TETRA TECH EC, INC.

November 14, 2012

Eric Solorio, Project Manager
California Energy Commission
Docket No. 11-AFC-3
1516 9th St.
Sacramento, CA 95814

Cogentrix Quail Brush Generation Project - Docket Number 11-AFC-3, Applicant Slides from the CEC October 19, 2012 Workshop

Docket Clerk:

Pursuant to the provisions of Title 20, California Code of Regulations, and on behalf of Quail Brush Genco, LLC, a wholly owned subsidiary of Cogentrix Energy, LLC, Tetra Tech hereby submits the Applicant Slides from the CEC October 19, 2012 Workshop (11-AFC-3). The Quail Brush Generation Project is a 100 megawatt natural gas fired electric generation peaking facility to be located in the City of San Diego, California.

If you have any questions regarding this submittal, please contact Rick Neff at (704) 525-3800 or me at (303) 980-3653.

Sincerely,

Constance E. Farmer
Project Manager/Tetra Tech

cc: Lori Ziebart, Cogentrix
John Collins, Cogentrix
Rick Neff, Cogentrix
Proof of Service List

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE QUAIL BRUSH GENERATION PROJECT

DOCKET NO. 11-AFC-03
PROOF OF SERVICE
(Revised 10/29/2012)

APPLICANT
Cogentrix Energy, LLC
C. Richard "Rick" Neff, Vice President
Environmental, Health & Safety
9405 Arrowpoint Boulevard
Charlotte, NC 28273
rickneff@cogentrix.com

Cogentrix Energy, LLC
John Collins, VP Development
Lori Ziebart, Project Manager
Quail Brush Generation Project
9405 Arrowpoint Blvd.
Charlotte, NC 28273
johncollins@cogentrix.com
loriziebart@cogentrix.com

APPLICANT'S CONSULTANTS
Tetra Tech EC, Inc.
Connie Farmer
Sr. Environmental Project Manager
143 Union Boulevard, Suite 1010
Lakewood, CO 80228
connie.farmer@tetratech.com

Tetra Tech EC, Inc.
Barry McDonald
VP Solar Energy Development
17885 Von Karmen Avenue, Ste. 500
Irvine, CA 92614-6213
barry.mcdonald@tetratech.com

Tetra Tech EC, Inc.
Sarah McCall
Sr. Environmental Planner
143 Union Boulevard, Suite 1010
Lakewood, CO 80228
sarah.mccall@tetratech.com

COUNSEL FOR APPLICANT
Bingham McCutchen LLP
Ella Foley Gannon
Camarin Madigan
Three Embarcadero Center
San Francisco, CA 94111-4067
ella.gannon@bingham.com
camarin.madigan@bingham.com

INTERVENORS
Roslind Varghese
9360 Leticia Drive
Santee, CA 92071
roslindv@gmail.com

Rudy Reyes
8655 Graves Avenue, #117
Santee, CA 92071
rreyes2777@hotmail.com

Dorian S. Houser
7951 Shantung Drive
Santee, CA 92071
dhouser@cox.net

Kevin Brewster
8502 Mesa Heights Road
Santee, CA 92071
lzpup@yahoo.com

Phillip M. Connor
Sunset Greens Home Owners Association
8752 Wahl Street
Santee, CA 92071
connorphil48@yahoo.com

*Mr. Rob Simpson, CEO
Helping Hand Tools
1901 First Avenue, Suite 219
San Diego, CA 92101
rob@redwoodrob.com

HomeFed Fanita Rancho, LLC
Jeffrey A. Chine
Heather S. Riley
Allen Matkins Leck Gamble
Mallory & Natsis LLP
501 West Broadway, 15th Floor
San Diego, CA 92101
jchine@allenmatkins.com
hriley@allenmatkins.com
jkaup@allenmatkins.com
vhoy@allenmatkins.com

Preserve Wild Santee
Van Collinsworth
9222 Lake Canyon Road
Santee, CA 92071
savefanita@cox.net

Center for Biological Diversity
John Buse
Aruna Prabhala
351 California Street, Suite 600
San Francisco, CA 94104
jbuse@biologicaldiversity.org
aprabhala@biologicaldiversity.org

INTERESTED AGENCIES
California ISO
e-recipient@caiso.com

City of Santee
Department of Development Services
Melanie Kush
Director of Planning
10601 Magnolia Avenue, Bldg. 4
Santee, CA 92071
mkush@ci.santee.ca.us

Morris E. Dye
Development Services Dept.
City of San Diego
1222 First Avenue, MS 501
San Diego, CA 92101
mdye@sandiego.gov

*indicates change

INTERESTED AGENCIES (cont.)

Mindy Fogg
Land Use Environmental Planner
Advance Planning
County of San Diego
Department of Planning & Land Use
5510 Overland Avenue, Suite 310
San Diego, CA 92123
mindy.fogg@sdcounty.ca.gov

ENERGY COMMISSION – DECISIONMAKERS

KAREN DOUGLAS
Commissioner and
Presiding Member
karen.douglas@energy.ca.gov

ANDREW McALLISTER
Commissioner and
Associate Member
andrew.mcallister@energy.ca.gov

Raoul Renaud
Hearing Adviser
raoul.renaud@energy.ca.gov

Eileen Allen
Commissioners' Technical
Adviser for Facility Siting
eileen.allen@energy.ca.gov

Galen Lemei
Advisor to Commissioner Douglas
galen.lemei@energy.ca.gov

Jennifer Nelson
Advisor to Commissioner Douglas
jennifer.nelson@energy.ca.gov

David Hungerford
Advisor to Commissioner McAllister
david.hungerford@energy.ca.gov

Pat Saxton
Advisor to Commissioner McAllister
patrick.saxton@energy.ca.gov

ENERGY COMMISSION STAFF

Eric Solorio
Project Manager
eric.solorio@energy.ca.gov

Stephen Adams
Staff Counsel
stephen.adams@energy.ca.gov

ENERGY COMMISSION – PUBLIC ADVISER

Jennifer Jennings
Public Adviser's Office
publicadviser@energy.ca.gov

DECLARATION OF SERVICE

I, Constance Farmer, declare that on November 14, 2012, 2012, I served and filed copies of the attached Applicant Slides from the CEC October 19, 2012 Workshop, dated October 19, 2012. This document is accompanied by the most recent Proof of Service list, located on the web page for this project at: http://www.energy.ca.gov/sitingcases/quailbrush/index.html.

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit or Chief Counsel, as appropriate, in the following manner:

(*Check all that Apply*)

For service to all other parties:

__x__ Served electronically to all e-mail addresses on the Proof of Service list;

____ Served by delivering on this date, either personally, or for mailing with the U.S. Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses marked *"hard copy required" or where no e-mail address is provided.

AND

For filing with the Docket Unit at the Energy Commission:

__x__ by sending an electronic copy to the e-mail address below (preferred method); *OR*

____ by depositing an original and 12 paper copies in the mail with the U.S. Postal Service with first class postage thereon fully prepaid, as follows:

CALIFORNIA ENERGY COMMISSION – DOCKET UNIT
Attn: Docket No. 11-AFC-03
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.ca.gov

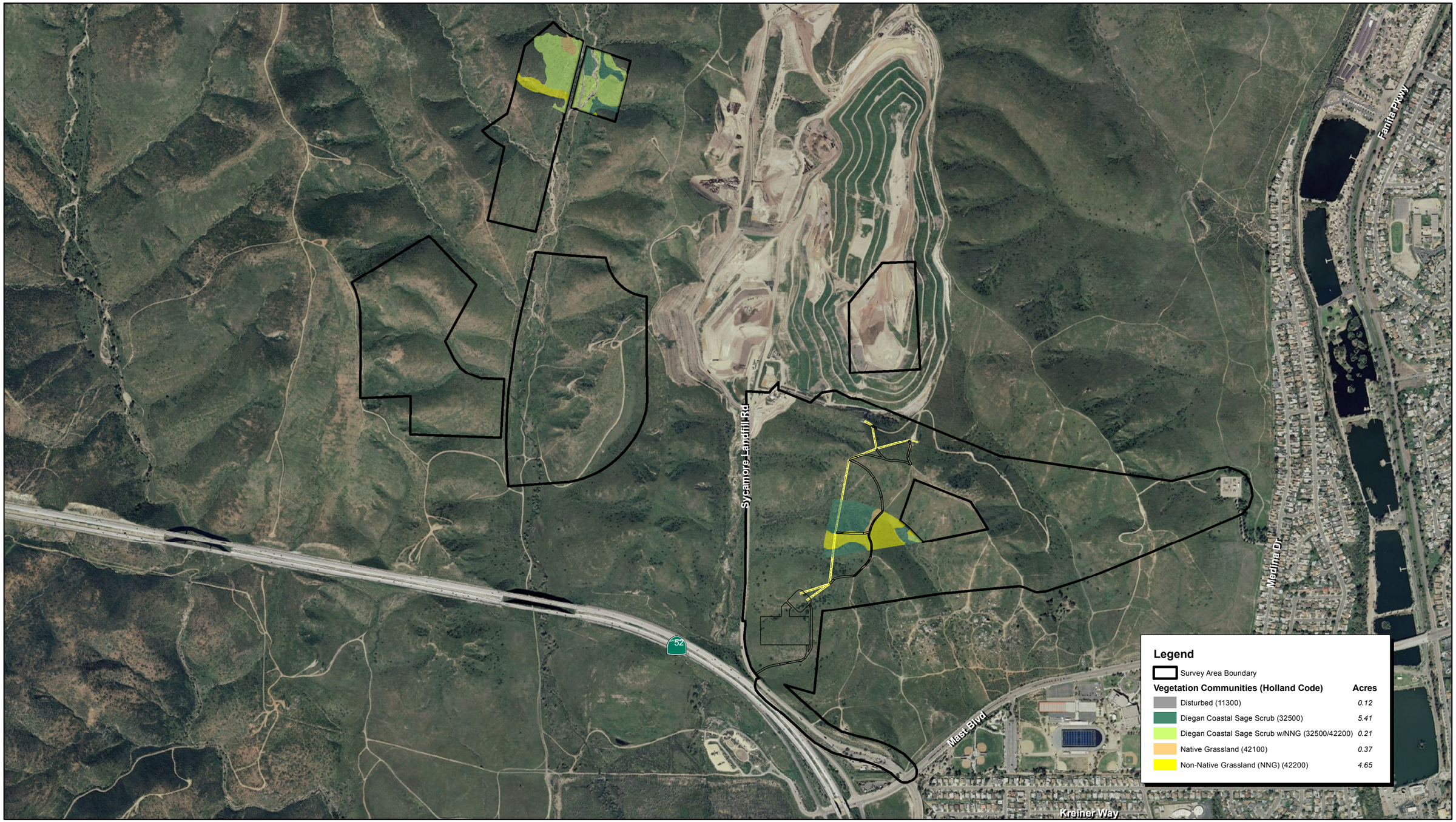
OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:

____ Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission
Michael J. Levy, Chief Counsel
1516 Ninth Street MS-14
Sacramento, CA 95814
michael.levy@energy.ca.gov

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurre
proceeding.

Constance C. Farmer



Source: ESRI Aerial Imagery. Tetra Tech 2012, MBA Field Survey and GIS Data, 2012.

