes the findings and recommendations of these studies, which are appended to the initial study as Appendix B.

Terrestrial Biology

Plants

Botanical site surveys were conducted on the site, which focused on identifying special status plant species and plant communities within the study area (i.e., project site). Based on the most recent survey in 2012, as well as a prior survey conducted in 2003 for the project area, it was determined that the subject property and surrounding area contain four native plant communities, including: (1) Redwood series (Douglas fir, tanoak association); (2) California Annual Grassland Series; (3) Cattail Series; and (4) Sedge Series. It is unlikely that habitat that would support sensitive plants due to the highly disturbed nature of the existing landfill.

In addition to the field survey, the biological assessment includes an inventory of plant species based on information contained in the California Native Plant Society (CNPS) and California Natural Diversity Database (CNDDB). Based on the CNPS electronic inventory analysis, no sensitive plant species (i.e., CNPS List 1B or List 4) were listed for the subject property. Although the habitats (e.g., coastal bluff scrub, coastal prairie, valley and foothill grassland) for several sensitive plant species, including the Coast lily (*Lilium maritimum*), Running pine (*Lycopodium clavatum*), Maple-leaved checkerbloom (*Sidalcea malachroides*), Siskiyou checkerbloom (*Sidalcea malviflora* ssp.) and Long-beard lichen (*Usnea longissima*) were identified on the CNDDB overlay for the Gualala and adjacent 7.5' U.S.G.S. Quadrangle map, this species was not located during the field survey. (A comprehensive listing of the species of flora identified in the CNDDB inventories are included in Appendix A).

Vegetation identified on the subject property during the biological field survey includes species of ferns, forbs (i.e., an herb other than grass), grass, shrubs, and trees. The vegetation that occupies the site includes both introduced and native species. A listing of the plant species that were observed in the study area lists each of the species of plants that occur on the site. No sensitive plant species subject to CEQA review and mitigation were identified during the botanical survey.

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Project implementation will include grading and related activities that are necessary to accomplish final closure of the SCL. These activities will result in disturbance within the limits of the landfill, including grading where both native and introduced grasses and other species exist; however, due to the significant disturbance that has previously occurred as a result of past landfilling activities, as well as the lack of sensitive species that would be affected by closure activities, no significant impacts to sensitive vegetation and/or habitat will occur as a result of project implementation. Nonetheless, project-related impacts to native vegetation should still be avoided where feasible. Several recommendations have been included to ensure that the impacts to the existing vegetation and habitat are further minimized or avoided.

Wildlife

The site is currently an inactive landfill that supports few animal species. Project implementation will not result in the introduction of any new species of wildlife. The County of Mendocino is proposing the final closure of the SCL, which includes the construction of final cover and related improvements to facilitate surface drainage and related environmental controls (e.g., groundwater monitoring, passive gas control, etc.). No residential development or other development that would result in the introduction of domesticated animals to the site and project area would occur. The final closure and post closure maintenance activities will not result in the introduction of any new species into the area that would adversely affect the existing habitat and native species occurring in the area. Although entrance to the site is secured along Fish Rock Road by a six-foot high chain link fence, the sides of the property are surrounded by steep canyons, which prevent unauthorized entry; therefore, fencing that could act as a barrier to wildlife movement is not needed in those areas. Because no changes to the existing conditions that do not impede wildlife migration are proposed, the final closure and post closure activities will not act as a barrier to wildlife migration. No significant impacts are anticipated and no mitigation measures are required.

Although final closure and post closure maintenance activities will result in only minor changes and modifications to the site as a result of the construction of the final cover, it is possible that erosion and sedimentation associated with grading activities and other related on-going activities could affect the sensitive or other species occurring on the site and in the project area. The terrestrial biological survey concluded that the SCL does not provide suitable habitat for several of the species (e.g., Behren's silverspot butterfly, Cooper's hawk, white-tailed kite, rhinoceros auklet, tufted puffin, etc.). However, other species could be affected by activities occurring on the site during the final closure and post closure activities proposed by the County of Mendocino.

All of the changes would occur within the limits of the SCL and, specifically, the 6-acre refuse footprint. From the database queries and review of previous project reports, there is one known northern spotted owl (NSO) Territory (No. MEN0212) located approximately 0.65 mile from the landfill. NSO surveys were not conducted because the current activity status had been determined based on previously conducted surveys.⁴ A request for U.S. Fish & Wildlife Service (USFWS) Technical Assistance for NSO "Take Avoidance" was completed and submitted to USFWS, which determined that the implementation of the proposed project (i.e., final closure and post-closure maintenance) are not likely to result in take of a northern spotted owl.⁵

No animal species were observed on the site. As a result, no significant direct impacts (e.g., removal of trees that would eliminate habitat) are currently proposed in the FC/PCMP that would adversely affect those species, or to the diversity of those or other species that occupy the site. However, indirect impacts (e.g., noise, air quality, erosion and sedimentation, etc.) that could occur on the site during the short closure construction period may adversely affect the sensitive species.

⁴Gualala Redwoods, Inc. (GRI) conducted surveys and located a pair of NSOs on April 1, 2012.

⁵Bill McIver; U.S. Fish & Wildlife Service email to Jennifer Bartolomei (NCRM) dated February 2013.

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As previously indicated, the redwood and Douglas fir forest surrounding the landfill provides potentially suitable habitat for a number of sensitive birds of prey, including the white-tailed kite, Cooper's hawk, sharp-shinned hawk, goshawk, and northern spotted owl. Populations of California red tree vole are also known to occur within one-quarter mile of the project site. The red tree vole, a federal species of concern and California species of concern, is sedentary and the loss of any trees may result in the direct take of individuals. Northern spotted owl is known to occur within the project area.

The potential impacts to the sharp-shinned hawk, northern goshawk, northern spotted owl and red tree vole are limited to the area within the redwood/Douglas fir forest surrounding the disturbed portions of the SCL. Potential impacts could occur as a direct result of grading activities; indirect impacts associated with noise and air emissions could also affect these species and result in potentially significant impacts. Depending on the species present and the time of year that work takes place, the potential impacts would vary. In general, removal of trees has the potential to eliminate habitat (i.e., direct impact), while construction noise and activity has the potential to disrupt breeding or cause nest abandonment (i.e., indirect impact). As a result, several mitigation measures have been identified to ensure that impacts to the sensitive species are reduced to a less than significant level.

Aquatic Biology

The Little North Fork Gualala River is located approximately 300 feet south of, and downgradient from, the project area. The Little North For Gualala River, which is a second order stream that drains an area of approximately 6.6 square miles, is tributary to the North Fork Gualala River and encompasses approximately 4.2 miles of blue line stream based on the U.S.G.S. topographic map. Elevations range from approximately 190 feet above mean sea level (amsl) at its confluence with the North Fork to 1,020 feet amsl in its headwaters. Mixed conifer forest dominates the Little North watershed. The North Fork Sub-basin supports annual populations of steelhead; and coho salmon have only been occasionally observed in the early 2000s. The North Fork is the only Gualala River sub-basin where coho salmon have been documented in the past decade; however none have been observed since 2002.

During the 2012 stream survey conducted for the proposed project, three juvenile steelhead were observed within the 1,800 foot reach of the Little North Fork Gualala River surveyed adjacent to the South Coast Landfill. The fisheries habitat within the channel adjacent to the South Coast Landfill is suitable for the spawning and rearing of both coho salmon and steelhead. These two species are known to historically occur within the North Fork Gualala, as well as the lower reaches of the Little North Fork. Because coho salmon have not been documented in the Gualala River watershed in the past decade, some biologists have suggested that this species is now effectively extirpated from the watershed. However, the habitat to support coho salmon is still present within the Little North Fork. The reach of stream adjacent to the South Coast Landfill is nearly four miles upstream of the Little North Fork's confluence with the North Fork Gualala River. Utilization of the upper Little North Fork may only occur on a sporadic basis when there are seasonally ample winter storms that elevate the stream flow to allow for adult fish migration to the upper reaches.

A prior aquatic survey conducted in 2003 revealed that the four gullies actively transporting fine sediment located on hillslope from the landfill down to the Little North Fork channel are the primary (on-going) impact of the County's operations to the aquatic habitat. These gullies appear to be sources of chronic fine sediment input into the Little North Fork. During the 2012 survey, the excessive fine sediment was visually apparent, covering most of the channel-bed surface within the Little North Fork, especially when compared to the channel-bed conditions within the left-bank tributary. In 1993, the Gualala River was listed by EPA under the Clean Water Act as an impaired water body due to excessive sediment. The listing was updated in 2003 to include impaired (i.e., too warm) water temperature. A technical support document (TSD) for the Total

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Maximum Daily Load (TMDL) for the Gualala River was completed in 2003 by the North Coast Regional Water Quality Board and the TSD estimated that 85 percent of the anthropogenic sediment sources impacting the river were derived from poorly constructed timber and ranch roads. However, given the extensive road system throughout the North Fork Gualala River's approximately 30,600 acre drainage area, the fine sediment from the SCL and Transfer Station site of 46 acres (0.15% of the North Fork's drainage area) is most likely a very small contribution. Future sediment contributions from the landfill site will likely be reduced due to the measures of grading, capping and re-planting the site as described in the Final Closure Plan. In addition, the Final Closure Plan includes monitoring activities that will evaluate the effectiveness of the site closure and the potential for future sediment delivery to the stream channel.

Sensitive Species

Fish

During site surveys conducted for the proposed project, no coho salmon were observed within the 1,550 feet to 1,800 feet of stream channel surveyed. However, the potential for occurrence (PFO) is high, due to the 2002 observations of juveniles made by the Gualala Redwood Company in the Little North Fork within the timber company's long-term monitoring reach located just downstream of the SCL. During the 2012 site survey, juvenile steelhead were observed in the Little North Fork channel adjacent to the SCL, in pool habitats with features consistent with suitable coho salmon rearing habitat. Three juvenile steelhead were observed during the most recent site survey in August 2012. All three of these fish were in the Little North Fork channel adjacent to the SCL. The PFO is, therefore, "present," due to the 2012 observations along with the 2003, 2004, 2009 and 2011 density estimates of juvenile steelhead within Little North Fork index reaches reported by the Gualala River Watershed Council.

Although no Gualala roach were observed within the segment of the stream channel surveyed the PFO for this species is "moderate," because the diagnostic habitat requirements associated with the species do occur in the project area or its immediate vicinity. However, the numerous two to four foot drops over large woody debris jams would make it difficult for small, non-leaping, fish like roach to migrate into the headwaters of the Little North Fork. However, even if present, the roach would probably not be impacted like the salmonid species to inputs of sediment from the project, if anything a warming of the Little North Fork would make it more suitable for roach and less suitable for salmonids.

Amphibians

There is a high likelihood that some amphibians may use the ponds for breeding purposes in the spring-early summer. It is anticipated that at least the northern pond will be cleaned and deepened as part of the closure process to increase the pond's capacity for the initial winter after closure, which could adversely affect amphibian species.

Drainage from cut slopes along the northern end of the site and from areas currently supporting native vegetation along the southeastern end of the site flows to this river. Project-related grading has a potential to result in sediment transport to the river. In addition, the continued use of the existing constructed drainage at the northwest and southwest edges of the project has the potential to worsen existing erosion and sedimentation from these discharge locations. Such transport of sediment could affect the fish and aquatic species (e.g., Coho salmon, steelhead, etc.) that may inhabit the river. As a result, specific mitigation measures have been prescribed in (refer to Section 4.9 – Hydrology and Water Quality), as well as below, which are intended to ensure that impacts to these species will be avoided or reduced to an acceptable level.

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The FCPCMP includes the construction of addition berms to contain the surface water flows occurring on the site. Construction of the berms has the potential to generate excessive turbidity by the mobilization of already wet and saturated soils. In addition to the berms, cutting a diversion channel if the additional berms fail to contain flood flows during an intense storm event could also lead to excessive erosion, road failures, hillslope failures, and acute introduction of sediment to the Little North Fork. The actions of grading, capping and re-planting the landfill should reduce the introduction of fine sediments to the stream channel. Several mitigation measures have been prescribed so that impacts to the stream channel and aquatic life are reduced to a less than significant level (refer to MM 4.4-15 through MM 4.4-17).

During the construction phases of the landfill closure, the potential introduction of pollutants to the stream channel (e.g., gasoline, oil, lubricants of the heavy machinery to be used for grading, compaction, transportation of materials, etc.) may also occur, which could result in potential impacts to the aquatic life. Although the closure activities are located several hundred feet away from the stream channel and the potential for such an impact is low, several mitigation measures have been identified for implementation during construction to ensure that the introduction of such pollutants does not occur (refer to MM 4.4-11 through MM 4.4-14).

During the post-construction phases of the landfill closure, pesticides may be used as a means to control the growth of weeds or deeply rooted plants (>12 inches) that could impair the integrity of the landfill cap. Most commonly used herbicides are toxic to fish and amphibians. Because the landfill closure site is located several hundred feet away from the stream channel it is unlikely that properly applied herbicides would be immediately and directly introduced to the creek. However, to eliminate this potential impact, several mitigation measures are prescribed to avoid such impacts..

The FCPCMP also includes the potential use of plant fertilizer to improve the soil quality of the landfill cap. In some instances, fertilizer run-off can impact the water quality of fish-bearing water bodies. Because the landfill closure site is located several hundred feet away from the stream channel it is unlikely that properly applied plant fertilizers would be immediately and directly introduced to the creek. The densely vegetated hillslope from the landfill down to the Little North Fork would most likely capture and absorb any excess fertilizers.

b. *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Less than Significant Impact. No riparian habitat exists within the limits of the landfill or landfill footprint. As a result, no riparian habitat would be affected by the implementation of the FCPCMP proposed by the County of Mendocino. No grading or other activities associated with the proposed project would result in either direct or indirect impacts to riparian habitat. No mitigation measures are required.

c. *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

Less than Significant Impact. No wetlands exist within the limits of the landfill or landfill footprint. As a result, no wetlands would be affected by the implementation of the FCPCMP proposed by the County of Mendocino. No grading or other activities associated with the proposed project would result in either direct or indirect impacts to riparian habitat. No mitigation measures are required.

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- d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

Less than Significant Impact. The permitted refuse footprint currently is an inactive Class III landfill. With the exception of temporary, construction-related activities that would occur for approximately six months, project implementation would not result in any significant changes to the landfill or physical environment beyond the limits of the landfill footprint. The area surrounding the site encompasses open space and forest lands; however, the proposed FCPCMP proposes vegetated open space and would not, therefore, result in any direct, long-term impacts to wildlife movement in the area. With the vegetated cover, erosion that is occurring that affects aquatic life in the Little North Fork of the Gualala River would be reduced. In addition, the proposed drainage system would reduce the amount of sedimentation that may enter the creek. No significant impacts are anticipated either to wildlife movement and/or the movement of migratory fish and project implementation would not adversely affect any native wildlife nursery sites. No mitigation measures are required.

- e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

Less than Significant Impact. Although the project is located in an area that is heavily forested. Although some trees exist within the limits of the 47.65-acre landfill property boundary, no trees exist within the refuse footprint of the landfill. Construction of the final cover will result in some grading, such alteration will occur only within the limits of the footprint. Project implementation would not result in any impacts to sensitive habitat, including the forestlands located adjacent to the SCL. Potential impacts to trees located along the periphery of the landfill footprint that may be affected by the removal and relocation of trash within the landfill and/or any of the environmental control systems proposed by the County would not be significant because they do not support sensitive species and are not otherwise protected. Furthermore, work undertaken to implement the FCPCMP will occur outside the nesting and breeding season consistent with requirements prescribed by the Migratory Bird Treaty Act (MBTA) to ensure that nesting avian species are not affected either directly by removal or indirectly by noise and/or dust generation. Therefore, potential impacts are less than significant; no mitigation measures are required.

- f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

Less than Significant Impact. The Mendocino Redwood Company Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) was adopted in 2003. The NCCP/HCP covers several areas, including the Rockport, Central, South and Sonoma County Blocks. The proposed project will not result in any direct or indirect significant impacts to the forest resources protected by the NCCP/HCP. As indicated above, some potential impacts to protected aquatic, terrestrial and avian species; however, mitigation measures have been prescribed to ensure that potential impacts will be reduced to a less than significant level (refer to Section 4.4a) during the construction and implementation of the FCPCMP. As a result, potential impacts will be less than significant.

Cumulative Impacts

Project implementation will result in some temporary impacts during the final closure activities, including potential erosion and sedimentation. In addition, noise and dust generated during the construction of the final cover and related environmental control systems could also affect some avian and small animal species in the project area. In order to ensure that such impacts are avoided or reduced, several mitigation measures

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must be implemented, which will also minimize the potential for significant cumulative effect to occur as well. Once final closure of the South Coast Landfill has been completed, no significant long-term (i.e., operational) impacts will occur. With the exception of regular maintenance that will take place on the site, no activities will occur that would affect either sensitive habitat or species in the project area. Therefore, potentially significant project-related cumulative impacts would be less than significant.

Mitigation Measures

Potential project-related impacts to terrestrial and aquatic biological resources will be reduced to a less than significant level through the implementation of the measures prescribed below.

