The Boeing Company
Santa Susana Field Laboratory
5800 Woolsey Canyon Road
Canoga Park, CA 91304-1148

HAND DELIVERED

June 15, 2009
In Reply refer to SHEA-108796

California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

BOEING

Attention: LB Nye, 401 Certification Program Unit Chief

Reference: CLEANUP AND ABATEMENT ORDER NO. R4-2007-0054

Subject: May 2009 Monthly Monitoring Report Submittal
Northern Drainage Debris Area and LOX Debris Area Removal Project
Santa Susana Field Laboratory, Ventura County, California

Dear Ms. Nye,

The Boeing Company (Boeing) hereby submits the monthly monitoring report (MMR) for the Santa Susana Field Laboratory (SSFL) Northern Drainage Debris Area and LOX Debris Area Removal Project, as required by Section B. xii of Cleanup and Abatement Order No. R4-2007-0054 (CAO). Monthly reports are to provide a summary of wet weather sampling activities and analytical results. Based on CAO requirements, MMRs will be submitted to the California Regional Water Quality Control Board-Los Angeles Region (RWQCB) by the 15th day of each calendar month for the previous month. This report covers activities during May, 2009.

This MMR also responds to a request for additional information placed on May 26, 2009 regarding the April 2009 MMR. Specifically requested were additional information on reported upstream and downstream exceedances of the water quality objectives of the cleanup and abatement order (CAO) for total suspended solids (TSS) and turbidity, including why those objectives were exceeded and steps Boeing has taken to guard against future exceedances.

**Project History**
As previously reported, two distinct debris areas were identified in the northeast portion of the SSFL along the Northern Drainage: the LOX Debris Area and the Former Shooting Range/Clay Target Debris Area. In addition to these specific areas, but still within the Northern Drainage, clay target debris was observed extending westward from the Former Shooting Range down drainage, and foam insulation debris was observed extending westward from the LOX Debris Area. Based on work scopes, the project was divided into two specific task areas: (i) the LOX Debris Area and (ii) the Northern Drainage Debris Area (including the Former Shooting Range).

Boeing submitted a mitigation work plan to the Department of Toxic Substances Control (DTSC) on September 10, 2007 (*Sage Ranch Debris/Asbestos Removal Work Plan*) for review and approval. In anticipation of commencing this project, Boeing submitted a *Request to Amend a Lake or Streambed Alteration Agreement* to the California

Department of Fish and Game (CDFG) on August 15, 2007. Additionally, a site-specific storm water pollution prevention plan (SWPPP) was submitted to the RWQCB on October 10, 2007. Based on discussion and communication with the United States Army Corps of Engineers (ACOE), Clean Water Act Section 404 authorization or permitting was not necessary or required for this project.

**Project Implementation**

**LOX Debris Area.** Soil and debris removal occurred in the LOX Debris Area between November 14, 2007 and December 20, 2007. The LOX Debris Area removal was performed in an area that covered approximately 0.3 acres, with approximately 2,500 cubic yards of debris and soil removed, shipped off-site and appropriately managed. Additional information regarding the field activities for the LOX Debris Area was provided in previous MMRs.

Following removal, substantial erosion control and channel stabilization features were installed in areas where excavation took place. These included coco matting across bare soils, placement of fiber roles at frequent intervals across bare slopes, placement of hay bales, hydroseed on the stream banks, and hillsides of the excavation area and check dam structures at locations where water velocities would be potentially high.

**Northern Drainage Debris Area** Phase 1 of the debris removal from the Northern Drainage Debris Area occurred between July 22, 2008 and mid December 2008. Phase 2 debris removal is scheduled to continue between the Former Shooting Range area and Outfall 009 during the upcoming 2009 summer season, with work planned to begin in June 2009.

A cultural survey to identify and protect historical anthropogenic sites and a biological survey to identify protected natural resources within the Northern Drainage including the Former Shooting Range Area were initiated on May 12, 2008. A second cultural survey was performed within a 1,000 foot radius of the Former Shooting Range on March 19, 2009 to prepare for the lead shot debris removal described above. Historical sites and protected species identified during the surveys were marked with red flags so they could be preserved during the debris removal.

Following the cultural and biological survey, clearing and grubbing of vegetation at the Former Shooting Range Area was performed between June 3, 2008 and June 27, 2008. Pursuant to a DTSC requirement, radiological surveys were performed in the cleared areas.

Debris removal in the Northern Drainage Debris Area was conducted between July and December 2008. Soil that was removed from the drainage was either placed in roll-off bins or stockpiled on site for waste profiling. Anthropogenic debris discovered during excavation activities at the Former Shooting Range Area were removed and contained in roll-off bins on site for waste characterization. To date, approximately 9,400 cubic yards of sediment, soil and debris have been removed, characterized, and transported off-site for disposal.

Confirmation soil sampling was performed between September 17, 2008 and September 26, 2008 to identify potential impacts from the material removed from the anthropogenic debris area. To address elevated concentrations of analytical results identified during

the initial confirmation soil sampling event, additional soil removal was performed at the Former Shooting Range Area. Confirmation soil sampling was performed intermittently between October 31, 2008 and December 5, 2008 concurrently with the additional soil removal.

Additional down-drainage confirmation soil sampling between the Former Shooting Range and the LOX Debris Area was conducted on October 24, 2008. Based on the analytical results from confirmation soil sampling, additional soil removal in this stretch of the drainage is necessary and is planned to begin in June 2009.

BOEING

Silt barriers were installed at the Former Shooting Range area, along the drainage and at the bottom of RD-82 Well Road to reduce sediment loads into the drainage. Approximately 1.5 acres of Hydroseed were applied at the Former Shooting Range area on November 10, 2008 and an additional 1 acre was applied on December 19, 2008.

**Wet Weather Flow and Sampling**

The CAO requires surface water samples to be collected when wet weather flow discharging downstream of the cleanup area occurs. Samples are to be collected during the first hour of discharge or at the first safe opportunity. Samples are to be collected not more than 50 feet upstream or downstream of the area where work is occurring. Samples are to be collected for three rain events or two years, whichever occurs first, after work is complete. To further define a "rain event," the Los Angeles RWQCB agreed to adopt the requirements of the SSFL National Pollution Discharge Elimination System (NPDES) permit, which provides that a discharge (rain) event is greater than 0.1 inch of rainfall in a 24-hour period, that no more than one sample per week need be obtained during extended periods of rainfall and that a storm must be preceded by at least 72 hours of dry weather. To establish whether a rain event results in wet weather flow, field inspections are conducted before, during and after rain events.

During the month of May, Boeing did not observe any rain events and, therefore, surface water samples were not collected.

**Response to Request**

On May 26, 2009, Boeing received a request to clarify the water quality objective results for total suspended solids (TSS) and turbidity as noted in the April 2009 MMR. Boeing notes that such information is not required by the CAO, and therefore did not include it in the April 2009 MMR. It should also be noted that the National Pollutant Discharge Elimination System (NPDES) permit specifically states in a footnote that the effluent limitation for total suspended solids are not applicable for discharges during wet weather. This provision was included to exclude data that may not be representative of native effluent conditions due to the increased load bearing capacity during wet weather flow. Turbidity is not a required analysis per the NPDES Permit.

**Upstream Former Shooting Range Sample (NDSW0012)**

Two surface water samples were collected at sample location NDSW0012, upstream of the former shooting range removal action area, in February 2009. The first surface water sample was collected on February 6, 2009 at 2:15 pm during a rain event that

delivered 2.72 inches of precipitation over a period of 61 hours between February 5, 2009 and February 7, 2009. Both the TSS and turbidity concentrations from this surface water sample remained below their respective daily maximum and monthly average water quality objectives.

The second NDSW0012 upstream surface water sample was collected at 12:30 pm on February 16, 2009 during a rain event that delivered a total of 1.91 inches of rain over a period of 16 hours. Please note that although rainfall was recorded at the facility rain gauge on February 13, surface water flow was not observed at the upstream sample location until February 16. TSS and turbidity were detected at 200 mg/L, and 120 NTUs, respectively. Both daily maximum and monthly average results for TSS and turbidity were above the water quality objectives for the NDWS0012 upstream surface water sample collected on February 16, 2009. Table 1 , summarizes the samples results for the upstream surface water sample NDSW0012. Table 3 and 4 of summarize the daily and monthly CAO water quality objective results for TSS and Turbidity, respectively.

Based on visual observations of the drainage during the rain event, the intensity of this rain event appeared to result in surface flow with higher velocity and potentially increased load capacity. Sampling was performed shortly after a storm surge that released 0.25 inches of precipitation between 11:00 am and 12:00 pm. Boeing considers the likely source to be the turbulent flow conditions from the intense rainfall. Since the upstream sample was intended to be a control sample to represent native conditions outside the Northern Drainage former shooting range removal action area, no other sources of sedimentation could be identified. Figure 1 shows the location of the upstream and downstream surface water sample locations.

**Downstream Former Shooting Range Sample (NDSW0013)**
Two surface water samples were collected at downstream sample location NDSW0013 in February 2009. The first surface water sample was collected on February 6, 2009 at 2:10 pm during a rain event that delivered 2.72 inches of precipitation between February 5, 2009 and February 7, 2009. Both the TSS and turbidity concentrations from this sample remained below their respective daily maximum water quality objectives.

A second surface water sample (NDSW0013) was collected, downstream of the former shooting range, at 2:30 pm on February 13, 2009 after a rain event that delivered a total of 0.39 inches of rain in approximately 4 hours, most of which fell between 1:00 pm and 2:00 pm. TSS was detected at a concentration of 50 mg/L, above the daily maximum water quality objective of 40 mg/L. The monthly average concentration for NDSW0013 was also above the water quality objective in the month of February 2009 for both TSS (15 mg/L) and turbidity (50mg/L). Table 2 summarizes the samples results for the downstream surface water sample NDSW0013. Table 3 and 4 summarize the daily and monthly CAO water quality objective results for TSS and turbidity, respectively..

Increased TSS and turbidity detected in downstream samples is likely due to intense rainfall prior to sample collection. Other possible contributing factors were the clearing of vegetation in preparation of the debris removal activities, and the suspension and transportation of residual soil that remained after the completion of removal activities by surface water during the intense rainfall.

**2008/2009 Outfall Best Management Practices [BMPs]**

To reduce sediment loads into the drainage prior to the 2008 – 2009 rainy season, Boeing installed silt barriers at the Former Shooting Range area, along the drainage and at the bottom of RD-82 Well Road. Approximately 1.5 acres of Hydroseed were applied at the Former Shooting Range area on November 10, 2008 and an additional 1 acre was applied on December 19, 2008.

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Between October 2008 and April 2009 culvert maintenance was performed at eleven culverts feeding into the Northern Drainage on both Sage Ranch and Boeing property. These culvert maintenance activities resulted in reduced water velocities and sediment loadings from 11 side drainages into the Outfall 009 primary drainage. This was accomplished by installing customized headwalls with a filter chamber. The headwalls have weirs that slow water velocities and create an upstream detention basin in which settling occurs. The overflow passes through a filter box that removes additional pollutants. The culverts were also lined to reduce erosion of older culvert material and discharges of pollutants from the culverts themselves. Fiber rolls and hydroseed were also installed to stabilize soil in the areas disturbed by culvert maintenance activities.

**Planned Responses**

In addition to the previously mentioned installed BMPs, during the summer months Boeing will take additional action to control sedimentation and reduce turbidity by upgrading its current BMPs beginning at the upstream sampling location and extending down to Outfall 009. Activities will include a site reconnaissance where areas with poor vegetation, bare soil, and where sediment loads may overcome BMPs during high flow will be assessed and Hydroseed and/or additional fiber rolls and hay bales will be added as necessary to control sediment runoff. Detailed descriptions of current BMPs installed and planned upgrades are included in the *BMP Compliance Report for Outfall 009* submitted in June 2009 (Attachment 1).

If there are any questions regarding this report, please contact Ms. Lori Blair at (818) 466-8741.

Sincerely,

Thomas D. Gallacher
Director
Santa Susana Field Laboratory
Environment, Health and Safety

cc: Norman E. Riley, DTSC
Gerard Abrams, DTSC
Cassandra Owens, RWQCB

Allen Elliott, NASA
Dixie Hambrick, MWH

Attachments:

Tables:
Table 1. NDSW0012 (Shooting Range Area Upstream)
Table 2. NDSW0013 (Shooting Range Area Downstream)
Table 3. Summary of Daily CAO Water Quality Objective Results
Table 4. Summary of Monthly CAO Water Quality Objective Results

BOEING

Figure 1 Excavation Extents in the Northern Drainage

Attachment 1 Best Management Practices Compliance Report, Outfall 009

TABLE 1

NDSW0012 (Shooting Range Area Upstream)

**Table 1. NDSW0012 (SHOOTING RANGE AREA UPSTREAM)**
**NORTHERN DRAINAGE REPORTING SUMMARY**
**THE BOEING COMPANY**
**SANTA SUSANA FIELD LABORATORY**
**CAO NO. R4-2007-0054**

**February 1 through February 28, 2009**

| | | | 2/6/2009 | | 2/16/2009 | |
|---|---|---|---|---|---|---|
| ANALYTE | UNITS | CAO WQO Daily Max/Monthly Average | RESULT | DATA VALIDATION QUALIFIER[1] | RESULT | DATA VALIDATION QUALIFIER[1] |
| Dissolved Oxygen | mg/L | 5 Min/7Annual | **6.6** | -- | ***10*** | -- |
| pH (Field) | pH Units | 6.5-8.5/- | 7.7 | * | 7.7 | * |
| Temperature | deg. F | 86/- | 56 | * | 42 | * |
| Total Suspended Solids | mg/L | 45/15 | 8.0 | J* (DNQ) | ***200*** | -- |
| Turbidity | NTU | 75/50 | 26 | * | ***120*** | -- |
| Benzo(a)pyrene | µg/L | 0.049/- | ND < 0.047 | * | ND < 0.047 | U |
| Benzo(b)fluoranthene | µg/L | 0.049/- | ND < 0.047 | * | ND < 0.047 | U |
| Benzo(k)fluoranthene | µg/L | 0.049/- | ND < 0.047 | * | ND < 0.047 | U |
| Chrysene | µg/L | 0.049/- | ND < 0.047 | * | ND < 0.047 | U |
| Dibenzo(a,h)anthracene | µg/L | 0.019/- | ND < 0.047 | * | ND < 0.047 | U |
| Fluoranthene | µg/L | 370/- | ND < 0.047 | * | ND < 0.047 | U |
| Fluorene | µg/L | 14000/- | ND < 0.047 | * | ND < 0.047 | U |
| Indeno(1,2,3-cd)pyrene | µg/L | 0.049/- | ND < 0.047 | * | ND < 0.47 | UJ (B,C) |
| Naphthalene | µg/L | 17/- | ND < 0.047 | * | ND < 0.047 | U |
| Pyrene | µg/L | 11000/- | ND < 0.047 | C* | ND < 0.047 | U |

