Recording requested by and mail to:

City Clerk
City of Beaumont
550 E. Sixth Street
Beaumont, CA 92223

SPACE ABOVE THIS LINE FOR RECORDER'S USE
EXEMPT FROM RECORDER'S FEES PURSUANT TO GOVERNMENT CODE SECTION 6103 AND 27383

APN: 419-150-052

STORM WATER MANAGEMENT WQMP/BMP FACILITIES

COVENANT AND AGREEMENT NO.

City of Beaumont, Riverside County, California

THIS COVENANT AND AGREEMENT is made and entered into this of 2019, by and between DUTCH BROS, LLC, ("Owner"), and the City of Beaumont, California, ("City").

The Owner hereby certifies I am (we are) the sole owner or Lessee of certain real property located at 1675 E EIGHTH STREET (Site Address) in the City of Beaumont, County of Riverside, State of California, more specifically described in **Exhibit "A"** and depicted in **Exhibit "B" (**"Property").

The Owner covenants and agrees to comply with the Project Water Quality Management Plan ("WQMP"), attached hereto as **Exhibit "C"**, providing for storm water quality treatment within the confines of the Property.

The Owner covenants and agrees that the health, safety and welfare of the residents of the City of Beaumont, require that the Best Management Practice ("BMP") facilities, more specifically described in the WQMP (for example bio- swales, catch basins, roof drains and appurtenances) be constructed and maintained to minimize pollutants in urban runoff by the Owner.

The Owner further covenants and agrees as follows:

1. The on-site storm water management/BMP facilities mentioned above shall be constructed by the Owner at its sole cost and expense, in accordance with the plans and specifications identified in the WQMP approved by City.

2. The Owner shall adequately maintain the storm water management/BMP facilities in a manner assuring peak performance at all times, including source control BMPs at all times as its sole responsibility, at its sole cost

and expense. This includes all pipes and channels built to convey storm water on the Property, including catch basin inserts, underground detention ponds, swales and vegetation provided to control the quantity and quality of the storm water. Adequate maintenance is herein defined as good working condition so that these facilities are performing in accordance with their design functions continuously at all times.

3. The Owner shall annually inspect the storm water management/BMP facilities mentioned above and submit an inspection report annually to the Public Works Department by the anniversary of the date of this Agreement of each year. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the storm water management BMPs listed in the WQMP such as bioswales, catch basins and related filter units, etc. Deficiencies shall be noted in the inspection report and corrected by Owner promptly.

4. The Owner hereby grants permission to City, its authorized agents and employees, to enter upon the Property and to inspect the storm water management/BMP facilities, take samples and perform testing whenever the City deems necessary and as required by the City's most current National Pollutant Discharge Elimination System (NPDES) Permit. The purpose of the inspection, testing and sampling is to follow up on apparent and reported deficiencies and/or to respond to citizen complaints and meet the requirements of the City's NPDES Permit issued by the State Water Resources Control Board – Santa Ana River Region. The City shall provide the Owner with advanced notice of entering upon the Property, except in the event of an emergency, as determined by the City. The City shall provide the Owner copies of the inspection findings and a directive to commence with the repairs if necessary. Owner or Owner's successors or assigns shall pay City for all costs incurred by City in the inspection, sampling, testing of the BMPs within thirty (30) calendar days of City invoice.

5. In the event the Owner fails to maintain the storm water management/BMP facilities in good working condition acceptable to the City, upon five (5) days advanced written notice, the City may enter upon the Property and take whatever steps necessary to correct deficiencies identified in any inspection report and to charge the costs of such repairs to the Owner the cost of which shall constitute a lien against the Property. In the event of an emergency, as determined by City, advanced notice as aforesaid, shall not be required. Notwithstanding the forgoing, it is expressly understood and agreed that the City is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation to the City.

6. The Owner will perform the work necessary to keep these facilities in good working order as appropriate. The maintenance schedule for the storm water management BMP facilities (including sediment removal) is outlined in the approved WQMP and the schedule must be followed at all times. In the future, City of Beaumont may adopt an annual Stormwater Inspection Fee that would be assessed to the Owner.

7. In the event the City, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials and the like, the Owner, its successors and assigns shall reimburse the City upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the City hereunder.
8. This Agreement imposes no liability of any kind whatsoever on the City. Owner agrees to indemnify, defend (with counsel reasonably approved by the City) and hold harmless the City and its authorized officers,

employees, agents and volunteers from any and all claims, actions, losses, damages, and/or liability arising out of this Agreement from any cause whatsoever, including the acts, errors or omissions of any person and for any costs or expenses incurred by the City on account of any claim except where such indemnification is prohibited by law. This indemnification provision shall apply regardless of the existence or degree of fault of indemnitees. The Owner's indemnification obligation applies to the City's "active" as well as "passive" negligence but does not apply to the City's "sole negligence" or "willful misconduct" within the meaning of Civil Code Section 2782, or to any claims, actions, losses, damages, and/or liabilities, to the extent caused by the acts or omissions of any third party contractors undertaking any work (other than field inspections) or other maintenance on the Property on behalf of the City under this Agreement.

9. This Agreement shall be recorded with the County Recorder for the County of Riverside and shall constitute a covenant running with the land, equitable servitude and lien against the Property, and shall be binding on the Owner, its successors, assigns, transferees, administrators, executors, heirs, encumbrancers and any other successors in interests, including any homeowner's association.

10. In addition to any remedy available to City under this Agreement, if Owner violates any term of this Agreement and does not cure the violation within the time already provided in this Agreement, or, if not provided, within thirty (30) calendar days, or within such time authorized by the City if said cure reasonably requires more than the subject time, the City may bring an action at law or in equity in a court of competent jurisdiction to enforce compliance by the Owner with the terms of this Agreement. In such action, the City may recover any damages to which the City may be entitled for the violation, enjoin the violation by temporary or permanent injunction without the necessity of proving actual damages or the inadequacy of otherwise available legal remedies, or obtain other equitable relief, including, but not limited to, the restoration of the Property and/or the BMPs identified in the WQMP to the condition in which it/they existed prior to any such violation or injury.

11. Owner shall provide printed educational materials with any sale of the Property which provide information on what storm water management facilities are present, the types and locations of maintenance signs that are required and how the necessary maintenance can be maintained.

12. Owner shall provide actual notice of this Agreement and its terms to any respective buyers or successor(s) in interest.

13. In order to be valid, amendment or change to this Agreement including the WQMP and BMPs requires an amendment executed by the City and Owner which is recorded with the Riverside County Recorder.

WITNESS the following signatures:

OWNER:

By: _____ By: _____

Name: _____ Name: _____

Title: _____ Title: _____

City:

CITY OF BEAUMONT
a Municipal Corporation

Signature: _____
City Manager

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
John Pinkney, City Attorney

APPROVED AS TO CONTENT:

_____
Jeff Hart, Director of Engineering/Public Works

All signatures on this Agreement on behalf of the Owner must be acknowledged before a Notary Public. In the event that the owner is a corporation, the President/Vice President and the corporate secretary of the corporation must sign.

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Riverside)

On _____, 2019, before me, _____, notary public, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____ (Seal)

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Riverside)

On _____, 2019, before me, _____, notary public, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

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State of California)
County of Riverside)

On _____, 2019, before me, _____, notary public, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.
WITNESS my hand and official seal.

Signature: _____ (Seal)

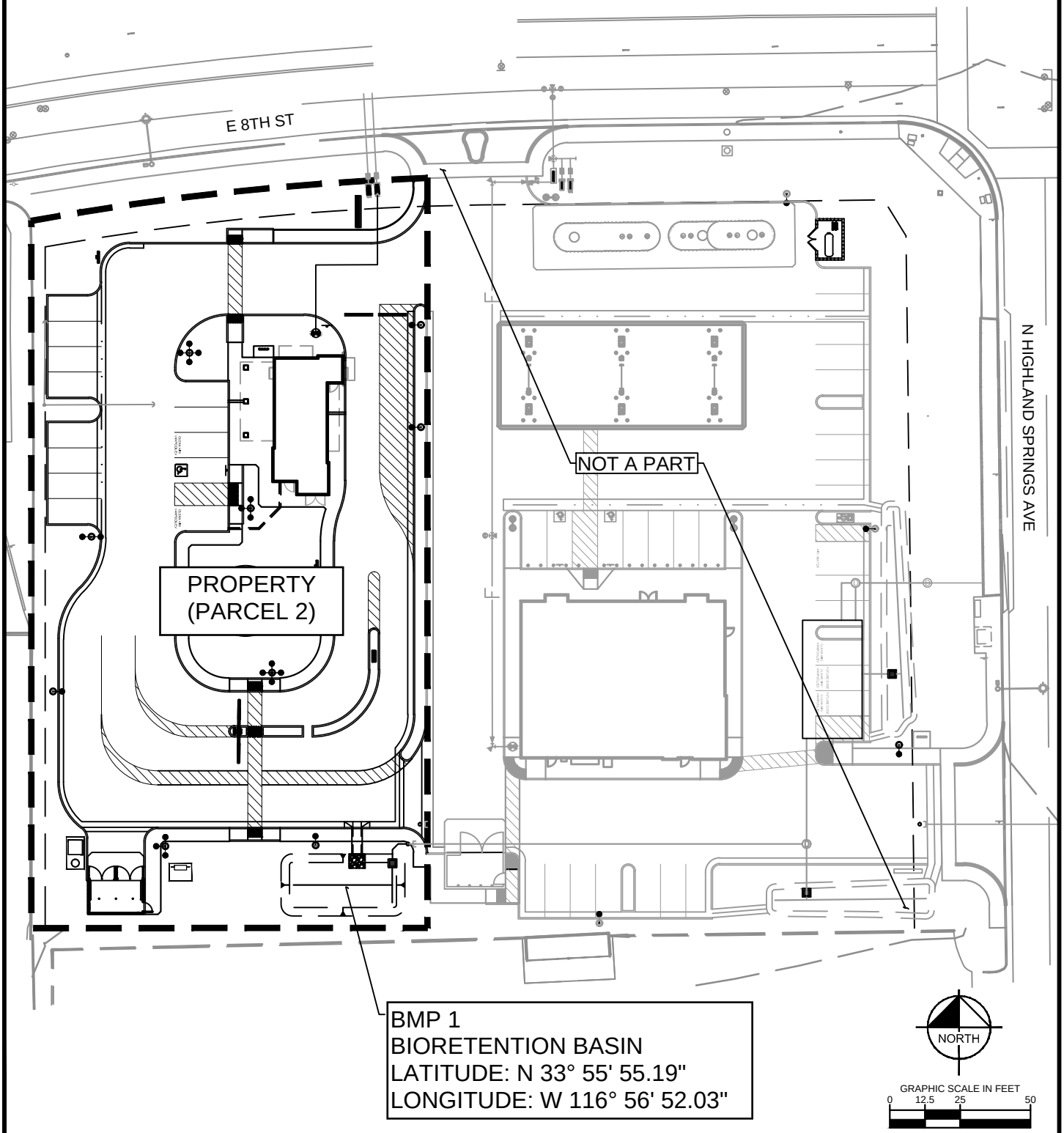
EXHIBIT "A"
LEGAL DESCRIPTION

PARCEL 2 OF PARCEL MAP NO. 37938, IN THE CITY OF BEAUMONT, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 254, PAGE 34 OF PARCEL MAPS, RIVERSIDE COUNTY RECORDS.

EXHIBIT "B"
DIAGRAM OF PROPERTY

SEE ATTACHED.