Sharp-shinned hawk and northern goshawk

MM 4.4-1 Surveys shall be conducted for the sharp-shinned hawk and northern goshawk if construction or similar activities will occur during their breeding season (i.e., between April and August). The surveys for these raptors may be avoided if all construction activities fall outside of this period because their California species of concern status is intended to protect nesting pairs.

MM 4.4-2 In the event that sharp-shinned hawks or northern goshawks are found to be nesting within 300 feet of the project site and construction is proposed during their breeding season, construction activity within 300 feet of nest sites shall be avoided between April and August. Prior to commencement of construction within this buffer area, a determination shall be made by a qualified agency or consulting biologist that nesting activities are completed.

Red tree voles

MM 4.4-3 Surveys for red tree voles shall be required regardless of the construction date if the project will require removal of trees adjacent to the landfill or in the remaining forested area within the southeast portion of the landfill.

MM 4.4-4 In the event that red tree voles are found to occur at the site, the removal of occupied trees shall be prohibited unless alternative measures are not feasible, and concurrence has been obtained from the California Department of Fish and Game.

Northern spotted owl

MM 4.4-5 Trees along the perimeter of the landfill shall not be damaged or removed during the closure operation.

MM 4.4-6 During the year of closure, spotted owl surveys shall be conducted from March (as soon as weather permits) to May 15 (or as soon after that date as possible) from the four calling stations used by Gualala Redwoods biologists during their previous surveys. Survey results shall be immediately provided to U.S. Fish and Wildlife Service staff with a request for technical assistance. If survey results demonstrate that current spotted owl distribution within the project area remains stable or has otherwise not changed in a manner that would be adversely affected by closure activities (as confirmed by USFWS), closure may begin prior to July 15. If owl distribution has changed in a manner that could result in adverse indirect impacts due to noise and disturbance of closure activities, closure shall not begin before July 15, unless conditions addressing the spotted owl are identified by the USFWS and

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implemented by the County's SWD, which would allow construction of the final cover to commence prior to July 15. Implementation of any of these courses of action shall require written concurrence from U.S. Fish and Wildlife Service staff prior to initiation of closure.

Coho Salmon and Steelhead (Sediment and Pollutants)

The County of Mendocino SWD shall implement the following measures intended to reduce impacts to the Coho salmon and steelhead, which are related to during construction of the final closure and as applicable during the post-closure maintenance activities.

- MM 4.4-7 Plan the construction phase of the closure to occur during the dry season, typically from early June through October 15.
- MM 4.4-8 Appropriate dust abatement measures (e.g., spraying exposed areas) shall be implemented during construction if airborne dust appears to be significant.
- MM 4.4-9 During grading, avoid side-casting excess material downslope towards the stream channel.
- MM 4.4-10 When grading, a gentler slope to the final grade of the landfill cap adjacent to the stream channel should be considered. Plant vegetation (preferably native species) on the cap to reduce erosion during winter storms. (If feasible, timing of planting should occur a couple of months prior to the onset of fall/winter rains so that vegetation is well established.)
- MM 4.4-11 All on-site storage of fuels, oils, and lubricants shall be located in an area where an accidental spill prevents this material from flowing downslope towards the stream.
- MM 4.4-12 All equipment that uses fuels, oils, and/or lubricants, when not in use, shall be stored in areas where leakage and spills do not flow downslope toward the creek.
- MM 4.4-13 Regular inspections of all equipment fuel lines, connections, filters, etc., shall be performed to ensure that leaks are detected and treated in a timely fashion.
- MM 4.4-14 All refueling of machinery shall occur in an area where accidental spills will not flow toward the stream channel. Fuel absorbent matting and other spill containment materials shall be stored on-site and all operators shall be familiar with their proper use.

Amphibians

The County of Mendocino SWD shall implement the following measures, which are intended to reduced impacts to amphibians that may inhabit the sedimentation ponds during construction of the final closure and as applicable during the post-closure maintenance activities to minimize impacts to amphibians.

- MM 4.4-15 Sedimentation ponds shall be inspected for the presence of amphibians by a qualified biologist. If eggs and larval stages are present, consideration should be given to postponing the dredging until the conclusion of the construction phase to a time when fewer organisms would be present, if feasible.
- MM 4.4-16 If amphibians are determined to be present when dredging is to occur, the sedimentation pond shall be partially drained in order to remove any amphibians prior to excavation of the

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pond. Fine-meshed aquarium nets shall be used to capture amphibians, which will be held in a 5-gallon pail.

MM 4.4-17 Amphibians shall be released into Little North Fork Gualala River in a pool(s) with ample depth and low velocity flow.

MM 4.4-18 If feasible, control unwanted vegetative growth by hand removal on a regular basis so that unwanted plants do not become firmly rooted to the landfill cap.

MM 4.4-19 If herbicides must be used, time the application so that rain events do not wash chemicals off the landfill cap. Avoid application during windy conditions. Manually apply herbicides directly to only the unwanted vegetation; avoid broadcast-spray applications.

4.5 Cultural Resources

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?				<input checked="" type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?				<input checked="" type="checkbox"/>
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				<input checked="" type="checkbox"/>
d. Disturb any human remains, including those interred outside of formal cemeteries?				<input checked="" type="checkbox"/>

Significance Criteria:

As part of the determination made pursuant to the Public Resources Code (PRC) Section 21080.1, the lead agency must also determine whether a project may have a significant effect on “unique” archaeological resources. As defined in PRC Section 21083.2(g), an archaeological resource will be “unique” if it:

- Is associated with an event or person of recognized significance in California or American history or recognized scientific importance in prehistory
- Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions.
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind.
- Is at least 100 years old and possesses substantial stratigraphic integrity.

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- Involves important research questions that historical research has shown can be answered only with archaeological methods.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; and/or
- Directly or indirectly destroy fossils that have potential to increase scientific knowledge, including all identifiable vertebrate remains, corals, and plants

Analysis:

a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?

No Impact. The site is a closed landfill that has been significantly altered as a result of grading and excavation and the deposition of refuse into the Class III landfill. There are no identified historical structures and/or other historical resources currently known to exist either on the site or within the project environs, which is characterized by forestland and devoid of any development. Although final closure of the South Coast Landfill is proposed on the site, it is anticipated that project implementation will not result in any adverse changes to any historical resources in Mendocino County because the subject property does not support any historic resources. Project implementation will necessitate some grading and site alteration in order to implement the proposed final closure plan, including environmental control systems. However, it is not anticipated that any historic resources will be affected, either directly or indirectly as a result of the construction activities, which would not affect any area within the subject property that has not already been altered or areas off-site that have not been altered. Therefore, no impacts to historical resources will occur as a result of project implementation and no mitigation measures are required.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?

No Impact. The subject property was utilized as a Class III municipal landfill between 1970 and 2000. Ten acres of the site were identified as the landfill “footprint.” Approximately six acres were excavated to accommodate the refuse that has been landfilled in that location. Portions of the site have been extensively altered as a result of the landfilling and related activities necessary to maintain the subject property. The proposed project includes the construction of the final cover for the SCL as well as activities (e.g., groundwater quality monitoring, etc.) that would result in some additional alteration of the site. Cover materials for the final cover will be excavated from an existing borrow site and stockpile area located within the limits of the SCL, which would result in additional site disturbance; however, it is important to note that these areas have been previously altered by past grading activities conducting on the SCL site. As a result, it is not likely that significant archaeological resources would be encountered during the proposed final closure and post closure activities. Therefore, potential impacts are anticipated to be less than significant. Nonetheless, because surface disturbance is proposed, a measure has been proposed that includes on-site monitoring during grading to ensure that if any artifacts are uncovered, they can be properly evaluated and appropriate mitigation action(s) implemented, if necessary, prior to proceeding with grading.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No Impact. As previously indicated, the subject property has been significantly altered as a result of prior grading and landfill activities that have occurred on the site over the 30-year period between 1970 and 2000.

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Implementation of the final closure plan, which includes some additional excavation within the subject property and placement of final cover over the landfill as well as installation/modification of the environmental control systems will not result in any potentially significant impacts to paleontological resources because the areas that will be altered by the proposed project have already been altered; no paleontological resources are known to existing within the affected areas and, therefore, no impacts to such resources would occur. Therefore, no significant impacts are anticipated and no mitigation measures are required.

d. Disturb any human remains, including those interred outside of formal cemeteries?

No Impact. The project will not encompass any sites or properties that possess known cultural values. Specifically, no formal cemeteries are located either on the project site in the vicinity of the project area, and no human remains are known to exist within the project environs. Although project implementation will require grading and limited excavation to implement the proposed FCPCMP, the discovery of human remains is not anticipated. As a result, no significant impacts are anticipated. However, in the unlikely event that human remains would be encountered, compliance with the State Health and Safety Code and Public Resources Code (refer to SC 4.5-2) will ensure that they are properly treated, if found on the site. Therefore, no impacts are anticipated.

Cumulative Impacts

As indicated above, the subject property has been extensively altered as a result of prior excavation associated with the operation of the SCL for approximately 30 years. As a result, no cultural and/or paleontological resources are expected to occur that would result in significant cumulative impacts.

Mitigation Measures

No significant impacts are anticipated to occur to cultural/archaeological, paleontological and/or historic resources; no mitigation measures are required.

SC 4.5-1 Prior to the approval of the project Plans and Specifications, the Mendocino County SWD shall confirm that the plans and specifications stipulate that if evidence of subsurface archaeological resources are found during construction, excavation and other construction activity in that area shall cease and the contractor shall contact the Construction Engineer, who will then contact a county certified archaeologist to determine the extent of the find and take proper actions.

SC 4.5-2 If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The Mendocino County Department of Transportation Solid Waste Division shall consult with the MLD regarding treatment and disposition of the human remains and items associated with Native American burials.

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4.6 Geology and Soils

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			<input checked="" type="checkbox"/>	
2) Strong seismic ground shaking?			<input checked="" type="checkbox"/>	
3) Seismic-related ground failure, including liquefaction?			<input checked="" type="checkbox"/>	
4) Landslides?				<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?			<input checked="" type="checkbox"/>	
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			<input checked="" type="checkbox"/>	
d. Be located on expansive soil, as defined in Table 18-1-B of the California Building Code (2001), creating substantial risks to life or property?			<input checked="" type="checkbox"/>	
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				<input checked="" type="checkbox"/>

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if one or more of the following conditions occur as a result of implementation of the proposed project:

- Ground shaking and/or secondary seismic effects (i.e., liquefaction, slope failure, etc.) could cause substantial structural damage and/or an unmitigated risk to human safety, even after implementation of the recommended geotechnical measures, required local and State seismic design parameters, and common engineering practices for seismic hazard abatement.
- Adverse soil conditions such as compressible, expansive, or corrosive soils are not mitigated and present a damage hazard to occupied structures or infrastructure facilities.

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Analysis:

- a.1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.**

Less than Significant Impact. The project site is underlain by the San Andreas Fault Zone as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map.⁶ The geologic report prepared for the proposed project also noted the existence of this active fault under the site.⁷ As previously indicated, the County of Mendocino is proposing to construct the final cover and environmental control systems for the South Coast Landfill that was closed in 2000. Although the potential for fault rupture on the South Coast Landfill site may exist on the subject property, no structures are proposed and, with the exception of scheduled maintenance that would occur following final closure, there would be no occupants on the site that would be exposed to the effects of fault rupture. Since the landfill is positioned over the San Andreas fault, in the event of an large earthquake whose focal mechanism is close to the site, ground rupture could occur. The probability of such an occurrence is regarded as considerably smaller than the possibility of a maximum probable earthquake (MPE) event, and would be largely mitigated by the elastic properties of the refuse and cover materials. While such an event could still result in distress to the final cover, interim use of reinforced visqueen to prevent rainwater infiltration, and standard soil and geosynthetic cover repair operations would be employed to mitigate this condition. The site has been designed in accordance with the applicable design parameters (refer to Section 4.6a(2)) and the potential adverse effects associated with fault rupture as well as other secondary seismic effects would be reduced to a less than significant level as a result of the project design; no additional mitigation measures are required.

- a.2. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?**

Less than Significant with Mitigation Incorporated. The SCLF is located in the northern portion of the Coast Ranges geomorphic province, which is characterized by a series of northwest-southeast trending ridges and valleys that are associated with faults and folds that follow the same trend. Of great significance, the landfill overlies the San Andreas Fault Zone. The fault zone itself consists of fault gouge, a highly sheared and chaotic mix of bedrock units that crop out east and west of the site.

East of the landfill and east of the Little North Fork, Cretaceous-age marine sandstones and sheared shales of the Coastal Belt Franciscan Formation are the most dominant lithology. West of the site and west of the Little North Fork, marine mudstones and sandstones of the Cretaceous-age Anchor Bay Member of the Gualala Formation and marine sandstones of the Tertiary-age German Rancho Formation crop out. Within the relatively flat-lying central and eastern portions of the property, unconsolidated, well-graded Recent-age alluvial terrace deposits of mixed clays, silts, sands and gravel are exposed.

Although a number of landslides have been mapped near the site, no landslide features have been identified on the SCL property. Most of the large-scale landslides in the region have relatively deep-seated failure surfaces with a rotational/transitional mode of movement along planar joints or bedding. In many cases, slope failure appears to be related to erosional processes at the toe of slopes. The fact that landslides are not

⁶California Department of Conservation; Division of Mines and Geology; Alquist-Priolo Earthquake Fault Hazard Map; Gualala U.S.G.S. 7.5-minute Quadrangle.

⁷Revised Final Cover Analysis, South Coast Landfill Mendocino County, California; Geo-Logic Associates, Inc.; November 13, 2012.

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typically mapped within fault gouge in the area may be related to the nearly vertical textural fabric of shears within the unit. This inference is supported by information that indicates low to moderate landslide susceptibility on most of the SCL property.

Groundwater at the site occurs within fractured gouge zone materials. Data from previous investigation of the site indicates that groundwater is encountered at depths ranging from 8 to 23 feet below ground surface. Along the west side of the property, groundwater may have been encountered in two recent borings that were excavated to depths of 17 and 12.5 feet, but was not encountered in two other borings that were extended to depths of 12 and 38.5 feet.

Groundwater on the site and in the project environs is interpreted to flow from the northeast to the southwest at a hydraulic gradient of approximately 0.08 feet. However, this pattern is expected to be locally interrupted by well-developed shears within the gouge zone matrix with resultant anisotropic flow directed in a more southerly direction.

In accordance with 27 CCR Section 20240, a seismic hazard review was completed to evaluate the earthquake parameters that could affect slope stability conditions at the site in the event of the MPE or the largest recorded (historic) earthquake event, whichever is larger. The MPE of the north coast segment of the San Andreas fault and the 1906 San Francisco event were estimated to be approximately Mw=7.6 to 7.9.⁸ A maximum site acceleration of 0.9g has been assumed for a fault distance of 0 km. Table 4.6-1 summarizes the seismic design parameters upon which the final closure plan is based.

Table 4.6-1

**Seismic Design Parameters¹
South Coast Landfill FCPCMP**

Seismic Effect	Design Parameter
Earthquake Magnitude	M=7.9 on the San Andreas Fault; 2 km from the site
Maximum Site Acceleration	0.9g (for the MPE)
Duration of Significant Shaking, D ₅₋₉₅	33 Seconds
Mean Period of Shaking, T _m	0.52 Second
SOURCE: Geo-Logic Associates, Inc. (November 2012)	

As indicated above, the FCPCMP was engineered to accommodate the design parameters of a MPE in order to minimize potential damage pursuant to all applicable regulatory requirements, including Title 27. While the site is susceptible to potentially strong seismic shaking, no structures are proposed on the landfill and, with the exception of regular monitoring and maintenance of the environmental control systems that would be conducted by the County, no workers would occupy the site. As a result, no significant impacts are anticipated and no additional mitigation measures are required.

⁸Revised Final Cover Analysis, South Coast Landfill Mendocino County, California; Geo-Logic Associates, Inc.; November 13, 2012.

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a.3. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Less than Significant Impact. Although the project site is underlain by the San Andreas Fault and would be subject to potentially strong seismic ground shaking and related secondary effects, the proposed project does not include the construction of any buildings and/or structures and, furthermore, would not be occupied by workers that would be subjected to the effects of seismic-related ground failure. As previously indicated, the FCPCMP has been designed in accordance with all applicable regulatory requirement prescribed in Title 27, which are intended to reduce the potential for losses of both property and life. As a result, potential impacts will be less than significant; no mitigation measures are required.

a.4. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

Less than Significant Impact. As indicated above, the site FCPCMP does not include the construction of any buildings or related structures that would be occupied with workers. As a result, project implementation would not subject either people or structures to the potential adverse effects of landsliding. The FCPCMP has been designed to ensure that the potential for slope failure is minimized. The stability of the proposed final cover system addressed both the steepest and highest slopes that will exist on the landfill. The construction specifications for final closure construction will specify the minimum material strength and other performance criteria required to agree with the analyses conducted for the FCPCMP. The lowest interface strength occurs between the compacted final cover and the underlying non-woven geotextile. This is considered the critical failure surface within the proposed final cover geometry. The lowest static factor of safety for the proposed final cover is 1.95. The static factor of safety for the other final cover interfaces is greater than 2.0. Displacement analyses of the proposed final cover system indicate that movement along the LLDPE/foundation layer interface should be less than 12 inches. Considering the elongation properties of the LLDPE geomembrane barrier layer that will be employed in the landfill final cover, such displacement is acceptable.

