



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

Via Email to [cowens@rb4.swrcb.ca.gov](mailto:cowens@rb4.swrcb.ca.gov)

September 30, 2013  
In reply refer to SHEA-114027

Ms. Cassandra Owens  
Regional Water Quality Control board  
Los Angeles Region  
320 West 4<sup>th</sup> Street, Suite 200  
Los Angeles, CA 90013

Dear Ms. Owens:

Subject: 2013 Best Management Practices (BMP) Plan Addendum to the October 2010 Santa Susana Site Outfalls 008/009 Watersheds BMP Plan, Santa Susana Field Laboratory, Ventura County, CA (Order No. R4-2010-0090; NPDES No. CA0001309, CI No. 6027)

Per the requirements of The Boeing Company's (Boeing) National Pollutant Discharge Elimination System (NPDES) Permit (Order No. R402010-0090) adopted by the Regional Water Quality Board on June 3, 2010, Boeing is providing the enclosed 2013 Best Management Practices (BMP) Plan Addendum to the October 2010 Santa Susana Site Outfalls 008/009 Watersheds BMP Plan. This document has been developed with input and in accordance with recommendations from the Santa Susana Site Surface Water Expert Panel and prepared for Boeing. The enclosed report will be posted on the Boeing External website at the following address: [http://www.boeing.com/aboutus/environment/santa\\_susana/isra.html](http://www.boeing.com/aboutus/environment/santa_susana/isra.html)

If you have any questions or require any further, please contact Debbie Taege at (818) 466-8849.

Sincerely,

Paul Costa  
Director, Santa Susana Field Laboratory  
Environment, Health and Safety

Enclosure: 2013 Best Management Practices (BMP) Plan Addendum

cc: Mr. Peter Raftery, RWQCB  
Mr. Mazhar Ali, RWQCB  
Mr. Buck King, DTSC  
Mr. Peter Zorba, NASA  
Dr. Michael Stenstrom, Surface Water Expert Panel  
Mr. Jon Jones, Surface Water Expert Panel  
Dr. Mike Josselyn, Surface Water Expert Panel  
Dr. Robert Pitt, Surface Water Expert Panel  
Dr. Robert Gearheart, Surface Water Expert Panel  
Mr. Randy Dean, CH2M HILL  
Ms. Bronwyn Kelly, MWH  
Mr. Alexander Fischl, MWH  
Ms. Lissa Miller, Haley & Aldrich  
Ms. Nancy Gardiner, Haley & Aldrich

*Prepared for*

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

**2013 BMP PLAN ADDENDUM**

**SANTA SUSANA SITE**

**VENTURA COUNTY, CALIFORNIA**

*Prepared by*

**Geosyntec**   
consultants

engineers | scientists | innovators

3415 S. Sepulveda Blvd, Ste. 500  
Los Angeles, CA 90034

*and*

**The Santa Susana Site Surface Water Expert Panel**

September 30, 2013

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## ABBREVIATIONS AND ACRONYMS

ACOE	Army Corps of Engineers
BMP	Best Management Practice
Boeing	The Boeing Company
CDFG	California Department of Fish and Game
CM	culvert modification
CMP	corrugated metal pipe
COC	constituent of concern
DNQ	data not qualified
DTSC	Department of Toxic Substances Control
ELV	Expendable Launch Vehicle
Expert Panel	Santa Susana Site Surface Water Expert Panel
Geosyntec	Geosyntec Consultants
HDPE	high-density polyethylene
ISRA	Interim Source Removal Action
LOX	liquid oxygen
MWH	MWH Americas, Inc.
NASA	National Aeronautics and Space Administration
NEL	Numeric effluent limit
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RMMP	Restoration, Mitigation, and Monitoring Plan
RTL	Radiological Trigger Level
RWQCB	Los Angeles Regional Water Quality Control Board
SAP	sampling and analysis plan
SCE	Southern California Edison
TCDD	tetrachlorobenzo-p-dioxin
TEQ	toxic equivalency
TSS	total suspended solids
USDA	United States Department of Agriculture