NORTH

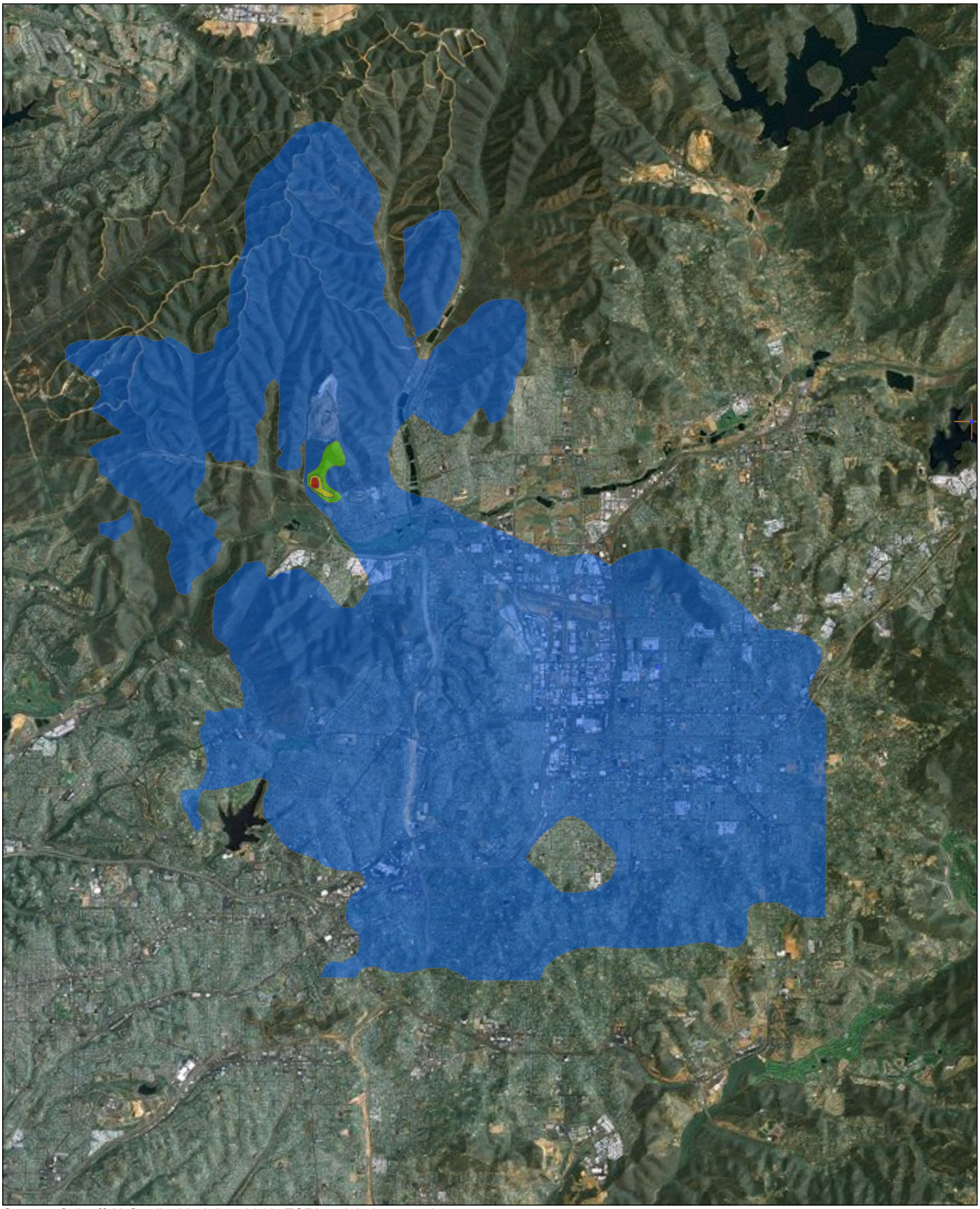
1,000 500 0 1,000

Feet

Michael Brandman Associates

17510009 • 08/2012 | Mitigation Areas and Project Site.mxd

Exhibit 3
Mitigation Areas and Project Site



Source: Calpuff AirQuality Modeling 2012. ESRI aerial photograph

Michael Brandman Associates

NORTH

1 0.5 0 1

Miles

Exhibit 5
Nitrogen Deposition Levels

Table 1: Habitat Types/Vegetation Communities and Mitigation Acreage Calculations (Based on Supplement 3.1 Design)

Habitat / Vegetation Community	Permanent Impacts	Mitigation Ratio (Tiered Habitat)		MHPA Mitigation Ratio	Mitigation Acreage
Diegan Coastal Sage Scrub	0.43	1:1	0.43	**4:1**	**1.72**
Diegan Coastal Sage Scrub/non-native grassland	0	1:1	0	**4:1**	**0**
Disturbed Habitat	0.35	0	0.35	**4:1**	**1.40**
Granitic Chamise Chaparral	0.00	1:1	0.00	**4:1**	**0**
Granitic Chamise Chaparral/non-native grassland	0.00	1:1	0.00	**4:1**	**0**
Native Grassland	0.06	2:1	0.12	**4:1**	**0.24***
Non-Native Grassland	6.66	1:1	6.66	**4:1**	**26.64**
Non-Vegetated Channel	0.00	2:1	0.00	**4:1**	**0**
Urban/Developed	0.00	0:1	0.00	**4:1**	**0**
Total	**7.50**		**7.56**		**30.00**

Table 2: Vegetation Communities Acreage for Mitigation

Project Site/Mitigation Parcels	Diegan Coastal Sage Scrub (Tier II)	Diegan Coastal Sage Scrub/Non-native grassland (Tier II)	Granitic Chamise Chaparral (Tier IIIa)	Native Grassland (Tier I)	Non-native Grassland (Tier IIIb)	Non-Vegetated Channel (2:1)	TOTAL ACRES
36603031	0	5.22	4.14	0.61	1.48	0.3	11.75
36603112	2.16	4.44	1.07	0	0.25	0.56	8.48
36608027	5.43	0.21	0	0.38	4.66	0	10.68
Total Mitigation Parcels	**7.59**	**9.87**	**5.21**	**0.99**	**6.39**	**0.86**	**30.91**
Mitigation Requirements	**1.72**	**0**	**0**	**0.24***	**26.64**	**0**	**28.60**

Table 3: Mitigation Parcel Percentage of Tier System

Project Site/Mitigation Parcels	Diegan Coastal Sage Scrub (Tier II)	Diegan Coastal Sage Scrub/Non-native grassland (Tier II)	Granitic Chamise Chaparral (Tier IIIa)	Native Grassland (Tier I)	Non-native Grassland (Tier IIIb)	Non-Vegetated Channel (2:1)
Project Site Mitigation Requirements	**6.1 %**	**0**	**0**	**0.8 %**	**93.1 %**	**0**
36603031	0	44.4 %	35.3 %	5.2 %	12.6 %	2.5 %
36603112	25.5 %	52.4 %	12.6 %	0	2.9 %	6.6 %
36608027	50.8 %	2.0 %	0	3.6 %	43.6 %	0

Cogentrix

Staff Workshop
for the

Quail Brush Generation Project

Developed by

Quail Brush Genco, LLC

California Energy Commission

October 19, 2012

Cogentrix

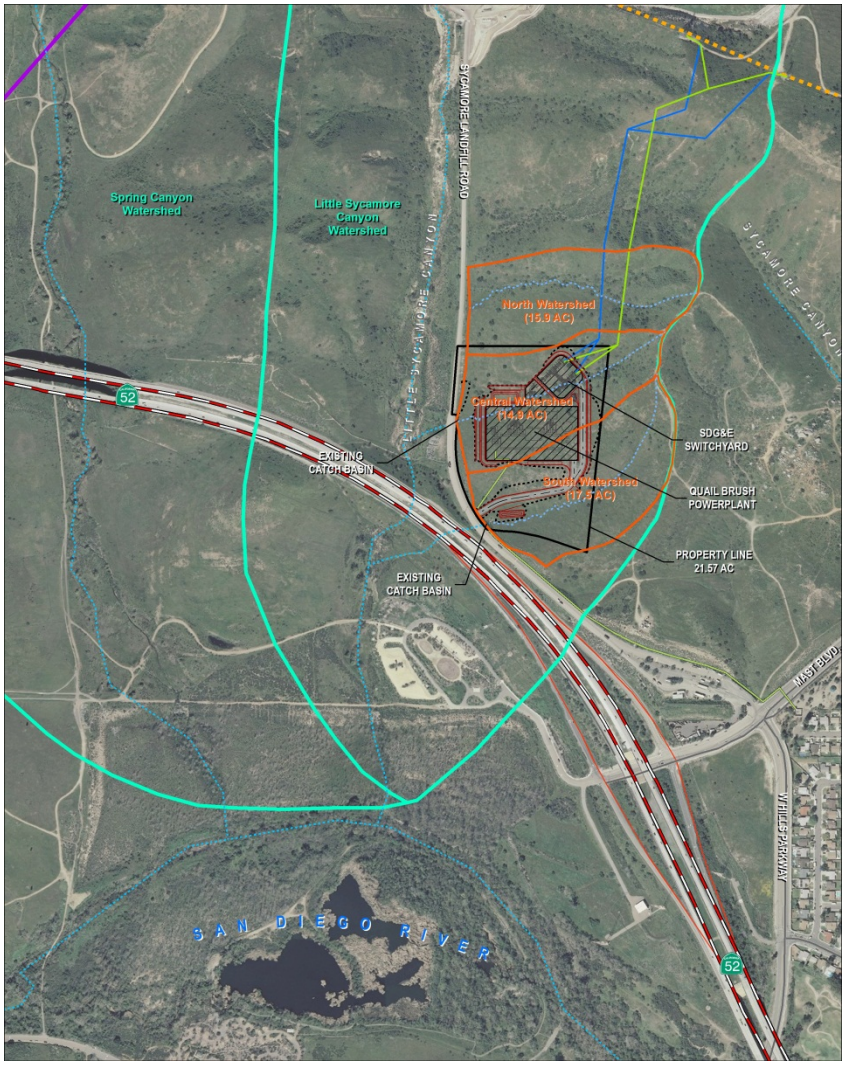
Introduction – Soils and Water

- Overall goal of presentation – Explain the approach used for the stormwater drainage, controls and management
- Project location
- Existing watersheds and stormwater drainage
- Site arrangement of power plant and SDG&E switchyard
- Post development watersheds and stormwater drainage
- Stormwater drainage controls and management
  - Offsite stormwater runoff
  - Onsite stormwater runoff
- BMP Sizing Calculator approach and details