EXHIBIT "B"
BMP LOCATION MAP



Kimley»Horn
401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

EXHIBIT B - BMP LOCATION MAP
PW 2021-0728; 1675 E EIGHTH STREET
BEAUMONT, CA 92223

EXHIBIT "C"
WQMP

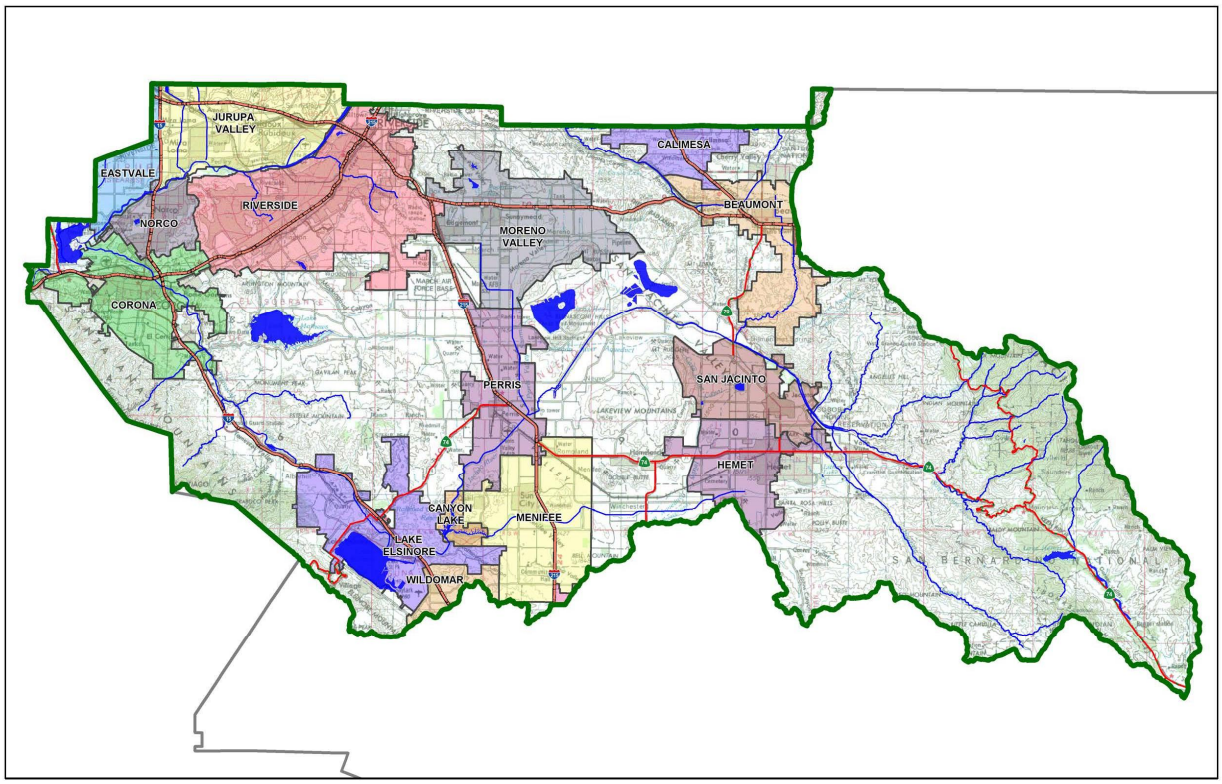
Project Specific Water Quality Management Plan

A Template for Projects located within the Santa Ana Watershed Region of Riverside County

Project Title: 8th and Highland – Dutch Bros Coffee

Development No: PW2021-0728

Design Review/Case No: PP2020-0276, CUP2020-0046, CUP2020-0047, PM2020-0007, ENV2020-0012



☐ Preliminary
☒ Final

Original Date Prepared: September 2021

Revision Date(s): October 2021

Prepared for Compliance with
Regional Board Order No. R8-2010-0033
Template revised June 30, 2016

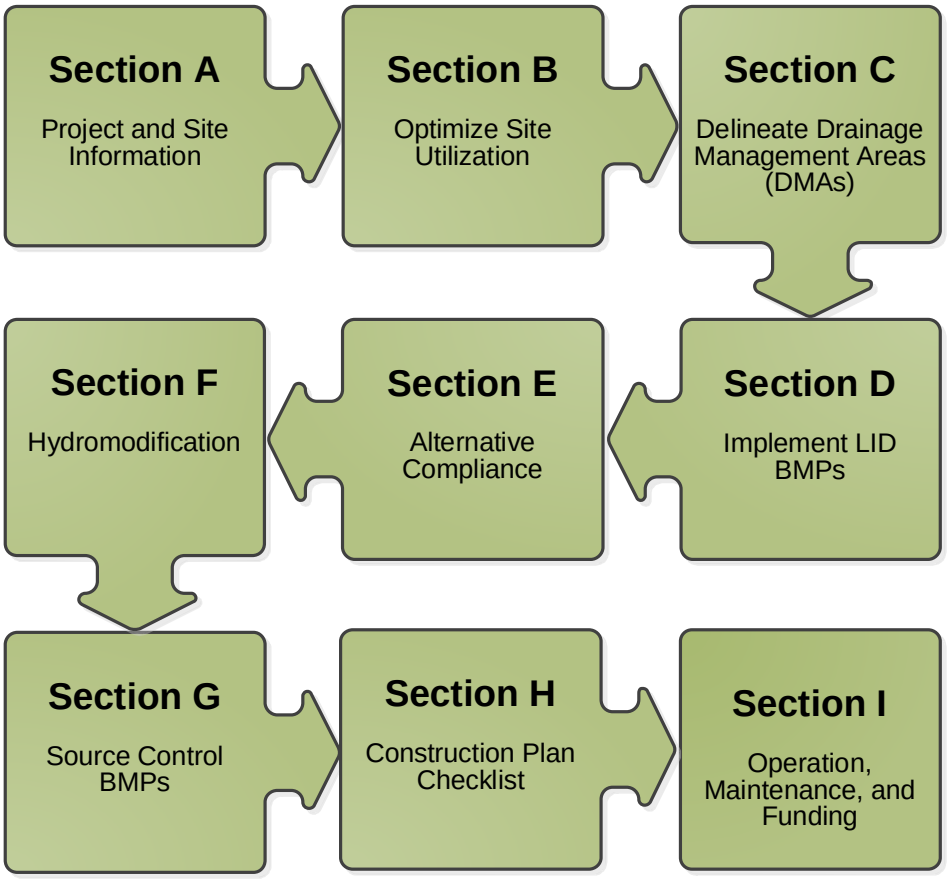
Contact Information:

Prepared for:
Dutch Bros Coffee
110 SW 4th Street
Grants Pass, OR 97526
(541) 218-8806
Daniel.batty@dutchbros.com

Prepared by:
Bryan Nord, PE.
Kimley-Horn and Associates, Inc.
401 B Street, Suite 600
San Diego, California 92101
(619) 272-7112

A Brief Introduction

This Project-Specific WQMP Template for the Santa Ana Region has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your "how-to" manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand, and will help facilitate a well prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Dutch Bros Coffee, Inc. by Kimley-Horn and Associates, Inc. (Kimley-Horn) for the 8th and Highland – Dutch Bros Coffee project in Beaumont, CA.

This WQMP is intended to comply with the requirements of City of Beaumont – Municipal Code 13.24 & Riverside County Ordinance 754 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under City of Beaumont – Municipal Code 13.24 & Riverside County Ordinance 754.

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

DocuSigned by:

81A606CD01E244E...

Owner's Signature

09/07/2021 | 11:01 AM PDT

Date

Daniel Batty

Owner's Printed Name

VP of Construction

Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

Preparer's Signature

09/30/2021

Date

Bryan Nord, PE

Preparer's Printed Name

Professional Engineer

Preparer's Title/Position

Preparer's Licensure: CA PE License # 87326

REGISTERED PROFESSIONAL ENGINEER
BRYAN C. NORD
No. 87326
CIVIL
STATE OF CALIFORNIA

Table of Contents

List of Tables

List of Appendices

Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Commercial
Planning Area:	N/A
Community Name:	City of Beaumont
Development Name:	8th and Highland – Dutch Bros Coffee

PROJECT LOCATION

Latitude & Longitude (DMS): 33°55'55" & -116°56'53"

Project Watershed and Sub-Watershed: Santa Ana River Watershed

Gross Acres: 0.84 acres

APN(s): 419-150-034

Address: 1675 E Eighth Street

Map Book and Page No.: Map Book 10, Page 34

PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Commercial
Proposed or Potential SIC Code(s)	5812
Total Project Area	36,362
Total Area of proposed Impervious Surfaces within the Project Footprint (SF)/or Replacement	24,440
Does the project consist of offsite road improvements?	☐ Y ☒ N
Does the project propose to construct unpaved roads?	☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y ☒ N

EXISTING SITE CHARACTERISTICS	
Total area of existing Impervious Surfaces within the Project limits Footprint (SF)	0
Is the project located within any MSHCP Criteria Cell?	☐ Y ☒ N
If so, identify the Cell number:	N/A
Are there any natural hydrologic features on the project site?	☐ Y ☒ N
Is a Geotechnical Report attached?	☒ Y ☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	C
What is the Water Quality Design Storm Depth for the project?	0.85"

EXISTING AND PROPOSED DRAINAGE DESIGN / PROJECT PHASING

Project site is described as APN 419-150-034 and is an undeveloped, vacant lot of approximately 90,604 SF (2.080 ac). All storm water sheet flows from the north-west to the south-east, collecting offsite into curb and gutter along N Highland Springs Avenue, flowing south into storm drain inlets along Highland Springs Avenue that connect directly to Highland Springs Channel. Proposed improvements are to adhere to the approved entitlement documents dated October 6, 2020 (PP2020-0276, CUP2020-0046, CUP2020-0047, PM2020-0007, and ENV2020-0012).

This SWQMP is for Grading and Improvement Plan PW2021-0690. The project is the ground up construction of a 950 SF Drive Thru Coffee Stand and associated site improvements. The proposed drainage improvements include a bioretention basin designed to filter the required stormwater design capture volume per Riverside County Flood Control District requirements for the west parcel alone. An underground stormwater storage tank designed to mitigate the 2-year and 100-year flows *is designed for hydromodification purposes* and is to be constructed per PW2021-0645 on the east parcel of the development. A detailed description of stormwater drainage design is provided in the Drainage Study.

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a minimum, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling
- BMP Locations (Lat/Long)

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Co-Permittee plan reviewer must be able to easily analyze your project utilizing this template and its associated site plans and maps.