## **1. INTRODUCTION**

The document herein describes the conceptual designs for Best Management Practices (BMPs) that were identified based on procedures described in the BMP Plan (MWH et al., 2010a) and an evaluation of potential BMP subarea monitoring data from the 2012/2013 rainy season within the Outfalls 008 and 009 watersheds at the Santa Susana Site, Ventura County, California. The BMP Plan was implemented with oversight and participation of the Los Angeles Regional Water Quality Control Board (RWQCB) with the objective of meeting the numeric effluent limits (NELs) for Outfalls 008 and 009 established in the National Pollutant Discharge Elimination System (NPDES) Permit (Order R4-2010-0090) adopted by the RWQCB on June 3, 2010 (RWQCB, 2010). Potential BMP subarea monitoring activities were conducted by MWH Americas, Inc. (MWH) on behalf of The Boeing Company (Boeing) and the National Aeronautics and Space Administration (NASA) according to the 2012/2013 BMP and Interim Source Removal Action (ISRA) Performance Monitoring Sampling and Analysis Plan (SAP) (MWH, 2011).

The following BMP recommendations have been developed by the Santa Susana Site Surface Water Expert Panel (Expert Panel) based on review and evaluation of 2012/13 NPDES compliance and BMP subarea monitoring results, consideration of short-term Boeing and NASA watershed plans (e.g., ISRA and demolition programs) and field reconnaissance. The Expert Panel, in collaboration with Geosyntec Consultants (Geosyntec), developed these recommendations into BMP concepts that will be considered by Boeing for implementation in 2014. Boeing will consider these recommendations and concepts, discuss them with the Expert Panel, and proceed with BMP activities in 2014 based on the outcome of these discussions, new data, available budget, easement constraints, regulatory requirements, public input, engineering/constructability constraints, and other relevant factors.

### **1.1 Project Background**

In late 2010, a BMP subarea monitoring program (MWH, 2010) was developed and implemented within the Outfall 008 and 009 watersheds at the Santa Susana Site, as stated in the BMP Plan (MWH et al., 2010). The BMP monitoring program was designed to assess the contribution of constituents of concern (COCs) from the source areas of stormwater runoff to identify subareas that were most in need of implementation of new or enhanced stormwater controls or BMPs to improve NPDES permit compliance. This program involved the collection of stormwater samples in proximity to “potential” BMP sites, defined as locations receiving runoff from likely source areas (e.g., ISRA areas, Resource Conservation and Recovery Act [RCRA]

Facility Investigation [RFI] areas, or areas where historic industrial activities are known to have occurred) and other infrastructure (e.g., roads, buildings, parking areas). In addition, runoff from “stormwater background” areas<sup>1</sup>, or locations receiving runoff from unimpacted and undeveloped areas, within the Outfall 008 and 009 watersheds were sampled. During the 2012/2013 rainy season, stormwater runoff inspections and sampling were performed at 10 “potential” BMP sites in the Outfall 009 watershed, 5 “planned” BMP sites, and 12 locations used to assess BMP performance (MWH et al., 2013).

The Expert Panel’s approach for identifying specific BMP subareas for new stormwater controls was to rank potential BMP subarea monitoring sites based on the results of comparisons between the following measured values and thresholds: (a) stormwater concentrations and NPDES permit limits, and (b) stormwater particulate strengths (i.e., constituent particulate mass per mass of total suspended solids [TSS], which normalizes the particulate-bound constituent concentration by the concentration of TSS in the sample to allow for an evaluation of the constituent “strength” of suspended particles) and particulate strengths measured at onsite stormwater background locations (Expert Panel and Geosyntec, 2011a). A statistical methodology was developed to rank the potential BMP monitoring sites based on these comparison results while accounting for the number of useable data available at each site as well as the number of data observations that fell above the thresholds (i.e., reflecting statistical confidence in how frequently each site will exceed the comparison thresholds). This methodology relied on weighting factors that were calculated for each NPDES COC category (specifically metals [including Cd, Cu, Hg, and Pb], dioxins [including 2,3,7,8-tetrachlorobenzo-p-dioxin {TCDD} and TCDD toxic equivalency factor {TEQ}], and TSS) for each site. In the end, the constituent-specific weighting factors were summed to produce a multi-constituent score (ranging from 0.0 [lowest relative exceedance of thresholds] to 1.0 [highest relative exceedance of thresholds]) to allow for relative ranking amongst the potential BMP sites, with the sites with the highest relative rankings recommended to be further evaluated for new stormwater controls based on site-specific considerations and best professional judgment.