Furthermore, final refuse slopes will have a maximum gradient no steeper than 3:1. A minimum 10-foot wide bench will be located around a majority of the perimeter of the landfill. The east, south and north slopes (including the reconsolidation height) are between 30 and 35-feet in height. The maximum vertical height (located at the southeast perimeter of the landfill) from the bottom of the landfill to the top of slope, including approximately 14-foot of reconsolidation area height, is 60 feet. This slope height is part of the alternative final cover design for the southeast slope face since 27 CCR requires a maximum exterior slope of height of 50 feet between benches, the toe of the slope, and/or the top deck.

b. Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. Grading and excavation of the landfill during the construction phase of the FCPCMP would expose soils temporarily and result in potential erosion from the action of both water and wind. In order to ensure that potential erosion is minimized, the landfill closure design incorporates three primary erosion control features that will reduce the potential for soil erosion due to water and wind. These features include landfill grading, vegetation, and a slope bench system. The decks will be graded in such a way as to allow for sheet flow run-off over a minimum slope of approximately three percent. In addition, any large erosion gullies formed during storm events on the deck and slopes will be filled and the area track walked by a crawler tractor to replace and recompact the soil as part of post-closure maintenance activities.

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A minimum 10-foot wide bench is also located around the perimeter of the landfill and the landfill surface will be vegetated with native grasses with some shallow-rooted shrubs, which will protect the upper soil layer and minimize erosion through the vegetation root masses. Hydroseed (slurry) components that are required will also provide an effective germination environment as well as a protective environment for the seed. Wood and/or paper mulches used for slope hydroseeding will provide a short-term growing zone for the new seedlings. In addition to the mulch, a tackifier (i.e., binder) will be used to help bind or hold the mulch and seed to the slope. An environmentally safe organic tackifier, which will not harm the short-term and long-term growth of grass is recommended. The seed mix will be applied at an approximate rate of 100 lbs. per acre consisting of the following: 60 pounds per acre of Blando Brome, 20 pounds per acre of Zorro Annual Fescue, 10 pounds per acre of “RK” Rose Clover and 10 pounds per acre of “RK” Crimson Clover. To provide a short-term high quality soil environment, fertilizer will also be blended in the hydroseed mix to provide the following coverage: 300 pounds per acre of Ureaform (38-0-0) and 215 pounds per acre of Potassium Sulfate (0-0-50). As indicated in Section 4.9b, MM 4.9-1 requires the preparation and submittal of an erosion control plan to address potential erosion during the construction activities. The erosion control plan is shown on Exhibit 2-6. Therefore, project design with the erosion control measures identified above will avoid potentially significant erosion impacts. No additional mitigation measures are required.

- c. *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?***

Less than Significant Impact. As indicated in Section 4.6a(4), the manufactured slopes within the landfill have been designed to provide an adequate level of stability to minimize the potential for slope failure. As a result, potential impacts associated with landsliding and/or slope failure is reduced to a less than significant level. Furthermore, the landfill appears to be founded on native bedrock materials. Compressible soils (e.g., colluvial and alluvial soils) appear to have been largely removed for use as daily and interim cover soils over the active life of the landfill. As expected, the greatest settlement is expected to occur in areas where refuse thicknesses are greatest (i.e., within the center of the SCL). Comparison with final fill grades indicates that post-closure settlement could be as great as 5 feet within the center of the refuse fill. However, considering the elongation properties typical of the LLDPE geomembranes (e.g., >300%), this long term settlement will not affect the integrity of the proposed final cover system. Additionally, no significant settlement of the foundation subgrade underlying the SCL is anticipated.

- d. *Be located on expansive soil, as defined in Table 18-1-B of the California Building Code (2001), creating substantial risks to life or property?***

Less than Significant Impact. The project encompasses a six-acre landfill that is underlain by native bedrock materials. As indicated above, the soils above the bedrock material have been excavated and used as interim cover. As previously indicated, no structures are proposed that would be exposed to potential expansive soils. Therefore, project implementation would not result in substantial risks to either life or property. No mitigation measures are required.

- e. *Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?***

No Impact. As previously indicated, project implementation does not include any development that would require sewage disposal. Final closure of the SCL includes the construction of a top deck and related environmental control systems that neither generate raw sewage nor create a need for sewage disposal, including the use of septic tanks or alternative waste water disposal system. No significant impacts will occur and no mitigation measures are required.

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Cumulative Impacts

Project implementation will not result in any significant cumulative impacts associated with site soils or geology because the final cover and environmental control systems proposed for the SCL have been designed to meet all applicable regulatory requirements prescribed in Title 27 of the California Code of Regulations (27 CCR), Chapters 3 and 4 and the Code of Federal Regulations (CFR) 40, Subpart F to ensure that loss of property and life is minimized on the subject property. Therefore, cumulative soils and geologic impacts are anticipated to be less than significant.

Mitigation Measures

As indicated in the analysis presented in this section, the site has been designed based on the results of the detailed soils and geologic testing and investigation conducted for the FCPCMP. In addition, the FCPCMP complies with all applicable regulatory requirements, including Title 27. As a result, potential soils and geologic impacts have been avoided or reduced to a less than significant level through project design. Therefore, no mitigation measures are required.

4.7 Greenhouse Gas Emissions

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			<input checked="" type="checkbox"/>	
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			<input checked="" type="checkbox"/>	

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if one or more of the following conditions occur as a result of implementation:

- The project generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,
- The project conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Analysis:

As previously indicated, Giroux & Associates prepared an Air Quality Analysis for the South Coast Landfill project (refer to Appendix A) that also analyzed potential climate change/greenhouse gas impacts. The analysis presented below summarizes the findings and recommendations of that analysis and addresses the initial study checklist issues noted above.

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a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. “Greenhouse gases” (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as “global warming.” These greenhouse gases contribute to an increase in the temperature of the earth’s atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California’s reputation as a “national and international leader on energy conservation and environmental stewardship.” It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate “early action” control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California’s GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

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In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,
- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to “select the model or methodology it considers most appropriate.” The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

Because Mendocino County is primarily rural, the amount of greenhouse gases generated by human activities (primarily the burning of fossil fuels for vehicles, heating, and other uses) is small in total compared to other, more urban counties (although higher per capita due to the distances involved in traveling around the county) and miniscule in statewide or global terms.

In June of 2010 the MCAQMD adopted quantitative GHG significance thresholds based on those developed by the BAAQMD. However, these thresholds apply only to operational related emissions and not construction.

Construction Emissions

As indicated above, the MCAQCD has not adopted any GHG thresholds for construction-related emissions. Nevertheless, the project-related annual CO₂(e) emissions are estimated to be generated by this project and been quantified and are summarized in Table 4.7-1.

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Table 4.7-1

**Estimated Construction-Related GHG Emissions
South Coast Landfill FCPCMP**

Construction Phase	Estimated CO₂(e) Emissions (Metric Tons/Year)
Clear and Grub	10.1
Stock Pile Removal	20.2
Refuse Removal	46.2
Import Soil (50 Miles)	247.2
Import Soil (10 Miles)	203.1
Reinforced Slopes	37.0
Tie Back Walls	5.4
Foundation Layer	50.3
Gas Systems	29.2
Geosynthetics	10.6
Final Cover	68.9
Drainage Features	4.4
Erosion Control	5.8
Total - All Phases	535.3¹
¹ Total reflects “worst case” haul distance of 50 miles (247.2 MT). SOURCE: Giroux & Associates (March 2013)	

Implementation of the proposed project will result in the generation of a maximum of 535 MT of CO₂(e) if all construction occurred during a single calendar year. The GHG threshold for operational activities recommended by the MCAQMD is 1,100 MT/year of CO₂(e). Although there is no similar threshold for construction, the calculated GHG emissions from all landfill closure activities would be well below the operational threshold. As a result, no significant impacts will occur and no mitigation measures are required.

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. While explicit thresholds and requirements for greenhouse gas emissions have yet to be developed by the County, various state agencies have begun to examine proposed land use plans and specific projects for their potential GHG impacts. Because Mendocino County is primarily rural, the amount of greenhouse gases generated by human activities (primarily the burning of fossil fuels for vehicles, heating, and other uses) is small in total compared to other, more urban counties (although higher per capita due to the distances involved in traveling around the county) and miniscule in statewide or global terms. However, like all other areas worldwide that contribute to global warming, Mendocino County will be affected by climate change and shares a responsibility to address this issue. Long-term efforts will focus on reductions in the sources of greenhouse gases in the county through a comprehensive greenhouse reduction plan for both County operations and the broader area governed by Mendocino County. In the near term, this Mendocino County General Plan identifies energy-reducing policies that will also lower overall CO₂ emissions.

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To that end, the County’s Resource Management Element has identified several policies that address GHG, including Policy RM 50 (implement existing strategies to reduce GHG emissions and incorporate future measures adopted by the State in the future). That Policy identifies several action items, including RM 50.1 (inventory existing and historical sources of GHG in the County and coordinate with other jurisdictions to ensure completeness), RM 50.2 (create a GHG reduction plan for the unincorporated areas of the County that sets specific reduction strategies and targets) and RM 50.3 (reduce the County’s GHG emissions by adopting measures that reduce the consumption of fossil fuel). As indicated above, the project encompasses only short-term, construction impacts required to implement the final closure plan. Because the MCAQMD has not adopted a significance threshold, the significance of the project-related CO2(e) emissions, which was based on the BAAQMD threshold of 1,100 MT/year for operational CO2(e) emissions, was determined to be less than significant. Furthermore, no operational GHG emissions would occur and, therefore, none of the policies adopted by the County would apply to the proposed project. Thus, the proposed project would not conflict with any long-range policy and/or program of the County.

Cumulative Impacts

Project-related cumulative impacts will not be significant because the MCAQMD does not have a threshold for construction emissions. Nonetheless, the short-term (i.e., construction) emissions of GHG will not exceed the 1,100 MT/Year threshold for operational emissions adopted by the BAAQMD. Furthermore, the contribution of project-related (short-term) GHG emissions to the cumulative impact of global climate change is considered less than significant because of the adoption of a new low carbon fuel standard and through increased fuel efficiency as mandated in AB 32 and related programs adopted by the State of California.

Mitigation Measures:

No significant GHG impacts will occur as a result of project implementation and no mitigation measures are required.

4.8 Hazards and Hazardous Materials

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			<input checked="" type="checkbox"/>	
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			<input checked="" type="checkbox"/>	
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				<input checked="" type="checkbox"/>
d. Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and, as a result, would it create a significant hazard to the public or the			<input checked="" type="checkbox"/>	

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<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
environment?				
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				<input checked="" type="checkbox"/>
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				<input checked="" type="checkbox"/>
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				<input checked="" type="checkbox"/>

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if one or more of the following conditions occur as a result of implementation of the proposed project:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.
- Result in a safety hazard for people residing or working in the project area if located within two miles of a public airport or public use airport.

Analysis:

- a. *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?***

Less than Significant Impact. The proposed project does not include any operations that would result in the transport of hazardous materials, either to or from the South Coast Landfill property. Final closure of the

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landfill includes some grading and excavation associated with relocating some refuse from one location of the landfill to another location; however, no refuse would be transported off the site. No significant impacts are anticipated and no mitigation measures will be required.

- b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

Less than Significant Impact. Toxic air contaminants would have a "substantial" exposure risk if they were generated by site activities, and if there was a sensitive population in the project vicinity. Exposure risk is expressed as a theoretical worst-case outdoor exposure of 24 hours/day, 365 days/year, 70 years of exposure. This cradle-to-grave analysis procedure where a receptor is confined to the front porch for a lifetime, is not a realistic assumption.

Any temporary surface disturbance may create dust that contains non-inert components. The most potentially significant "natural" pollutants in fugitive dust are naturally occurring asbestos (NOA) and crystalline silica (CS). NOA is a known human carcinogen. CS is a hazardous air contaminant.

The possible presence of these materials depends upon the geomorphology of the underlying rock of a given site. NOA and/or CS are mainly associated with igneous and metamorphic rock formation. The project site is underlain by sedimentary marine sandstone and mudstone and sheared shales. This lithology contains little NOA, and generally low levels of CS. Dust generation from excavation and placement of final cover will have negligible potential for generation of any hazardous materials. Any public impact potential is further mitigated by the limited duration of the activity, and by the large distance buffer between on-site emissions and the nearest off-site receptors. These receptors are furthermore not along the prevailing NW-SE wind axis. NOA emissions and associated impact potential is negligible.

- c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

No Impact. The subject property is located in an area that is undeveloped. No schools exist within one-quarter mile of the South Coast Landfill. As a result, air emissions and other landfill-related emissions would not affect a school within the one-quarter mile radius criterion. No significant impact will occur and no mitigation measures are required.

- d. Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and, as a result, would it create a significant hazard to the public or the environment?**

Less than Significant Impact. As previously indicated, the SCL is a Class III landfill that was closed in 2000. The proposed FCPCMP will result in the construction of the final cover for the landfill as well as related environmental control systems that are intended to minimize the potential for creating a hazard to the public or environment. The environmental control systems include both a landfill gas control system and a landfill gas monitoring system. The landfill gas control system is a venting system that will be placed below the geomembrane barrier layer. This system is designed to prevent potential LFG build-up under the LLDPE geomembrane. The system will be comprised of passive LFG vents constructed of HDPE pipe which are placed within the limits of the geomembrane cover section in the foundation layer and welded to the geomembrane to provide a water and gas tight seal. The gas will be collected in bilateral, perforated pipes placed in shallow gravel trenches located at high points in the cover system, and vented by the HDPE riser pipes. In addition, a series of passive vertical collection wells will also be installed into the refuse prism at

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varying depths.

In addition, subsurface gas monitoring wells (probes) have been installed around the perimeter of the landfill within the property limits but outside the limits of refuse at a maximum spacing of 1,000 feet as required by Title 27. Two methane wells (probes) were installed at the site as part of the SWAT testing. The results of the SWAT investigation indicated negligible levels of organic contaminants in the LFG and no hazardous levels of LFG present at the landfill. In order to maintain compliance with 27 CCR, Section 20925, three additional multiple depth gas monitoring wells were placed around the perimeter of the SCL in June 2012. The three probes were drilled and constructed in accordance with the well construction permit issued by the County.

In addition, a leachate collection and removal system (LCRS) is currently operational on the closed SCL, which consists of a leachate infiltration gallery, polyethylene and polyvinyl pipe used to transport leachate that is collected primarily from small surface seeps and transports the leachate to the containment system. The leachate collection gallery was constructed to completely surround the end of the drainage trench at the edge of refuse. This feature intercepts the drainage trench, captures the leachate and transports the leachate to the leachate containment facility. The leachate collection gallery consists of two-inch rock which is enveloped in filter fabric and is located under the perimeter road, at the edge of refuse. The leachate drains into a vertical 36-inch CMP riser wrapped in filter fabric, located six feet from the edge of the perimeter road. The leachate is gravity fed into two 3-inch PVC drains which connects to a 2-inch PVC pipe and then to a 2-inch PEP pipe and into the leachate containment facility (tank farm). The leachate containment facility is outfitted with a suction coupling for the off-chance the leachate needs to be evacuated from the pipes. During the wet season, leachate is regularly transported by truck and disposed of at the Gualala Community Service District Wastewater Treatment Plant. In 2012, 87,000 gallons of leachate were collected and disposed of at an approved waste water treatment plant.

The leachate containment facility consists of nine 2,300 gallon plastic tanks, which has the capacity to store 20,700 gallons of leachate. The containment facility is surrounded by an earthen containment structure in the event that a tank(s) developed a leak. The tanks are periodically pumped by tanker truck and leachate is disposed of at the Gualala Community Service District Sewage Treatment Plant (GCSD) in Gualala, California. The County has entered into a contractual agreement with the GCSD for the disposal of the leachate. Pumping of the tanks during the wet season is more frequent. Leachate samples are collected annually in the fourth quarter of each year from the collection tanks located along the south side of the landfill. Results are also included in the quarterly water quality monitoring reports submitted to the RWQCB. This system will continue to operate on the closed landfill to collect and store leachate prior to disposal.

With the incorporation of the proposed environmental control systems and continued operation of the LCRS, no potential significant risk to public health and/or the environment is anticipated. No additional mitigation measures are required.

- e. ***For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?***

No Impact. Although several aviation facilities exist in Mendocino County, there are no public airports in the vicinity of the South Coast Landfill property. The aviation system in Mendocino County is composed of several airports, privately owned aircraft of various types, privately operated aircraft service facilities, and publicly and privately operated airport service facilities. Six public use airports are located in Mendocino County, including: (1) Ukiah Municipal Airport; (2) Willits Municipal Airport (Ells Field); (3) Round Valley Airport, near Covelo; (4) Little River Airport, near the community of Little River; (5) Boonville Airport; and (6) Ocean Ridge Airport, northeast of Gualala. The nearest public use airport is Ocean Ridge Airport, a

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privately-owned airport located approximately two miles south of the subject property. Twenty (20) single-engine aircraft are based at the Ocean Ridge Airport along with 1 multi-engine aircraft. The airport accommodates approximately 5,000 operations annually.⁹As previously indicated, no development is proposed on the SCL that would either pose a hazard to aviation or expose people to hazards associated with aviation activities at the Ocean Ridge Airport. With the exception of constructing the final cover and environmental control systems for the landfill, activities at SCL would be limited to inspections and routine post-closure maintenance and monitoring. As a result, no hazards to or from aviation will occur; no mitigation measures are required.