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
San Timoteo Creek (reach 5)	None	Warm Freshwater Habitat	16 miles
Santa Ana River (reach 4)	Pathogens	Warm Freshwater Habitat	
Santa Ana River (reach 3)	Copper, Lead, Pathogens	Warm Freshwater Habitat	16 miles
Prado Park Lake	Nutrients, Pathogens	Lake and Reservoir	
Santa Ana Reach (reach 2)	Indicator Bacteria	Warm Freshwater Habitat	
Pacific Ocean	N/A	Ocean	N/A

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☐ Y	☒ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)*	☒ Y	☐ N

City of Beaumont: Grading and Building		

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

WDID#: *8 33C393742*

Grading and Improvement Plan: *PW2021-0690*

Building Plan: *BLDC2021-_____*

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, constraints might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. Opportunities might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Consideration of "highest and best use" of the discharge should also be considered. For example, Lake Elsinore is evaporating faster than runoff from natural precipitation can recharge it. Requiring infiltration of 85% of runoff events for projects tributary to Lake Elsinore would only exacerbate current water quality problems associated with Pollutant concentration due to lake water evaporation. In cases where rainfall events have low potential to recharge Lake Elsinore (i.e. no hydraulic connection between groundwater to Lake Elsinore, or other factors), requiring infiltration of Urban Runoff from projects is counterproductive to the overall watershed goals. Project proponents, in these cases, would be allowed to discharge Urban Runoff, provided they used equally effective filtration-based BMPs.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

In existing conditions, storm water sheet flows to the southeast corner. Drainage patterns in the proposed conditions are consistent with pre-developed conditions. Flows generated in the proposed development of Phase 2 are conveyed via valley gutters, grated inlets, and storm drain pipes to an existing Riverside County Flood Control District box culvert located in Highland Springs Ave. Surface flows generated on site will be treated with a proposed bio-retention basin before being discharged to the public infrastructure MS4 system. This basin will treat the water through physical filtration as the water passes through a mulch layer, engineered soil media, and into the subsurface perforated PVC pipe. The cleaned water will then be routed to underground detention system fitted with an orifice at the invert to mitigate post-development 2-year storm peak flow. The underground detention system is fitted with an overflow pipe to further mitigate the post-development 100-year storm peak flow and provide emergency relief in the event of a larger storm event. The storm water then ultimately discharges to an existing Box Culvert on Highland Springs Ave.

Did you identify and protect existing vegetation? If so, how? If not, why?

There is minimal existing vegetation on site. Proposed landscaping will be comprised of native and drought tolerant species.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

Infiltration testing was performed by Salem Engineering Group, Inc. on January 31, 2020. The results are included as port of Appendix 3. The site is 100% RaB2 (Ramona sandy loam) which is categorized as HSG Type C, per NRCS Web Soil Survey. Type C soils have low infiltration rates when thoroughly wetted. Based on the infiltration testing results and Web Soil Survey, infiltration is not considered feasible for the site.

Did you identify and minimize impervious area? If so, how? If not, why?

The existing site does not have any impervious area. Impervious areas were minimized whenever practical with landscaped areas.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

Impervious surfaces are directed towards Bioretention BMPs located at the downstream end of the storm water conveyance system.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1][2]	Area (Sq. Ft.)	DMA Type
DMA-1	Mixed Surface	36,682 SF	Type D

[1]*Reference Table 2-1 in the WQMP Guidance Document to populate this column*
[2]*If multi-surface provide back-up*

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
N/A			

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				Type 'C' DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]
N/A						

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet) [A]	Post-project surface type	Impervious fraction [B]	Product [C] = [A] x [B]	DMA name /ID	Area (square feet) [D]	Ratio [C]/[D]
N/A							

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA-1	BMP 1

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

If yes has been checked, Infiltration BMPs shall not be used for the site; proceed to section D.3

If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream 'Highest and Best Use' feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Co-Permittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: DMA 1		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what applies*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☐Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Co-Permittee).

☐The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If none of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: 0.28 AC

Type of Landscaping (Conservation Design or Active Turf): Conservation Design

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 0.56 AC

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: 2.12

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: 1.18 AC

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
1.18 AC	0.28 AC

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shutdowns or other lapses in occupancy:

Projected Number of Daily Toilet Users: 20

Project Type: Retail/Office Commercial

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 0.56 AC

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-2 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 176

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: 99

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
99	20

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

N/A

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shutdowns or other lapses in occupancy or operation.

Average Daily Demand: N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-4 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-4: N/A

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: N/A

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the projected average daily use (Step 1) to the minimum required non-potable use (Step 4).

Minimum required non-potable use (Step 4)	Projected average daily use (Step 1)
N/A	N/A

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment per Section 3.4.2 of the WQMP Guidance Document.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Co-Permittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

Surface flows generated on site will be conveyed to a proposed bio-retention basin before being discharged to public infrastructure, MS4 system. These basins will treat the water through physical filtration as the water passes through an engineered soil media, permeable gravel layer and into the subsurface perforated PVC pipe. The bioretention basins have been designed to adhere to Riverside County LID design manual specifications. The cleansed water will then be routed to an underground detention system and then ultimately discharged to an existing concrete culvert in N Highland Springs Ave. The bioretention basin is designed to treat and retain the calculated Designed Capture Volume, and the underground storage tanks are for HCOC implementation purposes.

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA-1	☐	☐	☒	☐	☐

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

N/A

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First, calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required V_{BMP} using a method approved by the Co-Permittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Co-Permittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

BMP 1 – SOUTH BASIN

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	**DMA Runoff Factor**	DMA Areas x Runoff Factor	*Enter BMP Name / Identifier Here*		
	[A]		[B]	[C]	[A] x [C]			
DMA 1	*36,682*	*Mixed Surface*	*0.70*	*0.49*	*18,117*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	$A_T = \Sigma[A]$ 36,682				Σ= [D] 18,117	[E] 0.85	[F] = $\frac{[D]x[E]}{12}$ 1,284	[G] **1,349**

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Co-Permittee). Check one of the following Boxes:

☒ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

No alternative compliance required; all DMAs treated by LID BMPs

D.6 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table D.4 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☒ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☒ Parking Lots (>5,000 ft^2)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☐ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☐	☒	☐	☐	☒	☐	☒	☒

P = Potential

N = Not Potential

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

(3) A potential Pollutant is land use involving animal waste

(4) Specifically petroleum hydrocarbons

(5) Specifically solvents

(6) Bacterial indicators are routinely detected in pavement runoff

D.7 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table D.5 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
N/A	
Total Credit Percentage[1]	

[1]*Cannot Exceed 50%*

[2]*Obtain corresponding data from Table 3-8 in the WQMP Guidance Document*

D.8 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table D.6 Treatment Control BMP Sizing

DMA Type /ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperviousness Fraction, I_f	DMA Runoff Factor	DMA Area x Runoff Factor		*Enter BMP Name / Identifier Here*		
	[A]		[B]	[C]	[A] x [C]				
N/A						*Design Storm Depth (in)*	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	A_T =				Σ=		[F] =		

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document

[E] is for Flow-Based Treatment Control BMPs [E] = .2, for Volume-Based Control Treatment BMPs, [E] obtained from Exhibit A in the WQMP Guidance Document

[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12

[H] is from the Total Credit Percentage as Calculated from Table E.2 above

[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

D.9 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- High: equal to or greater than 80% removal efficiency
- Medium: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table D.9 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]
N/A		

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.
[2] Cross Reference Table E.1 above to populate this column.
[3] As documented in a Co-Permittee Approved Study and provided in Appendix 6.

Section E: Hydromodification

E.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Co-Permittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table E.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	Post-condition	% Difference
Time of Concentration	N/A	N/A	N/A
Volume (Cubic Feet)	N/A	N/A	N/A

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Susceptibility Maps.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

E.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

The HCOC requirement for the project site has been mitigated through HCOC Mitigation Option C, which will limit the 2-year return frequency storm flow rate to no more than 10% greater than the existing flows in post-development conditions. An underground detention system consisting of 3,400 Cubic Feet of storage is proposed to mitigate the additional flow generated in the post-development conditions. Within the underground detention system; there will be two outfalls. The first, is a 4-inch diameter outlet pipe set at the invert of the underground detention system, this will discharge at 0.43 cfs during the 2-year storm event. The pre-development conditions discharge for the site is currently 0.44 cfs. Therefore, the post development mitigated outflow if 0.45 cfs meets the criteria for Option C. The second outlet is a 10-inch diameter orifice is set at 1.20-feet above the invert, which is above the 2-year maximum water surface elevation within the underground detention system. The additional overflow pipe is designed to provide relief in case of any storm event greater than the 2-year event occurs. Please refer to Appendix 7 for the Hydromodification Calculations.

Section F: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. *Identify Pollutant Sources*: Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. *Note Locations on Project-Specific WQMP Exhibit*: Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.

3. *Prepare a Table and Narrative*: Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. Add additional narrative in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. *Identify Operational Source Control BMPs:* To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Co-Permittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table F.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
A. Onsite storm drain inlets	Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch basin markers may be available from the RCFC&WCD, call 951.955.1200 to verify. (CASQA BMP SD-13, "Storm Drain Signage")	Maintain and periodically repaint or replace inlet markings; Provide stormwater pollution prevention information to new site owners, lessees, or operators; See applicable operational BMPs in Fact Sheet SC-74 "Drainage System Maintenance" Provided in Appendix 8 of this report. Include in the following lease agreements: "Tenant shall now allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains".
B. Interior floor drains	Floor Drains are connected to the Grease Waste plumbing system which is directly connected to a grease interceptor which is	Inspect and maintain drains to prevent blockages and overflow

	then connected to the sanitary sewer system.	
D2. Landscape/outdoor pesticide use (including bioswales)	Onsite landscaping is designed to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to the minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Landscaping that is tolerant to saturated soil are proposed within areas of proposed water retention and collection. Pest resistant landscaping is proposed for project. Plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions have been chosen for this project. (CASQA BMP SD-10, "Site Design and Landscaping Planning" and SD-12, "Efficient Irrigation")	Maintain landscaping using minimum or no pesticides See applicable operational BMPs in "What you should know for…Landscape and Gardening: at http://rcflood.org/stormwater/Downloads?LandscapeGardenBrochure.pdf Provide IPM information to new owners, lessees and operators. Applicable operational BMPs in "What you should know for… Landscape and Gardening" • Never apply pesticides or fertilizers when rain is predicted within the next 48 hours • Do not overwater • Do not rake or blow leaves, clippings, or pruning waste into the street, gutter, or storm drain. Dispose of green waste by composting, hauling it to a permitted landfill, or recycling it through the City's program
G. Refuse Areas	Refuse for business operation will be collected in the trash enclosure located at the southwest of the site. Public or commercially authorized trash collection services will be utilized to dispose of refuse. The trash enclosure is fitted with Masonry walls and an impermeable roof membrane to prevent storm water directly on the collection area. The trash enclosure area has a concrete flooring that is sloped in case of spills and to minimize risk of water ponding. The size and design of the trash enclosure meets all municipal requirements. Signs on the enclosure will state that 'do not dump hazardous materials here' or similar. All trash bins in the trash enclosure shall be leak free and shall have a lid and be continuously closed. (CASQA BMP SD-32, "Trash Storage Areas")	Source control BMP will be implemented based on the following: • Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control material available on site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com • Any standing liquids must be cleaned up and disposed of properly using a mop and bucket or a wet/dry vacuum machine. All non-hazardous liquids without solid trash may be put in the sanitary sewer.
O. Miscellaneous Drain or Wash Water or Other Sources: • Water Heater lines • Condensate drain lines • Rooftop equipment	Water Heater lines will be connected directly to the sanitary sewer system. Condensate lines will be connected directly to sanitary sewer system. Rooftop equipment with potential to produce pollutants will be located on the roof of the building. Roofing, gutters, and trim will not contain copper or any unprotected metals that leach into runoff.	Additional Operational BMPs suggested on Fact Sheet SC-10: • Train employees to identify non-stormwater discharges and report them to appropriate departments

• Roofing, gutters, and trim		
P. Plazas, sidewalks, and parking lots	Parking lots and sidewalks are sloped to prevent storm water ponding. Onsite storm drain is designed to efficiently direct storm water into drainage appurtenances.	Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect wash water containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

Section G: Construction Plan Checklist

Populate Table G.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table G.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)	BMP Location (Lat/Long)
BMP 1	BIORETENTION BASIN	PW2021-0690, Sheet 8	33°55'55.3"N; 116°56'52.6"W

Note that the updated table — or Construction Plan WQMP Checklist — is only a reference tool to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Note: Coordinates for BMP locations is in California State Plane Zone 6

Section H: Operation, Maintenance and Funding

The Co-Permittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Co-Permittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism:	Maintenance and clearing of the LID BMPs shall be in accordance with the Maintenance Responsibility/Frequency Matrix in Appendix 9. Owner will be responsible for all BMP implementation, operation, and maintenance until such time that the buildings are sold.