Cogentrix

Project Vicinity

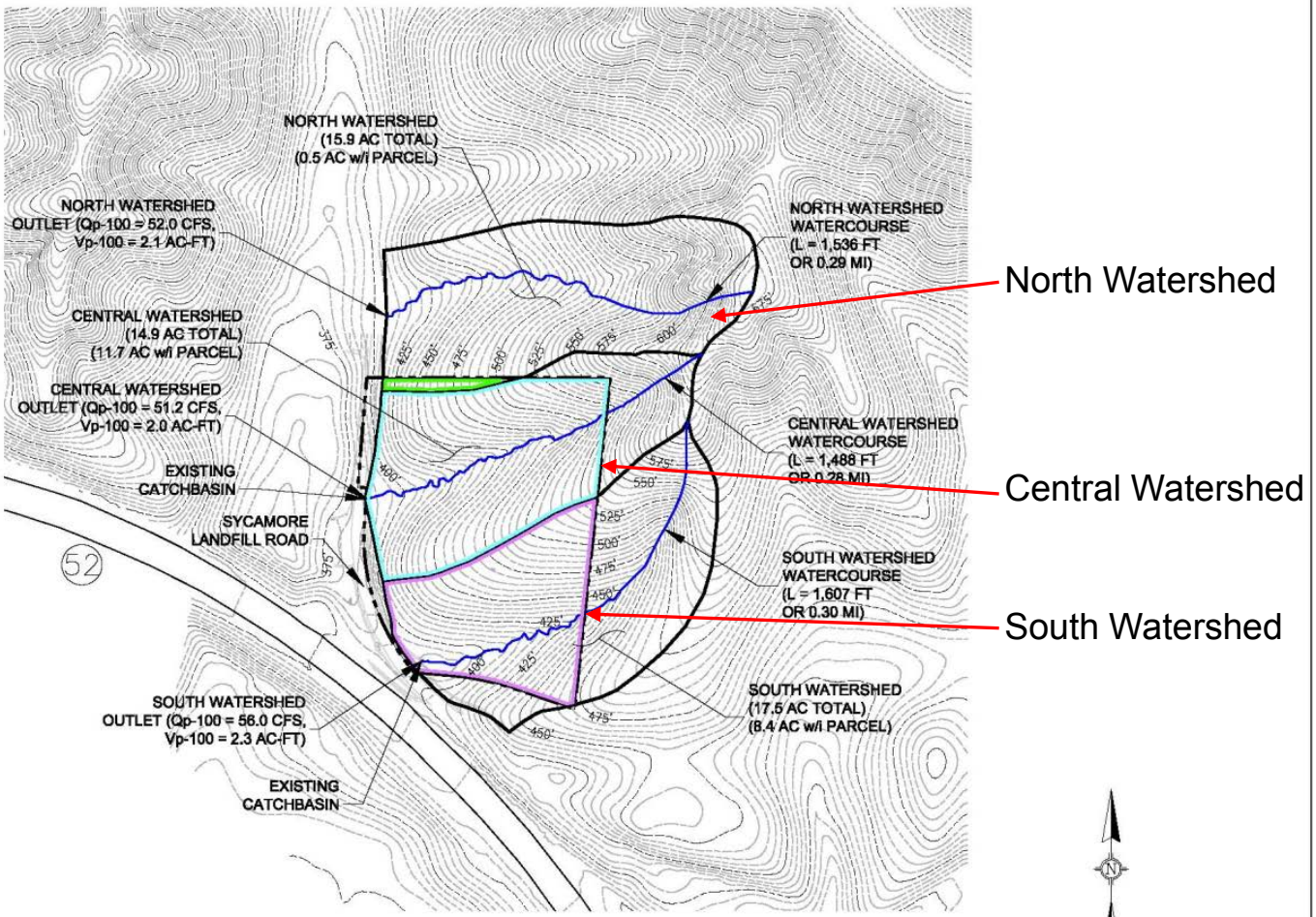
- Located on Sycamore Landfill Road
- Within Little Sycamore Canyon Watershed
- 3 small watersheds in Project area
- Stormwater drains from eastern ridge line across site towards Sycamore Landfill Road



Drainage Study, Figure 1-1

Cogentrix

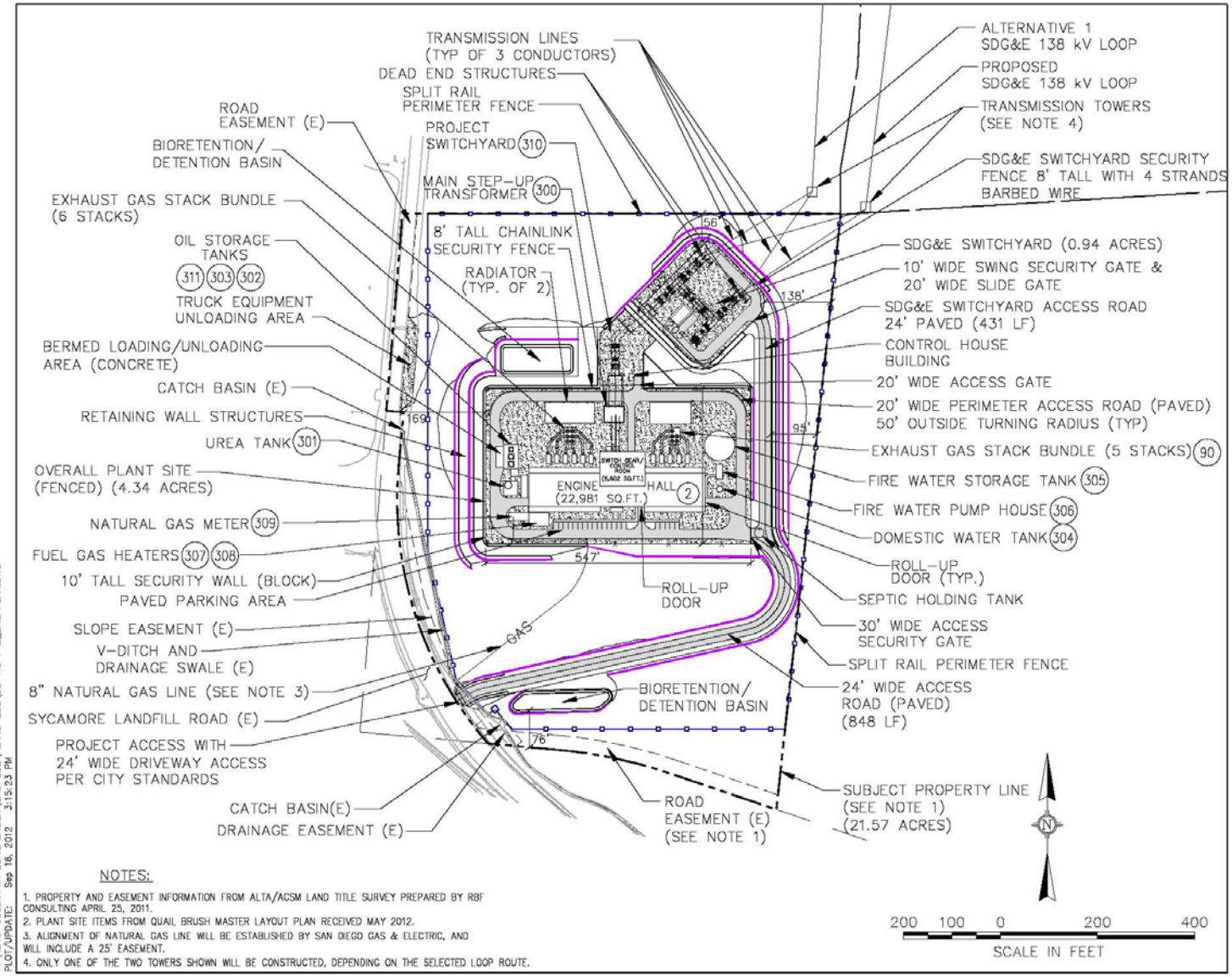
Existing Watersheds within the Project Site