In addition to the new proposed controls described in this document, several short-term BMP activities have either already been completed or are (as of September 2013)

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<sup>1</sup> The site specific stormwater background dataset is for the assessment of stormwater only and is not considered part of the ongoing soil background sampling activities being conducted under DTSC oversight.

currently being constructed in Outfall 008 and 009 watersheds to improve surface water quality, as outlined in the August 2013 Annual Report (MWH et al., 2013). Some of these activities include a sediment basin and biofilter at the Lower Parking Lot soil stockpile area, erosion controls in OF008 (i.e., rock grade controls, dirt road stabilization, riprap aprons), Northern Drainage restoration activities, helipad drainage holes punched through the asphalt upstream of the previously installed sandbag berms to enhance infiltration, ELV area treatment BMP, erosion controls, and addition of filter fabric over the weir boards at the culvert modifications (CMs) to enhance CM performance, all of which are further detailed in the August 2013 Annual Report (MWH et al., 2013).

## **1.2 Summary of Expert Panel's BMP Recommendations**

Based on the potential BMP subarea monitoring site analysis results (MWH et al., 2013), 17 of the 91 subareas evaluated were identified as top-ranked potential BMP locations, all of which were in Outfall 009. These 17 top-ranked sites were then selected for further evaluation based on site-specific considerations and best professional judgment, which accounted for future ISRA and infrastructure demolition plans, existing BMPs, and new BMP implementation constraints and feasibility. As a result of these assessments, the Expert Panel has selected one potential BMP subarea monitoring location, ILBMP0001 (Lower Lot 24-inch storm drain), for new BMP implementation as a first priority. This drainage area is located on Boeing property. The remaining potential BMP subarea monitoring locations will be monitored during the 2013/2014 rainy season, after which the need for stormwater controls will be re-evaluated.

The existing Santa Susana Site BMP sizing criterion developed by the Expert Panel is for the capture of runoff from the 1-year, 24-hour storm event, or alternatively 90% long-term runoff volume capture (these are roughly equivalent). This criterion was used for the preliminary sizing of the new treatment controls for the BMP Plan, and will be reevaluated by the Expert Panel on a site-by-site basis as individual projects are developed. Upon further project development, site-specific considerations include, for example: constructability constraints (including available space); stormwater monitoring results; anticipated BMP functional lifetime; timeframe for infrastructural demolition and final remediation; anticipated nature of remediation in potential BMP location; capital, and operation and maintenance costs; potential impacts caused by the construction of the BMPs themselves; public and site safety considerations and other information.

## **2. BMP RECOMMENDATIONS**

The BMP monitoring location selected for BMP implementation is the Lower Parking Lot 24 inch storm drain. This storm drain discharges via a concrete outlet spillway to the Northern Drainage on Sage Ranch property. Based on 16 events, this subarea is ranked 9<sup>th</sup> overall (multi-constituent score = 0.57), 8th for dioxins, 23rd for metals, and 39.5th<sup>2</sup> for TSS.

### **2.1 24-inch Drain beneath Lower Parking Lot (Boeing)**

#### **2.1.1 Drainage Area Description**

The 24-inch drain area (monitoring subarea ILBMP0001) receives flow from 24 acres of paved parking areas, building rooftops, paved storage areas, and undeveloped hillsides. Runoff from these areas is conveyed by a storm drain collection system to a 24-inch storm drain located beneath the Lower Parking Lot. A low flow weir structure diverts some flow in the storm drain to the recently installed Lower Lot biofilter system. The sedimentation basin and biofilter in the Lower Parking Lot treats approximately 11% of the long term runoff volume from this subarea. Additionally, Building 300 was removed and replaced by trailers and Building 436 is currently being removed and will be completed this year. The existing parking lot to the east of Building 436 is still being used for site parking. The contractor office and storage area, located to the west of the Building 436, is still being used by SSS contractors and will remain the contractor office and storage area through site decommissioning. The hazardous waste storage area, located to the south of the Building 436, will be utilized during ISRA and RFI remediation activities through site decommissioning.