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. In addition to the public use airports identified above, there are three private use airfields in Mendocino County: Fort Bragg Airfield, Lofty Redwoods Airfield north of Anchor Bay, and Wilson's Field in Gualala. None of these airfields are located within close proximity to the South Coast Landfill. The nearest facility is Wilson's Field, which is located north of Gualala. No aviation activities occurring at this facility would either affect or be affected by the short-term construction activities proposed for the South Coast Landfill FCPCMP. Therefore, no significant impacts will occur and no mitigation measures are required.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The County of Mendocino adopted an Emergency Action Plan (EAP) in 2001 to address emergency response procedures for a wide variety of emergency situations, including hazardous materials emergencies and related events requiring response by emergency personnel and/or emergency evacuation of the population. The EAP is intended to ensure that each County facility has procedures in place to enable effective and efficient response to an emergency. As previously indicated, the proposed project would result only in the construction of the final cover and related environmental control systems at the SCL to ensure that the landfill is closed in accordance with all applicable requirements prescribed in Title 27 and that no potential public health hazard remains. Although the FCPCMP includes the excavation of some solid waste and redisposal at another location within the landfill, potential for public health risk and/or environmental degradation is not anticipated. However, Title 27 requires an operator to prepare an Emergency Response Plan (ERP) as part of a FCPCMP. Section 5.0 of the 2013 FCPCMP for the SCL includes an ERP that addresses ERP procedures related to catastrophic events.

Prior to waste removal and reconsolidation activities, the existing cover materials (estimated to vary in thickness from one foot to as much as several feet) will be scrapped off and stockpiled near the area designated for refuse reconsolidation and used for cover soil. Following removal of the existing cover, to a point where approximately six inches remain, refuse and inter-mixed soil will be excavated using conventional excavation equipment. Upon removal, the refuse will be placed into end-dump trucks, or equivalent equipment, and transported to the reconsolidation area on the existing top deck of the. Removed materials (i.e., refuse and inter-mixed soil) will not be stockpiled upon removal and will be covered promptly throughout the day depending on the nature of the removed waste (e.g., highly odorous). Health and safety procedures will be followed during waste removal and reconsolidation activities. A site-specific Health & Safety Plan (HSP), which establishes policies and procedures to be followed during excavation and reconsolidation work, will be provided by the selected contractor. Procedures outlined in the HSP will be enacted to protect site personnel as well as the public from potential hazards posed as part of the waste excavation and reconsolidation work.

⁹Ocean Ridge Airport; www.pilotoutlook.com/airport/california/e55.

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As discussed above, the FCPCMP includes an ERP, which was prepared in accordance with 27 CCR, Section 21130. The ERP identifies occurrences that may exceed the design of the site and endanger public health or the environment. The ERP also sets forth actions which will minimize the effects of these catastrophic events. The provisions of this ERP will be carried out immediately whenever an event occurs such as a fire, explosion, flood, earthquake, vandalism, surface drainage problems or release of any waste product which may threaten public health and/or the environment. 27 CCR, Section 21130 also requires provisions for collapse or failure of artificial or natural dikes, levees or dams. Provisions for this have not been included since such facilities are not located downstream or adjacent to the SCL. The ERP will be kept in the operating record at the main office of the County. The ERP includes specific procedures for reporting and responding to emergency situations at the SCL. Implementation of the ERP will ensure that appropriate actions will be taken in accordance with the ERP to respond to any emergency situation that may occur at the SCL. Therefore, no significant impacts are anticipated and no mitigation measures are required.

- h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?***

Potentially Significant with Mitigation Incorporated. Although the proposed project is located within a “high fire hazard area” as designated by the County of Mendocino, project implementation does not propose any development that would subject either structures or occupants of the site to the potential for loss, injury or death resulting from the potential for wildland fires. Final closure of the SCL will include the construction of the final cover and associated environmental control systems; however, no long-term occupancy of the site by workers or others will occur that would contribute to the potential for wildland fires. It is possible, however, that some risk of fire would exist during the construction phase of the proposed project, when heavy trucks and construction equipment necessary to implement the FCPCMP are being used. Such potential fire hazard may occur as a result of heavy trucks hauling materials and equipment to the site, which could “spark” a fire along the sides of the roadways if hot mufflers and undercarriage components come in contact with dry grass and other overgrown vegetation along the side of the roadways. In addition, it is also possible that construction worker vehicles or other heavy equipment parked in grassy areas on the site could also cause a fire. As a result, it will be necessary to incorporate measures to reduce the potential for fires on the site and adjacent roadways. However, as prescribed in Section 4.14 (Public Facilities and Services), mitigation measures must be implemented, including restricting construction vehicles and heavy equipment to designated areas that are free of grass and vegetation, having a water truck present for on-site fire control, and smoking in designated areas only (refer to MMs 4.14-1 through 4.14-3). Implementation of these measures will reduce the potential fire hazard to a less than significant level.

Cumulative Impacts

As indicated above, final closure of the South Coast Landfill will comply with all regulatory requirements in order to eliminate and/or minimize potential hazards associated with the landfill (e.g., air emissions, water quality, etc.). In addition, potential health and safety impacts would also be avoided through the implementation of the environmental control systems proposed to close the SCL. Finally, potential short-term cumulative impacts associated with fire protection would be minimized through the implementation of the mitigation prescribed for the project. No significant long-term cumulative impacts are anticipated upon completion of the final cover and associated environmental control systems because exposure to potentially hazardous conditions will be reduced to a less than significant level.

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Mitigation Measures

No significant impacts are anticipated as a result of existing on- or off-site hazards with the inclusion of the proposed LFG control and monitoring system and the continued operation of the LCRS; therefore, no mitigation measures are required.

4.9 Hydrology and Water Quality

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?			<input checked="" type="checkbox"/>	
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			<input checked="" type="checkbox"/>	
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?		<input checked="" type="checkbox"/>		
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?			<input checked="" type="checkbox"/>	
e. Create or contribute runoff which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?			<input checked="" type="checkbox"/>	
f. Otherwise substantially degrade water quality?			<input checked="" type="checkbox"/>	
g. Place housing within a 100-year flood hazard as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				<input checked="" type="checkbox"/>
h. Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?				<input checked="" type="checkbox"/>
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				<input checked="" type="checkbox"/>
j. Inundation by seiche, tsunami, or mudflow?				<input checked="" type="checkbox"/>
k. Potentially impact stormwater runoff from construction activities?			<input checked="" type="checkbox"/>	
l. Potentially impact stormwater runoff from post construction activities?			<input checked="" type="checkbox"/>	
m. Result in a potential for discharge of stormwater				<input checked="" type="checkbox"/>

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<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks or other outdoor work areas?				
n. Result in the potential for discharge or stormwater to affect the beneficial uses of the receiving waters?			<input checked="" type="checkbox"/>	
o. Create the potential for significant change in the flow velocity or volume of stormwater runoff to cause environmental harm?			<input checked="" type="checkbox"/>	
p. Creates insignificant increases in erosion of the project site or surrounding areas?			<input checked="" type="checkbox"/>	

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if one or more of the following conditions occur as a result of implementation of the proposed project:

- Substantial and adverse increased inundation, sedimentation and/or damage from water forces to the subject project and/or other properties are caused by improvements such as grading, construction of barriers or structures.
- Development within the 100-year flood plain as delineated by FEMA that would expose people and/or property to potential serious injury and/or damage.
- Impervious surfaces increase and/or divert storm water runoff that results in the inability of the existing collection and conveyance facilities to accommodate the increased flows.
- Project implementation will cause a violation of water quality objectives for surface and groundwater as established by the San Gabriel River Basin Water Quality Control Plan and impede the existing beneficial uses of on-site surface waters or off-site coastal waters as defined in the Water Quality Control Plan.
- A usable groundwater aquifer for municipal, private, or agricultural purposes is substantially and adversely affected by depletion or recharge.
- Storm water and/or induced runoff mixes with a tidal habitat or pond causing instability to the existing water quality (e.g., reduction of salinity below 16 ppm) which, in turn, substantially and adversely affects the sensitive brackish/saltwater marsh habitat by allowing for the introduction and establishment of invasive fresh water species.
- Sediments are increased and/or diverted by proposed improvements and cause sediment deposition in defined sensitive habitat areas (e.g., wetlands, jurisdictional waters) that adversely affect or significantly affect significant habitat and/or sensitive species as recognized by the applicable resource agencies.

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Analysis:

a. *Violate any water quality standards or waste discharge requirements?*

Less than Significant Impact. Total Maximum Daily Load (TMDL) for the Gualala River were developed by the U.S. Environmental Protection Agency based on the information contained in the Gualala Technical Support Document (TSD) prepared by the North Coast Regional Water Quality Control Board.¹⁰ The Gualala River is on the 303(d) list as sediment impaired and a total maximum daily load (TMDL) has been developed for sediment reduction in the river.¹¹ The Gualala River and its tributaries support populations of coho salmon and steelhead trout (only steelhead present within MRC lands), two fisheries of concern in northern California. The Gualala TSD listed eight sediment sources: road mass wasting, bank erosion, natural mass wasting, surficial road erosion, road gullies, road-stream crossing failures, skid trails, and features associated with other timber harvest activities. Project implementation will result in grading and landform alteration necessary to construct the final cover and environmental control systems for the SCL. If not properly addressed, erosion may occur, which may impact water quality in the Gualala River. However, the landfill closure design has three primary erosion control features that will reduce the potential for soil erosion due to water and wind. These features include landfill grading, vegetation, and a slope bench system. The decks will be graded for sheet flow run-off with a minimum slope of approximately three percent. Any large erosion gullies formed during storm events on the deck and slopes will be filled and the area track walked by a crawler tractor to replace and recompact the soil as part of post-closure maintenance activities. In addition, a minimum 10-foot wide bench is located around the perimeter of the landfill. The landfill surface will be vegetated with native grasses. The vegetation will protect the upper soil layer and minimize erosion through the vegetation root masses. The vegetation will consist of primarily native grasses with some shallow root shrubs.

A groundwater monitoring system at the SCL was implemented in 1987. Five monitoring wells were installed in 1987. One additional well installed in 1991 to further delineate the down gradient hydrological conditions at the site. In 1994, monitoring well 87-4 was destroyed and four new monitoring wells were installed in 1994. Monitoring well 94-1 was installed within the reamed borehole of 87-4. The depths of the monitoring wells vary from 15.4 feet to 50 feet.

The groundwater monitoring wells are sampled in accordance with Waste Discharge Requirements (WDR) Order No. 77-23, as amended by Order No. 93-83, which complies with 27 CCR, Subchapter 3, Article 1 requirements. Quarterly water quality monitoring reports are submitted to the RWQCB.

Surface water runoff at the site is sampled seasonally at two locations, SW-1 and SW-2. SW-1 is located along the south side of the landfill where runoff discharges to a stormwater basin and SW-2 is located near the northwest corner of the landfill where runoff discharges to another detention basin. Both basins discharge to natural drainage courses, which eventually flow into the Little North Fork of the Gualala River.

¹⁰Northcoast Watershed Assessment Program; Chapter 3 (Gualala Watershed Profile); March 2003.

¹¹Report of Advisors; Mendocino Redwood Company Natural Community Conservation Plan/Habitat Conservation Plan; August 2003.

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- b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?**

Less than Significant Impact. Final closure and post closure activities will not result in any potential impacts to existing groundwater supplies or groundwater recharge. The construction of a final cover cap is intended to ensure that surface water does not penetrate the final cover and enter the refuse below the cover. Surface water will be directed away from the landfill into existing drainage courses and will not, therefore, adversely affect either groundwater supplies or recharge. With the exception of minor demands for water supplies during the construction phase, project implementation will not result in any long-term, unanticipated demands for potable water that would impact the County's public water supply. Once construction of the final cover is completed, the post closure maintenance activities will not require any significant amount of water. No significant impacts are anticipated and no mitigation measures are required.

- c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?**

Less than Significant with Mitigation Incorporated. Implementation of the FCPCMP will result in landform alteration that would lead to potential erosion and siltation if not properly addressed in the design of the project. However, in order to ensure that erosion and siltation is minimized, three primary erosion control features will be implemented in order to reduce the potential for soil erosion due to water and wind. These features include landfill grading, vegetation, and a slope bench system as described below.

The decks will be graded for sheet flow run-off with a minimum slope of approximately three percent. Any large erosion gullies formed during storm events on the deck and slopes will be filled and the area track walked by a crawler tractor to replace and recompact the soil as part of post-closure maintenance activities. A minimum 10-foot wide bench is located around the perimeter of the landfill. The landfill surface will be vegetated with native grasses. The vegetation will protect the upper soil layer and minimize erosion through the vegetation root masses. The vegetation will consist of primarily native grasses with some shallow root shrubs. Hydroseed (i.e., slurry) components are required to provide an effective germination environment as well as a protective environment for the seed. Wood and/or paper mulches used for slope hydroseeding will provide a short-term growing zone for the new seedlings. In addition to the mulch, a tackifier (i.e., binder) will be used to help bind or hold the mulch and seed to the slope. An environmentally safe organic tackifier, which will not harm the short-term and long-term growth of grass is recommended. The seed mix will be applied at an approximate rate of 100 lbs. per acre consisting of the following: 60 pounds per acre of Blando Brome, 20 pounds per acre of Zorro Annual Fescue, 10 pounds per acre of "RK" Rose Clover and 10 pounds per acre of "RK" Crimson Clover. To provide a short-term high quality soil environment, fertilizer shall be blended in the hydroseed mix to provide the following coverage: 300 pounds per acre Ureaform (38-0-0) and 215 pounds per acre of Potassium Sulfate (0-0-50).

The erosion control plan is shown on Exhibit 2-6 (refer to the Project Description). Silt and debris will be removed on an as needed basis from the desilting basin and the silt fencing to maintain capacity of the basin. Silt material may be stockpiled on-site and used for future erosion and vegetative layer repairs. The desilting basin drainage structures will also be maintained in accordance with the procedures outlined in Chapter 4.0 of the FCPCMP. In addition, a mitigation measure requiring the preparation of an erosion control plan prior to the initiation of construction activities will be required. Together with the erosion control features identified above, potential erosion and siltation impacts will be reduced to a less than significant level.

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- d. ***Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?***

Less than Significant Impact. Existing drainage ditches have been in place for several years and have been sized through trial and error, to accommodate maximum flows. A perimeter ditch exists along the toe of the landfill and directs runoff into two desilting basins. Although no formal calculations have been prepared to identify sediment quantities, history indicates that the stormwater basins are adequate. Runoff is controlled using culverts and open ditches at the basin outlets. Siltation fences are in place upstream from the desilting basins to limit the quantity of sediment allowed to enter the basins, consequently, minimizing the quantity of sediment being discharged into and from the basins. Additional erosion control methods include, but not limited to, hay bales, silt fences, straw and seeding.

Implementation of the FCPCMP will not significantly alter the existing drainage pattern of the site and would also not result in any alterations to the Little North Fork of the Gualala River. A hydrology study was prepared for the proposed project that analyzed the potential post-construction runoff that would occur following implementation of the FCPCMP. According to that study, the 6-acre landfill is divided into four drainage areas, including the north slope, east area, south slope and west slope. Although drainage facilities currently exist on the closed landfill site, the existing drainage facilities will be either decommissioned or removed and relocated. The FCPCMP has been designed to accommodate surface runoff associated with a 100-year, 24-hour storm event. As previously described (refer to Chapter 2.0 – Project Description), each of the four encompassing the SCL have been designated with drainage features that accommodate and direct stormwater from the landfill. The proposed final drainage system is shown on the Final Grading Plan (refer to Exhibit 2-5). The potential post-construction runoff conditions for each of the drainage areas are discussed below.

South Slope

The south slope drainage area originates on the top deck. The runoff is concentrated by final grading and the top deck berm to a McCarthy inlet and then conveyed down the slope via a 12-inch metal flume to a concrete drainage channel on the inside of the perimeter access road. The drainage channel will collect runoff from the slope above and below the aforementioned confluence point and will then convey the runoff southerly along the inside of the perimeter road to a concrete downdrain. The runoff will then be directed to an energy dissipater made of riprap discharging into the existing basin. The total south area is 1.97 acres, with a peak run-off of 6.72 cubic feet per second (cfs) developed from nodes 1.30 through 1.34.

East Slope

The east slope drainage area originates on the top deck, however the contributing top deck sub-area for the east slope is divided into two sub-areas and are both directed by final grading and the top deck berm to two McCarthy inlets. The runoff is then directed down the slope via two 12-inch metal flume downdrains to a concrete drainage channel on the inside of the perimeter access road. The drainage channel will collect runoff from the slope above and below the aforementioned confluence point and will then convey the runoff southerly along the inside of the perimeter road to a concrete downdrain. The runoff will then be directed to an energy dissipater made of riprap and into the existing basin. The total east area is 2.65 acres, with a peak run-off of 9.05 cfs developed from nodes 1.40 through 1.45.