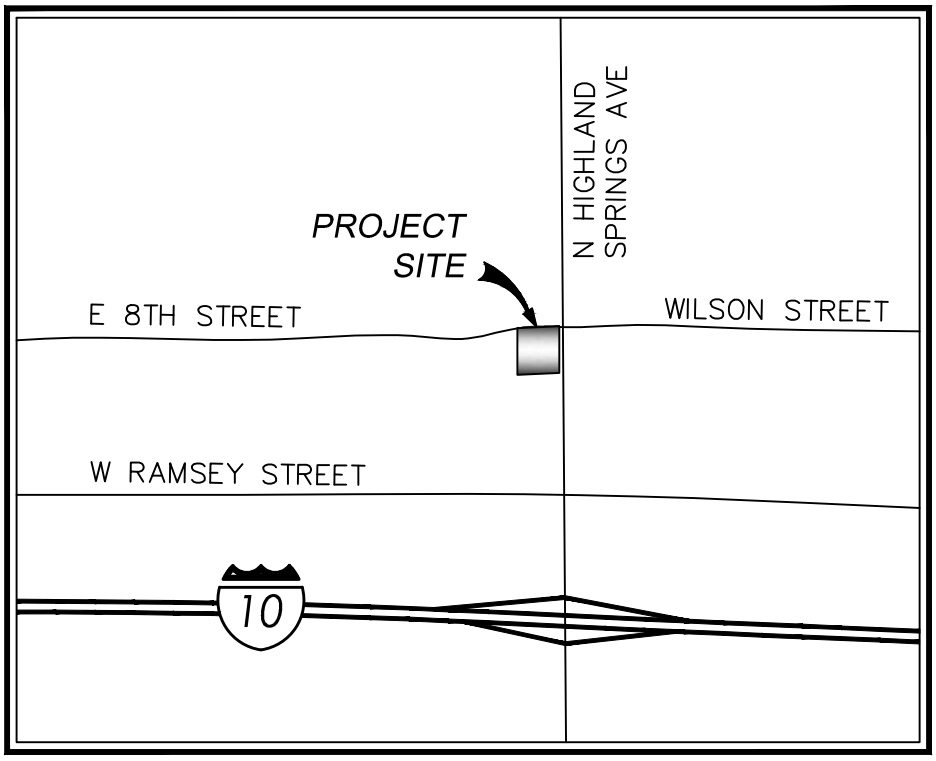
Will the proposed BMPs be maintained by a Homeowners' Association (HOA) or Property Owners Association (POA)?

☐ Y ☒ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map



VICINITY MAP

N.T.S.

Kimley»Horn

401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

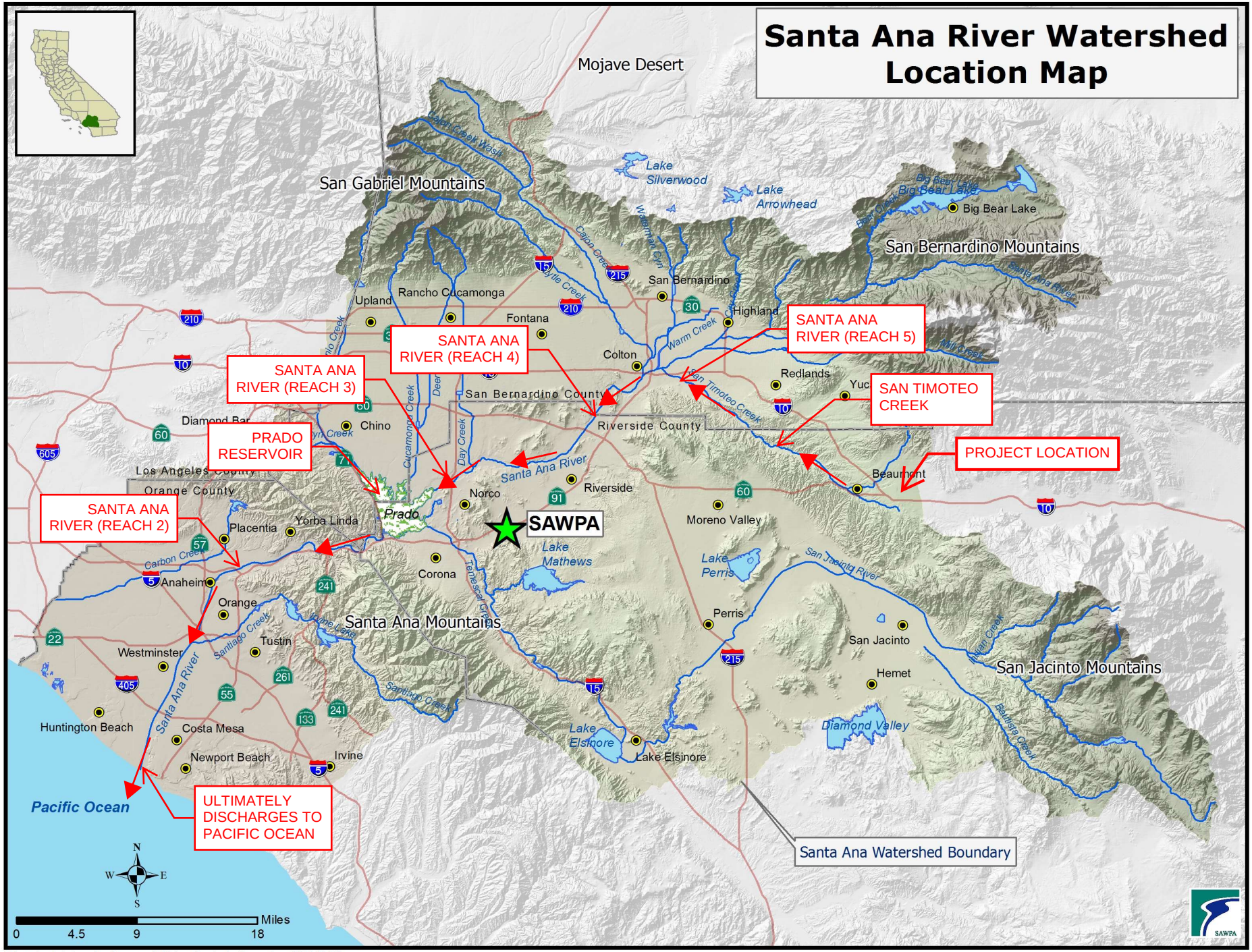
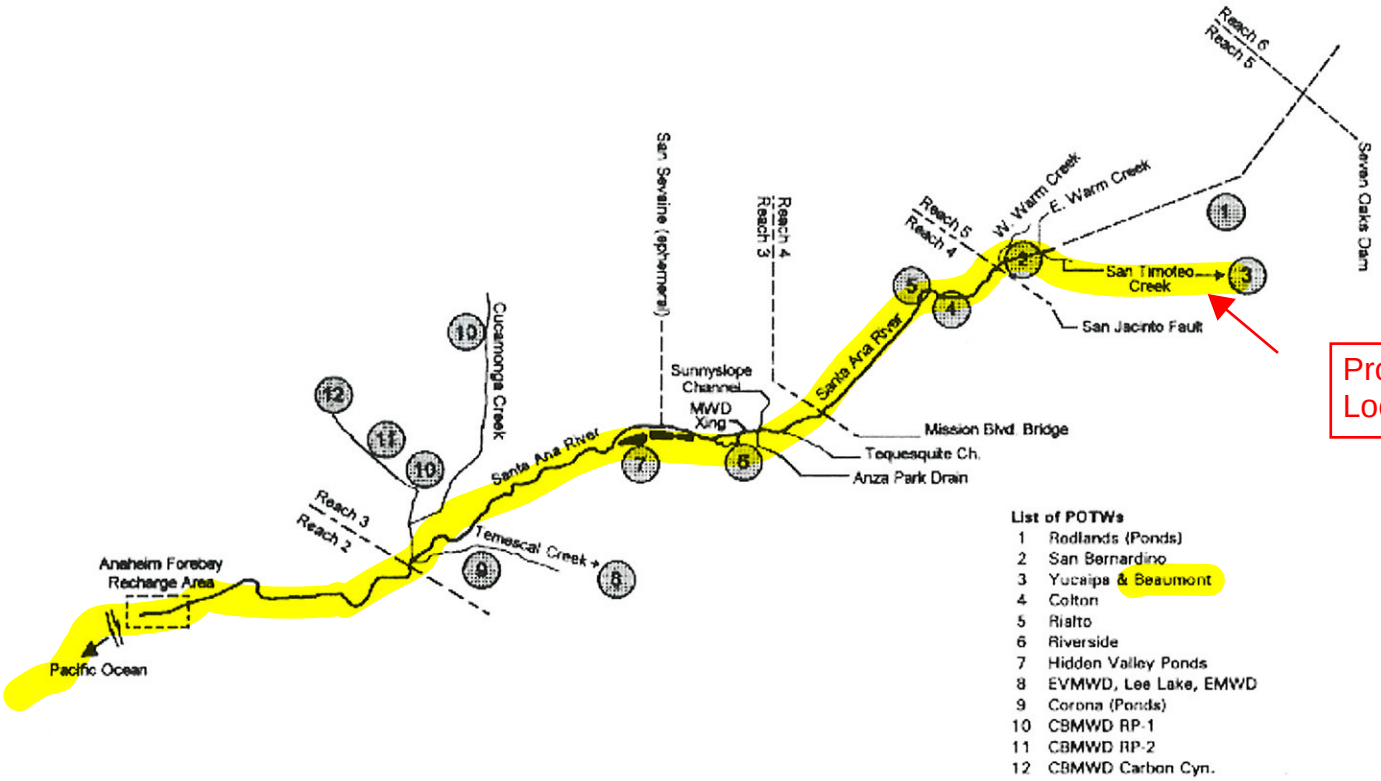

Santa Ana River Watershed Location Map
Mojave Desert
San Gabriel Mountains
San Bernardino Mountains
Santa Ana Mountains
San Jacinto Mountains
Lake Silverwood
Lake Arrowhead
Big Bear Lake
Rancho Cucamonga
Upland
Fontana
San Bernardino
Highland
Colton
Redlands
Yucaipa
San Bernardino County
Riverside County
Orange County
Los Angeles County
Chino
Diamond Bar
Norco
Riverside
Prado
Corona
Lake Mathews
Lake Perris
Moreno Valley
Beaumont
Perris
San Jacinto
Hemet
Lake Elsinore
Diamond Valley
Placentia
Yorba Linda
Anaheim
Orange
Tustin
Westminster
Huntington Beach
Costa Mesa
Newport Beach
Irvine
Pacific Ocean
SANTA ANA RIVER (REACH 5)
SANTA ANA RIVER (REACH 4)
SANTA ANA RIVER (REACH 3)
SANTA ANA RIVER (REACH 2)
SAN TIMOTEO CREEK
PRADO RESERVOIR
PROJECT LOCATION
SAWPA
ULTIMATELY DISCHARGES TO PACIFIC OCEAN
Santa Ana Watershed Boundary
N
W
E
S
Miles
0
4.5
9
18
P:\projects\standard_maps\Watershed_1_A.mxd SW-1150