#### **2.1.2 BMP Description**

The recommended project is intended to increase the volume of runoff directed to the Lower Lot biofilter system and pretreat runoff from impervious areas in the drainage. Recommended actions for the 24-inch drain area include installing a series of vegetated shallow detention basins in the vicinity of Building 436 that are intended to capture runoff from impervious surfaces within the drainage area and provide storage capacity before slowly releasing the stormwater runoff to the 24 inch drain thereby allowing

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<sup>2</sup> Some of the BMP Monitoring locations' ranks are not expressed as whole numbers because an average of ranks is used when multiple BMP monitoring locations are tied with the same rank.



greater diversion of this runoff to the Lower Lot Biofilter for treatment. The features are depicted on the conceptual design figures provided in Appendix A.

North of Building 436, a portion of the existing asphalt parking lot is planned to be removed in early 2014. A series of two vegetated shallow detention basins is recommended for this area to treat runoff from the remaining parking lot (estimated at 0.85 acres) prior to discharging to the 24-inch culvert through the existing inlet near the building. The conceptual system shown for this location (see Appendix A) includes two shallow detention basins with a large diameter underground storage pipe that provides additional storage capacity. The preliminary design (subject to review, agreements and feasibility assessment) of the system consists of a series of two basins, each with a bottom width of 10 feet, top width of 16 feet, total depth of 1-ft, 3:1 side slopes, and an average longitudinal slope of 0.1% over a total length of 215 feet. The system has been proposed along the westernmost parking row to maintain existing traffic patterns in the parking lot. This placement is estimated to require the removal of approximately 50 parking spaces.

Recommendations for the Building 436 area include a series of lined, vegetated shallow detention basins that drain south to north and ultimately discharge to the existing 24-inch drain through the existing inlet to the northwest of the building. The conceptual system shown for this location (see Appendix A) includes two shallow detention basins with a large diameter underground storage pipe that provides additional storage capacity. The basins are required to be lined to reduce the potential to infiltrate additional stormwater into the RFI area in the vicinity of the building pad. The proposed system also includes a catch basin at the southwest corner of the entrance to the storage area and a storm drain that conveys flows from the catch basin to the south end of the proposed lined basins. These basins will collect runoff from the building pad as well as the paved storage area to the east of the Building 436.

The preliminary total earthwork estimated for the conceptual design illustrated the figures included in Appendix A is approximately 1,000 cubic yards of soil. This material would result in a net cut and require either offsite export or reuse onsite as fill (pending reuse criteria). The volume of earthwork would require a Ventura County Ministerial Grading Permit from the Ventura County Public Works Agency.

### **3. SCHEDULE**

The Expert Panel has recommended that the BMP recommendations described in this addendum be completed prior to the start of the 2014-2015 rainy season. The schedule is subject to modification as Boeing continues its discussions with the Expert Panel regarding the BMP activities, the outcome of feasibility assessments, design and permit constraints, and as additional information, including observations during the 2013-2014 rainy seasons, is collected and evaluated.

## 5. REFERENCES

Geosyntec Consultants and Santa Susana Site Surface Water Expert Panel, 2012. Santa Susana Site Watershed 008 and 009 BMP Subarea Ranking Analysis. August 31.

Geosyntec Consultants and Santa Susana Field Laboratory Surface Water Expert Panel, 2011. Final 2011 BMP Plan Addendum, Santa Susana Field Laboratory. September 30.

Geosyntec Consultants and Santa Susana Field Laboratory Surface Water Expert Panel, 2010. BMP Subarea Sampling Recommendations for 008/009 BMP Work Plan. December 16.

MWH, Santa Susana Site Surface Water Expert Panel, and Geosyntec Consultants, 2013. ISRA Performance Monitoring and Potential BMP Subarea Monitoring for the Outfalls 008 and 009 Watersheds, 2012-2013 Rainy Season, Santa Susana Field Laboratory, Ventura County, CA. August 31. [http://www.boeing.com/aboutus/environment/santa\\_susana/isra.html](http://www.boeing.com/aboutus/environment/santa_susana/isra.html)

MWH, 2011. 2011-2012 Best Management Practices (BMP) and Interim Source Removal Action (ISRA) Performance Monitoring Sampling and Analysis Plan for the 008/009 Watershed. December 8. [http://www.boeing.com/aboutus/environment/santa\\_susana/isra.html](http://www.boeing.com/aboutus/environment/santa_susana/isra.html)