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North Slope

A portion of the north slope drainage area originates on the northerly portion of the top deck. The runoff is concentrated by final grading and the top deck berm to the top deck access road. The runoff will then be directed to the inside of the access road, down the road and to a concrete bench crossing. The flow will then be directed across the bench crossing to a concrete downdrain at the corner of the expanded north desilting basin. The runoff velocity is dissipated by a riprap pad at the bottom of basin. The total north area is 0.53 acres, with a peak run-off of 1.96 cfs originating from nodes 1.00 through 1.02.

West Slope

A portion of the west drainage area originates near the top deck at the northwesterly end of the landfill. The runoff then is directed by final grading to the bottom of the slope to a drainage channel on the inside of the perimeter access road. The runoff will then confluence with the runoff from the northerly slope at a wing wall inlet. The wing wall inlet will be connected to an existing 18 inch plastic corrugated pipe and will direct the flow to the north desilting basin. The total west area is 1.40 acres, with a peak run-off of 5.26 cfs originating from nodes 1.10 through 1.12 and 1.20 through 1.21.

The proposed final drainage control structures for the proposed FCPCMP have been designed to convey the runoff from the 100-year storm. These features are discussed below.

- Three rectangular steel downdrains will be employed to convey the runoff from the top deck to the perimeter channel. Runoff velocities entering these facilities are 1.78 cfs in Node 1.31, 1.46 cfs in Node 1.41, and 2.21 cfs in Node 1.51.
- A wing wall inlet structure will collect the runoff flow at Node 1.12 and direct the flow into an 18-inch corrugated plastic pipe that will connect to an existing pipe of similar type and size.
- The perimeter drainage channels and downdrains will be v-ditch in shape and have a side slope ratio of 1:1 (horizontal to vertical) and a depth of one foot. The largest flow that will be carried in this facility is 6.5 cfs, which is approximately 76 percent of the maximum runoff.
- The northwesterly perimeter access road will convey flows from Nodes 1.10 to 1.12. This road will be constructed with a crushed miscellaneous base cover at a minimum width of 10 feet from the flow line to the outside hinge and a depth of one foot at the inside flow line. The maximum flow will be 3.57 cfs, which will allow for ample freeboard (i.e., 0.79 feet).

All drainage structures have been sized to accommodate run-off from a 100-year, 24-hour storm event. As a result, no significant impacts are anticipated and no mitigation measures are required.

e. Create or contribute runoff which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant Impact. Refer to and Section 4.9d (adequacy of the planned storm drain system), which indicates that the proposed storm drain system has been designed to accommodate runoff generated as a result of a 100-year storm. Refer to Section 4.9a and Section 4.9c, which discuss the nature and extent of

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potential water quality impacts and the measures incorporated into the project design to minimize those impacts. Potential water quality impacts would be reduced to a less than significant level. No additional mitigation measures are required.

f. *Otherwise substantially degrade water quality?*

Less than Significant Impact. Refer to Section 4.9a. As indicated above, the proposed project has been designed with not only water quality features (e.g., grading, vegetation, and a slope bench system) that will effectively minimize potential siltation, the primary pollutant anticipated to occur as a result of the proposed project. Potentially significant impacts would be reduced to a less than significant level with the implementation of the water quality features and erosion control plan required by MM 4.9-1.

g. *Place housing within a 100-year flood hazard as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

No Impact. The SCL is not located within the limits of a FEMA-designated 100-year floodplain. Furthermore, no residential development is proposed that would be subjected to inundation resulting from flooding. No impacts will occur.

h. *Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?*

No Impact. As previously indicated, the subject property is not located within the limits of a 100-year floodplain and is not subject to inundation resulting from flooding. Furthermore, no structures are proposed on the project site or in a 100-year flood hazard area that would impede or redirect flood flows. No impacts will occur as a result of project implementation.

i. *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*

No Impact. The FCPCMP proposed for the SCL by the County of Mendocino includes only the construction of the final cover for the landfill and associated environmental control systems; neither structures nor people will be exposed to loss, injury or death resulting from flooding, including that caused by the failure of either a dam or levee. No impacts will occur as a result of project implementation.

j. *Inundation by seiche, tsunami, or mudflow?*

No Impact. A seiche involves the oscillation of a body of water in an enclosed basin, such as a reservoir, storage tank, or lake. No enclosed bodies of water are located in the immediate vicinity of the SLC property; therefore, no impacts from seiches are anticipated as a result of project implementation. A tsunami, commonly referred to as a tidal wave, is a sea wave generated by submarine earthquakes, major landslides, or volcanic action. The SCL is located well inland, away from the Mendocino County coastline. Due to the elevation and the distance from the coastline, tsunami hazards do not exist for the project site and vicinity. Furthermore, all slopes (either natural or manmade) have been designed to eliminate or minimize the potential of secondary seismic effects that could be undermined by seismic activity or other instability. Implementation of the proposed FCPCMP will not expose either people or structures to seiches, tsunamis or mudflows. Therefore, no impacts will occur as a result of project implementation.

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k. Potentially impact stormwater runoff from construction activities?

Less than Significant Impact. Site preparation activities will result in some grading, including excavation associated with site preparation that would expose native soils to the effects of wind and water; however, the Stormwater Pollution Prevention Plan that will be prepared for the project will ensure that measures are integrated into the construction activities to minimize the erosion potential and the effect on groundwater and surface water quality. With the implementation of the BMPs prescribed through the SWPPP prepared for the proposed project, potentially significant impacts will be avoided and; no mitigation measures are required.

l. Potentially impact stormwater runoff from post construction activities?

Less than Significant Impact. Post construction activities include only monitoring and maintenance of the SCL to ensure that the environmental control systems are properly operating. Although some increase in surface runoff would occur as a result of the final closure plan (e.g., environmental control systems, drainage plan modification, etc.), impervious surfaces would not be increased. No activities are proposed for the SCL that would result in stormwater runoff impacts associated with post-closure activities. No mitigation measures are required.

m. Result in a potential for discharge of stormwater pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks or other outdoor work areas?

Less than Significant Impact. As indicated in Section 4.9k, a SWPPP will be prepared that will include appropriate BMPs to ensure that surface water discharges have been adequately treated to meet NPDES discharge requirements for the basins. Specifically, the BMPs will include treatment requirements intended to reduce potential pollutants resulting from vehicle and equipment storage, equipment fueling and/or equipment maintenance and related activities that could affect surface water quality during the construction phase of the proposed FCPCMP. Implementation of the BMPs will minimize potential impacts to downstream water quality resulting from project-related stormwater discharges. No additional mitigation measures are required.

n. Result in the potential for discharge or stormwater to affect the beneficial uses of the receiving waters?

Less than Significant Impact. As indicated in Section 4.9a, the Gualala River and its tributaries support populations of coho salmon and steelhead trout (only steelhead present within MRC lands), two fisheries of concern in northern California. The Gualala TSD listed eight sediment sources: road mass wasting, bank erosion, natural mass wasting, surficial road erosion, road gullies, road-stream crossing failures, skid trails, and features associated with other timber harvest activities. Although project implementation would result in potential erosion and subsequent siltation downstream, the project has been designed to address the potential for such siltation and adverse effect on the Little North Fork of the Gualala River. Measures have been incorporated into the design of the project to minimize erosion. In addition, preparation of the mandatory SWPPP (refer to Section 4.9k) will require that construction BMPs also be implemented to ensure that potential pollutant loads are eliminated or reduced to an acceptable level. Therefore, potential impacts will be less than significant; no mitigation measures are required.

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- o. Create the potential for significant change in the flow velocity or volume of stormwater runoff to cause environmental harm?***

Less than Significant Impact. Refer to Section 4.9d. The FCPCMP has been designed to accommodate post-construction surface flows generated by a 100-year storm. The runoff will be directed to drainage and conveyance facilities that have adequate capacity prior to their discharge. No significant impacts are anticipated and no mitigation measures are required.

- p. Creates insignificant increases in erosion of the project site or surrounding areas?***

Less than Significant Impact. Refer to Section 4.9c. As indicated in that section, project implementation will result in potential on-site erosion if not properly addressed. However, the project design includes several measures to minimize both on- and off-site erosion. With the implementation of the erosion control features and erosion control plan, potential erosion impacts will be reduced to a less than significant level.

Cumulative Impacts

As indicated in the preceding analysis, the project has been designed to comply with Title 27 for landfill closures and includes an array of drainage, erosion, and water quality features to ensure that the project will not result in significant impacts within the watershed. These features will avoid or minimize not only project-related impacts but also would avoid contributing to the cumulative degradation of the drainage and water quality regime in the region. Implementation of the proposed FCPCMP will not, therefore, result in potentially significant cumulative impacts.

Mitigation Measures

- MM4.9-1 An erosion control plan shall be submitted prior to commencement of construction. The plan shall include the following measures:
- a. Grading shall be prohibited after October 15 of any year.
 - b. Erosion control structures such as sedimentation ponds, energy dissipaters, and silt fences shall be installed.
 - c. A revegetation plan that makes use of available native species shall be implemented.
- MM 4.9-2 The three existing drainages to the Little North Fork Gualala River shall be monitored to determine the need for repair. The repairs will focus on stabilization of eroded slopes, use of energy dissipaters, and revegetation as necessary to prevent continued downcutting and erosion from these gullies. The drainage culverts located within the gullies should be closely monitored and maintained after repair to ensure that further erosion does not occur. In addition, the drainage of surface water from the transfer station and landfill should be redesigned to reduce or eliminate the erosion of the gullies.

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4.10 Land Use and Planning

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?				<input checked="" type="checkbox"/>
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				<input checked="" type="checkbox"/>
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?				<input checked="" type="checkbox"/>

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if any of the following occur:

- Physically divide an established community.
- Conflict with the County of Mendocino County General Plan or zoning ordinance.
- Conflict with the Habitat Conservation Plan for Mendocino County.
- Be incompatible with adjacent land uses.

Analysis:

a. *Physically divide an established community?*

No Impact.

The project proposes the final closure plan (i.e., final cover and implementation of environmental control systems) for the SCL, which has been closed since 2000. The project site is located in an area of the County that is surrounded entirely by open space, including forest areas; no residential development or other urban uses are located in the vicinity of the project site that would be affected by the closure activities and systems proposed by the County of Mendocino. Furthermore, the proposed project does not include any elements or features (e.g., roadways, pipelines, etc.) that would physically divide an existing community. The end use of the landfill is open space, which is consistent and compatible with the open space and forestry uses in the project environs. Therefore, no significant conflicts with existing land uses will occur; no mitigation measures are required.

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- b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

No Impact. Project implementation is consistent with relevant development goals and policies adopted by the County of Mendocino related to solid waste as discussed below.

Goals

Goal DE-1: Land use patterns that maintain the rural character of Mendocino County, preserve its natural resources, and recognize the constraints of the land and the limited availability of infrastructure and public services.

Implementation of the FCPCMP does not include any features that extend beyond the limits of the landfill property. No structures are proposed that would either affect the rural character of the area or directly affect existing resources following the construction of the final cover and environmental control systems. Where potential short-term adverse effects are identified, adequate mitigation measures have been prescribed and will be implemented to ensure that the adverse effects are minimized and reduced to an acceptable level.

Goal DE-18: To protect life and property while also protecting and manage natural drainageways, floodplains, and flood retention basins.

The primary function of the SCL drainage control system is to collect and convey storm water in a controlled manner to minimize erosion and potential infiltration of storm water into the refuse prism. The following sections describe the site hydrology, the existing drainage control features and the proposed drainage control system features. A hydrology study for the proposed conditions at the site was conducted in accordance with 27 CCR, Section 20365. The drainage system proposed for the SCL will adequately collect, treat, and convey surface runoff to protect the property from damage associated with flooding, including erosion.

Goal DE-20: To reduce risks to human and environmental health pose by solid, hazardous, and toxic materials and wastes.

The components and systems required for closure of the SCL include the final cover and grading design to control stormwater, potential infiltration and accommodate future settlement, landfill slope stability, construction quality assurance, drainage and erosion control systems, LFG control and monitoring systems, groundwater/surface water monitoring systems, and site security. Each of these environmental control systems are intended to comply with all applicable regulatory requirements for closure, including public health and safety. In addition, the FCPCMP will also allow the CalRecycle, the RWQCB, and the LEA to monitor closure and post-closure activities to determine that all landfill closure and post-closure maintenance and monitoring requirements are being followed in accordance with the approved plan.

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Goal DE-21: To reduce solid waste sent to landfills by reducing waste, reusing materials, and recycling waste.

The proposed project provides for the final closure of the SCL. Project implementation does not include the South Coast Transfer Station, also located within the limits of the 47.65-acre property. Solid waste will continue to be processed through the transfer station without any change to that operation or local solid waste services.

Goal DE-24: To reduce, to the extent possible, the risk and exposure of life, property, and the environment to hazardous conditions and events such as earthquakes, landslides, wildfires, floods, inundation, energy emergencies, and toxic releases.

The FCPCMP has been designed in accordance with all applicant regulatory requirements to reduce or eliminate potential hazards from seismic activity are minimized, including ground shaking, slope failure, subsidence, and other seismic-related effects. Detailed soils and geologic studies have been conducted and the site has been designed to comply with Title 27 requirements.

Policies

Policy DE-201: The County will maintain a comprehensive integrated waste management plan consistent with General Plan, environmental, and public health objectives. The County's waste management plan shall include programs to increase recycling and reuse of materials to reduce landfilled waste.

Project implementation will neither affect nor be affected by this County policy. Final closure of the SCL will comply with the local, regional, state and federal requirements for landfill closure.

The remaining policies related to solid waste management are intended to reduce refuse. These policies do not apply to the proposed project. The proposed South Coast Landfill FCPCMP is consistent with the applicable policies and programs adopted by the County of Mendocino. No significant land use will occur and no mitigation measures are required.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. As previously indicated in Section 4.4f, the project is located in an area of Mendocino County that is included in the Mendocino Redwood Company NCCP/HCP, which was adopted in 2003. Although some potential short-term (i.e., construction) impacts were identified that could adversely affect sensitive species in the area, project implementation would not result in either direct or indirect impacts to the forest resources protected by the NCCP/HCP. As a result, final closure of the SCL will not conflict with that NCCP/HCP. No significant impacts are anticipated and no mitigation measures beyond those identified in Section 4.4 (Biological Resources) are required.

Cumulative Impacts

As indicated in the preceding analysis, the proposed project will not conflict with any adopted policies and/or programs of the County. No development is proposed that would divide an established community and the project does not conflict with an adopted NCCP/HCP. As a result, project implementation would not contribute to potentially significant cumulative land use impacts.

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Mitigation Measures

No significant land use impacts are anticipated and no mitigation measures are required.

4.11 Mineral Resources

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				<input checked="" type="checkbox"/>

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if any of the following occur:

- Project implementation will result in the loss of availability of a mineral resource identified on the County’s General Plan and/or State of California documents that has economic values both locally and regionally.

Analysis:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. A variety of minerals resources are known to exist in the county. The most predominant minerals found in Mendocino County are aggregate resources, primarily sand and gravel. Three sources of aggregate materials are present in Mendocino County: quarries, in-stream gravel, and terrace gravel deposits. The site has been excavated and was used as a Class III landfill for approximately 30 years. The County no longer utilizes the SCL site, which was closed in 2000 and the site does not contain any important deposits of aggregate/sand and gravel. Furthermore, neither the Mendocino County General Plan nor the State of California has identified the project area as a potential mineral resource of State-wide or regional significance. No mineral resources are known to exist and, therefore, project implementation will not result in the loss of availability of a known mineral resource that would be important to the state, region or local area. As a result, no significant impacts will occur as a result of project implementation and no mitigation measures are required.

b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. As indicated above, the Mendocino County General Plan does not identify the project environs as having potential value as a locally important mineral resource site. Project implementation (i.e., final closure

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of the SCL) as proposed will not result in the loss of any locally important mineral resource site and, therefore, no impacts will occur.

Cumulative Impacts

The proposed project would not result in the loss of any known important mineral resources. Therefore, project implementation will not result in or contribute to potentially significant cumulative impacts.

Mitigation Measures

No impacts to mineral resources will occur as a result of project implementation and no mitigation measures are required.

4.12 Noise

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			<input checked="" type="checkbox"/>	
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			<input checked="" type="checkbox"/>	
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			<input checked="" type="checkbox"/>	
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			<input checked="" type="checkbox"/>	
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			<input checked="" type="checkbox"/>	
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				<input checked="" type="checkbox"/>

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if any of the following occur:

- An increase of three dB which creates an area of noise/land use incompatibility; and/or
- The proposed project generates noise that would contribute to noise levels that exceed the State noise/land use compatibility guidelines which allow for exterior noise levels up to 70 dB CNEL; and/or

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- The proposed development is exposed to noise levels that exceed the State noise/land use compatibility guidelines, which allow for exterior levels up to 70 dB CNEL; and/or
- The proposed development generates noise that exceeds the thresholds prescribed in the Appendix C of the Mendocino County Municipal Code (Title 20); and/or
- Exposure of persons to or generation of excessive groundborne vibrations or groundborne noise levels.