FIGURE 1-2
SANTA ANA RIVER AND TRIBUTARIES



FROM SANTA ANA BASIN PLAN

NOTES

1. ALL SOILS INFORMATION PROVIDED PER GEOTECHNICAL REPORT BY SALEM ENGINEERING GROUP, PROJECT #3-220-0008, DATED JANUARY 31, 2020
2. SOILS ARE ASSUMED AS HYDROLOGICAL SOIL GROUP C PER US WEB SOIL SURVEY
3. PROPOSED IMPROVEMENTS FOR PARCEL 2 PER PW2021-0645

BIO-RETENTION LID BMP

DMA	BMP ID	AREA (SF)	DESIGN CAPTURE VOLUME (CF) RCFC LID Design Handbook - Sec. 2.1	PROPOSED TREATMENT VOLUME (CF) RCFC LID Design Handbook - Sec. 3.5
1	1	36,682	1,284	1,394

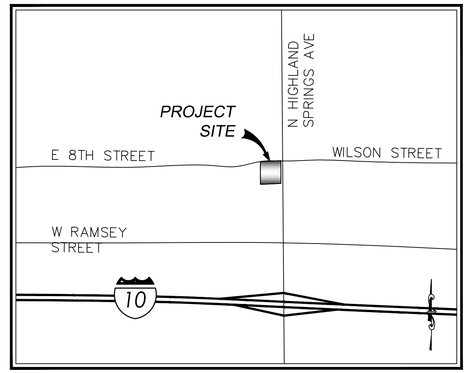
AREA SUMMARY

	DMA1 AREA (SQ FT)
PERVIOUS	12,242
IMPERVIOUS	24,440
TOTAL	36,682

HCOC SUMMARY

CONDITION	Q2 - 24-HOUR	Q100 - PEAK
PRE-DEVELOPED	0.44 CFS	4.99 CFS
POST-DEVELOPED	0.43 CFS	4.98 CFS
% DELTA	-2.3 %	-0.2 %

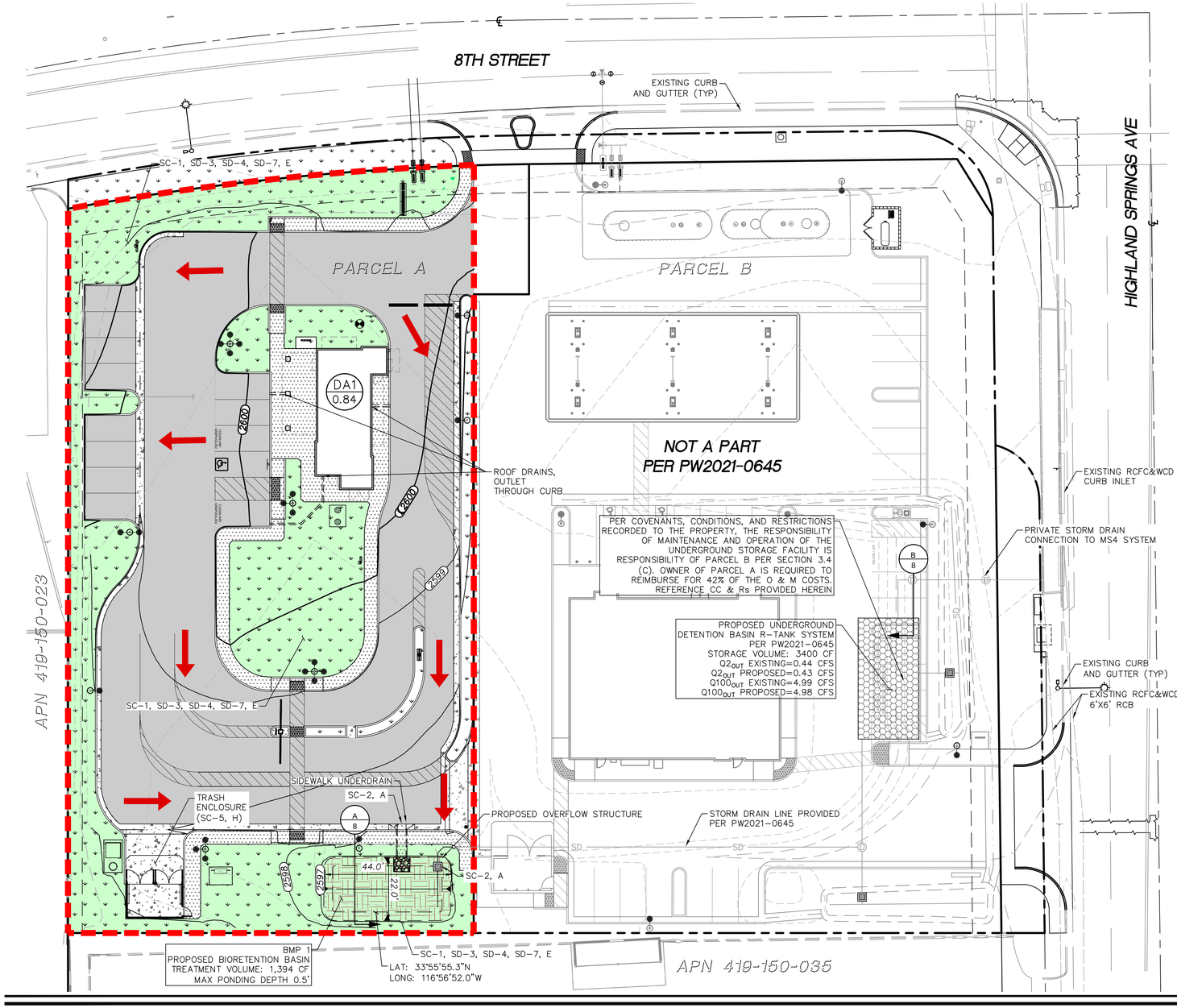
SOURCE CONTROL BMPS	
BMP ID	BMP DESCRIPTION
SC-1	PREVENT ILLICIT DISCHARGE INTO MS4 ---> ALL LANDSCAPE AREAS (TYP.)
SC-2	STORM DRAIN STENCILING AND SIGNAGE ---> ALL SD GRATED INLETS, CURB CUTS (TYP.)
SC-5	TRASH AND STORAGE AREAS
SC-6	ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF RUNOFF POLLUTANTS
A.	ON-SITE STORM DRAIN INLETS
D.	NEED FOR FUTURE INDOOR AND SOURCE CONTROL
E.	LANDSCAPE / OUTDOOR PESTICIDE USE
G.	FOOD PREPARATION AND / OR SERVICE
H.	REFUSE / TRASH COLLECTION AREAS
O.	FIRE SPRINKLER TEST WATER AND RELIEF POINT
P.	MISCELLANEOUS DRAIN OR WASH DOWN AREAS
Q.	PLAZA, SIDEWALKS, PARKING LOTS



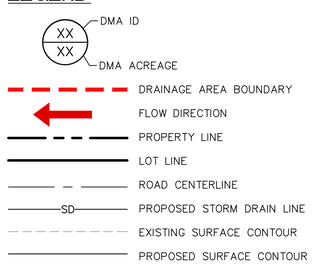
VICINITY MAP

NTS

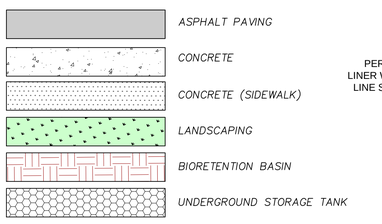
SITE DESIGN BMPS	
BMP ID	BMP DESCRIPTION
SD-2	CONSERVE NATURAL AREAS, SOIL,S, AND VEGETATION
SD-3	MINIMIZE IMPERVIOUS AREAS
SD-4	MINIMIZE SOIL COMPACTION
SD-7	LANDSCAPING WITH NATIVE OR DROUGHT TOLERANT LANDSCAPING



LEGEND

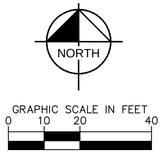


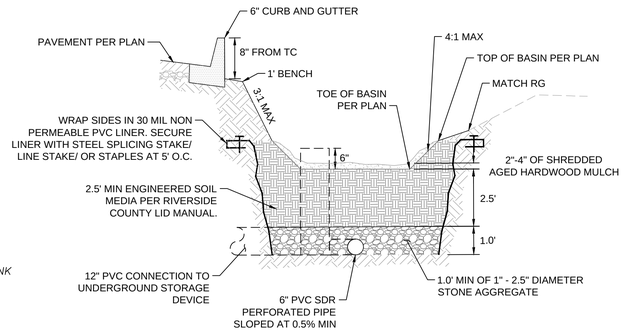
SURFACE LEGEND



CC+Rs - SECTION 3.4 (C)

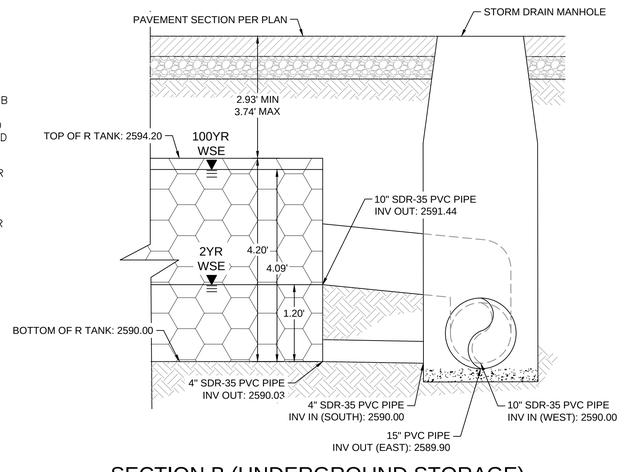
"(C) IN PERFORMING ITS OBLIGATION TO OPERATE AND MAINTAIN UTILITY FACILITIES RELATED TO STORMWATER (STORMWATER FACILITIES), THE OWNER OF PARCEL B AGREES TO FOLLOW "BEST MANAGEMENT PRACTICES" AS MANDATED BY APPLICABLE GOVERNMEMAL AUTHORITY IN THE STATE OF CALIFORNIA. IN NO EVENT MAY THE COSTS CHARGE TO THE OWNER OF PARCEL A RELATED TO THE OPERATION AND MAINTENANCE OF STORMWATER FACILITIES (STORMWATER COSTS) INCLUDE (I) COSTS OF ENVIRONMENTAL DAMAGE OR CONTAMINATION RELATED TO OR ARISING FROM THE FUEL DISPENSING STATIONS, UNDERGROUND STORAGE TANKS AND RELATED IMPROVEMENTS LOCATED OR TO BE LOCATED ON PARCEL B (II) COSTS OF ANY UPGRADES OR ADDITIONS, NECESSITATED BY FUEL STATION IMPROVEMENTS ON PARCEL B OR (III) ANY DAMAGES, FEES, OR FINES OR OTHER COSTS ARISING FROM THE FAILURE OF THE OWNER OF PARCEL B TO OPERATE AND MIANTAIN THE STORMWATER FACILITIES IN GOOD CONDITION IN ACCORDANCE WITH THIS PARAGRAPH 3.4. IN THE EVENT THE PARCEL A OWNER OR SUCH PARCEL A OWNERS TENANT SHOULD DESIRE TO ALTER THE STORMWATER FACILITIES LOCATED ON OR SERVING PARCEL A (INCLUDING WITHOUT LIMITATION, ANY ALTERATIONS WHICH COULD OR WOULD MATERIALLY INCREASE THE FLOW OF SURFACE WATER ONTO PARCEL B) (COLLECTIVELY THE PARCEL A STORMWATER ALTERATIONS), THE PARCEL A OWNER OR SUCH PARCEL A OWNERS TENANT SHALL NOT COMMENCE THE PARCEL A STORMWATER ALTERATIONS WITHOUT THE PRIOR WRITTEN CONSENT OF THE PARCEL B OWNER OR THE PARCEL B TENANT, WHICH CONSENT SHALL NOT BE UNREASONABLY WITHHELD, CONDITIONED OR DELAYED."