Drainage Study, Figure 2-1

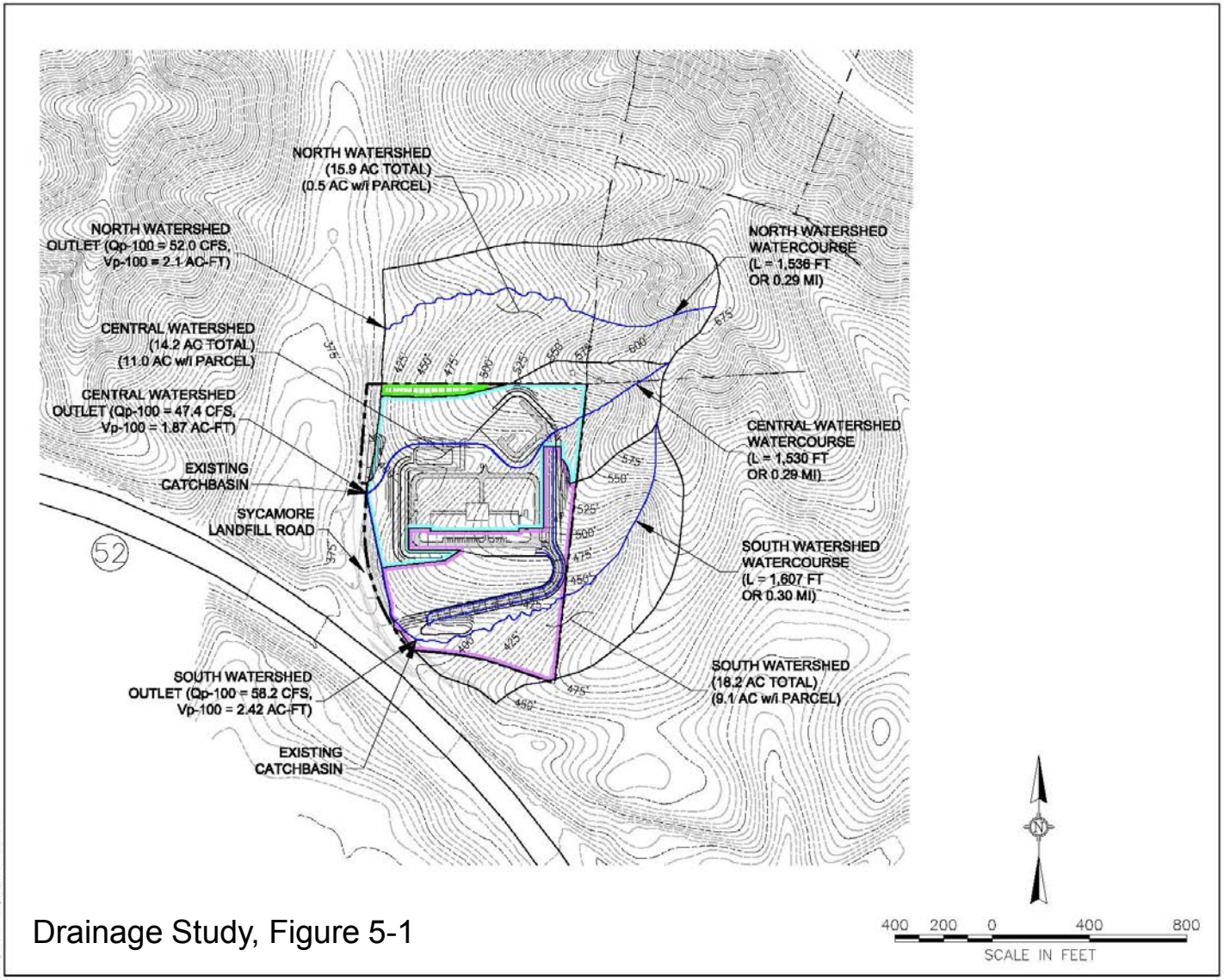
Cogentrix

Site Arrangement



Cogentrix

Post Development Watersheds Within Project Site



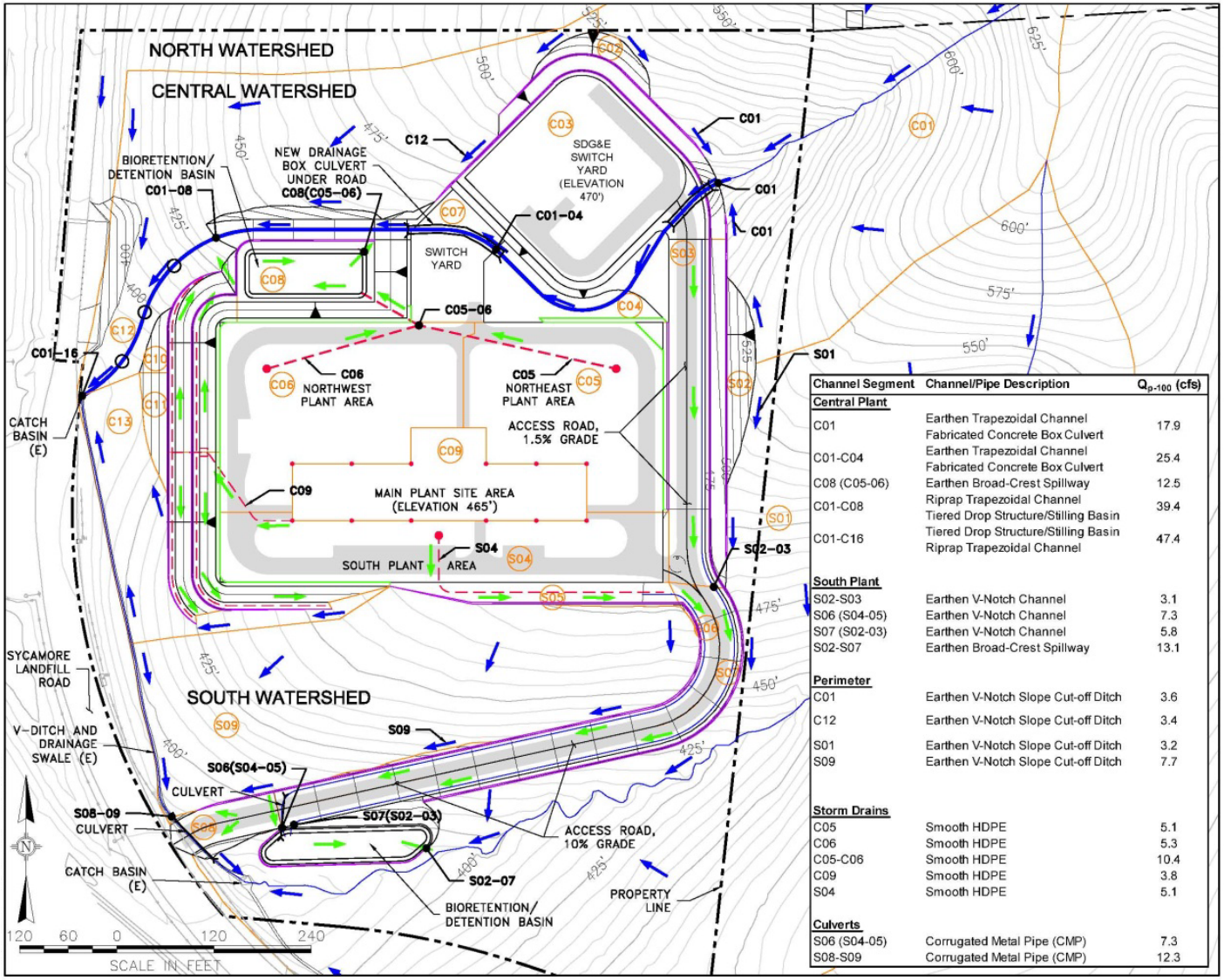
Drainage Study, Figure 5-1

Cogentrix

Approach to Managing Stormwater

- Two separate sources:
  - Offsite stormwater runoff
  - Onsite stormwater runoff
- Offsite stormwater:
  - Originates upslope in watersheds or from areas outside of plant footprint
  - Considered “Clean” since no Project contact
  - Only Central and South watersheds drain through Project site areas to enter existing catch basins in each watershed
  - Existing Central watershed drainage channel redirected around plant site and SDG&E switchyard
  - Hydraulic controls designed for 100-year storm event

Post Development Offsite Stormwater Runoff Controls



Channel Segment	Channel/Pipe Description	$Q_{p\text{-}100}$ (cfs)
Central Plant		
C01	Earthen Trapezoidal Channel Fabricated Concrete Box Culvert	17.9
C01-C04	Earthen Trapezoidal Channel Fabricated Concrete Box Culvert	25.4
C08 (C05-06)	Earthen Broad-Crest Spillway	12.5
C01-C08	Riprap Trapezoidal Channel Tiered Drop Structure/Stilling Basin	39.4
C01-C16	Tiered Drop Structure/Stilling Basin Riprap Trapezoidal Channel	47.4
South Plant		
S02-S03	Earthen V-Notch Channel	3.1
S06 (S04-05)	Earthen V-Notch Channel	7.3
S07 (S02-03)	Earthen V-Notch Channel	5.8
S02-S07	Earthen Broad-Crest Spillway	13.1
Perimeter		
C01	Earthen V-Notch Slope Cut-off Ditch	3.6
C12	Earthen V-Notch Slope Cut-off Ditch	3.4
S01	Earthen V-Notch Slope Cut-off Ditch	3.2
S09	Earthen V-Notch Slope Cut-off Ditch	7.7
Storm Drains		
C05	Smooth HDPE	5.1
C06	Smooth HDPE	5.3
C05-C06	Smooth HDPE	10.4
C09	Smooth HDPE	3.8
S04	Smooth HDPE	5.1
Culverts		
S06 (S04-05)	Corrugated Metal Pipe (CMP)	7.3
S08-S09	Corrugated Metal Pipe (CMP)	12.3

LEGEND:

SF	SQUARE FEET
CF	CUBIC FEET
E	EXISTING
U/G	UNDERGROUND
C	CENTRAL WATERSHED
S	SOUTH WATERSHED

C01 SUB AREA ID

- EXISTING DRAINAGE WATERCOURSE
- PROPOSED DRAINAGE WATERCOURSE
- 500' EXISTING CONTOUR
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SURFACE WATER FLOW
- BMP/LID SURFACE WATER FLOW
- DROP INLET WITH U/G DRAIN
- SUB-BASIN AREA
- RETAINING WALLS
- STILLING BASIN

NOTES:

1. TOPOGRAPHY FROM INTERMAP TECHNOLOGIES VERSION 1.5 DIGITAL TERRAIN MODEL DATA.
2. PROPERTY INFORMATION FROM ALTA/ACSM LAND TITLE SURVEY PREPARED BY RBF CONSULTING APRIL 25, 2011.

QUAIL BRUSH GENERATION PROJECT

FIGURE 6-1

POST DEVELOPMENT STRUCTURES AND HYDRAULIC CONTROLS

TETRA TECH EC, INC. Cogentrix

Cogentrix

Onsite Stormwater Management

- Requirements:
  - Project is considered a Priority Development Project
  - Must be in compliance with:
    - –Regional Board Permit Order R9-2007-001
    - –City of San Diego Storm Water Standards (January 2012)
    - –Final Hydromodification Management Plan (HMP) (March 2011)
- All onsite stormwater controls will be designed to withstand 100-year storm events

Cogentrix

San Diego Storm Water Standards Manual (January 2012)

- Storm Water Standards Manual Requires:
  - Preparation of:
    - –Water Quality Technical Report (WQTR)
    - –Drainage Study
    - –Hydromodification Plan (included in WQTR)
    - –Geotechnical Study/Report (if infiltration is proposed)
  - Identification of:
    - –Drainage areas/watersheds
    - –Potential Project-related Pollutants
    - –Receiving water pollutants of concern
    - –Permanent stormwater controls
      - Best Management Practices (BMPs) (source control and treatment control)
      - Low Impact Development (LID) design practices
      - Structural treatment controls must treat Project-related pollutants
        - – Bioretention basins and areas
        - – Flow–through planter boxes
  - Developing numerically-sized treatment control BMPs (BMP Sizing Calculator)

Cogentrix

BMP Sizing Calculator Details

- The BMP Sizing Calculator:
  - Is a “web-based tool [that] allows the user to size LID and extended detention basin (Pond) facilities that meet both HMP and Treatment Control requirements. These facilities are often referred to as BMPs.”
  - Has built-in data for rain events, run-off factors, BMP sizing factors and other location specific details
  - Provides a continuous simulation of rainfall events for 2-year to 10-year storms for the Project Location
- The user enters the site location and other data into the BMP Calculator and the program’s output identifies whether the size and design of the proposed control measures is sufficient to meet the required parameters.

BMP Sizing Calculator Input

- BMP Calculator Addresses the stormwater that is generated within a specific drainage management area (DMA) and the control measures for that area
- Project Site broken into subwatershed areas (the DMAs) for both Central and South watersheds
- Data Entered into BMP Calculator includes:
  - Area of DMA
  - Slope characteristics
  - Type of soil and surface
  - What control and treatment BMP is DMA associated with?

Cogentrix

DMA Descriptions and Sizes

Central Watershed

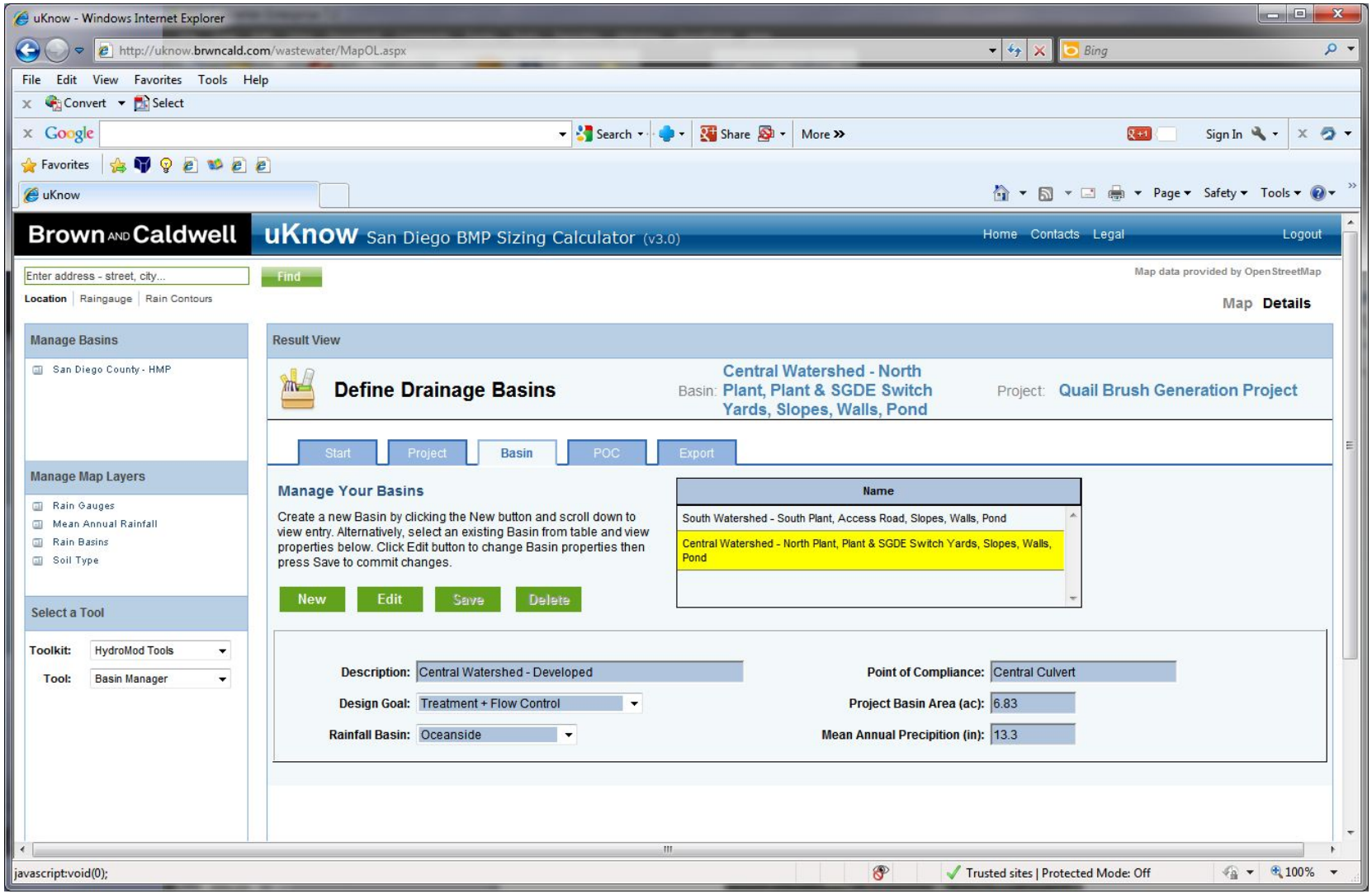
Watershed	Subarea	DMA Description	Area (ac)
Central	C02	Landscaping, Retaining Walls, Slopes	0.27
Central	C03-A	SDGE Switch Yard Pavement	0.25
Central	C03-B	SDGE Switch Yard Gravel	0.70
Central	C03-C	SDGE Switch Yard Landscaping, Drainages, Slopes	0.35
Central	C03-D	SDGE Switch Yard Building	0.03
Central	C04	Landscaping, Drainages	0.25
Central	C05-A	NE Plant Pavement	0.23
Central	C05-B	NE Plant Gravel	0.42
Central	C05-C	NE Plant Landscaping	0.13
Central	C05-D	NE Plant Misc Structures	0.25
Central	C05-E	NE Plant Containment Structures	0.09
Central	C06-A	NW Plant Pavement	0.26
Central	C06-B	NW Plant Gravel	0.48
Central	C06-C	NW Plant Landscaping	0.11
Central	C06-D	NW Plant Misc Structures	0.21
Central	C06-E	NW Plant Containment Structures	0.21
Central	C07-A	Plant Switch Yard Pavement	0.01
Central	C07-B	Plant Switch Yard Gravel	0.29
Central	C07-C	Plant Switch Yard Building	0.00
Central	C08-A	Landscaping, Retaining Walls, Slopes, Pond, Access	0.52
Central	C08-B	Landscaping, Drainages, Slopes, Access	0.22
Central	C09	Plant Main Buildings	0.68
Central	C10	Landscaping, Retaining Walls, Slopes	0.37
Central	C11	Landscaping, Retaining Walls, Slopes	0.51
		Total:	6.8