MWH, Santa Susana Site Surface Water Expert Panel, and Geosyntec Consultants, 2012. ISRA Performance Monitoring and Potential BMP Subarea Monitoring for the Outfalls 008 and 009 Watersheds, 2011-2012 Rainy Season, Santa Susana Field Laboratory, Ventura County, CA. August 31. [http://www.boeing.com/aboutus/environment/santa\\_susana/isra.html](http://www.boeing.com/aboutus/environment/santa_susana/isra.html)

MWH, Santa Susana Field Laboratory Surface Water Expert Panel, Geosyntec Consultants, Haley & Aldrich, Inc., and CH2M Hill, 2010. Best Management Practices (BMP) Plan, Outfalls 008 and 009 Watersheds, Santa Susana Field Laboratory, Ventura County, California. October 14. [http://www.boeing.com/aboutus/environment/santa\\_susana/water\\_quality/isra\\_10-10-19\\_BMPPlanOF008and009Watersheds.pdf](http://www.boeing.com/aboutus/environment/santa_susana/water_quality/isra_10-10-19_BMPPlanOF008and009Watersheds.pdf)

RWQCB, 2010. Waste Discharge Requirements – The Boeing Company, Santa Susana Field Laboratory, Canoga Park, CA, Order No. R-4-2010-0090, NPDES No. CA0001309. June 16.

Santa Susana Field Laboratory Surface Water Expert Panel and Geosyntec Consultants, 2011a. SSFL Watershed 008 and 009 BMP Site Ranking Analysis Approach.

Memorandum to Cassandra Owens, Regional Water Quality Control Board. The Boeing Company, Santa Susana Field Laboratory, Canoga Park, California, Order No. R4-2010-0090, NPDES No. CA0001309, CI No. 6027. June 22.

Santa Susana Field Laboratory Surface Water Expert Panel and Geosyntec Consultants, 2011b. SSFL Watershed 008 and 009 BMP Site Ranking Analysis, July 26.

United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS). 2007. Chapter 7—Hydrologic Soil Groups. Part 630 –Hydrology: National Engineering Handbook, Washington D.C.

# APPENDIX A

# STORMWATER BMP CONCEPT DESIGNS

FOR

## SANTA SUSANA SITE

### WATERSHED 009, BOEING PROPERTY

(ALL CONCEPTS SUBJECT TO MODIFICATION PENDING ADDITIONAL ENGINEERING ANALYSIS )