*Notes:*

Results shown in bold exceed the maximum daily CAO limit

Results shown in italics exceed the monthly or annual CAO average

[1] Level IV data validation performed by MEC[x]

-- = Based on validation of the data, a qualifier was not required

<(value) = Analyte not detected at a concentration greater than or equal to the detection limit, method detection limit or reporting limit (see laboratory report in Attachment A for specfic details)

/- = No permit limit established for monthly average

CAO = Cleanup and Abatement Order

deg. F = degrees Fahrenheit

mg/L = milligrams per liter

NTU = nephelometric turbididty units

µg/L = micrograms per liter

WQO = Water Quality Objective

*Data Validation Qualifiers*

* = Result not validated

B = Presumed contamination as indicated by the method blank results

C = Calibration %RSD or %D was noncompliant

DNQ = The reported result is above the method detection limit but is less than the reporting limit

U = Not detected above the reported sample quantitation limit

UJ = Result not detected at the estimated reporting limit

TABLE 2

NDSW0013 (Shooting Range Area Downstream)

**Table 2. NDSW0013 (SHOOTING RANGE AREA DOWNSTREAM)**
**NORTHERN DRAINAGE REPORTING SUMMARY**
**THE BOEING COMPANY**
**SANTA SUSANA FIELD LABORATORY**
**CAO NO. R4-2007-0054**

**February 1 through February 28, 2009**

| ANALYTE | UNITS | CAO WQO Daily Maximum/Monthly Average | 2/6/2009 RESULT | 2/6/2009 DATA VALIDATION QUALIFIER[1] | 2/13/2009 RESULT | 2/13/2009 DATA VALIDATION QUALIFIER[1] |
|---|---|---|---|---|---|---|
| Dissolved Oxygen | mg/L | 5 Min/7Annual | 8.5 | J (H) | 9.6 | -- |
| pH (Field) | pH Units | 6.5-8.5/- | 8.0 | * | 7.0 | * |
| Temperature | deg. F | 86/- | 51 | * | 46 | * |
| Total Suspended Solids | mg/L | 45/15 | 27 | -- | ***50*** | -- |
| Turbidity | NTU | 75/50 | 55 | J (H) | *58* | -- |
| Benzo(a)pyrene | µg/L | 0.049/- | ND < 2.8 | * | ND < 0.050 | U |
| Benzo(b)fluoranthene | µg/L | 0.049/- | ND < 1.9 | * | ND < 0.050 | U |
| Benzo(k)fluoranthene | µg/L | 0.049/- | ND < 2.4 | * | ND < 0.050 | U |
| Chrysene | µg/L | 0.049/- | ND < 2.4 | * | ND < 0.050 | U |
| Dibenzo(a,h)anthracene | µg/L | 0.019/- | ND < 2.8 | * | ND < 0.050 | U |
| Fluoranthene | µg/L | 370/- | ND < 2.8 | * | ND < 0.050 | U |
| Fluorene | µg/L | 14000/- | ND < 2.8 | * | ND < 0.050 | U |
| Indeno(1,2,3-cd)pyrene | µg/L | 0.049/- | ND < 3.3 | * | ND < 0.50 | UJ (B,C) |
| Naphthalene | µg/L | 17/- | ND < 2.8 | * | ND < 0.050 | U |
| Pyrene | µg/L | 11000/- | ND < 3.8 | * | ND < 0.050 | U |

*Notes:*
Results shown in bold exceed the maximum daily CAO limit
Results shown in italics exceed the monthly or annual CAO average
[1] Level IV data validation performed by MEC[x]
-- = Based on validation of the data, a qualifier was not required
<(value) = Analyte not detected at a concentration greater than or equal to the detection limit, method detection limit or reporting limit (see laboratory report in Attachment A for specfic details)
/- = No permit limit established for monthly average
CAO = Cleanup and Abatement Order
deg. F = degrees Fahrenheit
mg/L = milligrams per liter
NTU = nephelometric turbididty units
µg/L = micrograms per liter
WQO = Water Quality Objective

*Data Validation Qualifiers*
* = Result not validated
B = Presumed contamination as indicated by the method blank results
C = Calibration %RSD or %D was noncompliant
J = estimated value
H = holding time was exceeded
U = Not detected above the reported sample quantitation limit
UJ = Result not detected at the estimated reporting limit

TABLE 3

Summary of Daily CAO Water Quality Objective Results

## Table 3. SUMMARY OF DAILY CAO WATER QUALITY OBJECTIVE RESULTS NORTHERN DRAINAGE THE BOEING COMPANY SANTA SUSANA FIELD LABORATORY CAO NUMBER R4-2007-0054

| DAILY CAO WATER QUALITY OBJECTIVE RESULTS | | | | | | | |
|---|---|---|---|---|---|---|---|
| SAMPLE ID | LOCATION | SAMPLE DATE | ANALYTE | CAO LIMIT DAILY MAX | DAILY MAX RESULT | UNITS | VALIDATION QUALIFIER |
| NDSW0012 | SHOOTING RANGE AREA UPSTREAM | 02/16/09 | Total Suspended Solids | 45 | 200 | mg/L | -- |
| NDSW0012 | SHOOTING RANGE AREA UPSTREAM | 02/16/09 | Turbidity | 75 | 120 | NTU | -- |
| NDSW0013 | SHOOTING RANGE AREA DOWNSTREAM | 02/13/09 | Total Suspended Solids | 45 | 50 | mg/L | -- |

*Notes:*

-- = Based on validation of the data, a qualifier was not required

CAO = Cleanup and Abatement Order

mg/L = milligrams per liter

NTU = nephelometric turbidity units

TABLE 4

Summary of Monthly CAO Water Quality Objective Results

## Table 4. SUMMARY OF MONTHLY CAO WATER QUALITY OBJECTIVE RESULTS NORTHERN DRAINAGE THE BOEING COMPANY SANTA SUSANA FIELD LABORATORY CAO NUMBER R4-2007-0054

| MONTHLY CAO WATER QUALITY OBJECTIVE RESULTS | | | | | | | |
|---|---|---|---|---|---|---|---|
| OUTFALL | LOCATION | SAMPLE DATE | ANALYTE | CAO MONTHLY AVERAGE | MONTHLY AVERAGE RESULT | UNITS | VALIDATION QUALIFIER |
| NDSW0012 | SHOOTING RANGE AREA UPSTREAM | Feb-09 | Total Suspended Solids | 15 | 200 | mg/L | * |
| NDSW0012 | SHOOTING RANGE AREA UPSTREAM | Feb-09 | Turbidity | 50 | 120 | NTU | * |
| NDSW0013 | SHOOTING RANGE AREA DOWNSTREAM | Feb-09 | Total Suspended Solids | 15 | 52 | mg/L | * |
| NDSW0013 | SHOOTING RANGE AREA DOWNSTREAM | Feb-09 | Turbidity | 50 | 84 | NTU | * |

*Notes:*

* = Result not validated

CAO = Cleanup and Abatement Order

mg/L = milligrams per liter

NTU = nephelometric turbididty units

FIGURE 1

Excavation Extents in the Northern Drainage

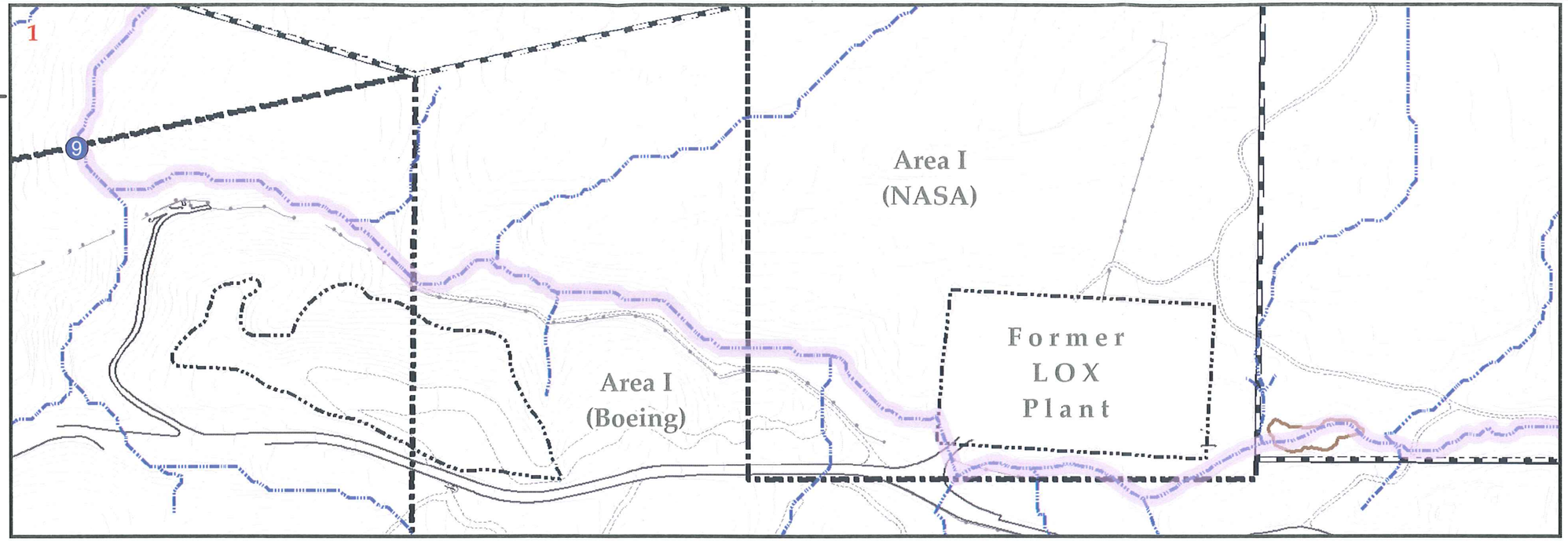
# Excavation Extents in the Northern Drainage

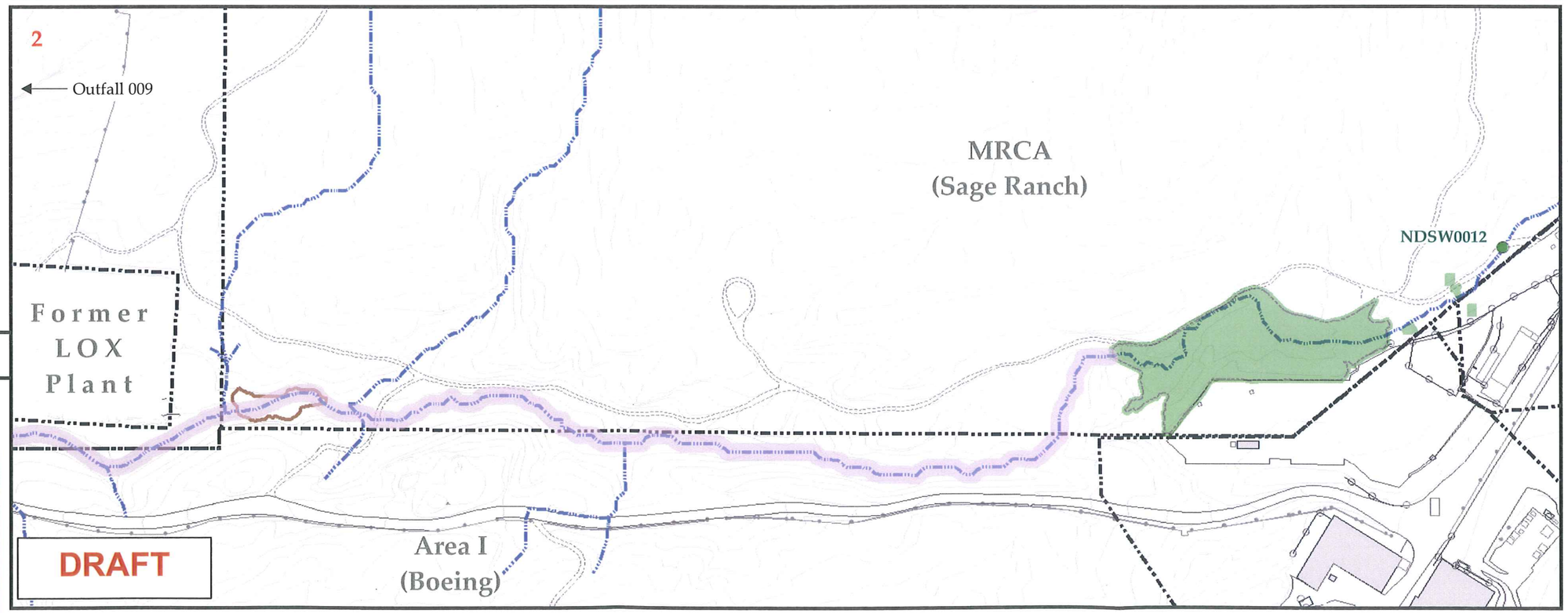
## Base Map Legend

- Administrative Area Boundary
- RFI Site Boundary
- Existing Building or Structure
- Removed Building or Structure
- Dirt Road
- Fences
- A/C Paving
- Pipe
- Drainage
- NPDES Outfall

## Figure Legend

- Clay Target Excavation Extent
- Drainage Excavation and Debris Removal
- Extent of Lox Debris / Asbestos

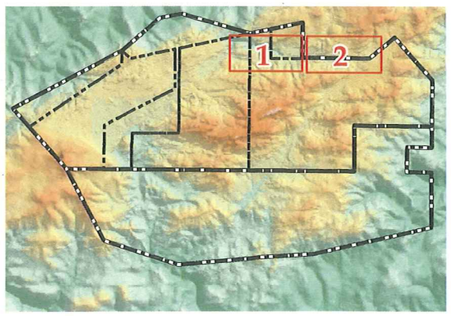



Document: NorthDrainage_ExcavationExtents.MXD

Date: Dec. 12, 2008

0 130 260 520 Feet




SANTA SUSANA FIELD LABORATORY

MWH FIGURE 1

ATTACHMENT 1

Best Management Practices Compliance Report, Outfall 009

The Boeing Company
Santa Susana Field Laboratory
5800 Woolsey Canyon Road
Canoga Park, CA 91304-1148

Hand Delivered

June 8, 2009
In reply refer to SHEA-108771

Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Attention: Cassandra Owens

Reference: Order No. R4-2007-0055, Compliance File CI-6027
NPDES No. CA0001309

Subject: Best Management Practice Compliance Report, Outfall 009
The Boeing Company, Santa Susana Field Laboratory
Ventura County, California

Dear Ms. Owens:

Per the above-referenced order issued by the RWQCB on November 6, 2007, which became effective December 20th, 2007, The Boeing Company (Boeing) hereby submits this Best Management Practice (BMP) Compliance Report for Outfall 009 (WS-13 Drainage) for the Santa Susana Field Laboratory (SSFL).