Analysis:

a. *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Less than Significant Impact. The Noise Element of the Mendocino County General Plan has identified noise levels for various land uses that are considered compatible with planned uses. These levels are designed to achieve acceptable interior noise levels with standard building practice while maintaining an outdoor acoustic environment that can be considered reasonably pleasant.

General Plan Table 3-K (August, 2009) shows the following exterior noise standards:

Residential	60 dB Ldn*
Commercial	75 dB Ldn*
Industrial	80 dB Ldn*

*day-night level very similar to CNEL

These standards apply to land use exposure from noise sources pre-empted from local control (transportation). Noise sources that are amenable to local regulation are generally considered “stationary sources.” Mechanical equipment, amplified music or voice, loud parties, barking dogs, etc. are most typically regulated by ordinance. In Mendocino County, these standards are articulated in Title 20 of the County Code (Zoning Ordinance, Appendix B). Based on the County’s noise regulations, the stationary noise standards at the property line of industrial uses are established at 70 and 75 dBA. These levels are not to be exceeded for more than 30 minutes in any hour with some allowance for upward excursions for brief amount of times.

Noise generation from the proposed project would result from on-road trucking and from temporary heavy equipment operations to install final improvements and place a fill cap on the existing refuse. The on-road noise generation is pre-empted from local control except for enforcement of the vehicle code for equipment such as mufflers. Noise from the operation of off-road equipment is theoretically controllable by ordinance. However, most jurisdictions in California exempt temporary construction equipment operations noise from numerical standards compliance as long as a number of specified conditions are met. Staff reports by the Department of Planning and Building Services for various projects have recommended findings of less-than-significant noise impacts from project construction after compliance with a comprehensive list of noise control measures.

b. *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Less than Significant Impact. Construction activities generate groundborne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of groundborne vibration

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include discernible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Construction activity vibration impacts normally are confined to within a few feet of the activity unless massive equipment (pile drivers, runnel boring machines, etc.) is used. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

Vibration is most commonly expressed in terms of the root mean square (RMS) velocity of a vibrating object. RMS velocities are expressed in units of vibration decibels. The range of vibration decibels (VdB) is as follows:

- 65 VdB - threshold of human perception
- 72 VdB - annoyance due to frequent events
- 80 VdB - annoyance due to infrequent events
- 100 VdB - minor cosmetic damage

Although the perceptibility threshold is about 65 VdB, human response to vibration is not usually significant unless the vibration exceeds 70 VdB. To determine potential impacts of the project’s construction activities, estimates of vibration levels induced by the construction equipment at various distances are presented in Table 4.12-1.

Table 4.12-1

**Potential Vibration Levels
South Coast Landfill FCPCMP**

Equipment	Approximately Vibration Levels (Vdb) ¹				
	25 Feet	50 Feet	100 Feet	1000 Feet	3,000 Feet
Large Bulldozer	87	81	75	55	45
Loaded Truck	86	80	74	54	44
Jackhammer	79	73	67	47	37
Small Bulldozer	58	52	46	26	16

SOURCE: Giroux & Associates (May 2013)
FTA Transit Noise & Vibration Assessment, Chapter 12, Construction, 1995

Because the project is located in an area characterized by open space and forest/timber production, there are no sensitive land uses within 1,000 feet of the SCL. Furthermore, no significant human population resides near the SCL. At that distance the potential vibration levels caused by the equipment mix utilized on-site would be less than the 65 VdB threshold of perceptibility. As a result, potential vibration effects associated with the use of construction equipment on the site would not result in any potentially significant groundborne vibration impacts either to structures or people. Therefore, no significant impacts will occur and no mitigation measures are required.

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. Almost without exception, the noise generated by the proposed project would result during the approximately 6-month construction period required to construct the final cover and related environmental control systems for the SCL. With the exception of on-going monitoring and

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maintenance of the closed landfill and environmental control systems, no other long-term noise would be generated by the landfill closure. The pre-existing ambient noise levels would return to the area. Any future noise levels associated with maintenance that may be required in the future would be neither excessive nor long-term. Therefore, no significant impacts would occur and no mitigation measures are required.

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant with Mitigation Incorporated. Varying types and sizes of construction equipment will be utilized during construction of the proposed improvements, but similarities in the dominant noise sources and in patterns of operations allow the assignment of all equipment to a limited number of categories. The range of measured noise for a variety of equipment that would be used during the implementation of the FCPCMP range from approximately 70 dBA to over 90 dBA as discussed below for the various kinds of equipment.

Highly Mobile Equipment

Grading equipment could include graders, excavators, backhoes, tractors, and front loaders. Internal combustion engines are used for propulsion and for powering working mechanisms (buckets, arms, trenchers, etc.). Engine power may vary from about 50 hp to over 600 hp. Engine noise typically predominates with exhaust noise usually being of secondary importance and inlet noise and structural noise being of final importance. Other sources of noise in this equipment include the mechanical and hydraulic transmission and actuation systems, and cooling fans. Typical operating cycles may involve 1 or 2 minutes of full-power operation, followed by 3 or 4 minutes at lower power. Noise levels at 50 feet from earth-moving equipment range from about 73 to 96 dB. This alternating cycle of full power/low power produces an hourly average of around 80 dB Leq at 50 feet from operation of several pieces of large equipment.

Partially Mobile Equipment

Point sources of noise decay at a rate of 6 dB per doubling of distance. Under direct line of sight, distance spreading losses would reduce an 80 dB Leq source as reflected in Table 4.12-2

Table 4.12-2

**Noise Level Thresholds
South Coast Landfill FCPCMP**

Distance	Noise Parameter	Noise Threshold (dBA)
50 Feet	Reference Level	80
500 Feet	Biohabitat Protection Zone	60
1,500 Feet	Most Restrictive Noise Standard	50
3,000 Feet	Nearest Possible Residence	36 ¹
¹ Including absorption by atmospheric and vegetation SOURCE: Giroux & Associates (May 2013)		

Due to the proximity of the landfill to the adjacent forestlands and the potential for the existence of sensitive species to occur within 500 feet of the landfill, construction noise levels that exceed 60 dBA could result in potentially significant impacts to that wildlife. However, maintaining a 500 foot separation from any noise-

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sensitive biotic habitat, plus implementation of the standard measures identified at the end of this section, will maintain construction equipment noise impacts at less than significance levels.

Partially Mobile Equipment

Engine-powered materials-handling equipment expected to be used includes compactors for soil placement and paving equipment used to repair the roadway. Mobility of this equipment over the ground is not part of its major work cycle. Theoretical noise levels at 50 feet range from about 76 to 88 dB, but these are peaks and not long-term averages.

Although the equipment is less noisy than the more mobile sources, it has a tendency to be parked in one location for a greater part of the workday. The noise impact zone is, therefore, about the same as the highly mobile sources in that the reduced mobility compensates for the lower noise generation rate.

Stationary Equipment

Stationary equipment includes generators, drill rigs, dewatering pumps, illuminated advisory signs, etc. The landfill closure activity will normally not require much stationary equipment. Because it is semi-stationary, there are usually opportunities to place the equipment behind a shield or barrier if it needs to operate in a noise-sensitive area.

Truck Haul Activity¹²

Baseline traffic data were derived from available traffic counts along SR-1 and available planning documents. Rural road volumes were estimated from aerial photographs based on one moment in time. Project hauling truck noise impacts were calculated for a reasonable hauling scenario of 50 loads (100 trips per day). That scenario would require 50 days of hauling. Because the haul route is unspecified, the truck noise impact was superimposed on every baseline in the absence of more definitive data.

According to the California Vehicle Noise (CALVENO) reference emission levels, the daily noise impact from 100 truck pass-by events is 56 dB CNEL at 50 feet from the roadway centerline. Compression of the hauling schedule to 25 days (200 trips per day) would produce a 59 dB CNEL at this set-back distance. Superposition of truck noise upon the baseline produces the combined vehicle noise levels (dB CNEL) reflected in Table 4.12-3.

¹²Although the source of the needed final cover soil has not been identified, neither the daily hauling nor the haul route has been specified. However, in order to discuss potential noise impacts resulting from the soil hauling activities, reasonably conservative (i.e., worst-case) assumptions have been made.

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Table 4.12-3

**Potential Noise Impacts
South Coast Landfill FCPCMP**

Roadway Segment	Background Level (dB)	100 trucks/day (dB)	200 trucks/day (dB)
SR-1			
North of Fish Rock Rd	64	65	65
North of Gualala	64	65	65
Gualala-Center	64	65	65
South of Gualala	64	65	65
Old Stage Road			
South of Airport	58	60	62
North of Airport	55	59	60
Fish Rock Road			
North and South of SCL	53	58	60
SOURCE: Giroux & Associates (May 2013)			

Along SR-1 baseline levels are similar because the higher traffic volumes in the developed area of Gualala are off-set by a slower traffic speed. The background traffic noise along SR-1 is sufficient to mask hauling activity noise with an undetectable increase (+1 dB) even at 200 trips per day. If trucks use Old Stage Road between SR-1 and the former landfill, a daily volume of 100 trips would raise the baseline from just below the residential standard to equal the standard close to the area of existing Gualala development. More than 100 truck trips per day would push the combined noise level to slightly over the 60 dB CNEL residential standard. Given that Old Stage Road has outdoor recreational space within 50 feet of the roadway, a haul limit of 100 trucks per day would appear to be a reasonable measure to maintain acceptable truck noise levels if this haul route option is selected to reach SR-1.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less than Significant Impact. The proposed project is located approximately 1.5 miles north of the Ocean Ridge Airport (FAA designation E55). This airport consists of a 2,500-foot runway and operates without an air traffic control tower. The SCL is not located within an airport plan and the noise generated by the airport operations does not extend into the area in which the landfill is located.

f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. There are no private airstrips located within the project environs that would either affect or be affected by the proposed South Coast Landfill FCPCMP. As a result, no workers or others would be exposed to excessive noise levels associated with a private aviation facility.

Cumulative Impacts

As indicated above, virtually all of the potential noise generated by the implementation of the FCPCMP will be short-term in nature, lasting approximately six months during the construction phase of the proposed

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project. Upon completion of the final cover and related environmental control systems for the landfill, no long-term noise will be generated on-site. Furthermore, the proposed project is located in an area that is characterized by open space and forestlands. With the exception of noise generated by logging trucks utilizing Fish Rock Road and the logging roads, no other significant noise levels are generated in the project environs. The short-term increase in noise generated on-site during construction as well as that resulting from the heavy truck traffic required for soil import that could adversely affect sensitive species in the project area will cease upon completion of the hauling operations. Mitigation measures prescribed below to address the potential short-term noise impacts will be adequate to maintain noise levels below significant levels. As a result, cumulative noise impacts caused by the proposed project will be less than significant.

Mitigation Measures

As indicated in the preceding analysis, no significant project-related noise impacts would occur as a result of project implementation. Nonetheless, project activity noise impacts can be maintained at less-than-significant levels with implementation of the following measures:

- MM 4.12-1 Construction activities shall comply with standard Mendocino County conditions with respect to hours of lesser noise sensitivity, use of proper mufflers and selection of quieter equipment.
- MM 4.12-2 Heavy equipment operations shall not occur within 500 feet of a noise-sensitive bio-habitat if it is occupied by a protected species.
- MM 4.12-3 Truck hauling shall be limited to 100 trips per day if Old Stage Road is used to access SR-1.
- MM 4.12-4 Noise generating activities at the construction site or in areas adjacent to the construction site associated with the project in any way should be restricted to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday. No construction activities should occur on weekends or holidays.
- MM 4.12-5 All internal combustion engine drive equipment should have intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- MM 4.12-6 Unnecessary idling of internal combustion engines should be strictly prohibited.
- MM 4.12-7 “Quiet” air compressors and other stationary noise sources should be utilized where technology exists.

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4.13 Population and Housing

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				<input checked="" type="checkbox"/>
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				<input checked="" type="checkbox"/>
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				<input checked="" type="checkbox"/>

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if any of the following occur:

- Induce substantial growth or concentration of population.
- Displace a large number of people.
- Disrupt or divide the physical arrangement of an established community.
- Be substantially inconsistent with long-range, adopted County goals and/or policies.

Analysis:

a. *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

Less than Significant Impact. Project implementation includes the final closure of the SCL in accordance with local, regional, state and federal requirements. No residential or other development is proposed that would result in additional population growth. No infrastructure is required to be extended to the site that would induce population growth in the area. Therefore, no significant growth-inducing impacts are anticipated and no mitigation measures are required.

b. *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

No Impact. As indicated previously, the subject property encompasses the SCL and does not support any residential dwelling units. The project, which would not result in the displacement of any existing housing or other residential development. Therefore no loss of housing stock currently existing in Mendocino County would occur and no impacts are anticipated.

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c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. As indicated above, final closure of the SCL as proposed will not result in the elimination of any existing housing and would not displace or otherwise adversely affect residents living within the unincorporated areas of Mendocino County, including Gualala and other nearby communities. Therefore no impacts are anticipated and no mitigation measures are required.

Cumulative Impacts

Because the proposed project would not result in the loss of any existing housing and/or the displacement of residents, implementation of the proposed FC/PCMP will not contribute to the cumulative impacts to population and housing. Therefore, no significant cumulative impacts to population and housing will occur as a result of project implementation.

Mitigation Measures

Project implementation will not result in any potentially significant impacts to population and housing. No mitigation measures are required.

4.14 Public Services

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
1) Fire protection?		☑		
2) Police protection?			☑	
3) Schools?				☑
4) Parks?				☑
5) Other public facilities?			☑	

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if any of the following occur:

- An increase in the demand for fire protection services to such a degree that accepted service standards (e.g., manpower, equipment, response times, etc.) are not maintained.

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- The interference with emergency response or evacuation plan(s) in the community or not provide internally consistent analysis or policies to guide future development.
- Expose people or structures to significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.
- Result in response times that exceed the County’s adopted maximum emergency response criteria.
- An increase in the demand for law enforcement services to such a degree that accepted service standards are not maintained without an increase in manpower and/or equipment.
- Create student enrollments that exceed available capacities of school facilities or educational services and would require the construction of new school facilities.

Analysis:

- a.1. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection?***

Less than Significant with Mitigation Incorporated. As previously indicated (refer to Section 4.8(h)), the SCL is located in an unincorporated area of Mendocino County that is designated as having a “high fire hazard” potential. Fire protection and emergency services are provided by the Mendocino County Fire Department in cooperation with the California Division of Forestry (CDF) through contract services. Due to the existing timberlands surrounding the site, the SCL is located in an area that has the potential for “wildland” fires, particularly during the summer months and dry season when grasses and other vegetation have become overgrown and dry. Although project implementation does not pose a unique problem related to fires, it is possible that some potential for fires may occur, particularly during the construction phase. With the exception of fire protection services during the construction of the proposed project, its implementation would not substantially affect the existing level of public services provided in the area. Although no permanent structures and/or occupants will occupy the landfill following completion of the final closure components (e.g. final cover), no increase in the potential for fire would exist. Nonetheless, because workers will utilize heavy equipment during the final closure activities, a fire potential does exist as a result of sparks that may be created from heavy equipment and/or vehicles that may ignite dry grass or other vegetation. Specifically, heavy trucks hauling materials and equipment to the site could “spark” a fire along the sides of the roadways if hot mufflers and undercarriage components come in contact with dry grass and other overgrown vegetation along the side of the roadways. In addition, it is also possible that construction worker vehicles or other heavy equipment parked in grassy areas on the site could also cause a fire. As a result, it will be necessary to incorporate measures to reduce the potential for fires on the site and adjacent roadways. With the implementation of the mitigation measures prescribed below, potential impacts will be less than significant.

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- a.2. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection?***

Less than Significant Impact. Police protection and law enforcement services in the unincorporated portions of the County are provided by the Mendocino County Sheriff Department. The SCL has been inactive for several years and does not pose an existing law enforcement problem for the Sheriff Department. No significant crime or other illegal activities occur on or in the vicinity of the site that adversely affect the ability of the Sheriff Department to provide an adequate level of service. Implementation of the FCPCMP will result in some short-term construction activities lasting approximately six months. During that period, increased truck and vehicular activity will occur along the roadways and highways patrolled by the Sheriff Department; however, no significant safety or other law enforcement problems that could adversely impact the existing law enforcement service are anticipated as a result of the increased truck traffic. Upon completion of the final cover construction, all of the heavy truck traffic will cease; only a small number of intermittent project-related traffic will be generated as a result of post-closure maintenance (e.g., site monitoring, etc.). The number of trips is extremely small and will not affect the current level of police protection in the area. In order to facilitate site security, the landfill disposal area has a locking gate at the entrance road. Access to the site is further limited by topographical constraints and posted signs to limit unauthorized entry to the site. The access gate and signs will be inspected regularly to ensure that the integrity of site security has been maintained. Any necessary repairs or replacements will be made during the regular inspections.

The SCL FCPCMP also includes a security plan in the form of fences, locking gates, and topographical constraints to minimize the potential for vandalism during the construction and post-construction phases. Security fencing, access gates and signs will be inspected quarterly to ensure that the integrity of site security has been maintained. All groundwater monitoring wells will have locking well covers. The gates will be inspected to ensure that the locks are intact. Any necessary repairs or replacements will be made during the quarterly inspection. Therefore, no significant impacts will occur as a result of project implementation and no mitigation measures are required.