SECTION A (TYPICAL BIO-RETENTION BASIN)

N.T.S



SECTION B (UNDERGROUND STORAGE)

N.T.S

Kimley»Horn

DMA EXHIBIT
8TH STREET AND HIGHLAND SPRINGS AVENUE
10/27/2021

Appendix 2: Construction Plans

Grading and Drainage Plans

ON-SITE IMPROVEMENT PLANS FOR:

1675 E EIGHTH STREET
CITY OF BEAUMONT, CA 92223

PRIVATE ENGINEER'S NOTICE TO CONTRACTOR

1. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND ANY OTHER LINES OR STRUCTURES NOT SHOWN ON THESE PLANS AND IS RESPONSIBLE FOR THE PROTECTION OF, AND ANY DAMAGE TO THESE LINES OR STRUCTURES
2. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE OWNER OF ALL UTILITIES OR STRUCTURES CONCERNED BEFORE STARTING WORK.
3. QUANTITIES SHOWN HEREON ARE PROVIDED FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES PRIOR TO BIDDING FOR CONSTRUCTION.
4. THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER CITY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY.

UTILITY PURVEYORS

STORM:	CITY OF BEAUMONT/RIVERSIDE COUNTY FLOOD CONTROL
WATER:	BEAUMONT-CHERRY VALLEY WATER DISTRICT
SEWER:	CITY OF BEAUMONT
GAS:	SOCAL GAS COMPANY
ELECTRICITY:	SOUTHERN CALIFORNIA EDISON

WORK TO BE DONE

THE IMPROVEMENT WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING DOCUMENTS, CURRENT AT THE TIME OF CONSTRUCTION, AS DIRECTED BY THE CITY ENGINEER.

1. BEAUMONT MUNICIPAL CODE.
2. FOR STREETS: RIVERSIDE COUNTY ORDINANCE NO. 461.
   FLOOD CONTROL FACILITIES: THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT'S STANDARDS FOR FLOOD CONTROL FACILITIES.
   SANITARY SEWER FACILITIES: THE EASTERN MUNICIPAL WATER DISTRICT'S STANDARDS FOR SANITARY SEWER FACILITIES.
   ALL OTHER PUBLIC WORKS: THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK).
3. THIS SET OF PLANS.
4. RESOLUTION NO PP2020-0276, CUP2020-00046, PM2020-0007, ENV2020-0002 DATED 10/8/2020.
5. SOILS REPORT AND RECOMMENDATIONS BY SALEM ENGINEERING GROUP, DATED JANUARY 31, 2020.

CONDITION OF APPROVAL 103

COA 103 BIO-1, IF CONSTRUCTION IS SCHEDULED TO OCCUR BETWEEN FEBRUARY 1 AND AUGUST 31, A BREEDING BIRD SURVEY FOLLOWING THE RECOMMENDED GUIDELINES OF THE MBTA MAY BE REQUIRED TO DETERMINE IF NESTING IS OCCURRING. A QUALIFIED BIOLOGIST SHALL CONDUCT A BREEDING BIRD SURVEY NO MORE THAN 30 DAYS PRIOR TO THE START OF CONSTRUCTION TO DETERMINE IF NESTING IS OCCURRING. IF OCCUPIED NESTS ARE FOUND, THEY SHALL NOT BE DISTURBED UNLESS THE QUALIFIED BIOLOGIST VERIFIES THROUGH NON-INVASIVE METHODS THAT EITHER (A) THE ADULT BIRDS HAVE NOT BEGUN EGG-LAYING AND INCUBATION; OR (B) THE JUVENILES FROM THE OCCUPIED NESTS ARE CAPABLE OF INDEPENDENT SURVIVAL. IF THE BIOLOGIST IS NOT ABLE TO VERIFY ONE OF THE ABOVE CONDITIONS, THEN NO DISTURBANCE SHALL OCCUR WITHIN A DISTANCE SPECIFIED BY THE QUALIFIED BIOLOGIST FOR EACH NEST OR NESTING SITE. THE QUALIFIED BIOLOGIST WILL DETERMINE THE APPROPRIATE DISTANCE IN CONSULTATION WITH THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE AND THE U.S. FISH AND WILDLIFE SERVICE.

GEOTECHNICAL REPORT

SOILS REPORT AND RECOMMENDATIONS BY SALEM ENGINEERING GROUP, INC. PROJECT NO. 3-220-0008, DATED JANUARY 31, 2020

SITE INFORMATION

APN:	PORTION OF 419-150-034
ZONING:	CC - COMMUNITY COMMERCIAL
SITE AREA:	0.84 AC (36,682 SF)

BASIS OF BEARING

THE BASIS OF BEARINGS SHOWN HEREON ARE BASED ON THE CENTER LINE OF 8TH STREET, BEING SOUTH 89°10'30" WEST, AS SHOWN ON PARCEL MAP NO.5570 RECORDED OCTOBER 9, 1973 AS NO. 131938 IN THE OFFICE OF THE COUNTY RECORDER OF RIVERSIDE COUNTY.

BENCHMARK

CITY OF BEAUMONT BENCHMARK NO 07.A.82

LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF OAK VALLEY PARKWAY AND PENNSYLVANIA AVENUE, 59.0 FEET SOUTHERLY AND 22.0 FEET EASTERLY OF THE CENTERLINE INTERSECTION. 1-3/8" BRASS CAP MONUMENT MARKED "CITY B.M. 7".

ELEVATION = 2678.277 U.S. SURVEY FEET (1982)

LEGAL DESCRIPTION

PARCEL 1 OF PARCEL MAP NO. 5570, AS SHOWN BY MAP ON FILE IN BOOK 10, PAGE 34 OF PARCEL MAPS, RIVERSIDE COUNTY RECORDS.

ASSESSOR PARCEL NUMBER

419-150-034

REFERENCE DOCUMENTS

1. CITY OF BEAUMONT APPROVED ENTITLEMENTS DATED OCTOBER 8, 2020 (PP2020-0276, CUP2020-00046, PM2020-0007, ENV2020-0002)

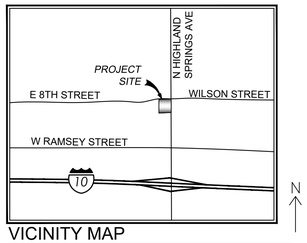
2. CITY OF BEAUMONT STREET IMPROVEMENT PLANS AND ROUGH GRADING (PW2020-0609)

3. PARCEL MAP NO. 37938

4. SWQMP PREPARED BY KIMLEY HORN, DATED JUNE 2021

5. DRAINAGE STUDY PREPARED BY KIMLEY HORN, DATED JUNE 2021

6. PRECISE GRADING FOR PHASE 1, EAST PARCEL, PW2021-0645



VICINITY MAP

NO SCALE

SOILS ENGINEER CERTIFICATION

THESE PLANS HAVE BEEN REVIEWED FROM A GEOTECHNICAL STANDPOINT ONLY. BASED UPON THAT REVIEW, IT APPEARS THE PLANS ARE IN GENERAL CONFORMANCE WITH THE RECOMMENDATION CONTAINED IN THE GEOTECHNICAL INVESTIGATION REPORT PREPARED FOR THE PROPOSED MULTI-TENANT DEVELOPMENT 8TH STREET AND HIGHLAND SPRINGS AVENUE, BEAUMONT, CA. SALEM PROJECT NO. 3-220-0008 DATED JANUARY 31, 2020.

CLARENCE JIANG, RGE — DATE

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF BEAUMONT IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

NOT FOR CONSTRUCTION

BRYAN NORD *R.C.E. NO. 87326* *EXP. DATE* *DATE*

REGISTERED PROFESSIONAL ENGINEER — BRYAN C. NORD — No. 87326 — CIVIL — STATE OF CALIFORNIA

PROJECT DIRECTORY

OWNER:
DUTCH BROS COFFEE INC.
110 SW 4TH STREET
GRANTS PASS, OR 97526
CONTACT: DANIEL BATTY
DANIEL.BATTY@DUTCHBROS.COM
541-218-8806

ARCHITECT
ARMET DAVIS NEWLOVE AND ASSOCIATES.
1330 OLYMPIC BLVD.
SANTA MONICA, CA 90404
CONTACT: PAUL DEPPE
DEPPE@ADNARCH.COM
310-452-5533

CIVIL CONTACT:
KIMLEY-HORN, INC.
401 B STREET, STE 600
SAN DIEGO, CA 92101
CONTACT: STEVEN POLLOCK
STEVEN.POLLOCK@KIMLEY-HORN.COM
619-272-7112

GEOTECHNICAL ENGINEER:
SALEM ENGINEERING GROUP
8711 MONROE COURT
RANCHO CUCAMONGA, CA 91730
CONTACT: CLARENCE JIANG
909-980-6455

SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES
3	EROSION CONTROL
4	EROSION CONTROL DETAILS
5	SITE PLAN
6	HORIZONTAL CONTROL
7	PRECISE GRADING PLAN
8	PRECISE GRADING PLAN
9	UTILTIES
10	DETAILS
11	DETAILS

LEGEND

- EXISTING PROPERTY LINE/ ROW
- PROPOSED PL / ROW (PM 37938)
- CENTERLINE
- SETBACK LINE
- EASEMENT
- ACCESSIBLE PATH OF TRAVEL
- XXXX — FINISHED SURFACE CONTOUR ELEVATION
- (XXXX) — EXISTING SURFACE ELEVATION CONTOUR
- MATCH LINE
- SD — PROPOSED PRIVATE STORM DRAIN
- DAYLIGHT LINE. MATCH ROUGH GRADE
- HEAVY DUTY ASPHALT PER DETAIL 1, SHEET10
- STANDARD DUTY ASPHALT SECTION PER DETAIL 1, SHEET10
- HEAVY DUTY CONCRETE PER DETAIL 1, SHEET10
- STANDARD DUTY CONCRETE PER DETAIL 1, SHEET10
- LANDSCAPING. SEE LANDSCAPE PLAN
- BIO-FILTRATION AREA
- APPROXIMATE CIVIL LIMIT OF WORK LINE
- SILT FENCE (DETAIL 2 SHEET 4)
- CONSTRUCTION FENCE WITH GREEN SCREEN
- CONSTRUCTION ENTRANCE (DETAIL 4, SHEET 4)
- STOCKPILE AREA
- SANITARY AREA, TRASH STORAGE, HAZARDOUS MATERIAL, CONCRETE MANAGEMENT, VEHICLE MAINTENANCE AND EQUIPMENT STORAGE AREA
- MATERIAL STORAGE AND DELIVERY