If there are any questions regarding this report or its attachment, you may contact Ms. Lori Blair of Boeing at (818) 466-8741.

Sincerely,

Paul J Cutts for

Thomas D. Gallacher
Director, Santa Susana Field Laboratory
Environment, Health and Safety

LNB:bjc
Attachment: Best Management Practice Compliance Report, Outfall 009
Santa Susana Field Laboratory, Ventura County, California

cc: Mr. Allen Elliott, National Aeronautic and Space Administration (NASA)

# Best Management Practice Compliance Report Outfall 009

# Santa Susana Field Laboratory

# Ventura County, California

**June 8, 2009**

**Prepared For:**

**The Boeing Company**

**Prepared By:**

**MWH**
**618 Michillinda Avenue**
**Suite 200**
**Arcadia, California 91007**

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# 1.0 INTRODUCTION

The Boeing Company (Boeing) hereby submits this Best Management Practice (BMP) Compliance Report for Outfall 009 (WS-13 Drainage) for the Santa Susana Field Laboratory (SSFL). As required within Order No. R4-2007-0055, Waste Discharge Requirements (WDR) of the National Pollutant Discharge Elimination System (NPDES) Permit No. CA001309 (Permit), a BMP Compliance Report is due to the Regional Board 60 days after the second consecutive reported exceedance of a benchmark limit.

## 1.1 OBJECTIVE

The primary objective of this report is the provide information on the actions to be taken as a result of a second consecutive reported exceedance of a benchmark limit at Outfall 009. Boeing has been implementing substantial measures in the Outfall 009 watershed to ensure full compliance with the benchmark limits. Several extensive measures have been completed and additional measures are in their implementation phase as noted in this report.

This BMP compliance report consists of surface water analytical results, recent source removal activities as part of the Former Shooting Range cleanup, BMPs implemented in 2008 and 2009, additional planned source removal activities, and proposed actions in preparation for the upcoming 2009 and 2010 rainy season.

## 2.0 REPORTED BENCHMARK EXCEEDANCE HISTORY

Surface water samples were collected on February 6, and February 13, 2009, at Outfall 009. Lead (Pb) and TCDD (Dioxin) TEQ (Toxic Equivalent Quotient) NoDNQ (DNQ = detected but not quantified due to the results being below analytical limits) were detected at 7.5 µg/L, and $9.5x10^{-7}$ µg/L on February 6, 2009, respectively. On February 13, 2009, lead and TCDD TEQ_NoDNQ concentrations were detected at 20 µg/L, and $1.2x10^{-5}$ µg/L, respectively.

Results for both lead and TCDD TEQ_NoDNQ exceeded the NPDES permit benchmark limit of 5.2 µg/L (Lead), and $2.80x10^{-8}$ µg/L (TCDD TEQ_NoDNQ), respectively. These results were previously reported in the 24 hour notifications submitted on April 2, and 9, 2009 (which were within 24 hours of when the validated data were received by Boeing), and also reported in the 1st Quarter 2009 Discharge Monitoring Report (DMR) submitted on May 15, 2009. A summary of Outfall 009 1st Quarter 2009 benchmark exceedances are displayed in Table 1.

# 3.0 SUMMARY OF SOURCE REMOVAL ACTIONS

On November 6, 2007 the RWQCB issued Boeing a Cleanup and Abatement Order No. R4-2007-0054 (CAO) (RWQCB 2007) to remove and abate debris in the Outfall 009 drainage (Northern Drainage). The following sections are a summary of the source removal activities that have been completed as part of this removal action.

## 3.1 THE LOX DEBRIS AREA REMOVAL

The LOX debris area removal program was implemented in fall 2007, and was conducted to remove debris and soil containing antimony and asbestos-containing material (ACM). Approximately 2,500 cubic yards of debris and soil were excavated and transported offsite for disposal. (Montgomery Watson Harza [MWH], 2008a). Following removal, substantial erosion control and channel stabilization features were installed in areas where excavation took place. These included coco matting across bare soils, placement of fiber roles at frequent intervals across bare slopes, placement of hay bales, hydroseed on the stream banks, and hillsides of the excavation area and check dam structures at locations where water velocities would be potentially high.

## 3.2 THE NORTHERN DRAINAGE LEAD AND CLAY TARGET DEBRIS REMOVAL

The first phase of the Northern Drainage lead and clay target debris removal associated with the former shooting range was completed in December 2008, in accordance with the DTSC approved 2007 "Report on Former Shooting Range/Northern Drainage Clay Target Debris Removal Work Plan" and the Work Plan Addendum, by Haley & Aldrich, Inc. (HAI). During the initial clay target removal activities in 2008, Boeing removed more than 9,000 cubic yards of soil/sediment, clay target pieces, buried debris, incidental lead shot from the former shooting range and drainage (HAI, 2007). Continued lead and clay target debris removal will be continued during June through December 2009.

Due to the removal of vegetation as part of the Northern Drainage clay target debris excavation, sediment and erosion control BMPs were completed by January 2009. These measures included the application of approximately 4 acres of hydroseed to stabilize soil in the disturbed areas along with the placement of fiber rolls, sand bags, hay bales, and silt fencing. This was noted in the Report on Former Shooting Range Debris Removal Action prepared by HAI and submitted to DTSC on May 28, 2009 (Appendix A).

# 4.0 2008/2009-OUTFALL 009 BEST MANAGEMENT PRACTICES (BMPS)

Throughout 2008 and 2009, Boeing has taken numerous actions to improve the quality of surface water discharges, and minimize the potential for benchmark exceedances. Specific BMP details are provided below.

## 4.1 BMP INSPECTIONS

As noted in the quarterly DMRs, sediment and erosion control BMPs consisting of fiber rolls, straw bales, silt fencing, coco matting, and hydroseed have been installed in the Northern Drainage watershed downstream of the excavation areas to minimize the potential for erosion along the drainage. As outlined in the Site-Specific Storm Water Pollution Prevention Plan (SWPPP) for the Former Shooting Range/Northern Drainage Clay Target Debris Area inspections are conducted throughout the October 15$^{th}$ to April 15$^{th}$ rainy season and before a forecasted storm, after a rain event, at 24-hour intervals during extended rain events, at weekly intervals during the rainy season, every 2 weeks during the non-rainy season, and at any other time or intervals of time as needed (MWH, 2008b). This is in addition to the inspections conducted as required by the SSFL Site-Wide SWPPP (MWH, 2008c). BMPs are upgraded or maintained based on results of the inspections conducted

## 4.2 CULVERT MAINTENANCE

Between October 2008 and April 2009 culvert maintenance was performed at eleven culverts feeding into the Northern Drainage on both Sage Ranch and Boeing property. These culvert maintenance activities resulted in reduced water velocities and sediment loadings from 11 side drainages into the Outfall 009 primary drainage. This was accomplished by installing customized headwalls with a filter chamber. The headwalls have weirs that slow water velocities and create an upstream detention basin in which settling occurs. The overflow passes through a filter box that removes additional pollutants. The culverts were also lined to reduce erosion of older culvert material and discharges of pollutants from the culverts themselves. Fiber rolls and hydroseed were also installed to stabilize soil in the areas disturbed by culvert maintenance activities. Appendix B shows representative photos of the culvert maintenance upgrades. Appendix C consists of a figure displaying culvert maintenance locations, and design diagrams.

# 5.0 PLANNED NORTHERN DRAINAGE REMOVAL ACTIONS

The section describes the comprehensive actions that are being implemented at the SSFL to improve surface water discharges within the Outfall 009 and Northern Drainage watershed. After completion of the following soil source removal actions, restoration activities will be performed to minimize erosion and sediment transport, and promote establishment of vegetation. The Surface Water Expert Panel will be consulted on restoration methods proposed within the Outfall 009 watershed.

## 5.1 ADDITIONAL CLAY TARGET REMOVAL

Additional down-drainage confirmation soil sampling between the Former Shooting Range and the LOX Debris Area was conducted on October 24, 2008. Based on the analytical results from confirmation soil sampling, Boeing will remove additional soils in this stretch of the drainage due to elevated PAH (polycyclic aromatic hydrocarbons) concentrations. The clay target removal was temporarily suspended to avoid potential discharges during the 2008-2009 rainy season and will resume in June 2009.

During this second removal event, one vacuum truck will be used to strategically remove areas within the Northern Drainage with elevated PAH (from the clay pigeons) concentrations that were identified from confirmation soil samples, as well as areas with visible clay target debris.

As implemented in the first Northern Drainage removal event, sediment and erosion control BMPs will be placed to stabilize soil in the areas disturbed by the excavation activities (fiber rolls, haybales, sand bags and silt fencing).

## 5.2 LEAD SHOT REMOVAL

Boeing has submitted to DTSC a "Revised Former Shooting Range Overshot Area Visible Lead Shot Removal Work Plan, Santa Susana Field Laboratory, Ventura County, California," by HAI dated 13 February 2009. Upon DTSC approval, Boeing plans to continue removal of visible lead shot within the former shooting range area (rock outcrops and trails). Visible lead shot shall be removed by hand tools and/or vacuum trucks in accordance with the Work Plan (HAI 2009a, and 2009b).

Erosion and sediment control BMPs will be maintained before and throughout the removal activities. Silt fencing will be installed between the Northern Drainage and the sandstone outcrops north of the drainage to prevent the downhill transport of lead shot from the former shooting range overshot area. Lead shot that accumulates behind the silt fence will be collected and removed (HAI 2009a, and 2009b).

## 5.3 INTERIM SOURCE REMOVAL ACTIVITY (ISRA)

Boeing is implementing a program to remove sources within the Outfall 009 watershed. To assist Boeing with this effort, the RWQCB issued a California Water Code Section 13304 CAO dated December 3, 2008 (RWQCB 2007, and 2008) to give the DTSC authority to allow cleanup ahead of the site-wide RFI/CMS process. Boeing is addressing the potential sources that may be contributing to the NPDES permit limit and benchmark surface water exceedances within the Outfall 009 watershed. The objective of the Interim Source Removal Action (ISRA) is to improve surface water quality within the Outfall 009 watershed by identifying, evaluating, and remediating areas of contaminated soil in order to eliminate the constituents of concern (COCs) that may have resulted in exceedances of NPDES permit limits and benchmarks.

Boeing has submitted a Preliminary Interim Source Removal Action (ISRA) Work Plan dated February 13, 2009, and the Final Interim Source Removal Action Work Plan dated May 1, 2009 (MWH 2009a, and 2009b). Boeing is providing monthly and quarterly progress reports on ISRA activities. The June 2009 Monthly progress reported in included as Appendix D.

By the end of 2009, Boeing will complete the required archeological and/or biological surveys for the proposed Outfall 009 work areas, submit permitting packages or permitting amendments for project areas within Northern Drainage, prepare a Soil Management Plan, a Traffic Management Plan, and a project Health and Safety Plan. The Outfall 009 Expendable Launch Vehicle (ELV) ISRA excavation is scheduled for completion in 2009. ISRA activities will continue to occur in 2010/2011, with completion of the ISRA activities prior to the fall 2012 rainy season.

As stated previously, the Surface Water Expert Panel will be consulted on restoration activities that will be performed in the Outfall 009 watershed to minimize erosion and sediment transport, and promote establishment of vegetation. Other related ISRA maintenance activities consists of repairing and modifying existing culverts, asphalt road removal, and dirt road rehabilitation.

Culvert repair will be performed on the one additional culvert located on the south side of Area Service Road and west of the Area II Landfill.

## 6.0 2009 ADDITIONAL ACTIONS AND REPORTING

In order to address previous stated benchmark exceedances, and in conformance with Boeing's commitment to clean water, Boeing will complete the following actions:

- BMPs will continue to be inspected as noted and when BMPs show signs that they will not effectively achieve their intended purpose of soil stabilization, sediment capture, water velocity dissipation, erosion control, sediment control, or pollutant removal, they will be repaired or replaced.

- Boeing will map additional areas of poor vegetation and bare soil. Where accessible, hydroseed and/or additional erosion and/or sediment control BMPs such as fiber rolls or hay bales will be placed to control sediment runoff in areas of sparse vegetation.

- During source removal activities, sediment and erosion control BMPs (including fiber rolls, straw bales, silt fencing, coco matting, and hydroseed) will be utilized as needed in and downstream of the excavation areas to minimize the potential for excessive erosion and impacts to the drainage.

In accordance with the Boeing Order No.R4-2007-0055 of the NPDES Permit Number CA001309, BMP compliance reports will continue to be submitted by Boeing under separate cover as necessary, for new benchmark limit exceedances or unless directed by the RWQCB. The Quarterly NPDES DMRs will document BMP upgrades and maintenance in the Outfall 009 drainage for the upcoming rainy seasons.

# 7.0 REFERENCES

Haley & Aldrich, Inc., (HAI) 2007. Former Shooting Range/Northern Drainage Clay Target Debris Removal Work Plan, Santa Susana Field Laboratory, Ventura County. August.

HAI 2009a. Addendum to Revised Former Shooting Range Overshot Area Visible Lead Shot Removal Work Plan, Santa Susana Field Laboratory, Ventura County, California. March

HAI 2009b. Revised Former Shooting Range Overshot Area Visible Lead Shot Removal Work Plan, Santa Susana Field Laboratory, Ventura County, California. February.

MWH, 2008a. Northern Drainage Former Liquid Oxygen (LOX) Plant Debris/Asbestos Removal Action Report, Santa Susana Field Laboratory, Ventura County. February.

MWH, 2008b. Storm Water Pollution Prevention Plan (SWPPP) for the Former Shooting Range/Northern Drainage Clay Target Debris Area, Santa Susana Field Laboratory, Ventura County, California. October.