SEPTEMBER 2013



### DRAWING INDEX

<u>DRAWING NO.</u>	<u>TITLE</u>
1	TITLE SHEET
2	24 INCH STORM DRAIN DRAINAGE AREA BMPS
3	TYPICAL DETAILS

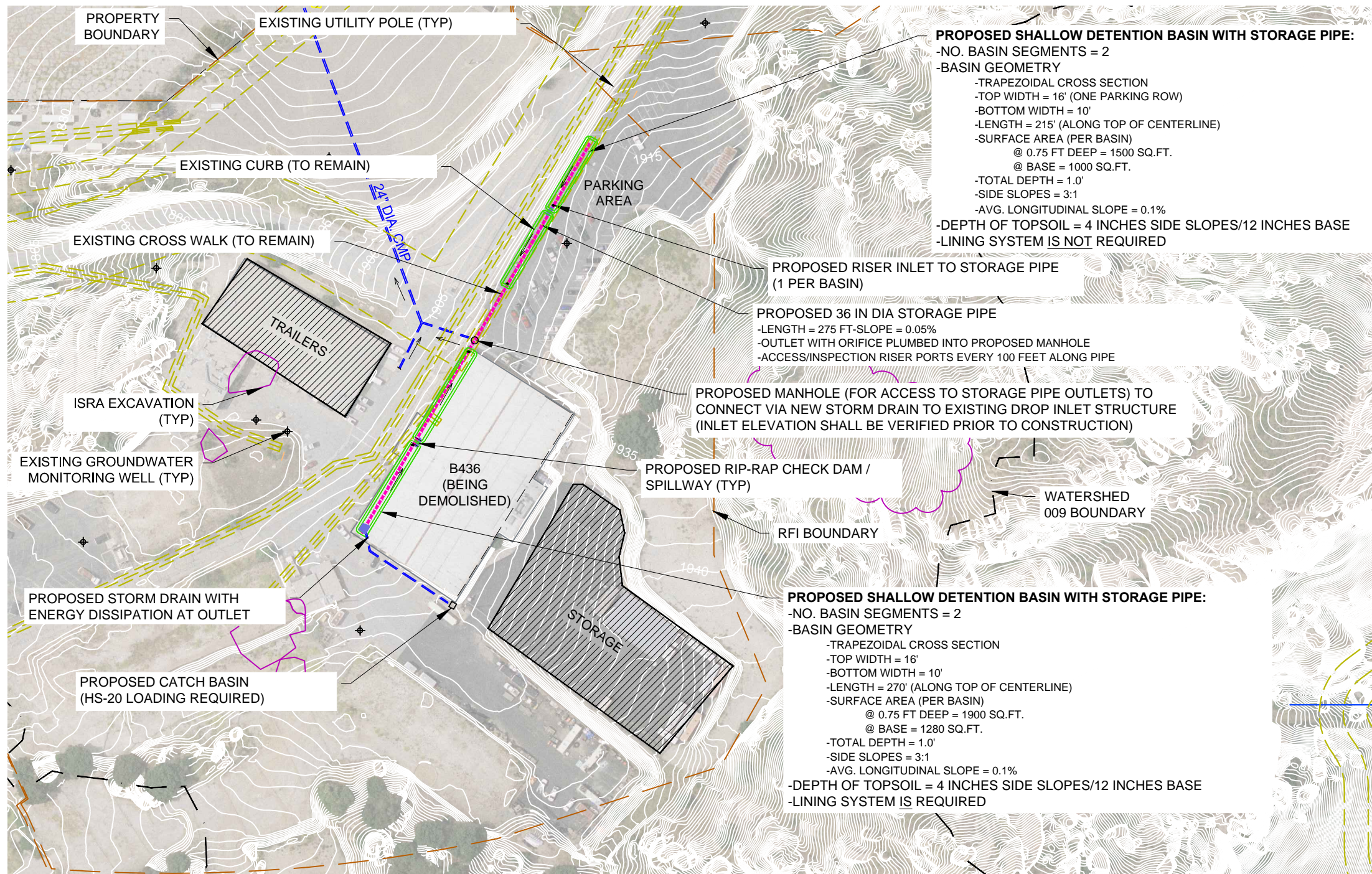
**NOTES:**

1. AERIAL IMAGERY USED FOR BASE PLANS HEREIN WAS PROVIDED BY MWH GLOBAL, INC. AND WAS FLOWN ON JUNE 2, 2010.
2. CONTOUR DATA SHOWN REPRESENT 1 FT ELEVATION DATA PROVIDED BY MWH GLOBAL, INC.
3. PROPOSED BMP FEATURES AND FOOTPRINTS ARE APPROXIMATE AND, UNLESS OTHERWISE NOTED, ARE INTENDED TO REFLECT INITIAL SIZING BASED ON THE ONE YEAR, 24 HOUR DESIGN STORM RECOMMENDED BY THE EXPERT PANEL.
4. DRAWINGS ARE FOR DESIGN CONCEPT ILLUSTRATION ONLY, ARE PRELIMINARY, SUBJECT TO CHANGE, AND ARE NOT FOR CONSTRUCTION.
5. BIOLOGICAL AND UTILITY SURVEYS MAY BE REQUIRED. ENGINEERING/CONSTRUCTION FEASIBILITY ASSESSMENT ALSO REQUIRED. COUNTY GRADING AND/OR BUILDING PERMIT MAY BE REQUIRED.
6. DRAINAGE FEATURES SHOWN REFLECT GENERAL STORMWATER RUNOFF CONVEYANCE PATHWAYS AND DO NOT NECESSARILY REPRESENT JURISDICTIONAL DRAINAGE FEATURES.
7. EASEMENT APPROVALS ARE REQUIRED PRIOR TO ADDITIONAL DESIGN AND CONSTRUCTION.