- a.3. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for schools?***

No Impact. The proposed FCPCMP addresses the closure of the SCL as well as the post closure maintenance activities that will be conducted at the site. No development (i.e., residential) is proposed that would result in the generation of school-age children that would affect the existing school facilities and services. As a result, no impacts to schools will occur and no mitigation measures are required.

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- a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks?**

No Impact. Without the generation of new residential development, implementation of the proposed project will not create any demands for parks and/or recreational facilities and amenities, which are typically associated with increases in population. Nonetheless, the end use of the site is proposed to be non-irrigated open space. Although the end use does not include any recreational features, the open space will enhance the forest setting in which the property is located and will provide some degree of visual relief when compared to the existing character of the landfill. As previously indicated, no significant impacts to parks and/or recreational facilities are anticipated and no mitigation measures are required.

- a.5. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities?**

Less than Significant Impact. Aside from post closure maintenance requirements (e.g., monitoring environmental control systems), which is the responsibility of the Mendocino County SWD, no other governmental services would be affected as a result of project implementation. As indicated above, the County's SWD will be responsible for maintaining and monitoring the site, which will not adversely impact existing governmental services. The Mendocino County SWD will be responsible for ensuring that post closure maintenance activities occur pursuant to the FCPCMP adopted for the SCL. These responsibilities include ensuring that the drainage, groundwater and other environmental control systems are properly operating. These activities are anticipated and will not adversely affect the ability of SWD to provide adequate post closure maintenance of the SCL. As a result, no significant impacts are anticipated and no mitigation measures are required.

Cumulative Impacts

Project implementation would result in the final closure of the SCL. Because the proposed project does not include a land use (e.g., residential development) that has a need for and would generate a demand for most public services (e.g., police, parks and recreation, schools, etc.), potential demands on those services will generally not occur. However, several measures have been prescribed to ensure that any potential impacts to fire protection service and facilities are adequately addressed and would not, therefore, result in potentially significant cumulative impacts. Furthermore, without residential development, no impacts would occur either to public schools or library facilities. Therefore, no significant cumulative impacts will occur.

Mitigation Measures

Project implementation will not result in any significant impacts to police protection, schools, parks and recreational facilities and other government services and/or facilities; however, some potential for "wildland" fires does exist, which must be addressed. The following mitigation measures shall be incorporated into the project to address the potential wildland fire impacts.

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- MM 4.14-1 No vehicles, including construction worker vehicles, heavy trucks and/or equipment, shall be parked in areas covered with grass. Parking areas shall be established for all vehicles in an area that is cleared of all grass.
- MM 4.14-2 A water truck shall be present on-site for fire control should flammable material ignite during the final closure construction.
- MM 4.14-3 Smoking by construction workers and others at the South Coast Landfill shall be permitted only in the Contractor’s Yard area.

4.15 Recreation

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				<input checked="" type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?				<input checked="" type="checkbox"/>

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if any of the following occur:

- Create a demand for recreation services that exceeds the design or use standards of existing and/or planned facilities on the adopted Recreation Element of the Mendocino County General Plan for the area.

Analysis:

- a. ***Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

No Impact. The project proposes only the final closure of the SCL. No residential development is proposed that would create a demand for neighborhood and/or regional parks or other recreational facilities. Therefore, project implementation would not result in any impacts to parks and/or recreation facilities in the Mendocino County; no mitigation measures are required.

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- b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?**

No Impact. As indicated above, the proposed project does not include the residential development that could have a direct impact on the County’s inventory of parks and recreational facilities. Because no residential development is proposed, no significant recreation impacts will occur. As a result, no mitigation measures are required.

Cumulative Impacts

Because no residential development that would create a demand for parks and recreational facilities in the County is proposed, the proposed project would not result in any incremental, cumulative impacts to those facilities.

Mitigation Measures

No project-related impacts to recreational facilities in the County of Mendocino are anticipated to occur; therefore, no mitigation measures are required.

4.16 Transportation/Circulation

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			☑	
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			☑	
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				☑
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		☑		
e. Result in inadequate emergency access?			☑	
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				☑

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Significance Criteria:

A project will normally have a significant adverse impact on traffic and circulation if it results in any of the following:

- An increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections).
- An increase in the level of service standard established by the County Congestion Management agency for designated roads or highways.
- An increase in hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Inadequate emergency access.
- Inadequate parking capacity.
- A conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks, etc.).
- Hazards or barriers to pedestrians or bicyclists.

Analysis:

- a. *Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?***

Less than Significant Impact. As indicated previously, the SCL is located east of Highway 1 on Fish Rock Road. The greatest number of vehicular trips resulting from project implementation will occur during the construction phase. The FCPCMP will necessitate the introduction of workers to the site who will be responsible for operating the heavy equipment and constructing the final cover and related environmental control systems in accordance with the FCPCMP. The number of workers will be nominal (i.e., fewer than 20). These “new” trips would be short-term in nature (i.e., lasting a maximum of six months during the construction period). In addition to the work trips, an average of five (5) tractor-trailers will deliver construction materials (e.g., LLDPE-geomembrane, geonet, geotextile, gravel, drainage system materials, etc.) to the site. As a result, it is anticipated that no more than 25 two-way trips per day would be generated by these activities, all of which would be added to the circulation network in the area. Although the Medium Volume Transfer Operation that exists on the 47.65-acre landfill property is currently operational, the SCL has been closed since 2000 and does not generate any vehicular trips related to refuse hauling at the present time. The addition of the 25 two-way worker and materials delivery trips would utilize State Route 1 and Fish Rock Road to access the SCL.

In addition to worker- and materials delivery-related trips, it will also be necessary to import soils from the an off-site location to construct portions of the final cover (i.e., foundation and vegetative layers). It is anticipated that a maximum of 50,000 cubic yards of earth material must be imported to the site, resulting in

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up to 5,000 heavy truck trips over a five-week period, depending on the source and location of the import materials. Fish Rock Road is designated as a Local Collector roadway between State Highway 1 and County Road (CR) -502 (Old Stage Road) west of the SCL.

The affected roadways have adequate capacity to accommodate the vehicular trips generated by the proposed project, which will be significantly fewer on a daily basis than the number of trips that occurred when the SCL was an operational landfill prior to 2000. It is important to note that the heavy truck trips (i.e., 5 two-way trips associated with the transportation of materials and equipment) will last approximately 3.5 months, depending on the source and location of the import material, which could increase the daily trip rate and reduce the duration. After that, the only project-related trips will be associated with the movement of workers to and from the site (i.e., approximately 20 two-way trips). In addition, these vehicular trips will be temporary in nature and will virtually cease upon completion of the construction of the final cover. The number of vehicular trips associated with the post closure maintenance activities will be significantly less than during construction of the final cover. As a result, no significant impacts are anticipated. The addition of the project-related trips will not significantly affect the operations on either road. As a result, no significant impacts are anticipated and no mitigation measures are required.

Implementation of the proposed project will not result in the generation of a significant number of vehicle trips that would cause traffic congestion beyond adopted policies and/or forecasts. The only project-related vehicular traffic generated by the proposed closure and post-closure maintenance operations would be associated with worker trips and the transport of materials and equipment to the site. The number of trips is related to the number of workers that would be employed by the landfill contractor to work on the site during closure and post-closure maintenance. It is anticipated that the onsite workers would generate a very small number of vehicular trips (approximately 20 two-way trips per day) as a result of their daily commutes. In addition, approximately five two-way trips/day would be added to the existing traffic volumes as a result of trucks hauling materials and equipment to the site. Any contribution of trips caused by the few additional workers would be extremely modest and will not adversely affect the level(s) of operations of any of the intersections in the vicinity of SCL. Potential project-related impacts will be less than significant.

b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Less than Significant Impact. Aside from logging roads that exist in the project area that accommodate logging trucks entering and leaving the forest area in which the SCL is located, Fish Rock Road provides the only vehicular access to the site. As previously indicated, this rural two-lane roadway is designated as a Local Collector roadway on the County's Circulation Element between State Highway 1 and County Road (CR) -502 (Old Stage Road) west of the SCL. With the exception of the logging roads in the area, which intersect this roadway at various locations, there are no other intersections in the vicinity of the project site that would be affected by the haul truck traffic that occurs during the five-week construction phase. Because the source of the soils borrow site has not been identified, a haul route has not been established. Nonetheless, the analysis assumes that haul trucks would access the site from Fish Rock Road via SR-1. Vehicular travel on Fish Rock Road is not significant. As indicated above, this roadway is used primarily by logging trucks. Due to the limited traffic along Fish Rock Road, the addition of the haul trucks and construction vehicles would not significantly impact travel on that roadway. However, in order to ensure that conflicts with logging trucks and other vehicles is minimized, a measure has been prescribed that requires the preparation of a Traffic Control and Construction Management Plan, which addresses the use of flagmen during the grading and construction activities. As a result, potential impacts will be less than significant.

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c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The Ocean Ridge Airport (FAA designation E55) is the closest aviation facility to the South Coast Landfill. This facility, which is located approximately three miles north of the community of Gualala and 1.5 miles south of the subject property. Ocean Ridge Airport has a 2,500 foot runway and is open to the public; the facility operates without an air traffic control tower. As indicated in Section 2.3 of the Initial Study, the SCL has been closed since 2000; no landfilling activities occur at the site. Although a transfer station currently operates within the limits of the landfill property, the County of Mendocino is not proposing to affect the transfer operations. Due to the distance of the SCL to the Ocean Ridge Airport, final closure activities, including long-term maintenance of the closed facility, will not affect aviation activities at the Ocean Ridge Airport (i.e., change air traffic patterns, etc.) or expose workers at the site to potential hazards associated with the airport operations. The SCL is not located within the area of influence of the Ocean Ridge Airport and is neither affected by nor affects operations occurring at that aviation facility. Therefore, no significant impacts will occur and no mitigation measures are required.

d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than Significant with Mitigation Incorporated. The proposed project is located in an area of Mendocino County that encompasses vast areas of open space and the site is completely surrounded on all sides by existing forest/lumber resources. Access to the subject property is available from Fish Rock Road along the easterly side of the landfill and transfer station. Project implementation will necessitate the importation of approximately 50,000 cubic yards of earth material in order to construct the final cover of the SCL, resulting in the generation of about 5,000 two-way truck trips at the site. Fish Rock Road is a rural road, primarily used by logging trucks and waste transfer trucks accessing the site. Because the haul trucks entering and leaving the site would utilize Fish Rock Road, some potential conflict with trucks accessing the area may occur near the entrance to the SCL. In order to avoid turning movement conflicts into and out of the landfill, a Traffic Control and Management Plan shall be prepared and implemented during the construction phase of the proposed project. The plan shall identify the routes that construction vehicles will utilize for the delivery of construction materials to access the site, traffic control and detours, use of flagmen, and proposed construction phasing plan for the project. Implementation of this plan will reduce potential safety hazards during the construction phase to a less than significant level.

e. Result in inadequate emergency access?

Less than Significant Impact. Vehicular and emergency access to the South Coast Landfill (including the transfer station located on the site) is provided via a single roadway. Fish Rock Road, which extends inland from State Highway 1, also provides emergency access to the site. Construction workers, haul trucks, and maintenance personnel entering the site will utilize Fish Rock Road during the implementation phase of the Final Closures and Post-Closure Maintenance Plan. Although the number and type of vehicles will vary on a daily basis, depending on the activities undertaken, project implementation would not adversely affect access to the SCL via Fish Rock Road. Following completion of the FCPCMP, including the final cover and environmental control systems identified in the plan, Fish Rock Road would continue to be used by maintenance workers, transfer trucks, and emergency vehicles to access the site. No significant impacts to emergency access will occur as a result of project implementation.

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f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No Impact. The SCL is a remote site, which is located well beyond the urban limits of Gualala and development. As such, it is not served by public transportation and is not in an area where bicycle or pedestrian trails exist. The proposed FCPCMP does not include any uses that would necessitate the conveyance of people via public transit and/or by other means of transportation, including bicycle trails, pedestrian trails, etc. Therefore, project implementation will not conflict with or adversely affect any existing alternative modes of transportation. No significant impacts will occur and no mitigation measures are required.

Cumulative Impacts

As indicated in the preceding analysis, potential traffic impacts associated with the project would be short-term in nature, lasting only six months during the construction phase. Long-term traffic generated by the FCPCMP would be similar to existing traffic and would be associated with monitoring and maintenance of the environmental control systems construction on the SCL. The additional traffic generated by the construction of the final cover and environmental control systems would cease following completion of the construction activities. Therefore, no significant cumulative traffic impacts would occur.

Mitigation Measures

MM 4.16-1 Prior to commencement of soil import activities, a Traffic Control and Construction Management Plan shall be prepared and implemented during the grading and construction phases of the proposed project. The Traffic Control and Construction Management Plan shall specify:

- Routes that construction vehicles will utilize for the delivery of construction materials to access the site, traffic control and detours, use of flagmen, and proposed construction phasing plan for the project.
- Parking needs and parking areas for construction-related equipment and workman support.
- Hours during which transport activities can occur and methods to mitigate construction-related impacts to adjacent streets.

4.17 Utilities and Service Systems

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			☑	
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause			☑	

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Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
significant environmental effects?				
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			<input checked="" type="checkbox"/>	
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			<input checked="" type="checkbox"/>	
e. Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				<input checked="" type="checkbox"/>
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				<input checked="" type="checkbox"/>
g. Comply with federal, state, and local statutes and regulations related to solid waste?				<input checked="" type="checkbox"/>

Significance Criteria:

The proposed project would result in significant adverse environmental impacts if any of the following occur:

- The project-related demand caused an increase in wastewater treatment that reached or exceeded the current capacity of existing or planned treatment facilities or caused a reduction in the level of service, thereby requiring substantial expansion of existing facilities or the construction of new facilities.
- The proposed project's use of water resources will substantially and adversely deplete existing sources of domestic water.
- The proposed project will require the construction of new water facilities beyond those already planned and the cost of which would not be borne by the applicant.
- The project will generate solid waste that exceeds the capacity of the landfill to accept and disposal of the waste.

Analysis:

- a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?**

Less than Significant Impact. As indicated above, no uses are proposed on the subject property that would result in the long-term generation of raw sewage. Although a small amount of raw sewage would be generated on a daily basis during the construction of the final cover proposed for the SCL, it will not be significant and can be adequately accommodated by providing on-site temporary facilities (e.g., chemical

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toilets). Once construction is completed, the generation of raw sewage resulting from the final closure and post closure maintenance activities will virtually cease. Project implementation will not require new sewer collection and/or treatment facilities and would not exceed any wastewater treatment requirements of the Regional Water Quality Control Board. Therefore, no significant impacts are anticipated and no mitigation measures are required.

- b. *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?***

Less than Significant Impact. No water mains exist in the project area, which encompasses only the SCL and forest land. The proposed project includes only the final closure of the SCL in Mendocino County, which has been closed since 2000. In addition, environmental control systems intended to avoid impacts to ground and surface water as well as the air are also proposed for implementation. With the exception of some temporary demands for water, which would be trucked onto the site and utilized on the site during construction to suppress dust and particulate emissions as a result of grading, implementation of the FCPCMP will not create a demand for potable water. Furthermore, project implementation would not require the construction of any water treatment, storage and/or distribution facilities in order to implement the proposed FCPCMP. Similarly, sewer facilities do not exist either on the project site or in the project environs; no new or expanded sewer collection, transmission, and/or treatment facilities would be required to serve the closed landfill. Therefore, no significant impacts are anticipated and no mitigation measures are required.

- c. *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?***

Less than Significant Impact. Project implementation includes the construction of on-site storm drainage facilities, which are intended to direct stormwater runoff generated on the closed landfill to storm drain facilities that exist, which will convey the surface water to designated existing storm drain facilities. The proposed storm drain facilities (refer to Section 4.9 (Hydrology and Water Quality)) will not result in any significant environmental damage because they are located within the limits of the existing landfill footprint and/or within areas that have already been altered by landfill activities. Furthermore, the storm drain facilities are not intended to expand existing facilities to accommodate additional growth and/or development but rather accommodate only storm runoff generated on the closed landfill. As a result, no significant impacts to storm drain facilities are anticipated and no mitigation measures are required.

- d. *Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?***

Less than Significant Impact. As indicated above, project implementation would require only temporary use of water for dust suppression during construction of the final cover and related activities that would occur. The use of water would cease upon completion of the construction activities. As discussed in Chapter 2.0 (Project Description), the end use is non-irrigated open space. No water supplies would be necessary in the long-term to support the end use. Therefore, project implementation would not result in impacts to the existing and future water supply available to the County of Mendocino.

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- e. Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

No Impact. As indicated above, the open space end use will not generate any raw sewage that would adversely affect the existing treatment capacity of the regional wastewater treatment plan. No impacts will occur as a result of project implementation.

- f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

No Impact. Project implementation includes only the construction of the final cover for the South Coast Landfill and the related environmental control systems; no development is proposed that would generate solid waste. Therefore, no impacts to landfill capacity will occur.