MWH, 2008c. Storm Water Pollution Prevention Plan (SWPPP) for the Santa Susana Field Laboratory, Santa Susana Field Laboratory, Ventura County, California. March.

MWH, 2009a. Preliminary Interim Source Removal Action (ISRA) Work Plan, Santa Susana Field Laboratory, Ventura County, California. February.

MWH, 2009b. Final Interim Source Removal Action (ISRA) Work Plan, Santa Susana Field Laboratory, Ventura County, California. May.

RWQCB, 2007. Letter from T. Egoscue, DTSC, to T. Gallacher, Boeing, Cleanup and Abatement Order No. R4-2007-0054 Requiring the Boeing Company, Santa Susana Field Laboratory to Cleanup and Abate the Effects of Contaminants Discharged to Surface Waters, the Northern, Drainage, An Ephimeral Stream that Discharges to the Arroyo Simi, A Tributary to Calleguas Creek. November.

RWQCB, 2008. California Water Code Section 13304 Order to Perform Interim/Source Removal Action of Soil in the Areas of Outfall 008 and 009 Drainage Areas, SSFL, Ventura County, California. December.

Table 1

Summary of Outfall 009 1st Quarter 2009 Exceedances

## Summary of Outfall 009 1st Quarter Benchmark Exceedances

## The Boeing Company
## Santa Susana Field Laboratory

## NPDES PERMIT CA0001309

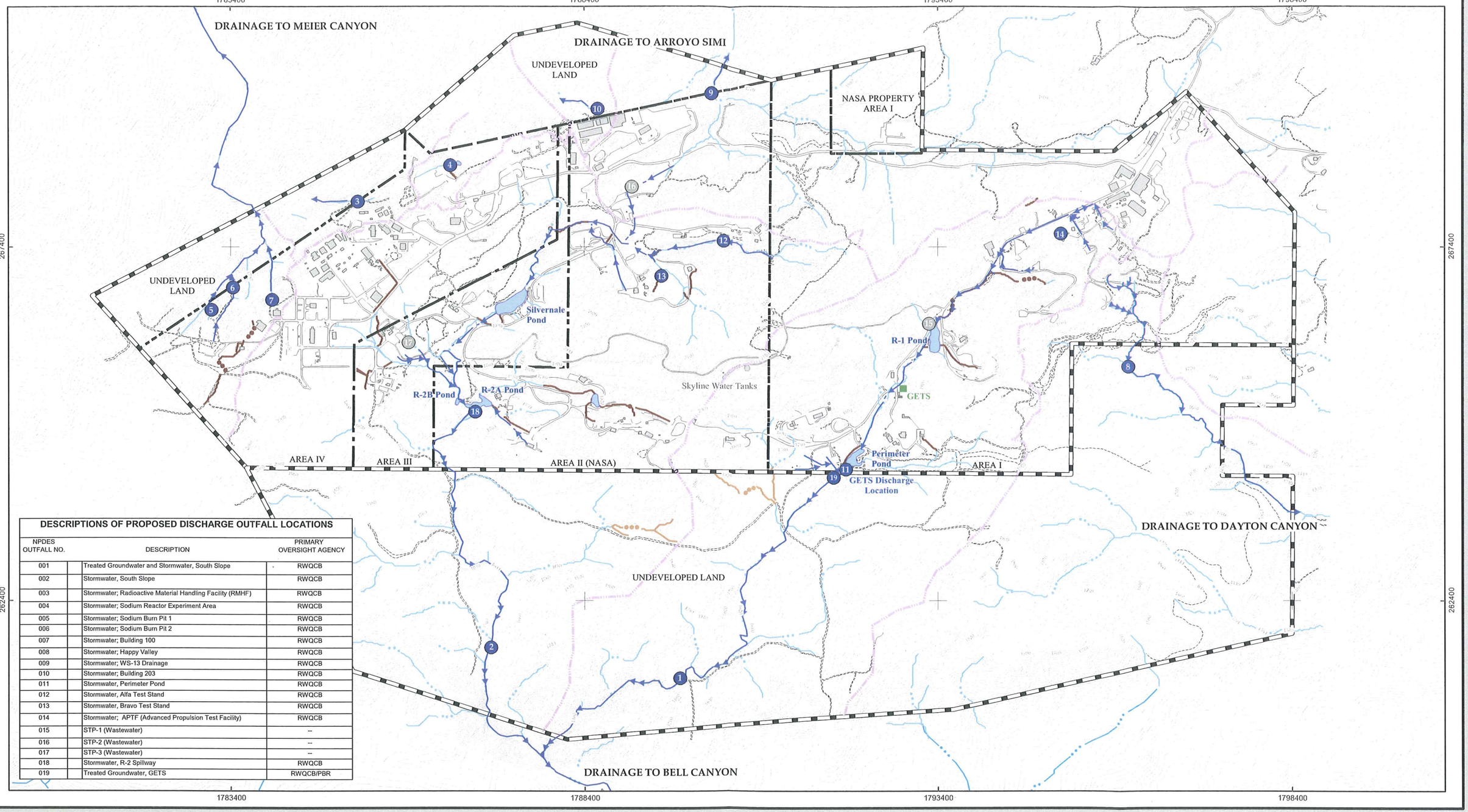
| OUTFALL | LOCATION | SAMPLE DATE | ANALYTE | BENCHMARK LIMIT DAILY MAX | DAILY MAX RESULT | UNITS | VALIDATION QUALIFIER |
|---|---|---|---|---|---|---|---|
| Outfall 009 | WS-13 Drainage | 02/06/09 | Lead | 5.2 | 7.5 | ug/L | -- |
| Outfall 009 | WS-13 Drainage | 02/06/09 | TCDD TEQ_NoDNQ | 2.8E-08 | 9.5E-07 | ug/L | -- |
| Outfall 009 | WS-13 Drainage | 02/13/09 | Lead | 5.2 | 20 | ug/L | -- |
| Outfall 009 | WS-13 Drainage | 02/13/09 | TCDD TEQ_NoDNQ | 2.8E-08 | 1.2E-05 | ug/L | -- |

**Notes**

| | |
|---|---|
| -- | based on validation of the data, a qualifier was not required |
| DNQ | detected but not quantified (constituent value greater than or equal to the laboratory method detection limit and less then the laboratory reporting limit) |
| TEQ | toxic equivalent |
| ug/L | micrograms per liter |

Figure 1

Storm Water Drainage System and Outfall Locations




## DESCRIPTIONS OF PROPOSED DISCHARGE OUTFALL LOCATIONS

| NPDES OUTFALL NO. | DESCRIPTION | PRIMARY OVERSIGHT AGENCY |
|---|---|---|
| 001 | Treated Groundwater and Stormwater, South Slope | RWQCB |
| 002 | Stormwater, South Slope | RWQCB |
| 003 | Stormwater; Radioactive Material Handling Facility (RMHF) | RWQCB |
| 004 | Stormwater; Sodium Reactor Experiment Area | RWQCB |
| 005 | Stormwater; Sodium Burn Pit 1 | RWQCB |
| 006 | Stormwater; Sodium Burn Pit 2 | RWQCB |
| 007 | Stormwater; Building 100 | RWQCB |
| 008 | Stormwater; Happy Valley | RWQCB |
| 009 | Stormwater; WS-13 Drainage | RWQCB |
| 010 | Stormwater; Building 203 | RWQCB |
| 011 | Stormwater, Perimeter Pond | RWQCB |
| 012 | Stormwater, Alfa Test Stand | RWQCB |
| 013 | Stormwater, Bravo Test Stand | RWQCB |
| 014 | Stormwater; APTF (Advanced Propulsion Test Facility) | RWQCB |
| 015 | STP-1 (Wastewater) | -- |
| 016 | STP-2 (Wastewater) | -- |
| 017 | STP-3 (Wastewater) | -- |
| 018 | Stormwater, R-2 Spillway | RWQCB |
| 019 | Treated Groundwater, GETS | RWQCB/PBR |

0 500 1,000 2,000 Feet

MAP COORDINATES IN STATE PLANE, NAD 27, ZONE V

**Legend**

- NPDES Outfalls (RWQCB Primary Oversight Authority)
- Historical NPDES Outfalls
- Groundwater Extraction Treatment System (GETS)
- Effluent Pathways
- Surface Water Drainage Divide
- Natural Drainage
- Concrete Lined Drainage
- Graded Drainage
- Surface Water Reclamation Ponds

**Base Map Legend**

- SSFL Property Boundary
- Administrative Area Boundary
- Ground Elevation Contours
- Drainage Pathways
- A/C Curbing
- Dirt Road
- Existing Building or Structure

# Site Map with Outfall Locations and Storm Water Drainage Systems

Date: Jan 28, 2008

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MWH

FIGURE 1

# Appendix A

Report on Former Shooting Range Debris Removal Action
Santa Susana Field Laboratory
(Electronic Copy)

# Appendix B

## Photos of Culvert Maintenance

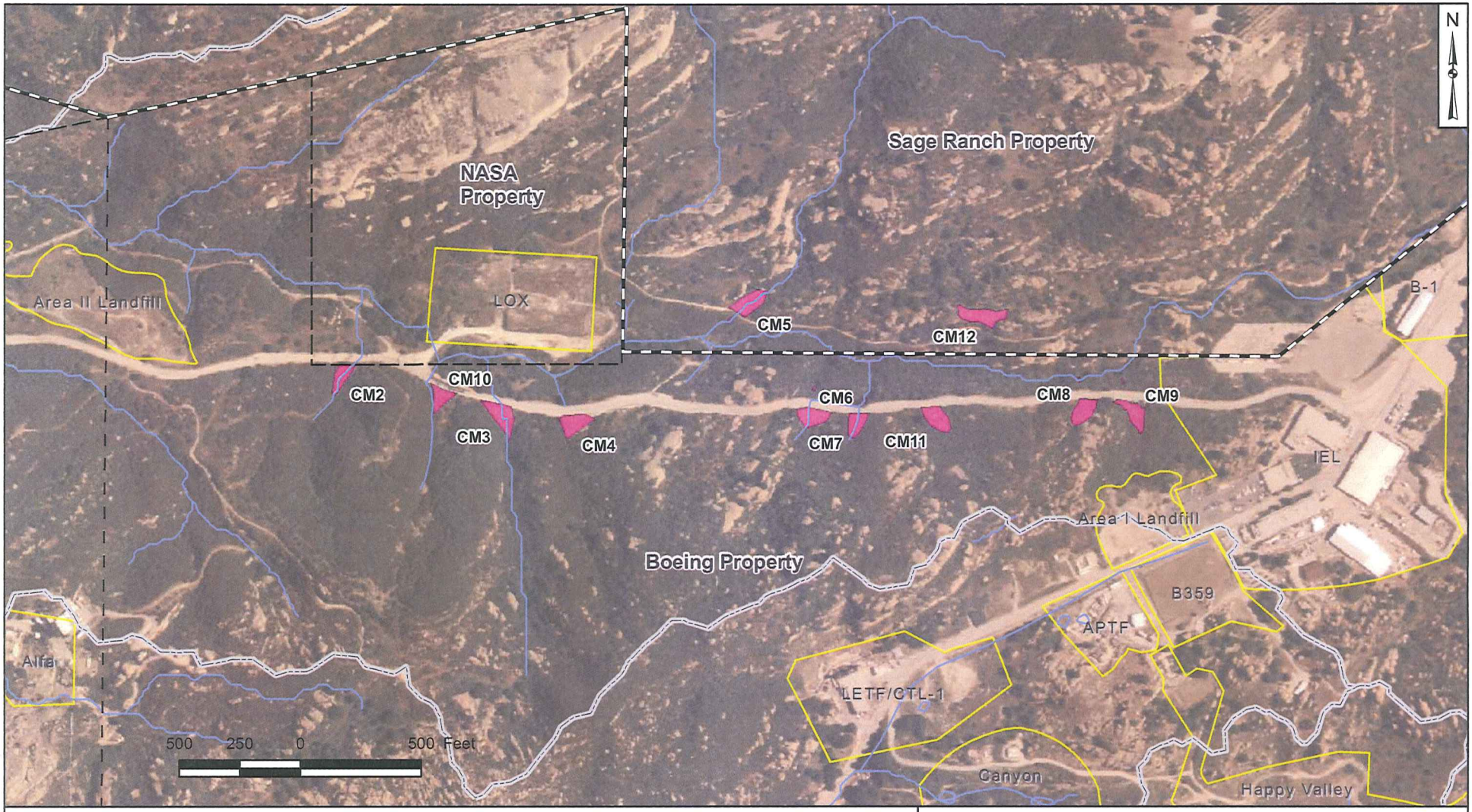
# Appendix B
# Completed Culvert Maintenance Photos

Completed maintenance at culvert number six (CM-6).
Located on the North side of Service Area Road prior to LOX

Completed maintenance at culvert number 8 (CM-8).
Located on the South of Area I Landfill and North of Service Area Road

# Appendix C

## Figures of Culvert Maintenance Locations, and Design Diagrams




Legend

- SSFL Site Property
- Site Areas
- Watershed Boundaries
- Streams
- RFI Site Boundary
- Culvert Maintenance Areas

| Culvert Modification | Excavated Volume ($yd^3$) |
|---|---|
| CM7 | -- |
| CM8 | 12 |
| CM9 | 170 |
| CM10 | 32 |
| CM11 | 64 |
| **Total** | **278** |