ABBREVIATIONS

AC.	ACRES	LP	LOW POINT
APN	ASSESSOR'S PARCEL NUMBER	MH	MANHOLE
BLDG	BUILDING	N.T.S	NOT TO SCALE
BOT	BOTTOM OF PIPE	PC	POINT OF CURVATURE
CB	CATCH BASIN	PPD	PRECISE PLAN OF DESIGN
CIP	CAST-IN-PLACE	PROP	PROPOSED
CMU	CONCRETE MASONRY UNIT	PL	PROPERTY LINE
EG	EXISTING GRADE	RL	RIDGE LINE
EP	EDGE OF PAVEMENT	RG	ROUGH GRADED
ESCP	EROSION SEDIMENT CONTROL PLAN	ROS	RECORD OF SURVEY
ESMT.	EASEMENT	RS	RECORD SURVEY
EX	EXISTING	R/W	RIGHT-OF-WAY
FF	FINISHED FLOOR ELEVATION	SF	SQUARE FEET
FG	FINISHED GRADE	SWLK	SIDEWALK
FH	FIRE HYDRANT	TC	TOP OF CURB
FL	FLOW LINE	TG	TOP OF GRATE
FS	FINISHED SURFACE	TOE	BOTTOM OF BASIN
FW	FIRE WATER	TOP	TOP OF PIPE/BASIN
GB	GRADE BREAK	TP	TOP OF PAVEMENT
HP	HIGH POINT	TW	TOP OF WALL
IE	INVERT	TYP	TYPICAL

EARTHWORK RESULTS	
LOT SIZE (ACRES)	0.84
CUT (CU. YD.)	16
FILL (CU. YD.)	1205
NET FILL (CU. YD.)	**1190**

WDID#: N/A — PW2021 – 0690

DIGALERT — Call 2 Working Days Before You Dig! 811

BENCHMARK: NO. 07.A.82

LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF OAK VALLEY PARKWAY AND PENNSYLVANIA AVENUE, 59.0 FEET SOUTHERLY AND 22.0 FEET EASTERLY OF THE CENTERLINE INTERSECTION. 1-3/8" BRASS CAP MONUMENT MARKED "CITY B.M. 7".

ELEV. 2678.277 U.S. SURVEY FEET (1982)

BY	MARK	DESCRIPTION	APPR.	DATE
ENGINEER		REVISIONS	CITY	
	1			

DESIGN BY:
DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: –
JOB NUMBER:

Kimley»Horn
401 B STREET, SUITE 600,
SAN DIEGO, CA 92101
PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

NOT FOR CONSTRUCTION 07.09.2021
BRYAN NORD DATE
R.C.E. 87326

REGISTERED PROFESSIONAL ENGINEER — BRYAN C. NORD — No. 87326 — CIVIL — STATE OF CALIFORNIA

REVIEWED BY: _____ DATE: _____
STAFF ENGINEER

RECOMMENDED BY: _____ DATE: _____
PRINCIPAL ENGINEER

APPROVED BY: _____ DATE: _____
CITY ENGINEER

CITY OF BEAUMONT, PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
550 E. 6TH ST
BEAUMONT, CA 92223
TEL: (951) 769-8520
FAX: (951) 769-8526

CITY OF BEAUMONT, CALIFORNIA
ONSITE IMPROVEMENT PLANS FOR:
DUTCH BROS COFFEE INC.
1675 E EIGHTH STREET

COVER SHEET

SHEET 1 OF 11 SHEETS
FILE NO: PW2021 – 0690

GRADING NOTES

1. ALL GRADING SHALL CONFORM TO THE CITY OF BEAUMONT MUNICIPAL CODE , 2019 CALIFORNIA BUILDING CODE, CALIFORNIA PLUMBING CODE, CALGREEN CODE, STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, "LATEST EDITION" AND RECOMMENDATIONS OF THE SOILS ENGINEER. NO WORK SHALL COMMENCED UNTIL ALL PERMITS HAVE BEEN OBTAINED FROM THE CITY AND OTHER APPROPRIATE AGENCIES.
2. ALL PROPERTY CORNERS SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION /GRADING.
3. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE AND EROSION CONTROL SHOULD BE PROVIDED TO PREVENT PONDING WATER, SEDIMENT TRANSPORTATION, AND DAMAGE TO ADJACENT PROPERTIES.
4. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
5. NO FILL SHALL BE PLACED ON EXITING GROUND THAT HAS NOT BEEN CLEARED OF WEEDS. DEBRIS, TOPSOIL AND OTHER DELETERIOUS MATERIAL.
6. MAXIMUM CUT AND FILL SLOPE = 2: 1 EXCEPT WHERE SPECIFICALLY APPROVED OTHERWISE.
7. STABILITY CALCULATIONS WITH A FACTOR OF SAFETY OF AT LEAST ONE AND FIVE TENTHS (1.5) SHALL BE SUBMITTED BY A SOILS ENGINEER TO THE PUBLIC WORKS DEPARTMENT.
8. PROVIDE A 5' WIDE BY 1' HIGH BERM OR EQUIVALENT ALONG THE TOP OF ALL FILL SLOPES OVER 5' HIGH.
9. PROVIDE A BROW DITCH DESIGNED TO HANDLE 100 YR STORM FLOWS ALONG THE TOP OF CUT SLOPES.
10. MINIMUM BUILDING PAD AND DRAINAGE SWALE SLOPE SHALL BE 1% IF CUT OR FILL IS LESS THAN 10'. 2% IF CUT OR FILL IS GREATER THAN 10'. DRAINAGE SWALES SHALL BE A MINIMUM OF 0.2' DEEP AND BE CONSTRUCTED A MINIMUM OF 2' FROM THE TOE OF CUT OR FILL SLOPES.
11. NO OBSTRUCTION OF FLOODPLAIN OR NATURAL WATER COURSES SHALL BE PERMITTED.
12. ALL EXISTING DRAINAGE COURSES ON THE PROJECT SITE SHALL CONTINUE TO FUNCTION, ESPECIALLY DURING STORM CONDITIONS, PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS MUST BE USED TO PROTECT ADJOINING PROPERTIES DURING GRADING OPERATIONS.
13. FINISH GRADE SHALL BE SLOPED AWAY FROM ALL EXTERIOR WALLS AT NOT LESS THAN 5% FOR A MINIMUM OF 10'.
14. CUT AND FILL SLOPES EQUAL TO OR GREATER THAN 3' IN VERTICAL HEIGHT SHALL BE PLANTED WITH GRASS OR GROUND COVER TO PROTECT THE SLOPE FROM EROSION AND INSTABILITY IN ACCORDANCE WITH CITY OF BEAUMONT REQUIREMENTS PRIOR TO FINAL GRADING INSPECTION
15. ALL SLOPES REQUIRED TO BE PLANTED SHALL BE PLANTED WITH APPROVED GROUND COVER AT 12" ON CENTER. SLOPES EXCEEDING 15' IN VERTICAL HEIGHT SHALL BE PLANTED WITH APPROVED TREES SPACED NOT TO EXCEED 20' ON CENTER OR SHRUBS NOT TO EXCEED 10' OR A COMBINATION OF SHRUBS AND TREES NOT TO EXCEED 15' IN ADDITION TO A GRASS MIX GROUND COVER. SLOPES EQUAL TO OR GREATER THAN 4' IN VERTICAL HEIGHT SHALL BE PROVIDED WITH AN IN-GROUND IRRIGATION SYSTEM COMPLETE WITH AN APPROPRIATE BACKFLOW PREVENTION DEVICE PER CITY REQUIREMENTS.
16. IF STEEP SLOPING TERRAIN OCCURS UPON WHICH FILL IS TO BE PLACED. IT MUST BE CLEARED, KEYED, AND BENCHED INTO FIRM NATURAL SOIL FOR FULL SUPPORT. PREPARATION SHALL BF APPROVED BY A SUITABLY QUALIFIED AND REGISTERED GEOTECHNICAL ENGINEER OR GEOLOGIST PRIOR TO PLACEMENT OF FILL MATERIAL.
17. ALL GRADING SHALL BE CONTINUOUSLY OBSERVED BY A COMPETENT SOILS ENGINEER WHO SHALL VERIFY THAT ALL FILL HAS BEEN PROPERLY PLACED AND WHO SHALL SUBMIT A FINAL COMPACTION REPORT FOR ALL FILLS OVER 1' DEEP.
18. A FINAL GEOTECHNICAL REPORT OF COMPLETION OF THE ROUGH GRADING, STATING SUBSTANTIAL CONFORMANCE WITH THE APPROVED GRADING PLAN, SHALL BE SUBMITTED TO THE BUILDING AND SAFETY DEPARTMENT AND THE PUBLIC WORKS DEPARTMENT PRIOR TO REQUESTING INSPECTION AND ISSUANCE OF BUILDING PERMITS. CERTIFICATIONS SHALL INCLUDE LINE GRADES, ELEVATIONS, AND LOCATION OF CUT/FILL SLOPES.
19. A LAND SURVEYOR OR ENGINEER AUTHORIZED TO PRACTICE LAND SURVEYING SHALL SUBMIT A PAD CERTIFICATION FOR ALL PADS. THE ELEVATION WITH RESPECT TO MEAN SEA LEVEL SHALL BE GIVEN. IF AN ELEVATION WITH RESPECT TO ADJACENT GROUND SURFACE IS REQUIRED, THE ACTUAL DISTANCE ABOVE THE ADJACENT GROUND SHALL BE GIVEN.
20. A GEOTECHNICAL ENGINEER OR GEOLOGIST SHALL SUBMIT TO THE BUILDING AND SAFETY DEPARTMENT AND THE PUBLIC WORKS DEPARTMENT A FINAL GEOTECHNICAL REPORT OF COMPLETION OF FINAL GRADING STATING SUBSTANTIAL CONFORMANCE WITH THE APPROVED PLANS FOR ALL GRADING DESIGNATED AS "ENGINEERED GRADING".
21. THE CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS DEPARTMENT AT LEAST 24 HOURS IN ADVANCE REQUESTING FINISH LOT GRADE AND DRAINAGE INSPECTION. THIS INSPECTION MUST BE APPROVED PRIOR TO BUILDING PERMIT FINAL INSPECTION FOR EACH LOT.
22. ALL STORM DRAINS, CATCH BASINS, AND STORM WATER RUNOFF STRUCTURES WILL BE PROVIDED WITH ADEQUATE CAPABILITIES TO FILTER AND RETAIN SEDIMENT, GRIT, OIL, AND GREASE TD PREVENT POLLUTION IN STORM WATER RUNOFF IN COMPLIANCE WITH THE CITY OF BEAUMONT'S BEST MANAGEMENT PRACTICES AND BEAUMONT'S DRAINAGE MASTER PLAN FOR STORMWATER AS WELL AS BEST MANAGEMENT PRACTICES IDENTIFIED IN THE CURRENT REPORT OF WASTE DISCHARGE FOR RIVERSIDE COUNTY PERMITTEES.
23. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT TWO DAYS BEFORE DIGGING AT 8-1-1 AND THE FOLLOWING UTILITY OR AGENCIES A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCING ANY CONSTRUCTION OR GRADING:

a. CITY OF BEAUMONT	951.769.8520
b. AT&T	800.892.0123
c. SOUTHERN CALIFORNIA GAS COMPANY	800.427.2000
d. BEAUMONT CHERRY VALLEY WATER DISTRICT	951.845.9581
e. EDISON	800.409.2365
f. SPECTRUM	855.900.6880

26. TRENCHING FOR UTILITIES AND STRUCTURES IS NOT ALLOWED UNTIL A SOIL COMPACTION REPORT IS SUBMITTED TO AND APPROVED BY THE PUBLIC WORKS DEPARTMENT.
27. THE CONTRACTOR SHALL MAINTAIN ADJACENT STREETS IN A NEAT, SAFE, CLEAN AND SANITARY CONDITION AT ALL TIMES AND TO THE SATISFACTION OF THE CITY'S INSPECTOR. THE ADJACENT STREETS SHALL BE KEPT CLEAN OF SEDIMENT, DEBRIS AND OTHER NUISANCES AT ALL TIMES. THE DEVELOPER SHALL BE RESPONSIBLE FOR ANY CLEAN UP ON ADJACENT STREETS AFFECTED BY THE CONSTRUCTION.
28. ALL OPERATIONS CONDUCTED ON THE SITE OR ADJACENT THERETO SHALL ADHERE TO THE NOISE ORDINANCE SET FORTH BY THE CITY MUNICIPAL CODE. ALL OPERATIONS SHALL BE LIMITED BY THE NOISE ORDINANCE TO THE LIMIT OF DECIBELS SPECIFIED FOR THE AREA AND TIME PERIOD. CONSTRUCTION ACTIVITIES WILL BE LIMITED TO THE PERIOD BETWEEN 7:00 A.M. AND 6:00 P.M. MONDAY THROUGH FRIDAY.
29. ALL OFF-SITE HAUL ROUTES SHALL BE SUBMITTED BY THE CONTRACTOR TO THE CITY ENGINEER FOR APPROVAL TWO FULL WORKING DAYS PRIOR TO BEGINNING OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEBRIS OR DAMAGE OCCURRING ALONG THE HAUL ROUTE OR ADJACENT STREETS AS A RESULT OF THE GRADING OPERATION.