South Watershed

Watershed	Subarea	DMA Description	Area (ac)
South	S02	Landscaping, Retaining Walls, Slope	0.33
South	S03-A	Access Road Pavement	0.26
South	S03-B	Landscaping, Retaining Walls, Drainages, Slopes	0.26
South	S04-A	Plant Pavement	0.46
South	S04-B	Plant Gravel	0.24
South	S04-C	Plant Landscaping	0.16
South	S04-D	Plant Misc Structures	0.16
South	S05	Landscaping, Retaining Walls	0.20
South	S06-A	Access Road Pavement	0.19
South	S06-B	Landscaping, Retaining Walls, Drainages, Slopes	0.21
South	S07-A	Access Road Pavement	0.19
South	S07-B	Landscaping, Retaining Walls, Drainages, Slopes, Pond	0.56
South	S08-A	Access Road Pavement	0.07
South	S08-B	Landscaping, Retaining Walls, Drainages, Slopes	0.09
		Total:	3.4

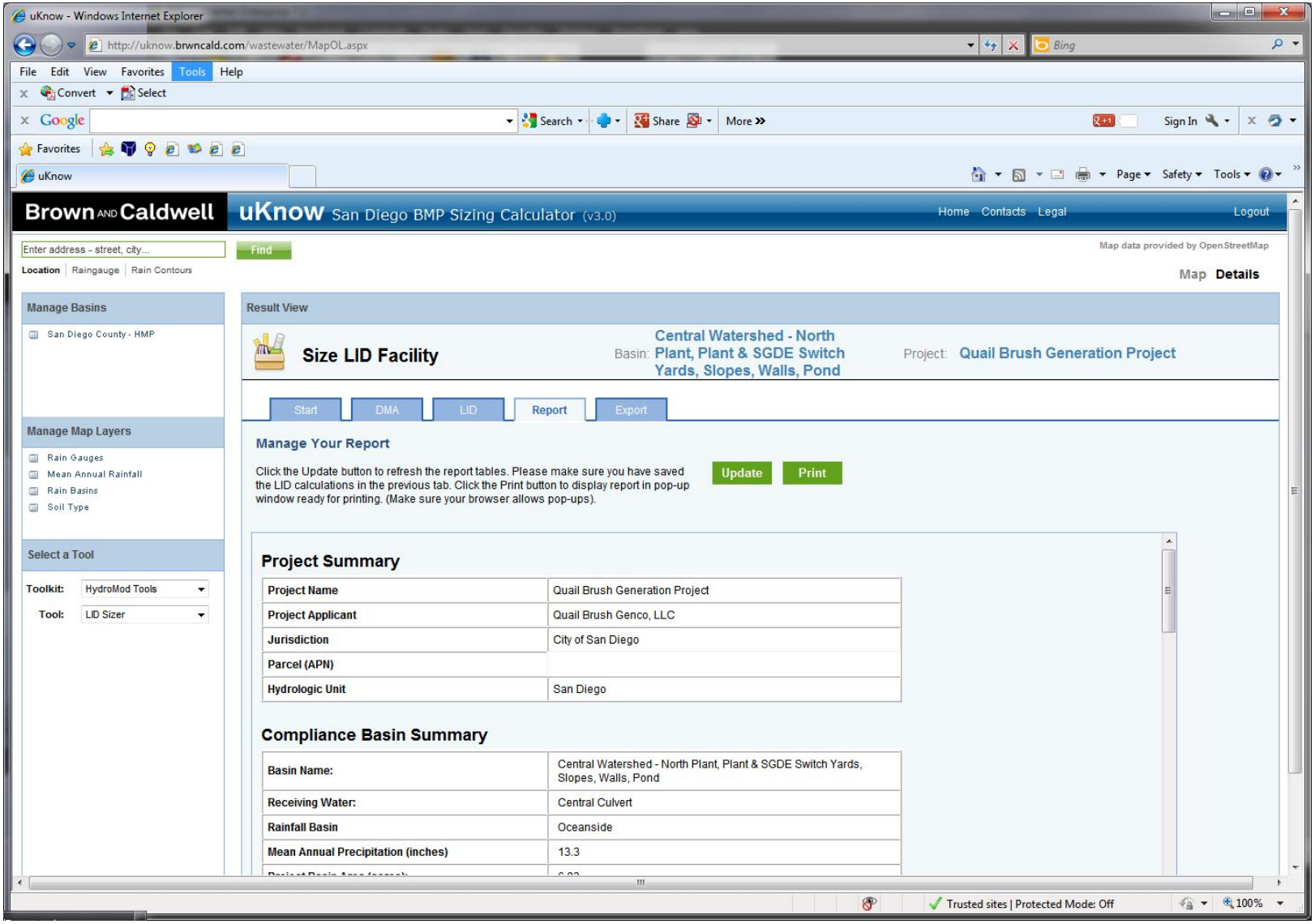
Cogentrix

BMP Sizing Calculator Basin Screen



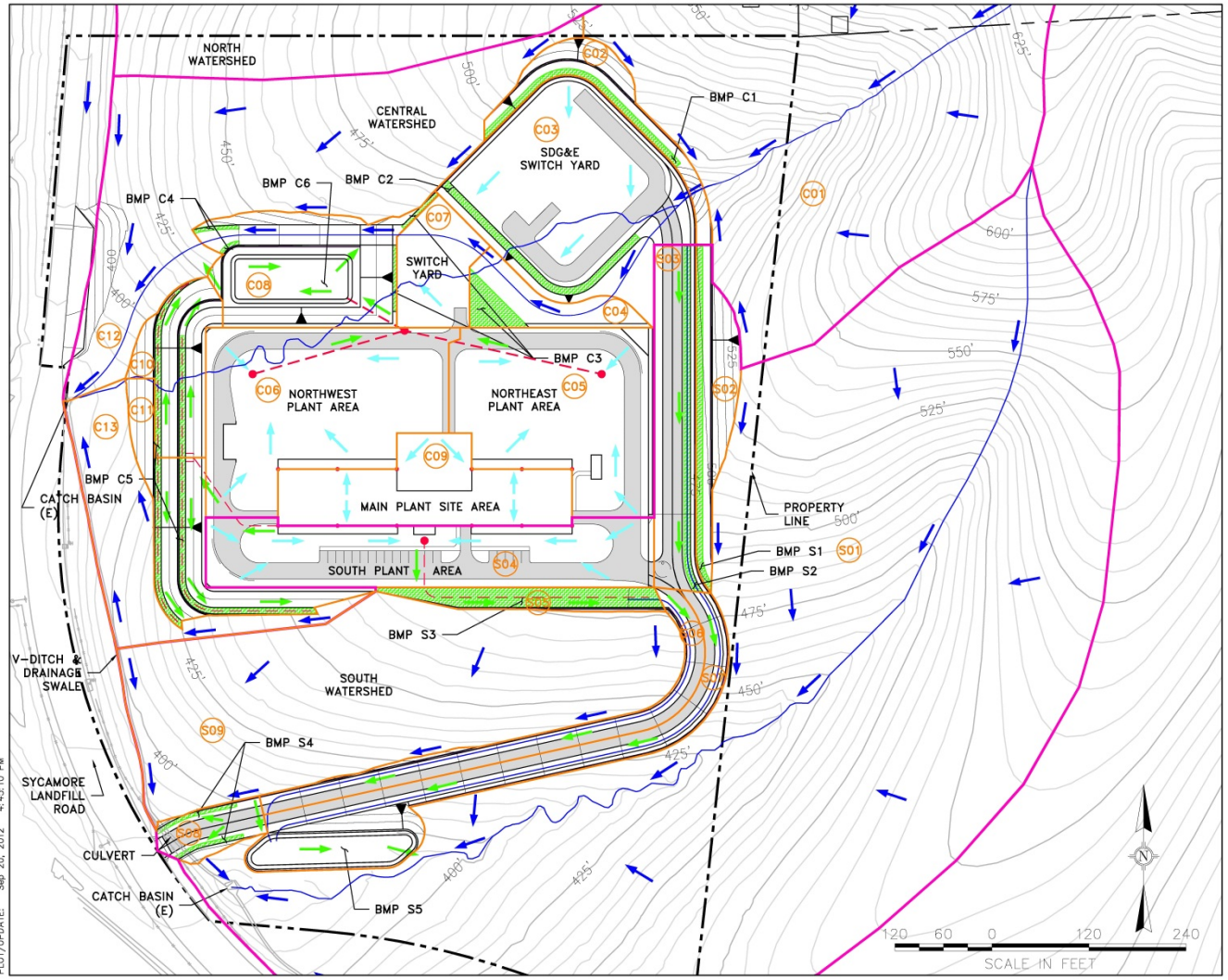
Cogentrix

BMP Sizing Calculator Screen



Cogentrix

Project Site with Proposed BMP/LID Controls



LEGEND:

SF	SQUARE FEET
E	EXISTING
U/G	UNDERGROUND
C	CENTRAL WATERSHED
S	SOUTH WATERSHED
C01	SUB AREA ID
SDG&E	SAN DIEGO GAS & ELECTRIC
	PAVEMENT
	BMP/LID
	EXISTING DRAINAGE WATERCOURSE
	PROPOSED DRAINAGE WATERCOURSE
500'	EXISTING CONTOUR
	WATERSHED BOUNDARY
	SUB-BASIN AREA
	SURFACE WATER FLOW
	PLANT SURFACE WATER FLOW
	BMP/LID SURFACE WATER FLOW
	DROP INLET WITH U/G DRAIN

NOTES:
1. TOPOGRAPHY FROM INTERMAP TECHNOLOGIES VERSION 1.5 DIGITAL TERRAIN MODEL DATA.
2. PROPERTY INFORMATION FROM ALTA/ACSM LAND TITLE SURVEY PREPARED BY RBF CONSULTING APRIL 25, 2011.