**Culvert Maintenance Locations and Excavation Volumes**
**April 23, 2009**

Santa Susana Field Laboratory
Ventura County, CA

Geosyntec consultants

Santa Barbara | April 2009

Figure 1

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PROFILE SCALES
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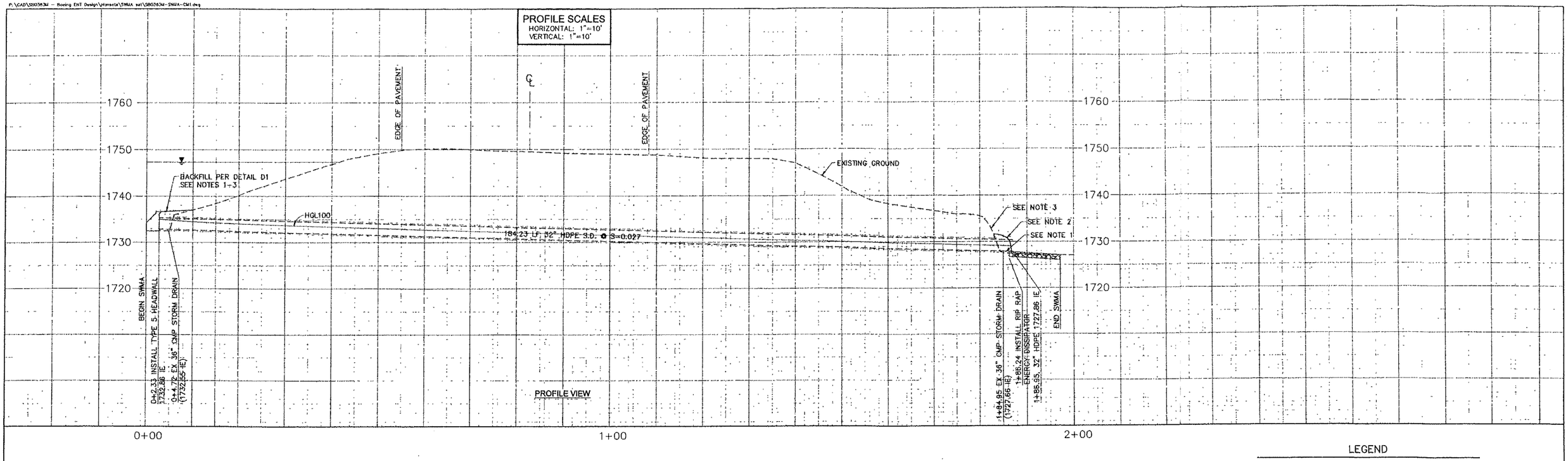
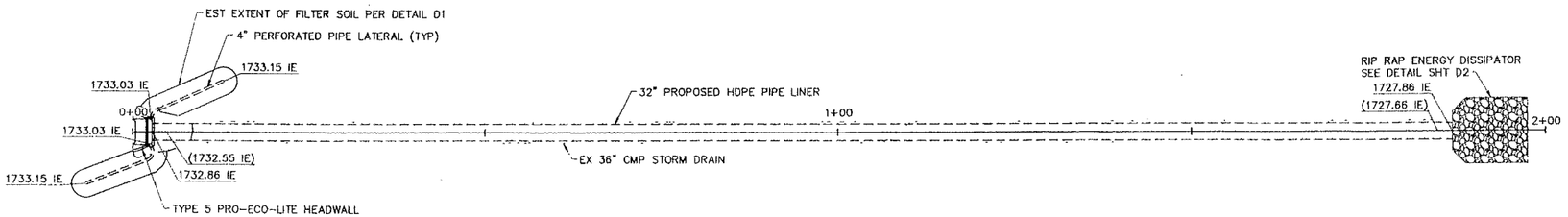
VERTICAL: 1"=10'

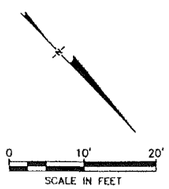



PLAN VIEW

LEGEND

- EXISTING GROUND ELEVATION (FEET)
- PROPERTY BOUNDARY
- PROPOSED FINISHED GRADE
- EXISTING GROUND (PROFILE)
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- RIP RAP ENERGY DISSIPATOR
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION




NOTES:

1. PROVIDE STABLE SURFACE FOR PIPE EXTENSIONS VIA ROCK BACKFILL, COMPACTED FILL, OR AS DIRECTED BY THE ENGINEER.
2. PLACE A 1' MIN. COVER OVER ALL EXPOSED PIPE.
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CULVERT MAINTENANCE 1
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PROFILE SCALES
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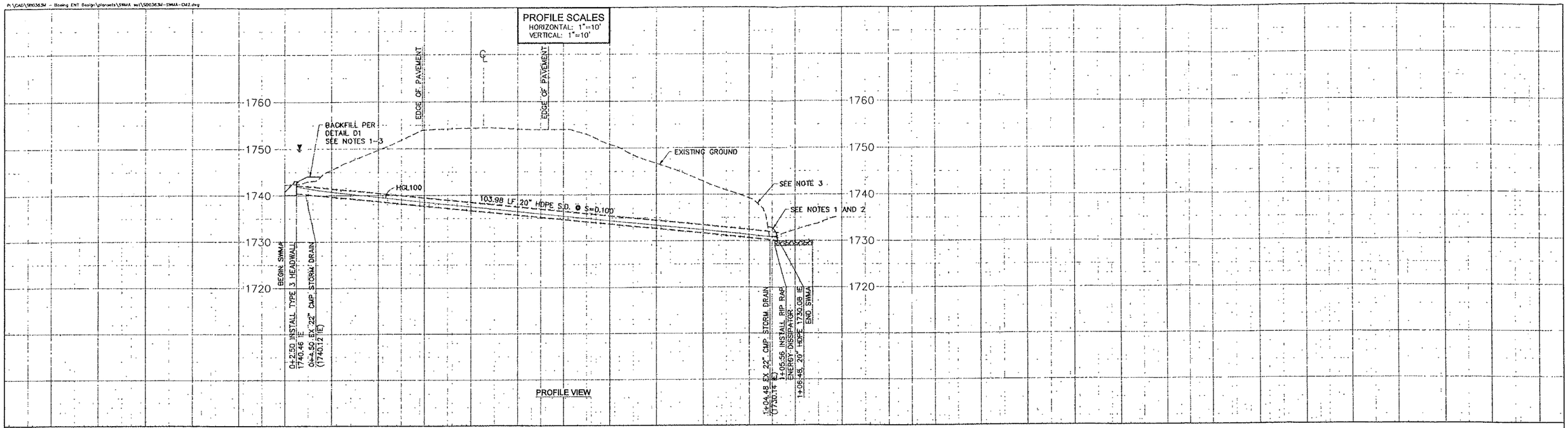


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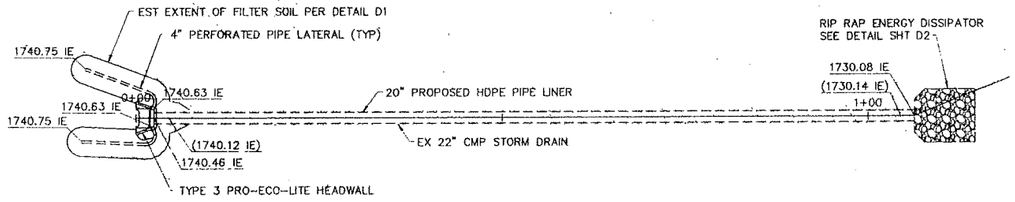


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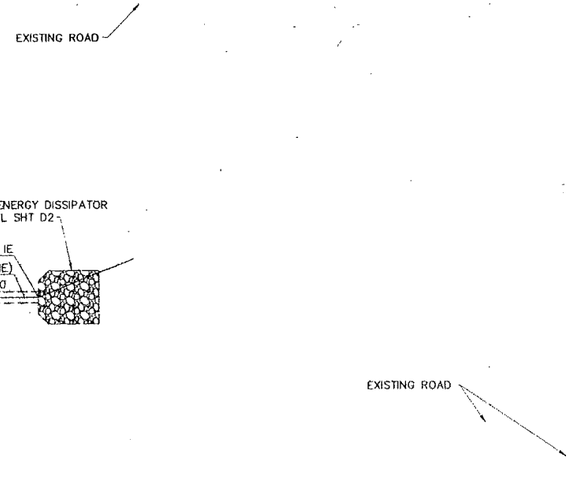


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- PROPOSED STORM DRAIN
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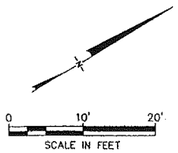
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION

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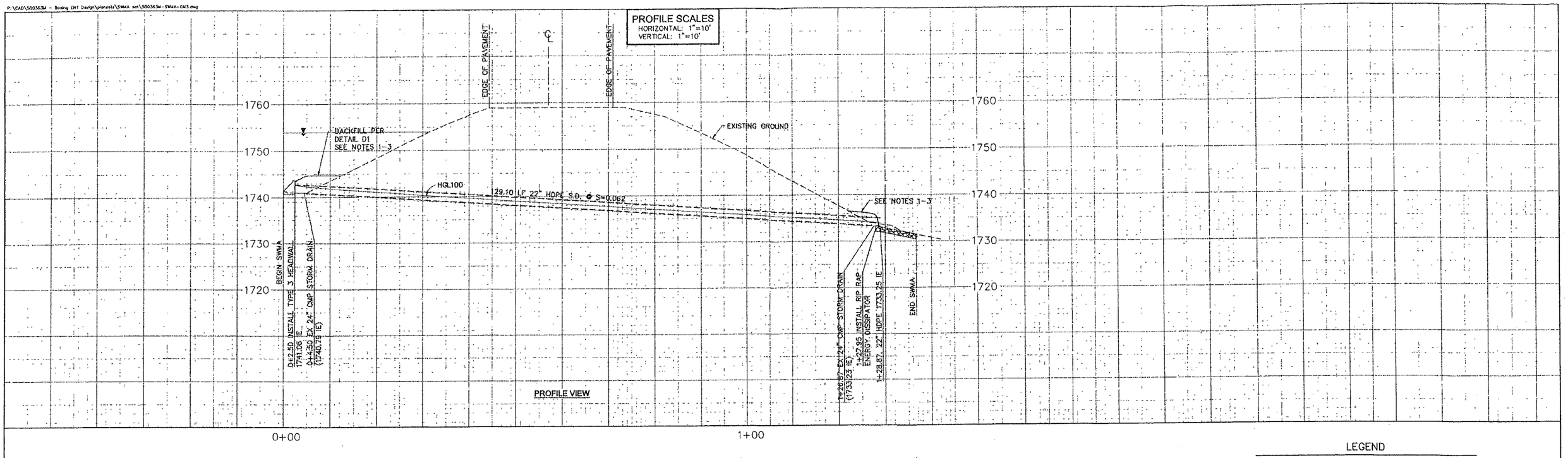


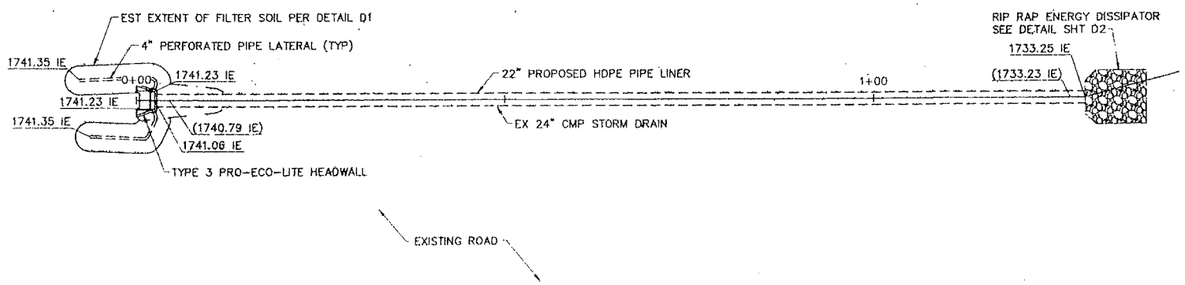


PLAN VIEW

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- RIP RAP ENERGY DISSIPATOR
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION

0 10' 20'
SCALE IN FEET

NOTES:

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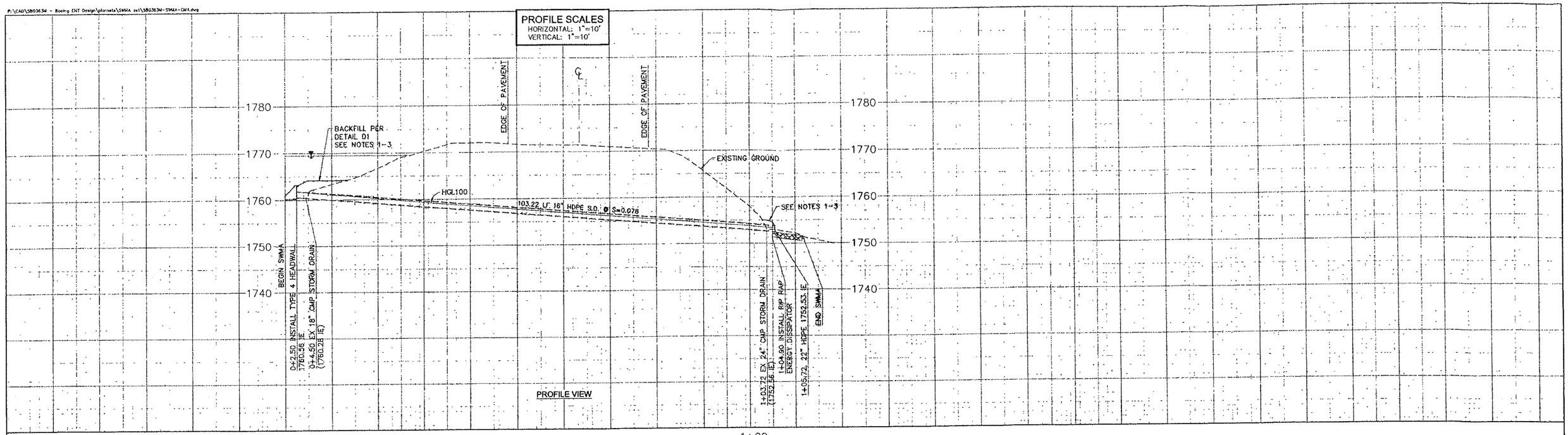


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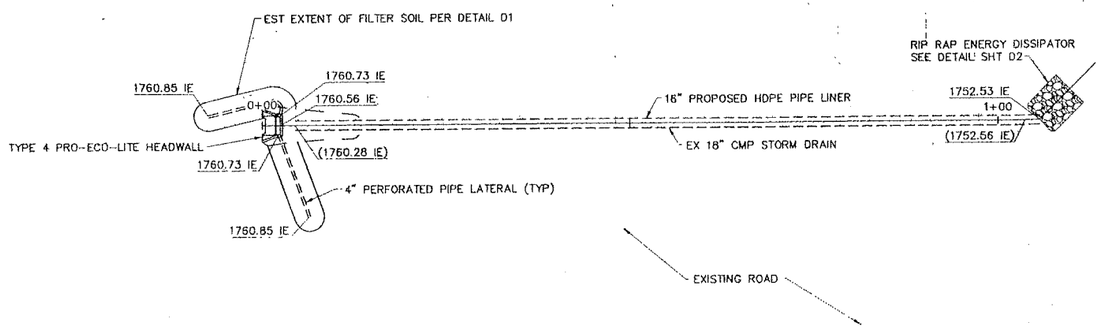


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- PROPOSED STORM DRAIN
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- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION

1" = 10'