- g. Comply with federal, state, and local statutes and regulations related to solid waste?*

No Impact. As indicated Chapter 2.0 (Project Description), closure of the SCL will be performed in accordance with the applicable regulatory standards prescribed in the California Code of Regulations (CCR) (i.e., 27 CCR, Chapters 3 and 4 and 40 CFR, Subpart F). The components and systems required for closure of the SCL include the final cover and grading design to control stormwater, potential infiltration and accommodate future settlement, landfill slope stability, construction quality assurance, drainage and erosion control systems, LFG control and monitoring systems, groundwater/surface water monitoring systems, and site security. No significant impacts will occur because the proposed FCPCMP will comply with all applicable regulatory requirements.

Cumulative Impacts

Project implementation will create only a short-term demand for domestic water and would also generate a small amount of raw sewage during the construction phase; however, these demands for sewer and water would cease upon completion of the final closure plan and no long-term demands for such utilities would occur. The proposed project would also not result in the generation of any solid waste and would not, therefore, contribute to cumulative solid waste generation in Mendocino County. Because the project is consistent with the long-range plans and policies adopted for the subject site and would not create demands for water or generation sewage and/or refuse that exceed those anticipated by the County's General Plan, the potential cumulative impacts would be less than significant.

Mitigation Measures

No significant impacts to utilities and service systems would occur as a result of project implementation; no mitigation measures are required.

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5.1 Mandatory Findings of Significance

<i>Would the project:</i>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		<input checked="" type="checkbox"/>		
b. Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			<input checked="" type="checkbox"/>	
c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?			<input checked="" type="checkbox"/>	

Impact Analysis

- a.** *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

Less than Significant with Mitigation Incorporated. The project site has been impacted by past landfill operations and activities that have modified the existing site features. The SCL is currently closed and does not accept refuse for disposal. Implementation of the Project will result in the construction of the final landfill cover and related environmental control systems necessary to effect final closure. Implementation of the FCPCMP would not significantly degrade the quality of the environment because the subject site has been extensively altered by prior development associated with the historic use of the site as a landfill. Although some short-term potential indirect impacts may occur to biological resources in the project area resulting from construction noise, generation of dust, and erosion/siltation, project implementation will not result in the loss of any sensitive habitat or species, including both terrestrial and aquatic species. The project has been designed to avoid the creation of such impacts (e.g., implementation of water quality features, etc.). In addition, where potential impacts have been identified, appropriate mitigation measures have been incorporated to ensure that potential impacts to biological resources are reduced to a less than significant level. Although no cultural or scientific resources are known to be located on the site and important historic resources would not be adversely affected by the project, monitoring during the grading phase will ensure

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that any potential artifacts that may be encountered can be evaluated and appropriate measures implemented. Project implementation will not substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of major periods of California history or prehistory. As previously indicated, potentially significant impacts to biological resources are anticipated as a result of project implementation will be mitigated, resulting in less than significant impacts to those resources.

- b.** *Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

Less than Significant Impact. As indicated in the analysis presented in the initial study, implementation of the proposed project will not result in significant cumulative impacts. In particular, project-related impacts are short-term in nature, occurring only during the construction phase (e.g., traffic, noise, air quality, etc.). Furthermore, the SCL is located in an area of Mendocino County where little or no development exists. Thus, the short-term impacts resulting from project implementation would not contribute to cumulative development within the County, which most result in long-term operational impacts such as traffic, noise, air quality, etc. The Project does not have the potential to generate other project-related impacts that may be cumulatively considerable. Therefore, no significant impacts are anticipated as a result of the implementation of the South Coast Landfill Final Closure Plan.

- c.** *Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?*

Less than Significant Impact. Previous sections of this Initial Study reviewed the proposed project’s potential impacts involving each of the issues included in the environmental checklist. As concluded in these assessments, the proposed Project would not result in any significant impacts related to these issues. Although project implementation will result in physical changes to the property, the alterations are not anticipated to result in significant changes to the environment. Implementation of the FCPCMP at the South Coast Landfill does not include development that would result in any direct or indirect impacts on humans. The project proposes only to place a final cover and related environmental control systems on the existing closed SCL in compliance with Title 27. The proposed project is consistent with the Mendocino County General Plan and Title 27, which regulates landfill closures. Potential impacts of the FCPCMP as proposed have been evaluated in the preceding analysis. Where potentially significant impacts have been identified, adequate mitigation measures have been proposed that would reduce such impacts to a less than significant level. Therefore, potential significant impacts are anticipated to be less than significant after the incorporation and implementation of mitigation measures prescribed in this document.

5.2 Mitigation Monitoring and Reporting Program

In accordance with the California Environmental Quality Act (CEQA), the Mendocino County Department of Transportation SWD prepared a Mitigated Negative Declaration (MND) and Initial Study for the proposed South Coast Landfill Final Closure Plan project located in the Mendocino County. The MND indicated that the potential adverse environmental impacts of the project, in terms of Biological Resources, Hydrology and Water Quality, Noise, and Transportation/Traffic could be reduced to below levels of significance or minimized with the implementation of mitigation measures. The mitigation measures have been incorporated into the project and the MND is scheduled for adoption by the County of Mendocino, in conjunction with the approval of the project.

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Section 21081.6 of the Public Resources Code (PRC) and CEQA Guidelines section 15097 require the Lead Agency for each project which is subject to the CEQA to monitor performance of the mitigation measures included in any environmental document to ensure that implementation does, in fact, take place. The PRC requires the Lead Agency to adopt a monitoring and reporting program that is designed to ensure compliance during project implementation. In accordance with PRC Section 21081.6 and CEQA Guidelines section 15097, this MMRP has been prepared and will be implemented for the South Coast Landfill Final Closure Plan. Table 5-1 lists the mitigation measures or standard conditions, responsible parties, time frame for implementation, and monitoring parties.

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Table 5-1

**Mitigation Monitoring and Reporting Program
South Coast Landfill Final Closure Plan
Mendocino County, CA**

MM No.	Mitigation Measure	Method of Verification	Timing of Implementation	Responsibility
Air Quality				
SC 4.2-1	<p>Use of effective dust control is mandated by Mendocino County AQMD Rule 1-430 and shall be implemented during all phases of the project. The required dust control measures include:</p> <ul style="list-style-type: none"> ▪ Water shall be applied by means of truck(s), hoses, and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emissions. ▪ All material excavated, stockpiled, or graded shall be sufficiently watered to prevent fugitive dust from leaving the property boundaries or causing a public nuisance. Watering should occur at least twice daily, however frequency of watering shall be based on the type of operation, soil, and wind exposure ▪ All on-site vehicles traffic shall be limited to a speed of 15 miles per hour (mph) on unpaved roads. ▪ All trucks hauling soil, sand, or other loose material on public roads will be covered or required to maintain at least 2 feet of freeboard. ▪ All land clearing, grading, or earth moving activities shall be suspended as necessary, based on site conditions, to prevent excessive windblown dust when winds are expected to exceed 20 mph. ▪ All inactive portions of the construction site shall be covered, seeded, or watered until a suitable cover is established. Alternatively nontoxic soil stabilizers can be applied to all inactive construction areas. ▪ Paved areas adjacent to construction sites shall be swept or washed as required to remove excess accumulations of silt and/or mud, which may have results from grading and construction activities. ▪ A publically visible sign shall be posted with the telephone number and person to contact regarding dust complaints. 	On-Site Monitoring	During Grading and Construction	Transportation Department
Biological Resources				
MM 4.4-1	<p>Surveys shall be conducted for the sharp-shinned hawk and northern goshawk if construction or similar activities will occur during their breeding season (i.e., between April and August). The surveys for these raptors may be avoided if all construction activities fall outside of this period because their California species of concern status is intended to protect nesting pairs.</p>	Survey	Prior to Commencement of Grading	Transportation Department

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MM No.	Mitigation Measure	Method of Verification	Timing of Implementation	Responsibility
MM 4.4-2	In the event that sharp-shinned hawks or northern goshawks are found to be nesting within 300 feet of the project site and construction is proposed during their breeding season, construction activity within 300 feet of nest sites shall be avoided between April and August. Prior to commencement of construction within this buffer area, a determination shall be made by a qualified agency or consulting biologist that nesting activities are completed.	Monitoring	During Grading and Construction	
MM 4.4-3	Surveys for red tree voles shall be required regardless of the construction date if the project will require removal of trees adjacent to the landfill or in the remaining forested area within the southeast portion of the landfill.	Survey	Prior to Commencement of Grading	Transportation Department
MM 4.4-4	In the event that red tree voles are found to occur at the site, the removal of occupied trees shall be prohibited unless alternative measures are not feasible, and concurrence has been obtained from the California Department of Fish and Wildlife.	Monitoring	During Grading	Transportation Department
MM 4.4-5	Trees along the perimeter of the landfill shall not be damaged or removed during the closure operation.	Plan Check	Prior to Commencement of Grading	Transportation Department
MM 4.4-6	During the year of closure, spotted owl surveys shall be conducted from March (as soon as weather permits) to May 15 (or as soon after that date as possible) from the four calling stations used by Gualala Redwoods biologists during their previous surveys. Survey results shall be immediately provided to U.S. Fish and Wildlife Service staff with a request for technical assistance. If survey results demonstrate that current spotted owl distribution within the project area remains stable or has otherwise not changed in a manner that would be adversely affected by closure activities (as confirmed by USFWS), closure may begin prior to July 15. If owl distribution has changed in a manner that could result in adverse indirect impacts due to noise and disturbance of closure activities, closure shall not begin before July 15, unless conditions addressing the spotted owl are identified by the USFWS and implemented by the County's SWD, which would allow construction of the final cover to commence prior to July 15. Implementation of any of these courses of action shall require written concurrence from U.S. Fish and Wildlife Service staff prior to initiation of closure.	Survey	Prior to Commencement of Grading	Transportation Department
MM 4.4-7	Plan the construction phase of the closure to occur during the dry season, typically from early June through October 15.	Plan Check	Prior to Commencement of Grading	Transportation Department
MM 4.4-8	Appropriate dust abatement measures (e.g., spraying exposed areas) shall be implemented during construction if airborne dust appears to be significant.	Monitoring	During Grading and Construction	Transportation Department
MM 4.4-9	During grading, avoid side-casting excess material downslope towards the stream channel.	Monitoring	During Grading	Transportation Department
MM 4.4-10	When grading, a gentler slope to the final grade of the landfill cap adjacent to the stream channel should be considered. Plant vegetation (preferably native species) on the cap to reduce erosion during winter storms. (If feasible, timing of planting should occur a couple of months prior to the onset of fall/winter rains so that vegetation is well established.)	Plan Check	Prior to Commencement of Grading	Transportation Department
MM 4.4-11	All on-site storage of fuels, oils, and lubricants shall be located in an area where an accidental spill prevents this material from flowing downslope towards the stream.	Monitoring	During Grading and Construction	Transportation Department
MM 4.4-12	All equipment that uses fuels, oils, and/or lubricants, when	Monitoring	During Grading and	Transportation

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MM No.	Mitigation Measure	Method of Verification	Timing of Implementation	Responsibility
	not in use, shall be stored in areas where leakage and spills do not flow downslope toward the creek.		Construction	Department
MM 4.4-13	Regular inspections of all equipment fuel lines, connections, filters, etc., shall be performed to ensure that leaks are detected and treated in a timely fashion.	Monitoring	During Grading and Construction	Transportation Department
MM 4.4-14	All refueling of machinery shall occur in an area where accidental spills will not flow toward the stream channel. Fuel absorbent matting and other spill containment materials shall be stored on-site and all operators shall be familiar with their proper use.	Monitoring	During Grading and Construction	Transportation Department
MM 4.4-15	Sedimentation ponds shall be inspected for the presence of amphibians by a qualified biologist. If eggs and larval stages are present, consideration should be given to postponing the dredging until the conclusion of the construction phase to a time when fewer organisms would be present, if feasible.	Survey	Prior to Commencement of Grading	Transportation Department
MM 4.4-16	If amphibians are determined to be present when dredging is to occur, the sedimentation pond shall be partially drained in order to remove any amphibians prior to excavation of the pond. Fine-meshed aquarium nets shall be used to capture amphibians, which will be held in a 5-gallon pail.	Monitoring	Prior to Commencement of Grading	Transportation Department
MM 4.4-17	Amphibians shall be released into Little North Fork Gualala River in a pool(s) with ample depth and low velocity flow.	Monitoring	Prior to Commencement of Grading	Transportation Department
MM 4.4-18	If feasible, control unwanted vegetative growth by hand removal on a regular basis so that unwanted plants do not become firmly rooted to the landfill cap.	Monitoring	During Grading and Construction and Post-Closure Maintenance	Transportation Department
MM 4.4-19	If herbicides must be used, time the application so that rain events do not wash chemicals off the landfill cap. Avoid application during windy conditions. Manually apply herbicides directly to only the unwanted vegetation; avoid broadcast-spray applications.	Monitoring	Post-Closure Maintenance	Transportation Department
Cultural Resources				
SC 4.5-1	Prior to the approval of the project Plans and Specifications, the Mendocino County SWD shall confirm that the plans and specifications stipulate that if evidence of subsurface archaeological resources are found during construction, excavation and other construction activity in that area shall cease and the contractor shall contact the Construction Engineer, who will then contact a county certified archaeologist to determine the extent of the find and take proper actions.	Plan Check	Prior to Approval of Project Plans and Specifications	Transportation Department
SC 4.5-2	If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The County of Mendocino Waste Management Department shall consult with the MLD regarding treatment and disposition of the	Monitoring	During Grading and Construction	Transportation Department

CHAPTER 5.0 – CONCLUSIONS

MM No.	Mitigation Measure	Method of Verification	Timing of Implementation	Responsibility
	human remains and items associated with Native American burials.			
Hydrology and Water Quality				
MM 4.9-1	An erosion control plan shall be submitted prior to commencement of construction. The plan shall include the following measures: a. Grading shall be prohibited after October 15 of any year. b. Erosion control structures such as sedimentation ponds, energy dissipaters, and silt fences shall be installed. c. A revegetation plan that makes use of available native species shall be implemented.	Plan Check	Prior to Commencement of Grading	Transportation Department
MM 4.9-2	The three existing drainages to the Little North Fork Gualala River shall be monitored to determine the need for repair. The repairs will focus on stabilization of eroded slopes, use of energy dissipaters, and revegetation as necessary to prevent continued downcutting and erosion from these gullies. The drainage culverts located within the gullies should be closely monitored and maintained after repair to ensure that further erosion does not occur. In addition, the drainage of surface water from the transfer station and landfill should be redesigned to reduce or eliminate the erosion of the gullies.	Monitoring	During Grading and Construction	Transportation Department
Noise				
MM 4.12-1	Construction activities shall comply with standard Mendocino County conditions with respect to hours of lesser noise sensitivity, use of proper mufflers and selection of quieter equipment.	Monitoring	During Grading and Construction	Transportation Department
MM 4.12-2	Heavy equipment operations shall not occur within 500 feet of a noise-sensitive bio-habitat if it is occupied by a protected species.	Monitoring	During Grading and Construction	Transportation Department
MM 4.12-3	Truck hauling shall be limited to 100 trips per day if Old Stage Road is used to access SR-1.	Monitoring	During Grading and Construction	Transportation Department
MM 4.12-4	Noise generating activities at the construction site or in areas adjacent to the construction site associated with the project in any way should be restricted to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday. No construction activities should occur on weekends or holidays.	Plan Check	Prior to Commencement of Grading	Transportation Department
MM 4.12-5	All internal combustion engine drive equipment should have intake and exhaust mufflers that are in good condition and appropriate for the equipment.	Inspection	During Grading and Construction	Transportation Department
MM 4.12-6	Unnecessary idling of internal combustion engines should be strictly prohibited.	Monitoring	During Grading and Construction	Transportation Department
MM 4.12-7	"Quiet" air compressors and other stationary noise sources should be utilized where technology exists.	Monitoring	During Grading and Construction	Transportation Department
Public Facilities				
MM 4.14-1	No vehicles, including construction worker vehicles, heavy trucks and/or equipment, shall be parked in areas covered with grass. Parking areas shall be established for all vehicles in an area that is cleared of all grass.	Monitoring	During Grading and Construction	Transportation Department
MM 4.14-2	A water truck shall be present on-site for fire control should flammable material ignite during the final closure construction.	Monitoring	During Grading and Construction	Transportation Department
MM 4.14-3	Smoking by construction workers and others at the South Coast Landfill shall be permitted only in the Contractor's	Monitoring	During Grading and Construction	Transportation Department

CHAPTER 5.0 – CONCLUSIONS

MM No.	Mitigation Measure	Method of Verification	Timing of Implementation	Responsibility
	Yard area.			
Transportation/Circulation				
MM 4.16-1	<p>Prior to commencement of soil import activities, a Traffic Control and Construction Management Plan shall be prepared and implemented during the grading and construction phases of the proposed project. The Traffic Control and Construction Management Plan shall specify:</p> <ul style="list-style-type: none"> ▪ Routes that construction vehicles will utilize for the delivery of construction materials to access the site, traffic control and detours, use of flagmen, and proposed construction phasing plan for the project. ▪ Parking needs and parking areas for construction-related equipment and workman support. ▪ Hours during which transport activities can occur and methods to mitigate construction-related impacts to adjacent streets. 	Plan Check	Prior to Commencement of Grading and Construction	Transportation Department