QUAIL BRUSH GENERATION PROJECT

FIGURE 4-1
STORMWATER MANAGEMENT FEATURE LOCATIONS

TETRA TECH EC, INC. Cogentrix

P:\4346-COGENTRIX QUAIL BRUSH\CAD-S3B\PLANS-S3B\WQTR FIGURE 4-1-SW FEATURE LOCS.DWG
PLOT/UPDATE: Sep 20, 2012 4:45:10 PM

Cogentrix

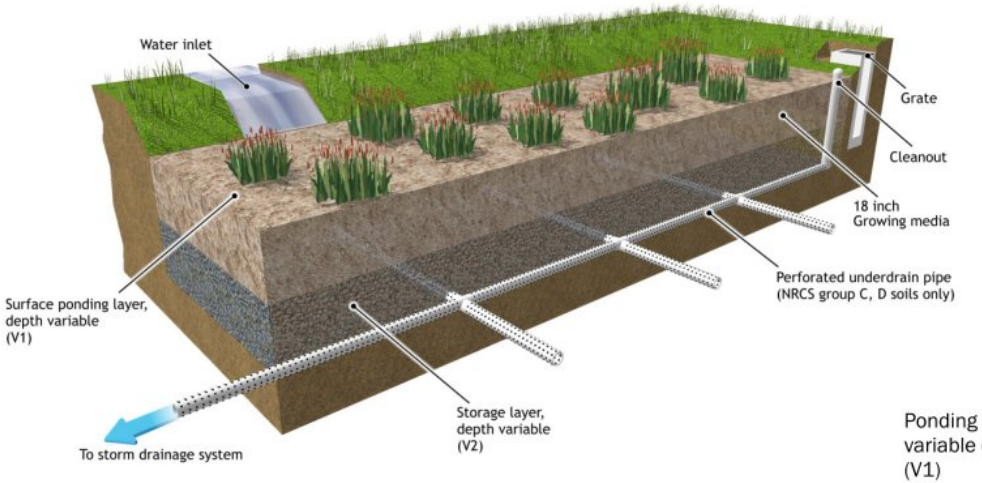
BMP Descriptions and Sizing

Watershed	BMP ID	Type	Description/Reporting DMA	Available Area (SF)	Min. Plan Area (SF)
Central	BMP C1	Flow-Through Planter	C02	2,529	164
Central	BMP C2	Bioretention	C03	3,181	2,091
Central	BMP C3	Bioretention	C04 and C07	3,431	362
Central	BMP C4	Flow-Through Planter	C08-B	420	134
Central	BMP C5	Flow-Through Planter	C09, C10 and C11	7,366	5,410
Central	BMP C6	Bioretention	C05, C06 and C08-A	8,914	6,126
			Total:	25,841	14,287

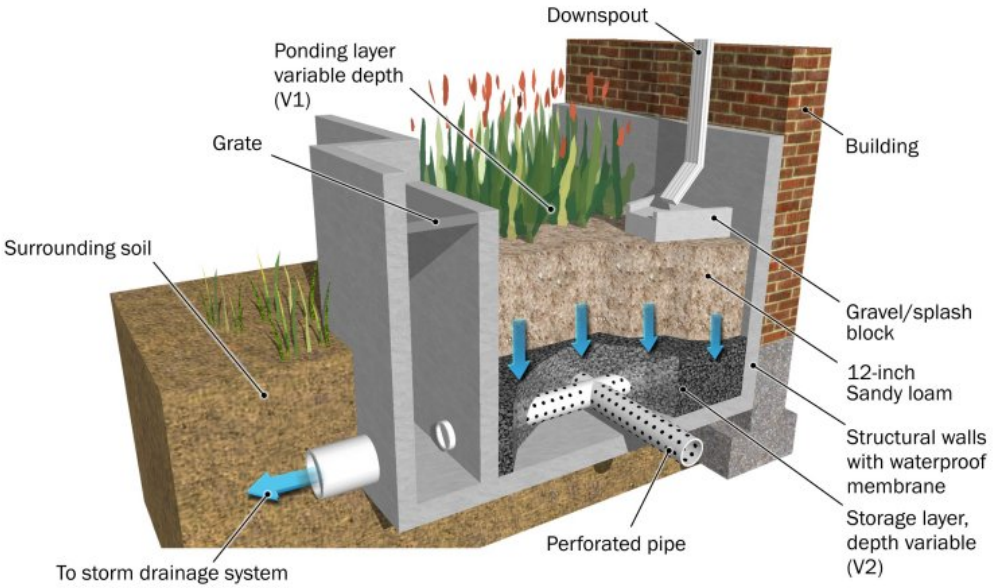
Watershed	BMP ID	Type	Description/Reporting DMA	Available Area (SF)	Min. Plan Area (SF)
South	BMP S1	Flow-Through Planter	S02	3,419	201
South	BMP S2	Bioretention	S03	3,457	1,619
South	BMP S3	Bioretention	S04 and S05	7,741	3,850
South	BMP S4	Bioretention	S08	975	447
South	BMP S5	Bioretention	S02 through S07	8,298	8,115
			Total:	23,891	14,232

Cogentrix

Examples of BMPs



Bioretention Basin



Flow-Through Planter

Conclusions

- Post development “Clean” stormwater will be directed around Project site and hydraulic controls designed for 100-year storm event
- Onsite stormwater source and treatment controls integrated into design
- Project design will use appropriate BMPs and LID features to:
  - Minimize sources of pollutants
  - Provide treatment of Project-related pollutants
    - –Bioretention basins and flow-through planters
- Project BMPs will include permanent maintenance by the Project owner
- Project meets hydromodification requirements of 2012 City of San Diego Storm Water Standards

Cogentrix

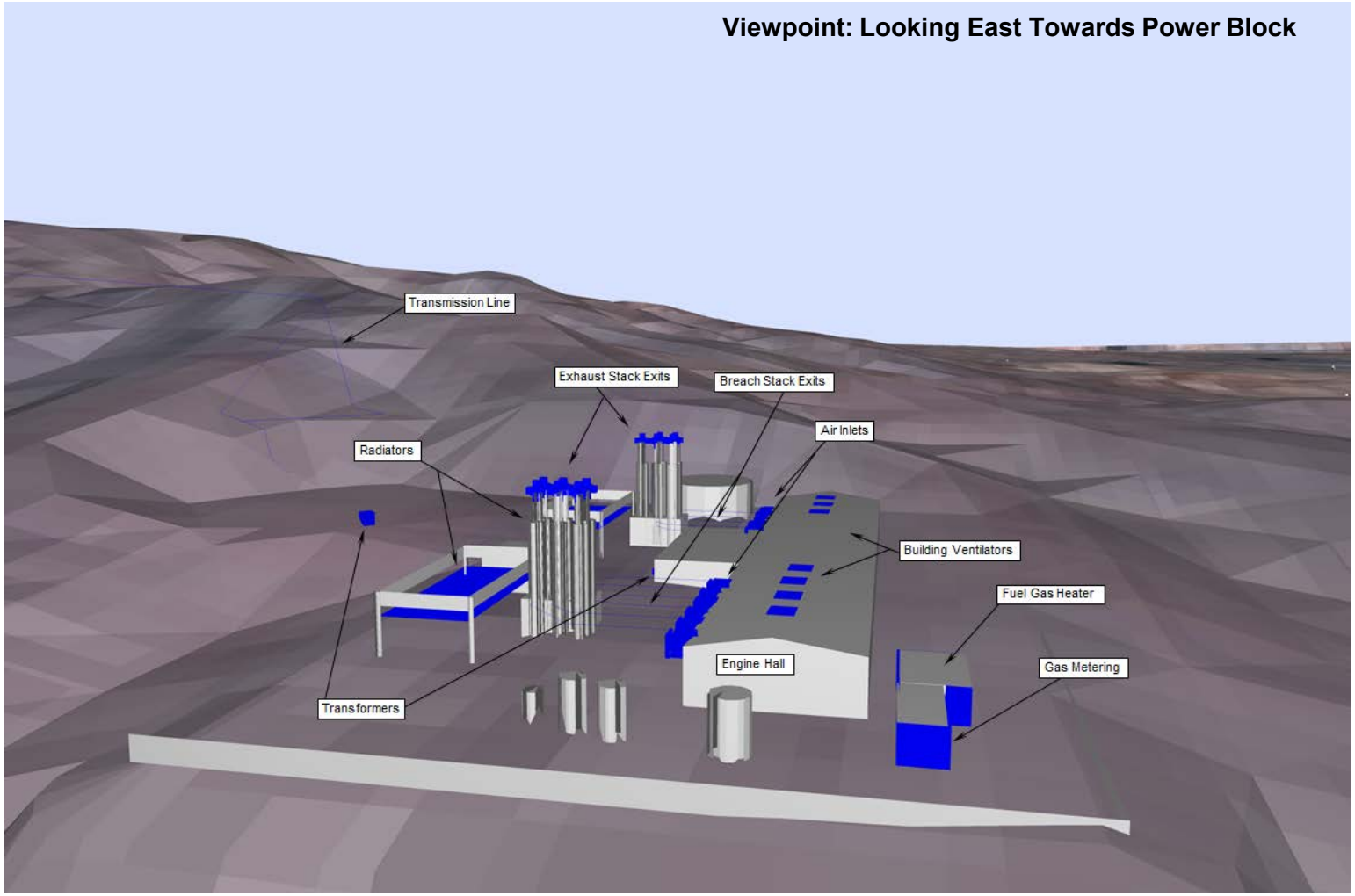
Noise

Acoustic analysis consisted of the following steps that were completed in accordance with established CEC protocols:

- **Baseline sound survey -** Short and long measurements completed to document the existing acoustic environment
- **Acoustic modeling -** DataKustik GmBH CadnaA (Computer Aided Noise Abatement). Noise modeling software conforming to International Standard ISO-9613.2, "Acoustics – Attenuation of Sound during Propagation Outdoors."
- **Noise mitigation analysis -** A top down review of candidate noise mitigation strategies
- **Study results -** Demonstrates the feasibility of the project to operate in compliance with LORS at all existing noise sensitive areas

Cogentrix

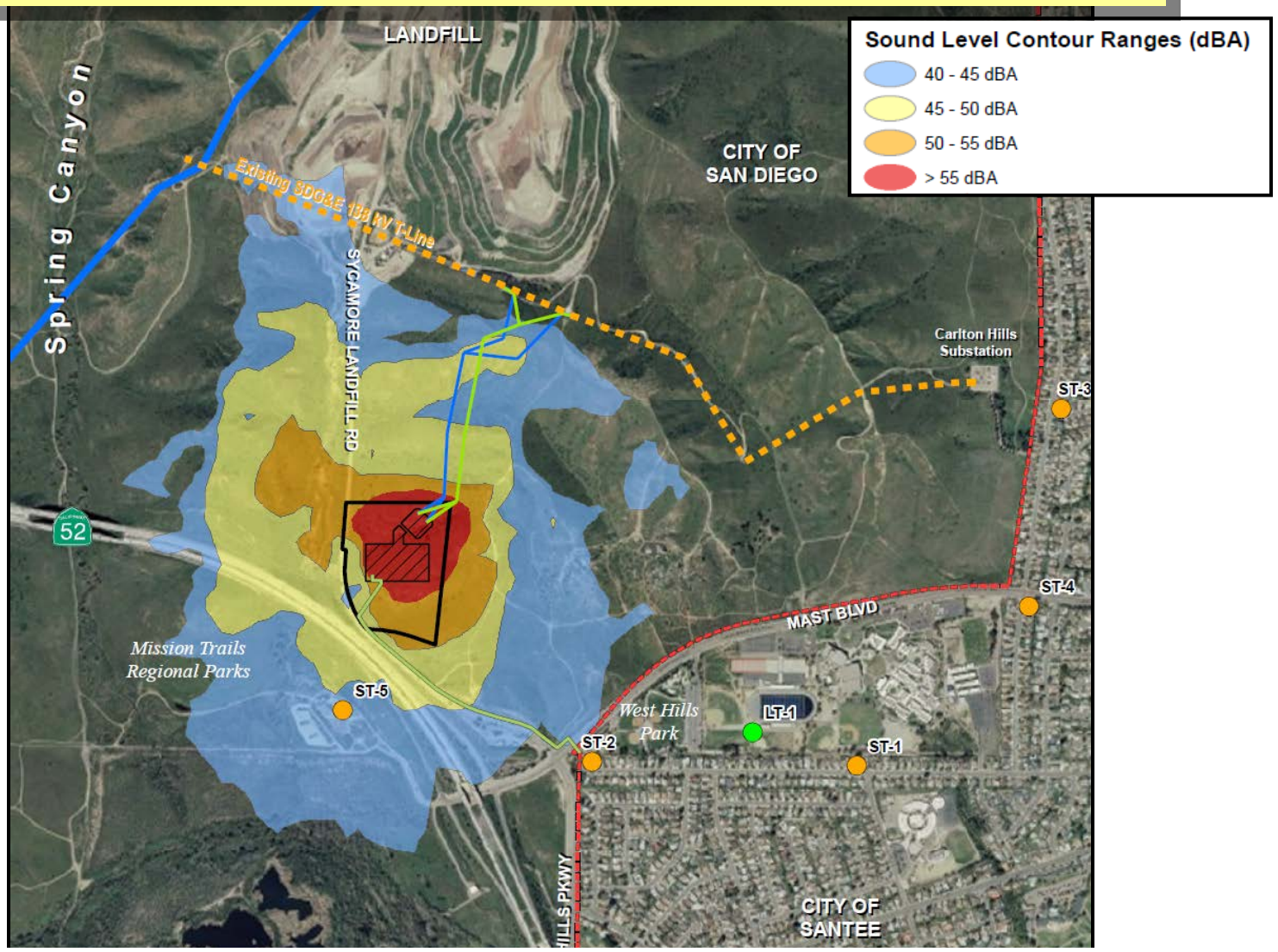
Noise – Modeling Methodologies



3-Dimensional Rendering of Noise Model Input Data

Cogentrix

Noise – Study Results



Received Sound Levels during Operation of Attenuated Plant

Cogentrix

KOP Selection

3 Components:

- Viewshed Analysis
- Definition of Visual Sphere of Influence (VSOI)
- Viewpoint and Key Observation Point (KOP) Selection