0 10' 20'
SCALE IN FEET

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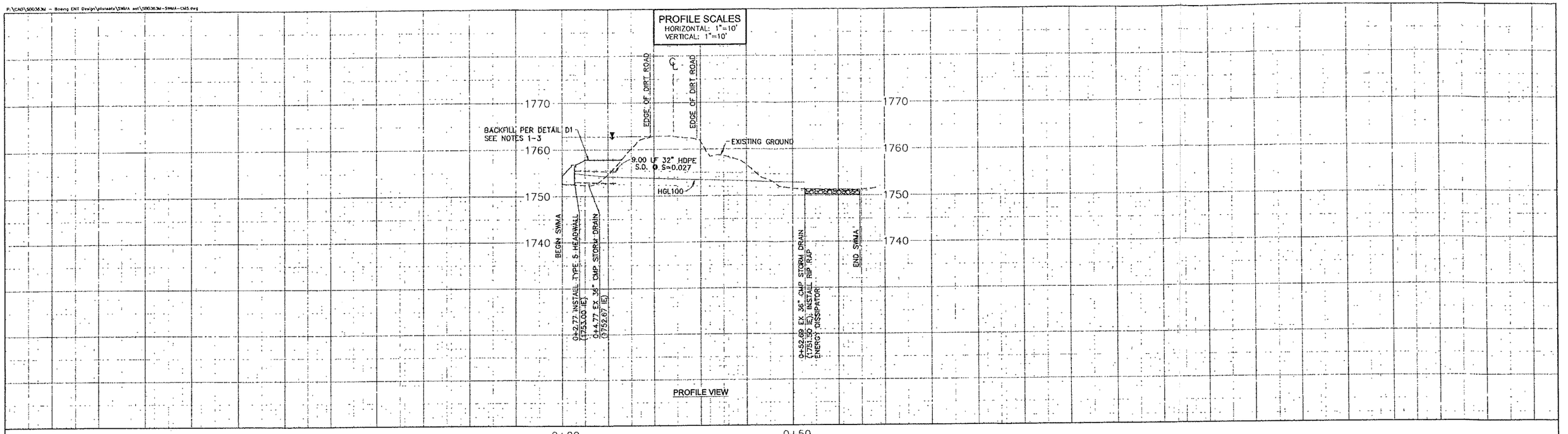


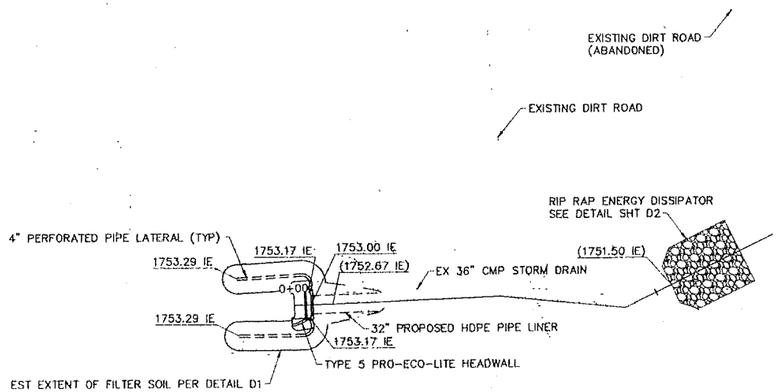


## LEGEND

- EXISTING GROUND ELEVATION (FEET)
- PROPERTY BOUNDARY
- PROPOSED FINISHED GRADE
- EXISTING GROUND (PROFILE)
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- RIP RAP ENERGY DISSIPATOR
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION

0 10' 20'
SCALE IN FEET

NOTES:

1. PROVIDE STABLE SURFACE FOR PIPE EXTENSIONS VIA ROCK BACKFILL, COMPACTED FILL, OR AS DIRECTED BY THE ENGINEER.
2. PLACE A 1' MIN. COVER OVER ALL EXPOSED PIPE.
3. FENCE OFF OAK TREES & PROTECTED PLANTS AS DIRECTED BY THE CONSTRUCTION MANAGER.

| | DESCRIPTION OF REVISION | RCE | APP. | DATE |
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APPROVED: COUNTY OF VENTURA
DATE: _____
BY _____ MANAGER, DEVELOPMENT SERVICES

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
DEVELOPMENT SERVICES

SPEC. NO.
PROJ. NO.

Geosyntec consultants
3990 OLD TOWN AVE., SUITE B-101
SAN DIEGO, CALIFORNIA 92110 USA
PHONE: 619.297.1530

BOEING
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

GEOSYNTEC PROJ. NO.
AUG 2008
DATE
SB0363M

CULVERT MAINTENANCE 5
STORM WATER MAINTENANCE ACTIVITIES
BOEING SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

SHEET _____
OF _____
DRAWING NO.
CM5

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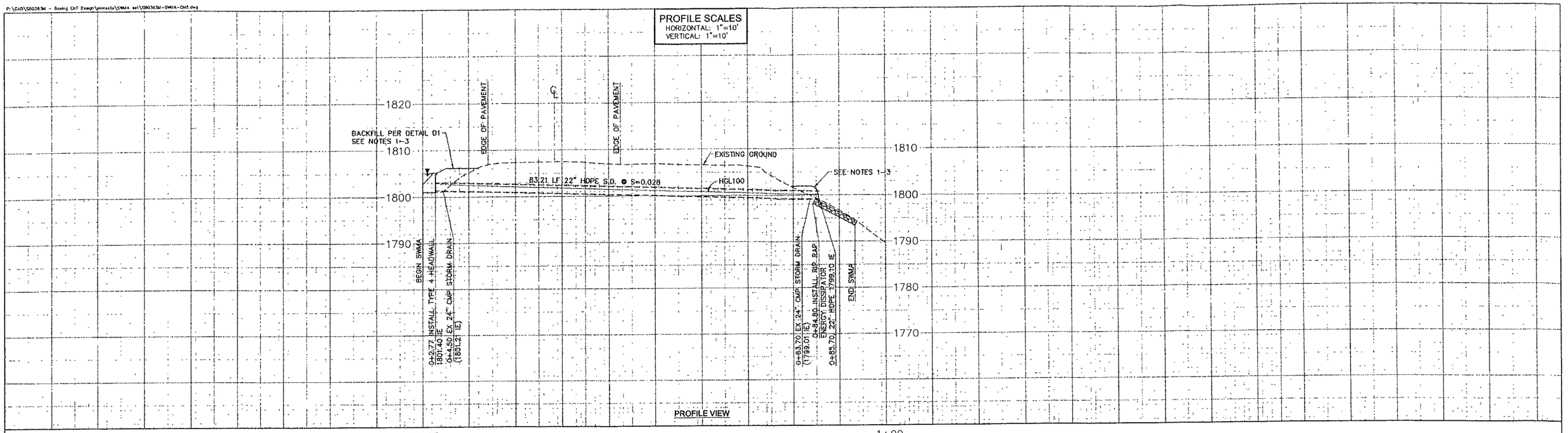
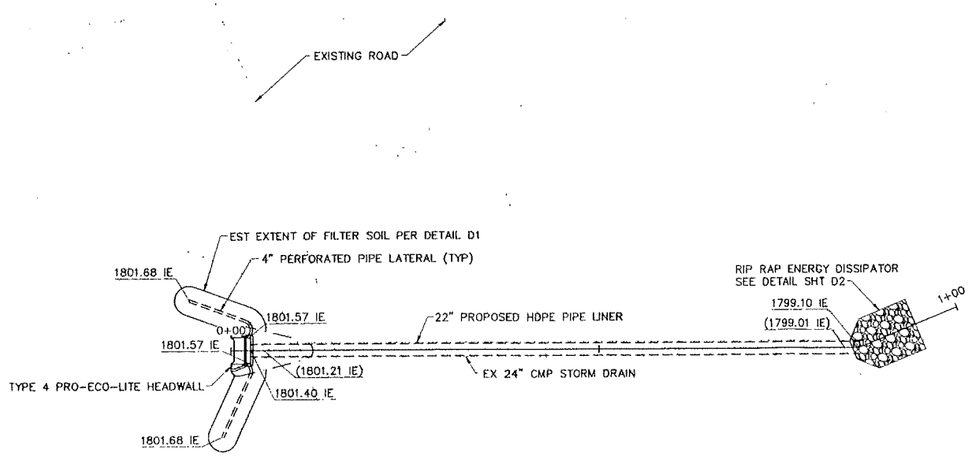
PROFILE SCALES
HORIZONTAL: 1"=10'
VERTICAL: 1"=10'



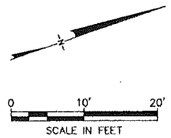

PROFILE VIEW




PLAN VIEW

LEGEND

- EXISTING GROUND ELEVATION (FEET)
- PROPERTY BOUNDARY
- PROPOSED FINISHED GRADE
- EXISTING GROUND (PROFILE)
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- RIP RAP ENERGY DISSIPATOR
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION




NOTES:

1. PROVIDE STABLE SURFACE FOR PIPE EXTENSIONS VIA ROCK BACKFILL, COMPACTED FILL, OR AS DIRECTED BY THE ENGINEER.
2. PLACE A 1' MIN. COVER OVER ALL EXPOSED PIPE.
3. FENCE OFF OAK TREES & PROTECTED PLANTS AS DIRECTED BY THE CONSTRUCTION MANAGER.

| | DESCRIPTION OF REVISION | RCE | APP. | DATE |
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APPROVED: COUNTY OF VENTURA
DATE: _____
BY _____
MANAGER, DEVELOPMENT SERVICES

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
DEVELOPMENT SERVICES

SPEC. NO.
PROJ. NO.


Geosyntec consultants
3990 OLD TOWN AVE., SUITE B-101
SAN DIEGO, CALIFORNIA 92110 USA
PHONE: 619.297.1530


BOEING
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

GEOSYNTEC PROJ. NO.
AUG 2008
DATE
SB0363M

CULVERT MAINTENANCE 6
STORM WATER MAINTENANCE ACTIVITIES
BOEING SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

SHEET _____ OF _____
DRAWING NO.
CM6

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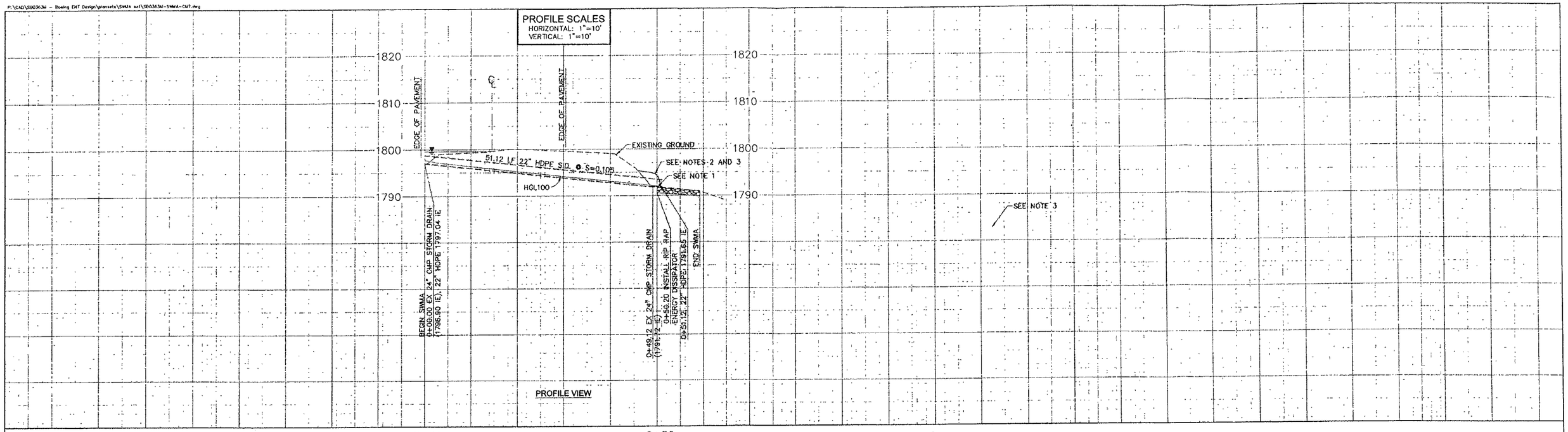
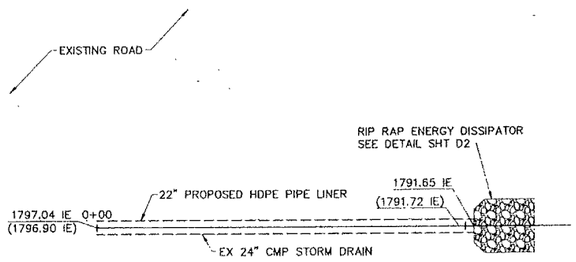
PROFILE SCALES
HORIZONTAL: 1"=10'
VERTICAL: 1"=10'



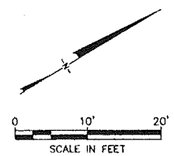

PROFILE VIEW




PLAN VIEW

LEGEND

- EXISTING GROUND ELEVATION (FEET)
- PROPERTY BOUNDARY
- PROPOSED FINISHED GRADE
- EXISTING GROUND (PROFILE)
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- RIP RAP ENERGY DISSIPATOR
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION




NOTES:

1. PROVIDE STABLE SURFACE FOR PIPE EXTENSIONS VIA ROCK BACKFILL, COMPACTED FILL, OR AS DIRECTED BY THE ENGINEER.
2. PLACE A 1' MIN. COVER OVER ALL EXPOSED PIPE.
3. FENCE OFF OAK TREES & PROTECTED PLANTS AS DIRECTED BY THE CONSTRUCTION MANAGER.

| | DESCRIPTION OF REVISION | RCE | APP. | DATE |
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APPROVED: COUNTY OF VENTURA

DATE: _____

BY _____
MANAGER, DEVELOPMENT SERVICES

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
DEVELOPMENT SERVICES

SPEC NO.

PROJ. NO.