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TITLE:	<b>TITLE SHEET</b>	PREPARED BY:	 924 ANACAPA STREET, SUITE 4A SANTA BARBARA, CA 93101 PHONE: 805.897.3800	PREPARED FOR:	 SANTA SUSANA SITE VENTURA COUNTY, CALIFORNIA	PROJECT:	<b>STORMWATER BMP CONCEPT DESIGNS</b> <b>SANTA SUSANA SITE WATERSHED 009</b>	DESIGNED BY:	DHB	REVIEWED BY:	BS	DATE:	SEPT 2013	DRAWING:	<b>1</b>
								DRAWN BY:	DHB	APPROVED BY:	BS	PROJ. NO.:	SB0363S		





NORTH

## LEGEND

### EXISTING CONDITIONS

- PROPERTY LINE
- DRAIN PIPE
- ISRA BOUNDARY
- RFI BOUNDARY
- WATERSHED 009 BOUNDARY
- EASEMENT BOUNDARY
- BMP SUBAREA MONITORING LOCATION
- MONITORING WELL

### PROPOSED CONDITIONS

- STORAGE PIPE
- DETENTION BASIN RIM/BASE
- RIPRAP
- PROPOSED CATCH BASIN
- PROPOSED MANHOLE
- PROPOSED DRAIN PIPE
- FLOW DIRECTION



## CONCEPTUAL DESIGN

### NOTES:

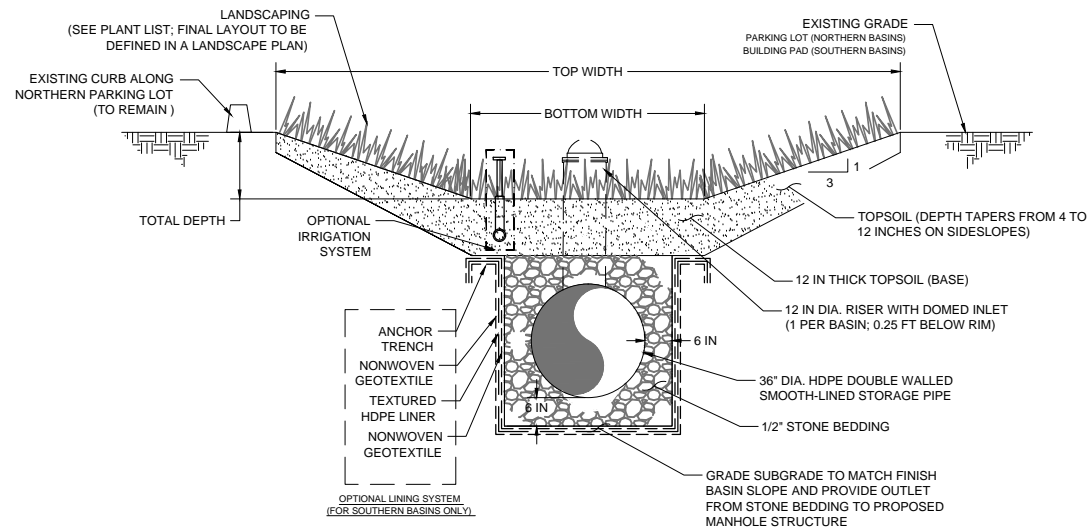
1. PROPOSED DESIGN FEATURES WERE PRELIMINARILY SIZED AND ARE APPROXIMATE. FINAL BMP DESIGN DETAILS AND SIZES WILL BE CONFIRMED BASED ON ENGINEERING DESIGN ANALYSIS. FINAL DESIGNS WILL BE SUBJECT TO ENGINEERING FEASIBILITY ASSESSMENT, PERMITTING CONSTRAINTS (I.E., REGULATORY AGENCY REQUIREMENTS), AND EXPERT PANEL AND PROPERTY OWNER REVIEW AND APPROVAL.
2. BMP DESIGN AND PLACEMENT WILL BE SUBJECT TO MODIFICATION PENDING FINAL ASPHALT REMOVAL AND COORDINATION WITH BOEING.