Cogentrix

Viewshed Analysis

Viewshed analysis defines the area where there is a potential for project visibility. Overall, the viewshed analysis indicated that virtually all points with a straight-line view to the plant site are located within 2.5 miles of the site, and that large portions of the area within 2.5 miles are blocked from view by topography.

Cogentrix

VSOI Definition

Using the viewshed we define the Visual Sphere of Influence (VSOI). The VSOI for a project represents the area within which the Project could be seen and could potentially cause visual impacts. The assessment of potential Project visibility for the purpose of identifying representative viewpoint locations was based on locations with a direct line of sight to the proposed plant stack height.

Cogentrix

Viewpoint and KOP Selection

Potential visual impacts are typically assessed by evaluating the visual effects of an action from a number of viewpoints that represent the range of applicable viewing conditions. The standard approach is to identify viewpoints that represent sensitive viewing areas that account for the following types of viewing locations:

- Important public use areas such as schools, parks, wildlife areas, visitor centers or areas used for camping, picnicking, bicycling, or other recreational activities
- Residential areas
- Travel routes

Cogentrix

Selection of KOP

As discussed in Section 4.5.2 of the filed AFC, one of these viewpoints was subsequently identified as a Key Observation Point (KOP) in consultation with CEC staff, as required. The KOP selected is representative of viewers who will be most susceptible to visual impact as a result of the Project and represent the most critical viewing condition.

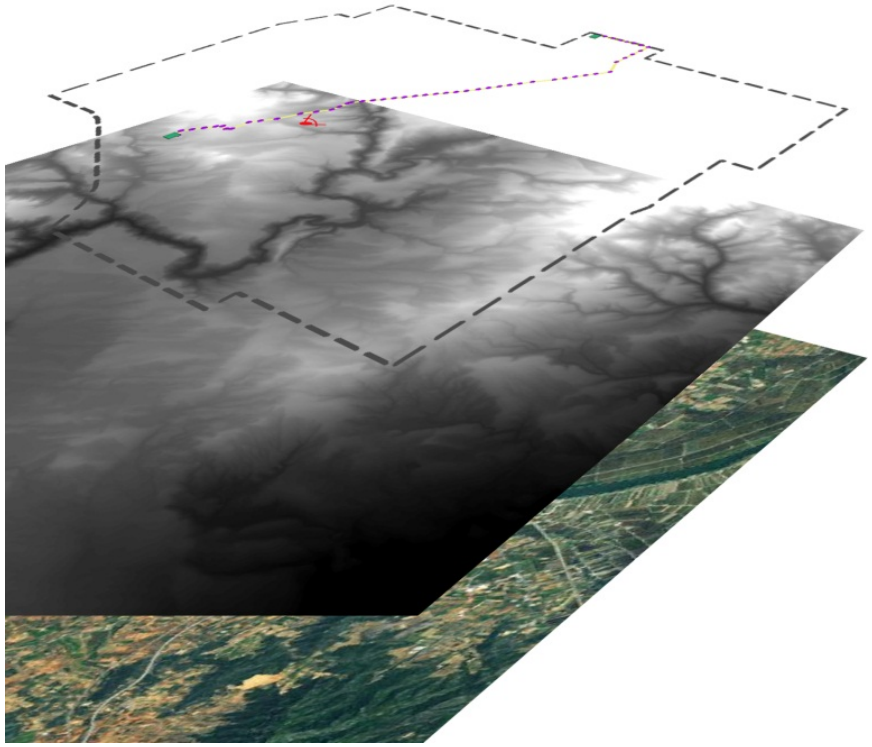
Due to changes in the configuration of the plant as well as local public concern four additional KOPs were chosen in consultation with CEC staff to ensure that visual impacts would be as low or lower than assessed in the original filed AFC document. In addition to viewpoint 2 these four additional KOPs include:

- Viewpoint 5 (The viewing platform at the Mission Trails Dam)
- Viewpoint 6 (the Kumeyaay Campground)
- Viewpoint 10 (Mission Gorge Road)
- Viewpoint 11 (California State Route 52)

Typical Visualization Approach

1 - Design Data Preparation/ Geo-referenced GIS Database

With the use of Geo-referenced GPS data from the camera, USGS Digital Elevation Model data, and aerial imagery within our Geographical Information System (GIS) database we are able to place all proposed objects in proper world coordinates (X, Y, Z) in our 3D software.



Cogentrix

Typical Visualization Approach

2 - Site Photography

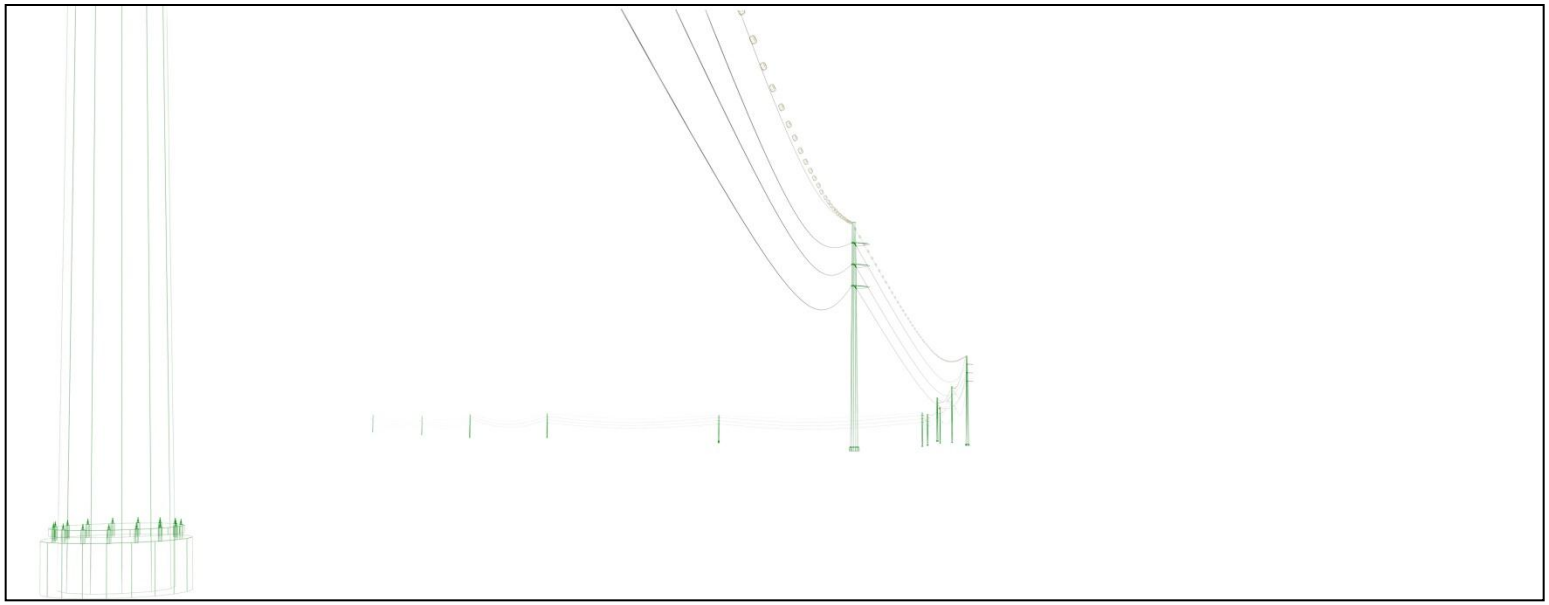
An inventory of site photographs are shot documenting views from the surrounding environment towards the proposed development. The selected photograph will then be used as a base image for the simulation.

Cogentrix

Typical Visualization Approach

3 - Computer 3D Digital Modeling

A three dimensional (3D) computer model is created using a combination of AutoCAD files, transmission line specifications, and GIS Layers. This data is then exported to Autodesk's 3D Studio Max for production. Mathematically correct 3D models of proposed elements are then created based on all available design and structure data received.

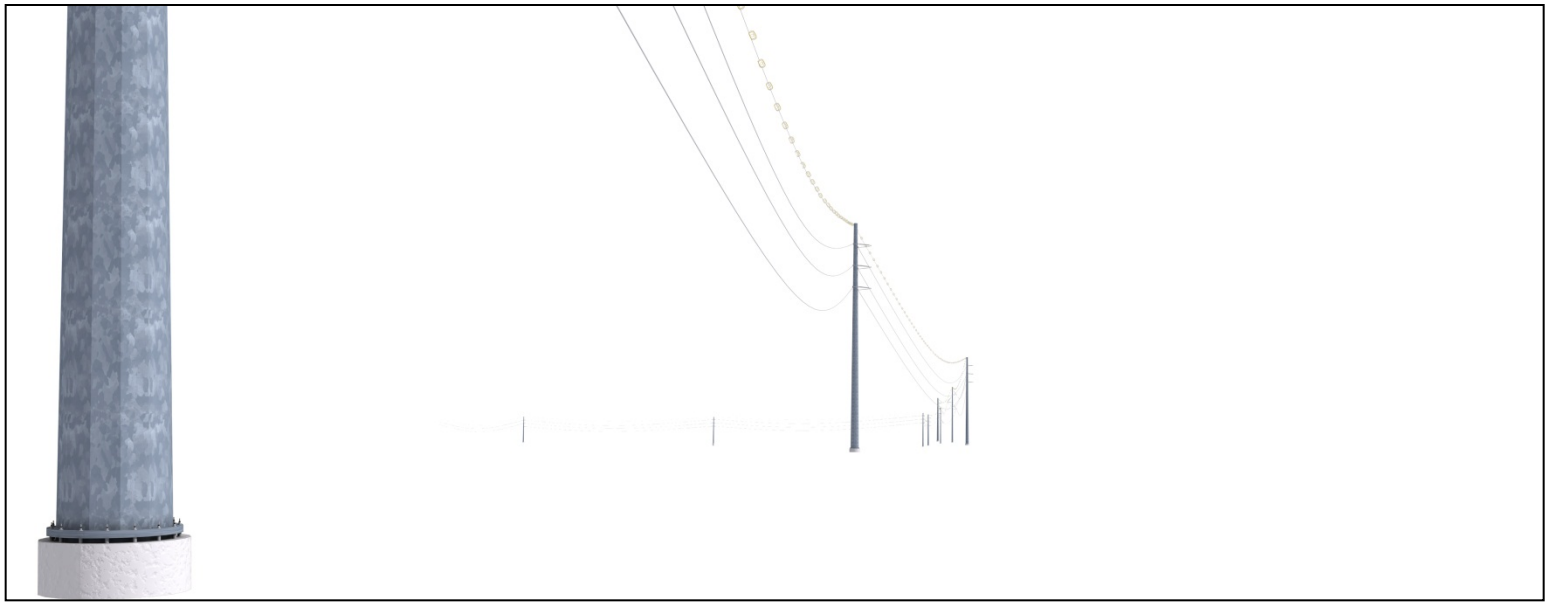


Cogentrix

Typical Visualization Approach

4 - Apply Materials/Textures and Lighting

- Once the proposed elements are modeled, accurate materials and textures are applied.
- Then a light source is added to recreate the original lighting depicted in the selected site photograph. By combining the camera information of time, date, and year along with the GPS location of the photograph taken we can simulate an accurate sun and conditions of the photo.