Geosyntec consultants
3990 OLD TOWN AVE., SUITE B-101
SAN DIEGO, CALIFORNIA 92110 USA
PHONE: 619.297.1530


BOEING
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

GEOSYNTEC PROJ. NO.
AUG 2008

DATE
SB0363M

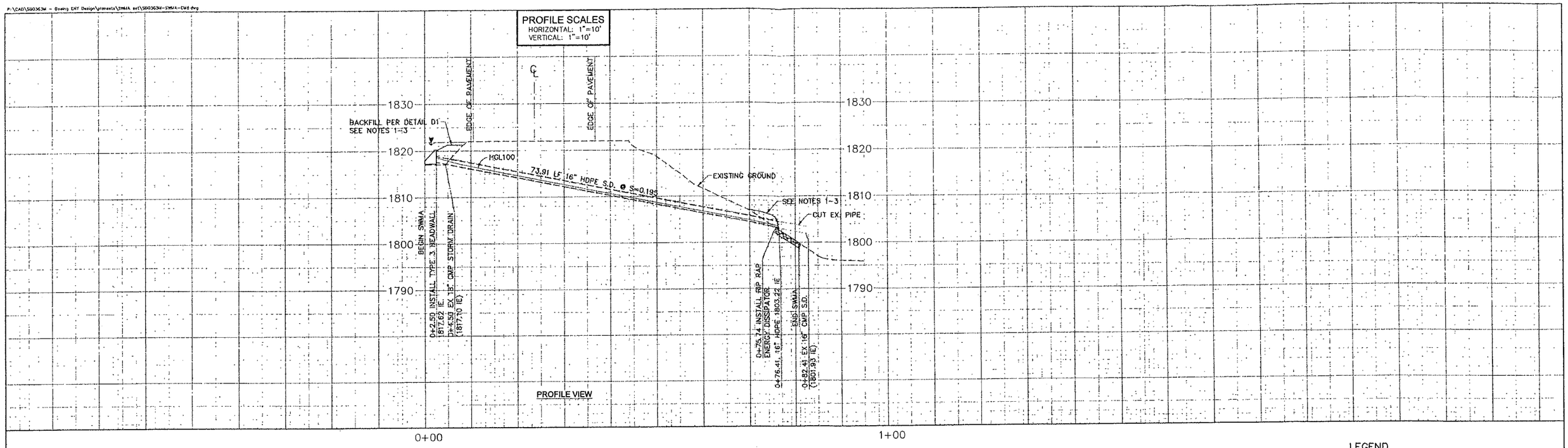
CULVERT MAINTENANCE 7
STORM WATER MAINTENANCE ACTIVITIES
BOEING SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

SHEET _____
OF _____

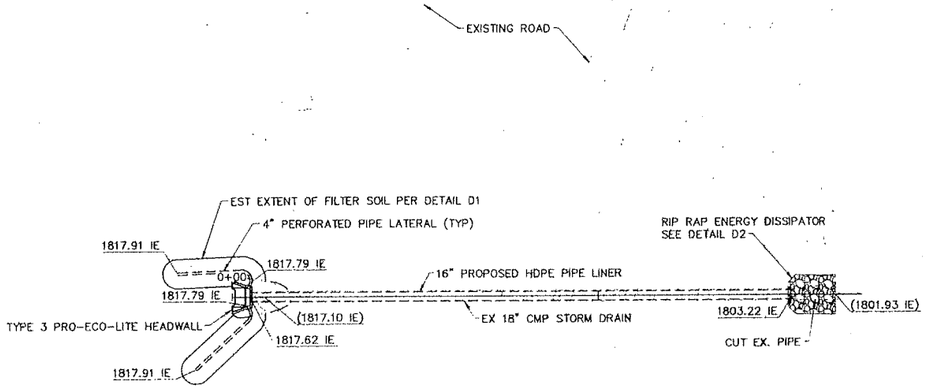
DRAWING NO.
CM7

P:\CAD\SB0363M - Boeing ENT Design\plansets\SWMA set\SB0363M-SWMA-CM8.dwg

PROFILE SCALES
HORIZONTAL: 1"=10'
VERTICAL: 1"=10'



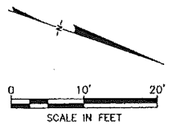

PROFILE VIEW




PLAN VIEW

LEGEND

- EXISTING GROUND ELEVATION (FEET)
- PROPERTY BOUNDARY
- PROPOSED FINISHED GRADE
- EXISTING GROUND (PROFILE)
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- RIP RAP ENERGY DISSIPATOR
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION




NOTES:

1. PROVIDE STABLE SURFACE FOR PIPE EXTENSIONS VIA ROCK BACKFILL, COMPACTED FILL, OR AS DIRECTED BY THE ENGINEER.
2. PLACE A 1' MIN. COVER OVER ALL EXPOSED PIPE.
3. FENCE OFF OAK TREES & PROTECTED PLANTS AS DIRECTED BY THE CONSTRUCTION MANAGER.

| | DESCRIPTION OF REVISION | RCE | APP. | DATE |
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APPROVED: COUNTY OF VENTURA
DATE: _____
BY _____ MANAGER, DEVELOPMENT SERVICES

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
DEVELOPMENT SERVICES

SPEC. NO.
PROJ. NO.

Geosyntec consultants
3980 OLD TOWN AVE., SUITE B-101
SAN DIEGO, CALIFORNIA 92110 USA
PHONE: 619.297.1530

BOEING
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

GEOSYNTEC PROJ. NO.
AUG 2008
DATE
SB0363M
SHEET _____ OF _____
DRAWING NO.
CM8

# CULVERT MAINTENANCE 8

STORM WATER MAINTENANCE ACTIVITIES

BOEING SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

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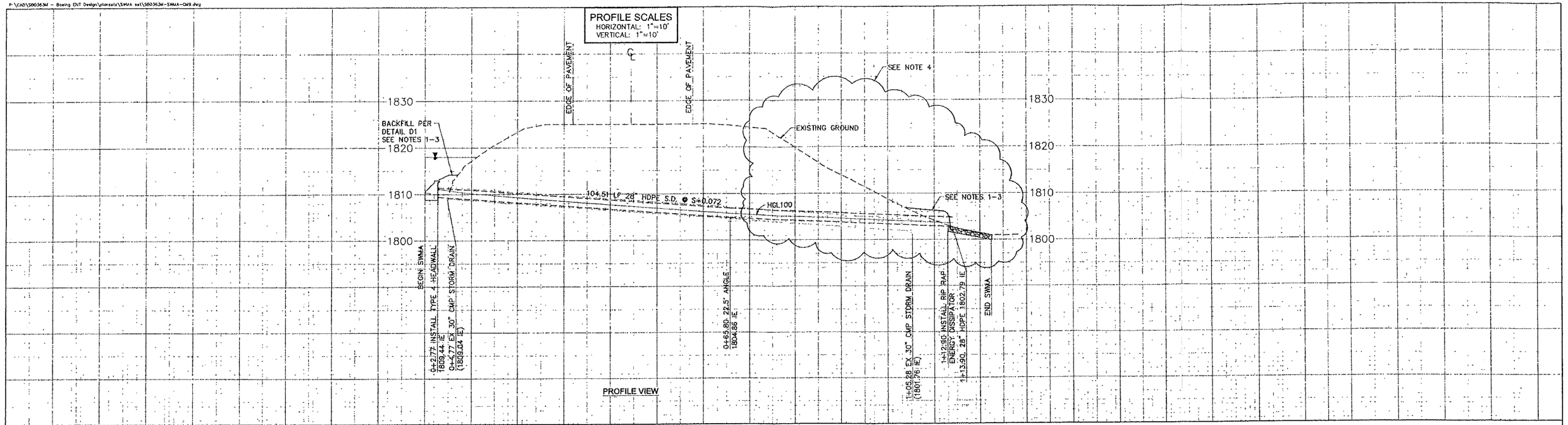
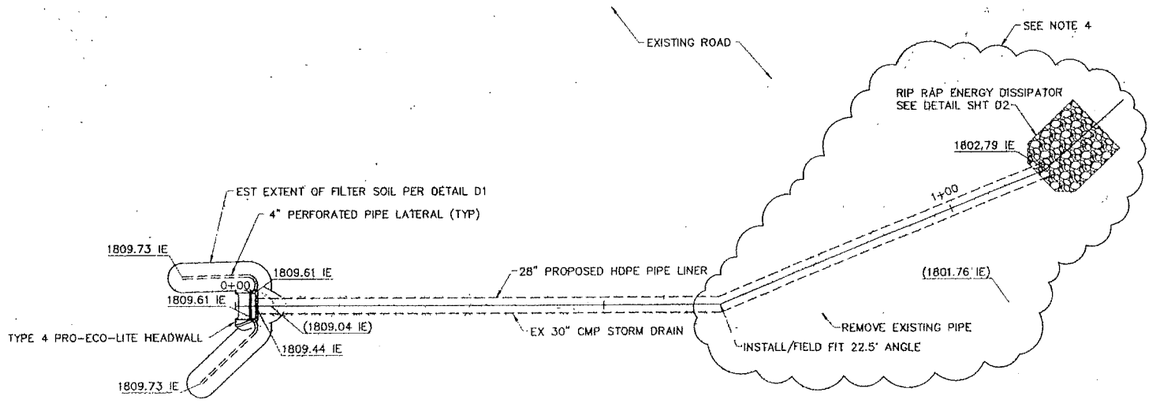
PROFILE SCALES
HORIZONTAL: 1"=10'
VERTICAL: 1"=10'



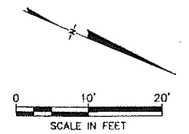

PROFILE VIEW




PLAN VIEW

LEGEND

- EXISTING GROUND ELEVATION (FEET)
- PROPERTY BOUNDARY
- PROPOSED FINISHED GRADE
- EXISTING GROUND (PROFILE)
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- RIP RAP ENERGY DISSIPATOR
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION




NOTES:

1. PROVIDE STABLE SURFACE FOR PIPE EXTENSIONS VIA ROCK BACKFILL, COMPACTED FILL, OR AS DIRECTED BY THE ENGINEER.
2. PLACE A 1' MIN. COVER OVER ALL EXPOSED PIPE.
3. FENCE OFF OAK TREES & PROTECTED PLANTS AS DIRECTED BY THE CONSTRUCTION MANAGER.
4. DUE TO EXISTING PIPE DAMAGE REMOVE THE CMP AND REPLACE WITH HDPE PIPE AS PRESENTED. ALL EXCAVATION WITHIN THE ROAD EMBANKMENT SHOULD BE PERFORMED UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER.

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APPROVED: COUNTY OF VENTURA
DATE: _____
BY _____ MANAGER, DEVELOPMENT SERVICES

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
DEVELOPMENT SERVICES

SPEC NO.
PWCD NO.

Geosyntec consultants
3990 OLD TOWN AVE., SUITE B-101
SAN DIEGO, CALIFORNIA 92110 USA
PHONE: 619 297.1530

BOEING
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

GEOSYNTEC PROJ NO.
AUG 2008
DATE
SB0363M

CULVERT MAINTENANCE 9
STORM WATER MAINTENANCE ACTIVITIES
BOEING SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

SHEET _____
OF _____
DRAWING NO.
CM9

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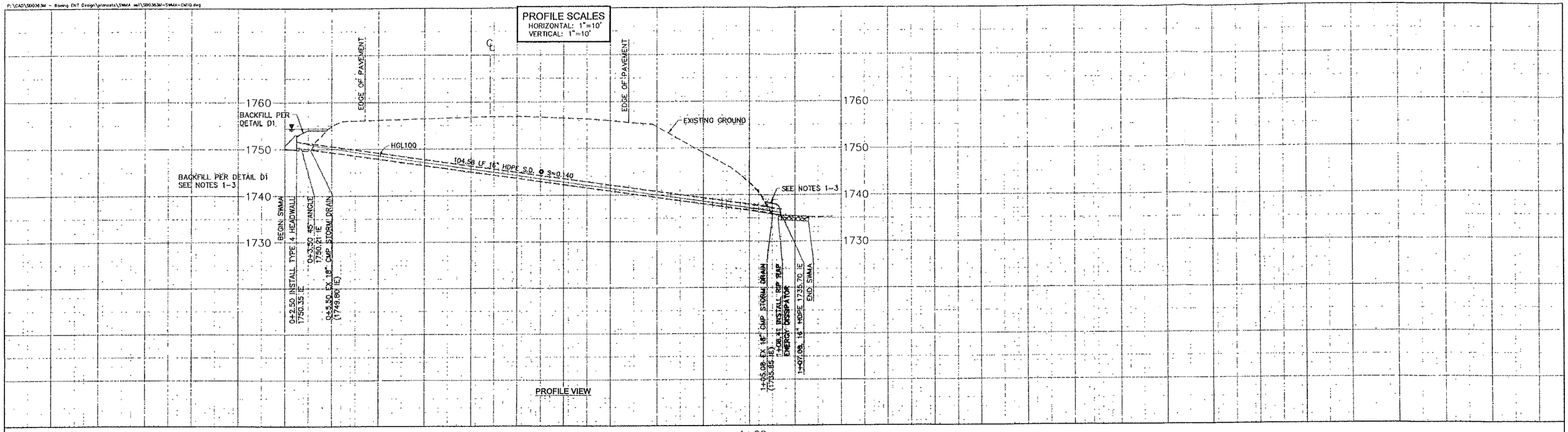
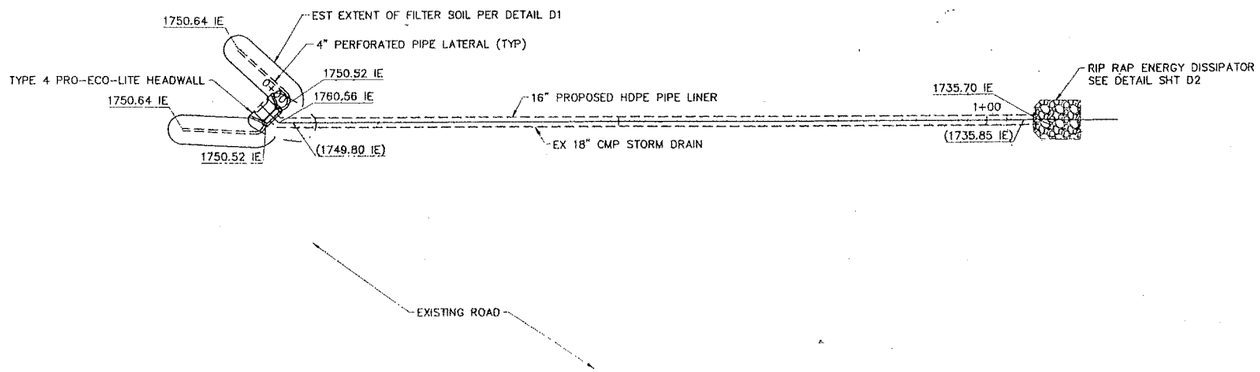
PROFILE SCALES
HORIZONTAL: 1"=10'
VERTICAL: 1"=10'



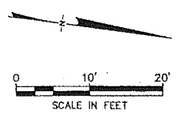

PROFILE VIEW




PLAN VIEW

## LEGEND

- EXISTING GROUND ELEVATION (FEET)
- PROPERTY BOUNDARY
- PROPOSED FINISHED GRADE
- EXISTING GROUND (PROFILE)
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- RIP RAP ENERGY DISSIPATOR
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION




NOTES:

1. PROVIDE STABLE SURFACE FOR PIPE EXTENSIONS VIA ROCK BACKFILL, COMPACTED FILL, OR AS DIRECTED BY THE ENGINEER.
2. PLACE A 1' MIN. COVER OVER ALL EXPOSED PIPE.
3. FENCE OFF OAK TREES & PROTECTED PLANTS AS DIRECTED BY THE CONSTRUCTION MANAGER.

| | DESCRIPTION OF REVISION | RCE | APP. | DATE |
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APPROVED: COUNTY OF VENTURA
DATE: _____
BY _____
MANAGER, DEVELOPMENT SERVICES

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
DEVELOPMENT SERVICES

SPEC. NO
PROJ NO

Geosyntec consultants
3990 OLD TOWN AVE., SUITE B-101
SAN DIEGO, CALIFORNIA 92110 USA
PHONE: 619.297.1530.