TITLE: <b>24-INCH STORM DRAIN DRAINAGE AREA BMPS</b>	PREPARED BY: 924 ANACAPA STREET, SUITE 4A SANTA BARBARA, CA 93101 PHONE: 805.897.3800	PREPARED FOR: SANTA SUSANA SITE VENTURA COUNTY, CALIFORNIA	PROJECT: <b>STORMWATER BMP CONCEPT DESIGNS          SANTA SUSANA SITE WATERSHED 009</b>	DESIGNED BY: DHB	REVIEWED BY: MO	DATE: SEPT 2013	DRAWING: <b>2</b>
				DRAWN BY: DHB	APPROVED BY: BS	PROJ. NO.: SB0363T	

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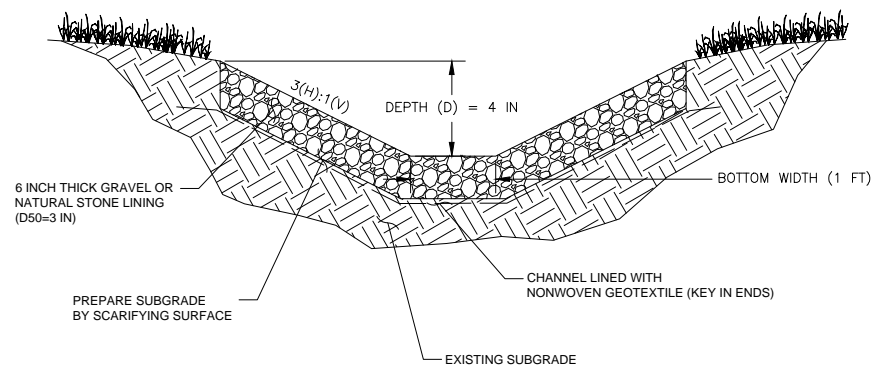


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## TYPICAL SECTION

EXAMPLE CROSS SECTIONAL ILLUSTRATION OF PROPOSED BASIN WITH STORAGE PIPE



## TYPICAL SECTION

EXAMPLE CROSS SECTIONAL ILLUSTRATION OF PROPOSED RIPRAP SPILLWAY

## GENERAL PLANT LIST

PLANT LIST PROVIDED BY WRA, INC. 2169-G, E. FRANCISCO BLVD., SAN RAFAEL, CA 94901. 415.454.8868.

PLANT LIST FOR BASINS			
Scientific Name	Common Name	Plant Type	Max Flood depth
<i>Elymus glaucus</i>	blue wildrye	grass	to 12"
<i>Achillea millefolium</i>	Common yarrow	perennial	to 6"
<i>Artemisia douglasiana</i>	mugwort	perennial	to 12"
<i>Distichlis spicata</i>	salt grass	perennial	to 12"
<i>Elymus triticoides</i>	creeping wildrye, beardless wildrye	grass	to 12"
<i>Epilobium canum</i>	California fuchsia and varieties	perennial	to 12"
<i>Eschscholzia californica</i>	California poppy	annual	to 6"
<i>Festuca idahoensis</i>	idaho fescue; blue bunchgrass	grass	to 12"
<i>Festuca rubra</i>	red fescue	grass	to 12"
<i>Fragaria chiloensis</i>	coastal strawberry; beach strawberry	perennial	to 6"
<i>Galvezia juncea</i>	Baja bush snapdragon	perennial	to 6"
<i>Juncus patens</i>	rush	perennial	to 12"
<i>Mimulus aurantiacus</i>	sticky monkey flower	perennial	to 6"
<i>Muhlenbergia rigens</i>	deergrass	grass	to 12"
<i>Prunella vulgaris</i>	selfheal	perennial	to 12"

### GENERAL SPECIFICATIONS:

1. TOPSOIL MATERIAL SHALL CONSIST OF A MIXTURE OF 20% BORROW TOPSOIL, 40% ENGINEERED SAND, AND 40% COMPOST. COMPACT TO 85%.

TITLE: <b>TYPICAL DETAILS</b>	PREPARED BY: <b>Geosyntec</b> consultants 924 ANACAPA STREET, SUITE 4A SANTA BARBARA, CA 93101 PHONE: 805.897.3800	PREPARED FOR: <b>BOEING</b> SANTA SUSANA SITE VENTURA COUNTY, CALIFORNIA	PROJECT: <b>STORMWATER BMP CONCEPT DESIGNS SANTA SUSANA SITE WATERSHED 009</b>	DESIGNED BY: DHB	REVIEWED BY: MO	DATE: SEPT 2013	DRAWING: <b>3</b>
				DRAWN BY: DHB	APPROVED BY: BS	PROJ. NO.: SB0363S	