Cogentrix

Typical Visualization Approach

5 - Virtual Camera and Rendering

- A virtual camera is created to simulate the actual camera used on site from the embedded EXIF data within the selected photograph. This means that the GPS location and focal length of the lens are used for mathematical precision.
- Once the virtual camera is matched to the photo, the rendering of the 3D model is composited over the base photograph using image editing software.

Cogentrix

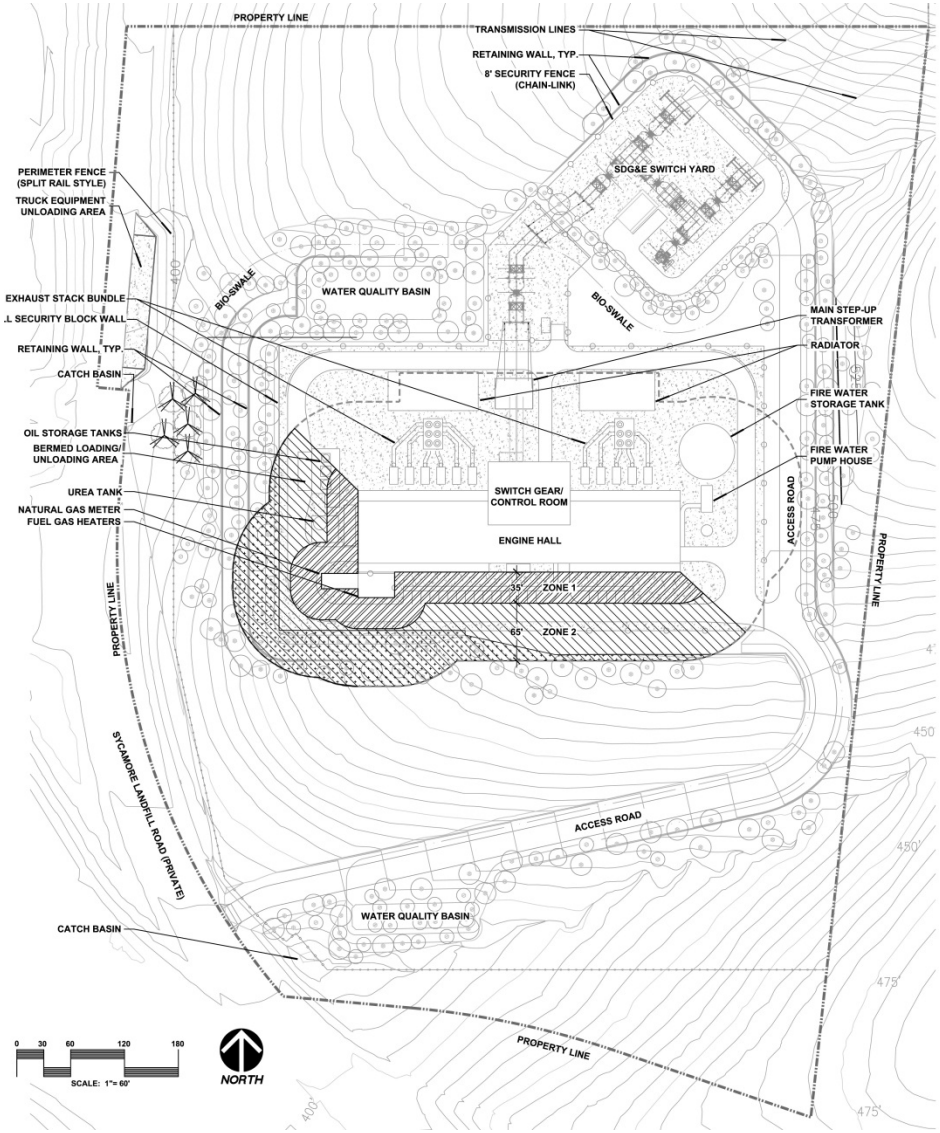
Typical Visualization Approach

6 - Final Simulation

- Details from the computer model are blended seamlessly into the base photograph to produce the final visual simulations.

Cogentrix

Site Plan of Proposed Site Facilities



Cogentrix

Typical Heights / Dimensions for Proposed Facilities

Component (number)	Height (feet)	Dimensions (length x width, feet)	Material/Color[1]
Engine hall (1)	32 at eaves	365 x 70	Pre-engineered metal/tan-brown
Control house (1)	32	92 x 44	Pre-engineered metal/tan-brown
Fire water storage tank (1 600,000 gallon)	25	15 diameter	Metal/medium brown
Stacks (11)	70	4 diameter	Painted steel (desert tan)
Switchyard dead-end structures (2)	60	Poles 45 apart	Treated Steel/dark
Transmission poles (13 - 15)	70-80	1 foot thick at base	Treated Steel monopole

Notes:

[1] Steel will be treated to minimize glare

Cogentrix

Similar Cogentrix Plant – Plains End II Golden, CO



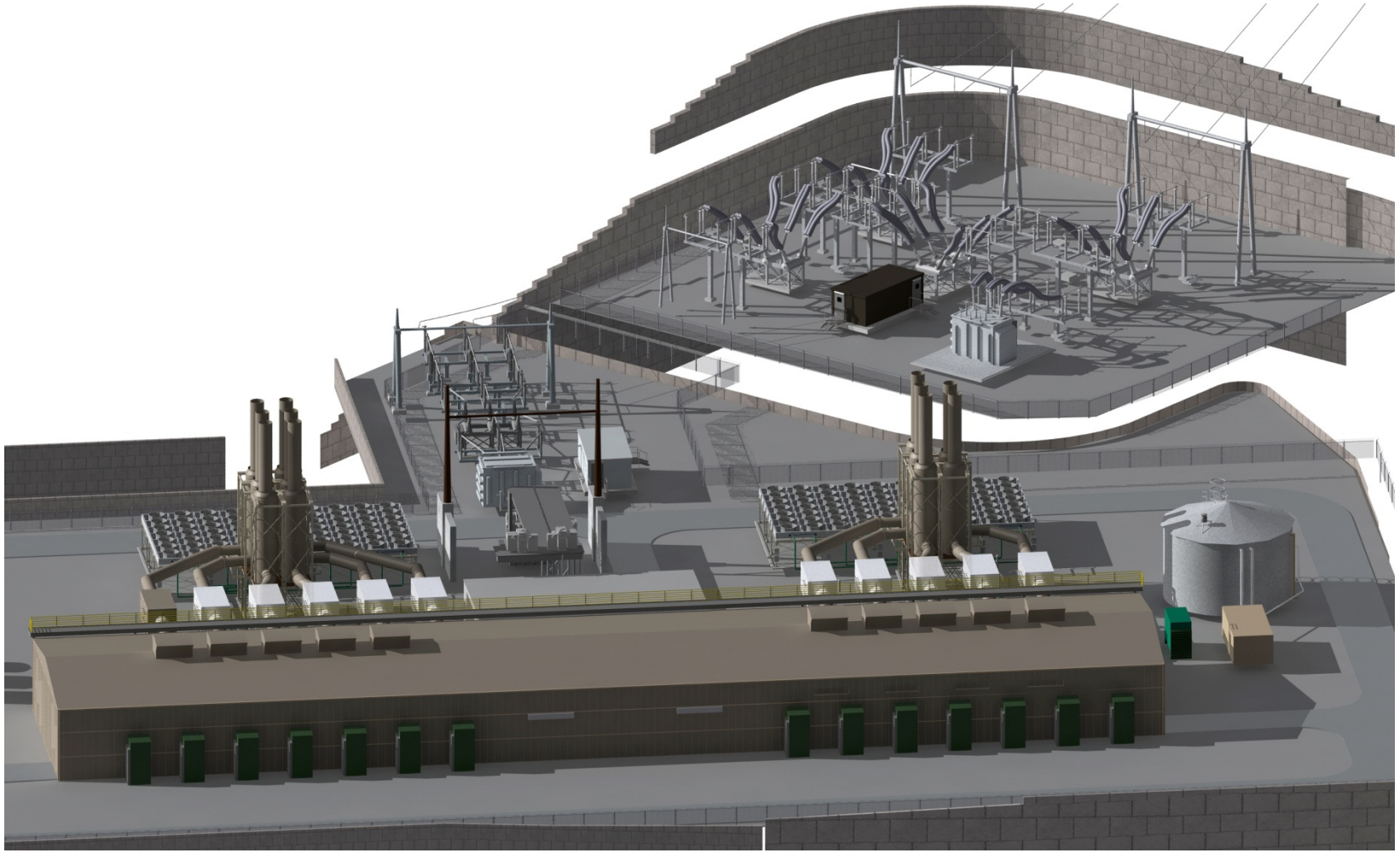


Cogentrix

Similar Cogentrix Plant – Plains End II Golden, CO
View from Colorado Highway 93

Cogentrix

3-Dimensional Renderings of Proposed Site Facilities



Cogentrix

Existing Conditions of KOP 1 / Viewpoint 2

Mission Gorge Road Existing Conditions (intersection with Father Junipero Serra Trail looking north)

Cogentrix

Simulation of KOP 1 / Viewpoint 2

Mission Gorge Road Simulation (intersection with Father Junipero Serra Trail looking north)

Cogentrix

Existing Conditions of KOP 2 / Viewpoint 5

MTRP Old Mission Dam Viewing Platform Existing Conditions (looking northeast)

Cogentrix

Simulation of KOP 2 / Viewpoint 5

MTRP Old Mission Dam Viewing Platform Simulation (looking northeast)

Cogentrix

Existing Conditions of KOP 3 / Viewpoint 6

MTRP Kumeyaay Campground Existing Conditions (looking north)

Cogentrix

Simulation of KOP 3 / Viewpoint 6

MTRP Kumeyaay Campground Simulation (looking north)

Cogentrix

Existing Conditions of KOP 4 / Viewpoint 10

Mission Gorge Road Existing Conditions (looking northeast)

Cogentrix

Simulation of KOP 4 / Viewpoint 10

Mission Gorge Road Simulation (looking northeast)

Cogentrix

Existing Conditions of KOP 5 / Viewpoint 11

California State Route 52 East-bound Lane Existing Conditions (looking east)

Cogentrix

Simulation of KOP 5 / Viewpoint 11

California State Route 52 East-bound Lane Simulation (looking east)

Cogentrix

Visual Impact Summary

In summary, impacts were originally classified as less than significant at five viewpoints, including the KOP selected for the AFC analysis, and insignificant at two other viewpoints. The original analysis indicated that significant visual impacts from the Project are not expected. With the addition of the new simulations the original assessment was confirmed and is anticipated to be lower than the original AFC analysis.

Cogentrix

Question / Answers

shawn.jackson@tetratech.com

robert.evan@tetratech.com