BOEING
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

GEOSYNTEC PROJ NO
AUG 2008
DATE
SB0363M

CULVERT MAINTENANCE 10
STORM WATER MAINTENANCE ACTIVITIES
BOEING SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

SHEET _____
OF _____
DRAWING NO.
CM10

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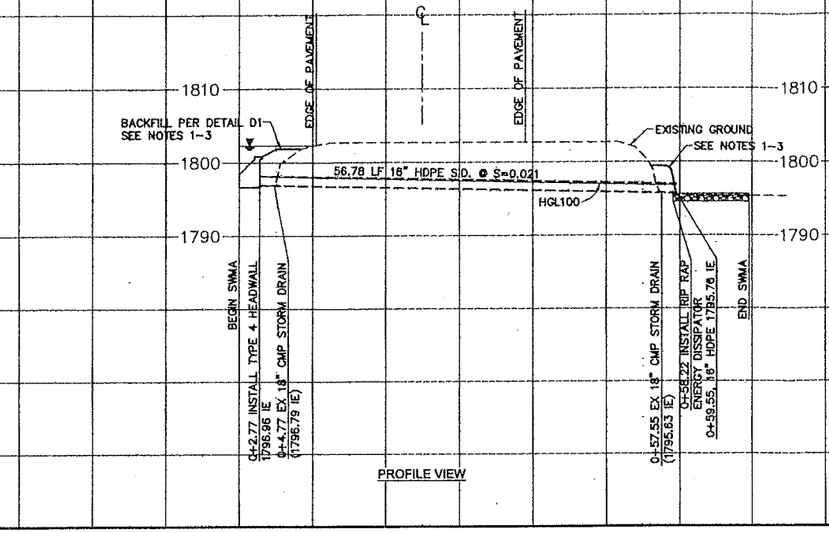
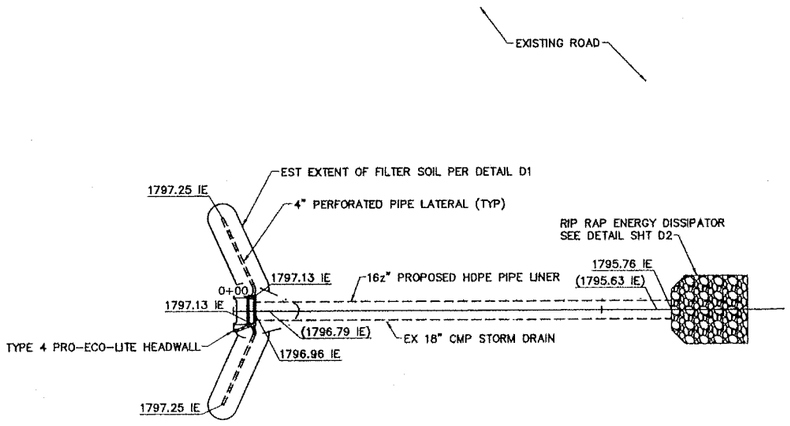
PROFILE SCALES
HORIZONTAL: 1"=10'
VERTICAL: 1"=10'



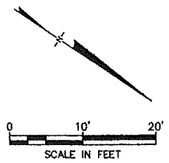

PROFILE VIEW




PLAN VIEW

## LEGEND

- EXISTING GROUND ELEVATION (FEET)
- PROPERTY BOUNDARY
- PROPOSED FINISHED GRADE
- EXISTING GROUND (PROFILE)
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- RIP RAP ENERGY DISSIPATOR
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION




NOTES:

1. PROVIDE STABLE SURFACE FOR PIPE EXTENSIONS VIA ROCK BACKFILL, COMPACTED FILL, OR AS DIRECTED BY THE ENGINEER.
2. PLACE A 1' MIN. COVER OVER ALL EXPOSED PIPE.
3. FENCE OFF OAK TREES & PROTECTED PLANTS AS DIRECTED BY THE CONSTRUCTION MANAGER.

| | DESCRIPTION OF REVISION | RCE | APP. | DATE |
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REV. JULY-1987

APPROVED: COUNTY OF VENTURA
DATE: _____
BY _____
MANAGER, DEVELOPMENT SERVICES

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
DEVELOPMENT SERVICES

SPEC. NO.
PROJ. NO.

Geosyntec consultants
3990 OLD TOWN AVE., SUITE B-101
SAN DIEGO, CALIFORNIA 92110 USA
PHONE: 619.297.1530

BOEING
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

GEOSYNTEC PROJ. NO.
AUG 2008
DATE
SB0363M

# CULVERT MAINTENANCE 11

STORM WATER MAINTENANCE ACTIVITIES

BOEING SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

SHEET _____
OF _____
DRAWING NO.
CM11

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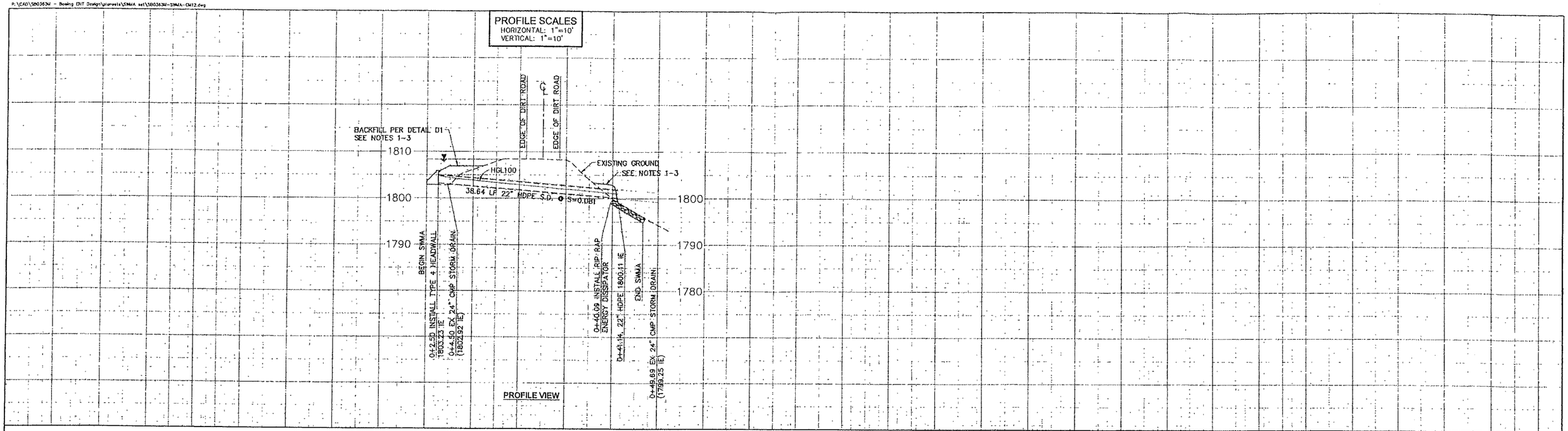
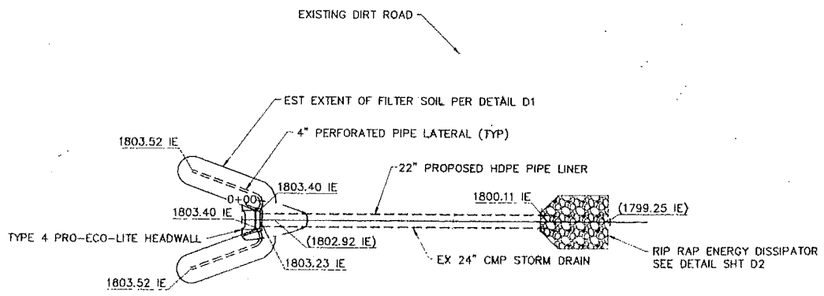
PROFILE SCALES
HORIZONTAL: 1"=10'
VERTICAL: 1"=10'




PROFILE VIEW




PLAN VIEW

## LEGEND

- EXISTING GROUND ELEVATION (FEET)
- PROPERTY BOUNDARY
- PROPOSED FINISHED GRADE
- EXISTING GROUND (PROFILE)
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- RIP RAP ENERGY DISSIPATOR
- PROPOSED CULVERT TERMINAL FINISH
- PERFORATED LATERAL DRAIN
- WATER SURFACE ELEVATION

0 10' 20'
SCALE IN FEET

NOTES:

1. PROVIDE STABLE SURFACE FOR PIPE EXTENSIONS VIA ROCK BACKFILL, COMPACTED FILL, OR AS DIRECTED BY THE ENGINEER.
2. PLACE A 1' MIN. COVER OVER ALL EXPOSED PIPE.
3. FENCE OFF OAK TREES & PROTECTED PLANTS AS DIRECTED BY THE CONSTRUCTION MANAGER.

| | DESCRIPTION OF REVISION | RCE | APP. | DATE |
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REV. 8-1-1987

APPROVED: COUNTY OF VENTURA
DATE: _____
BY _____
MANAGER, DEVELOPMENT SERVICES

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
DEVELOPMENT SERVICES

SPEC. NO.
PROJ. NO.


Geosyntec consultants
2990 OLD TOWN AVE., SUITE B-101
SAN DIEGO, CALIFORNIA 92110 USA
PHONE: 619.297.1530


BOEING
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

CULVERT MAINTENANCE 12
STORM WATER MAINTENANCE ACTIVITIES
BOEING SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

GEOSYNTEC PROJ. NO.
AUG 2008
DATE
SB0363M
SHEET _____
OF _____
DRAWING NO.
CM12

# Appendix D

# ISRA June 2009 Monthly Progress Report

BOEING

The Boeing Company

5800 Woolsey Canyon Road
Canoga Park, CA 91304-1148

Date: 6/1/2009

No.: SHEA-108739
ISRA-1

To: Tracy Egoscue
Executive Office
LA Regional Water Quality Control Board

From: Tom Gallacher
Director
Santa Susana
Environmental, Health & Safety

Subject: June 2009 Monthly Progress Report, Technical Memorandum
California Water Code Section 13304 Interim Source Removal Action Order (ISRA)
(NPDES No. CA0001309, CI No. 6027, SCP NO. 1111, Site ID No. 2040109)

Per the Regional Water Board's Request, Boeing is providing the following monthly progress report on the Interim Source Removal Action activities from the initial date of the 13304 Order (December 3, 2008) to the present. In addition, a 30 day Look-Ahead is also provided.

**Completed Tasks – December 3, 2008 to May 8, 2009**

- Dec. 3, 2008 – Received 13304 ISRA Order
- Jan 9, 2009 – Boeing/NASA: Established weekly ISRA status calls
- Jan 30, 2009 – RWQCB Site visit to review Outfalls 008 & 009
- Feb. 13, 2009 – Boeing/NASA: Submitted Preliminary ISRA Work Plan To RWQCB
- Feb 24 – 25, March 20, April 9, 2009 – Boeing: Initial Data Gap sampling – Data evaluation and supplemental extent sampling ongoing
- March 24, 31, 2009 – NASA: Initial Data Gap Sampling – Data evaluation and supplemental extent sampling ongoing
- April 20, 2009 – RWQCB: Submitted Comments to the Preliminary ISRA Work Plan
- April 22, 2009 - RWQCB, Boeing, NASA: Established weekly ISRA status meetings
- April 28, 2009 – RWQCB Site Visit to review preliminary areas for Outfalls 008 & 009
- April 30, 2009 – Boeing/NASA: Submitted Clarifications to April 20, 2009 RWQCB Comments
- April 30, 2009 – Boeing/DTSC Site tour of Potential Offsite Soil Borrow Source
- May 1, 2009 Boeing/NASA: Submitted Final ISRA Work Plan to RWQCB

**Completed Tasks – May 8 – June 3, 2009**

- May 18 – 26, 2009 – NASA Archaeological records search (SHPO through Cal-State Fullerton)
- May 22, 2009 – RWQCB, DTSC, Boeing: Telecon to discuss potential offsite soil borrow site
- May 22, 2009 – Boeing/NASA: Submitted Army Corp of Eng Nation Wide Permit 404 Notification
- May 22, 2009 – Boeing/NASA: Submitted RWQCB Pre-Certified 401 Notification
- May 27, 2009 – Boeing/NASA: Submitted Detailed Project Schedule for Field Implementation for 2009
- May 29, 2009 – Boeing/NASA: Submitted CDFG SAA Project information and summary
- June 2 – 10, 2009 - Boeing: Supplemental data gap sampling in Outfall 008
- June 3 – 4, 2009 - Boeing/NASA: Preliminary staking of Outfall 008 ISRA areas
- June 3, 2009 – DTSC added to weekly ISRA status call with RWQCB, Boeing, NASA

**30-Day Look ahead – through June 30, 2009**

- RWQCB - Approval of May 1 Work Plan
- NASA – Archaeological Records Survey – on-going
- RWQCB – Conduct Site walk of preliminary staked ISRA areas
- NASA: Supplemental Data gap sampling – Outfall 009
- Boeing: Submit to RWQCB Health and Safety Plan
- RFP for 2009 Outfall 008 and 009 Field work prepared and submitted to bidders
- Boeing Archaeological Study – review and update existing report, conduct additional surveys
- Review Biological Surveys - review and update existing surveys, conduct additional surveys

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