STORM DRAIN NOTES

1. CONTRACTOR SHALL CONSTRUCT THE DRAINAGE IMPROVEMENT SHOWN ON THE DRAWINGS IN CONFORMANCE WITH THE REQUIREMENTS OF THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT DESIGN MANUAL STANDARD DRAWINGS, RECENT EDITION, THE SSPWC 'LATEST EDITION', AND IN CONFORMANCE WITH THE REQUIREMENTS OF THE BEAUMONT DRAINAGE MANAGEMENT PLAN.
2. CONTRACTOR SHALL COMPLY WITH THE STATE AND LOCAL SAFETY CODES DURING THE PROGRESS OF WORK.
3. CONSTRUCTION PROJECTS THAT DISTURB MORE THAN ONE ACRE MUST OBTAIN A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT. OWNER/DEVELOPERS ARE REQUIRED TO FILE A NOTICE OF INTENT (NOI) WITH THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) AND COMPLY WITH ALL REQUIREMENTS OF THE BEAUMONT DRAINAGE MANAGEMENT PLAN. BEAUMONT IS CO-PERMITTEE WITH R.CF.C. & W.C.D.
4. ALL STORM DRAINS, CATCH BASINS, AND STORM WATER RUNOFF STRUCTURES WILL BE PROVIDED WITH ADEQUATE CAPABILITIES TO FILTER AND RETAIN SEDIMENT AND DIRT, Of, AND GREASE, TO PREVENT POLLUTION IN STORM WATER RUNOFF IN COMPLIANCE WITH THE CITY OF BEAUMONT'S BEST MANAGEMENT PRACTICES AND THE BEAUMONT DRAINAGE MASTER PLAN FOR STORM WATER AS WELL AS BEST MANAGEMENT PRACTICES IDENTIFIED IN THE CURRENT REPORT OF WASTE DISCHARGE FOR RIVERSIDE COUNTY PERMITTEES.
5. CONTRACTOR SHALL MAINTAIN ADJACENT STREETS IN A NEAT, SAFE, CLEAN AND SANITARY CONDITION AT ALL TIMES AND TO THE SATISFACTION OF THE COUNTY'S OR DISTRICT'S INSPECTOR. THE ADJACENT STREETS SHALL BE KEPT CLEAN OF DEBRIS, WITH DUST AND OTHER NUISANCE BEING CONTROLLED AT ALL TIMES. THE DEVELOPER SHALL BE RESPONSIBLE FOR ANY CLEAN UP ON ADJACENT STREETS AFFECTED BY HIS CONSTRUCTION. METHOD OF STREET CLEANING SHALL BE DRY SWEEPING OF ALL PAVED AREAS.
6. CONTRACTOR SHALL BE THE RESPONSIBILITY TO INSTALL AND MAINTAIN DURING CONSTRUCTION, REGULATORY GUIDE AND WARNING SIGNS WITHIN THE PROJECT LIMITS AND ITS SURROUNDINGS TO PROVIDE SAFE PASSAGE FOR THE TRAVELING PUBLIC AND WORKERS UNTIL THE FINAL COMPLETION AND ACCEPTANCE OF THE PROJECT BY THE CITY OF BEAUMONT.
7. CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER, CITY OF BEAUMONT, AND THE DEVELOPER'S ENGINEER, HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNERS OR THE DEVELOPER'S ENGINEER.
8. CONTRACTOR SHALL BE THE RESPONSIBLE TO OBTAIN AN ENCROACHMENT PERMIT FOR ALL WORK PERFORMED WITHIN PUBLIC RIGHT-OF-WAY, DEDICATED AND ACCEPTED FOR PUBLIC USE; AND TO BE RESPONSIBLE FOR SATISFACTORY COMPLIANCE FOR ALL CURRENT ENVIRONMENTAL REGULATIONS DURING THE LIFE OF CONSTRUCTION ACTIVITIES FOR THIS PROJECT.
9. CONTRACTOR MUST NOTIFY THE CITY OF BEAUMONT AT (951) 769-8520 AT LEAST ONE WEEK PRIOR TO CONSTRUCTION.
10. CONTRACTOR MUST PROVIDE CONSTRUCTION SCHEDULE TO THE CITY OF BEAUMONT AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
11. CONTRACTOR MUST CALL UNDERGROUND SERVICE ALERT AT 811 AT LEAST 48 HOURS BEFORE EXCAVATION.
12. CONTRACTOR IS REQUIRED TO CONTACT ALL UTILITY AGENCIES REGARDING TEMPORARY SUPPORT AND SHORING REQUIREMENTS FOR THE VARIOUS UTILITIES SHOWN IN THE PLANS.
13. THE CONTRACTOR SHALL VERIFY, BY POT HOLING, THE LOCATION OF POTENTIALLY AFFECTED UTILITIES.
14. CONTRACTOR SHALL HAVE GEOTECHNICAL/SOILS ENGINEERING FIRM OBSERVE TRENCHING, BACKFILLING, & SOIL COMPACTION OF ALL UTILITY TRENCHES WITHIN ALL EASEMENTS & ROAD RIGHTS OF WAY. TWO SETS OF COMPACTION REPORTS CERTIFYING THAT WORKS WERE DONE IN CONFORMANCE TO STANDARDS & GEOTECHNICAL REPORT SHALL BE SUBMITTED AFTER EACH UTILITY TRENCH IS COMPLETED & CERTIFIED. COMPACTION REPORT MUST BE SUBMITTED TO THE DEPT. OF PUBLIC WORKS AT LEAST TWO WORKING DAYS BEFORE AGGREGATE BASE MATERIALS ARE PLACED ONSITE.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEARING OF THE PROPOSED WORK AREA AND RELOCATION COSTS OF ALL EXISTING UTILITIES.
16. ELEVATIONS AND LOCATIONS OF UTILITIES SHOWN ARE APPROXIMATE UNLESS OTHERWISE NOTED. ALL UTILITIES SHOWN ARE TO BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED.
17. ALL ELEVATIONS SHOWN ARE TO THE INVERTS OF PIPE, EXCEPT WHERE OTHERWISE NOTED.
18. STORM DRAIN PROFILES CONTAIN CALL--OUTS AND REFERENCE TO INTERSECTING STORM DRAIN LINES. INTERSECTIONS OF THESE JUNCTIONS ARE PROVIDED FOR REFERENCE ONLY. CONTRACTOR IS TO OBTAIN INVERT ELEVATIONS FROM THE RESPECTIVE PROFILE OF THE INTERSECTING PIPE.
19. ALL STATIONING REFERS TO THE CENTERLINE OF CONSTRUCTION UNLESS OTHERWISE NOTED.
20. STATIONING FOR LATERALS AND CONNECTOR PIPE REFER TO THE CENTERLINE--CENTERLINE--INTERSECTION STATION.
21. ALL PIPE LENGTHS ARE HORIZONTAL PROJECTIONS (NOT TRUE LENGTHS OF PIPE) AND ARE THE BASIS OF THE ESTIMATES OF QUANTITIES. THE CONTRACTOR SHALL DETERMINE THE TRUE QUANTITY OF PIPE REQUIRED FOR THIS PROJECT PRIOR TO PLACING THE ORDER.
22. ALL CROSS SECTIONS ARE TAKEN LOOKING UPSTREAM.
23. OPENINGS RESULTING FROM THE CUTTING OR PARTIAL REMOVAL OF EXISTING CULVERTS, PIPES OR SIMILAR STRUCTURES TO BE ABANDONED SHALL BE SEALED WITH 6 INCHES OF CLASS "B" CONCRETE.
24. PIPE CONNECTED TO THE MAINLINE PIPE SHALL CONFORM TO JUNCTION STRUCTURE NO. 4 (JS 229) UNLESS OTHERWISE NOTED.
25. PIPE BEDDING SHALL CONFORM TO R.C.F.C. & W.C.D. STD. DWG. M 815
26. "V" IS THE DEPTH OF INLET AT THE CATCH BASINS MEASURED FROM THE TOP OF THE CURB TO THE INVERT OF CONNECTOR PIPE.
27. HYDRAULIC GRADE LINES SHOWN IN PROFILES ARE FOR 100 YEAR FREQUENCY FLOWS, UNLESS OTHERWISE NOTED.
28. ALL BACKFILL AND BEDDING AROUND STRUCTURES AND PIPES SHALL BE COMPACTED TO NOT LESS THAN 90 PERCENT RELATIVE COMPACTION EXCEPT WHERE SUCH MATERIAL IS PLACED UNDER EXISTING PAVED ROADWAYS. THE TOP 3 FEET, MEASURED FROM THE FINISH PAVING, SHALL BE COMPACTED TO 95 PERCENT RELATIVE COMPACTION.
29. CONTRACTOR SHALL DISPOSE OF ALL EXCESS EXCAVATED MATERIAL AT MANDATORY DISPOSAL SITE.
30. ALL CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS, AND OTHER EXISTING IMPROVEMENTS TO BE RECONSTRUCTED IN KIND PER LATEST COUNTY STANDARD AND AT THE SAME ELEVATION AND LOCATION AS THE EXISTING IMPROVEMENTS UNLESS OTHERWISE NOTED. FOR PAVEMENT OVERLAY, 0.10' MIN. FOR FULL LANE WIDTH IS REQUIRED.
31. ALL UNDERGROUND FACILITIES WITH LATERALS SHALL BE IN PLACE PRIOR TO PAVING THE STREET, INCLUDING BUT NOT LIMITED TO, THE FOLLOWING: SEWER, WATER, ELECTRIC, STORM DRAINS.
32. ALL SURVEY MONUMENTS SHALL BE REPLACED AS REQUIRED. MONUMENTS SHALL BE TIED OUT PRIOR TO CONSTRUCTION AND REPLACED UPON COMPLETION OF CONSTRUCTION.

DIVISION OF BUILDING AND SAFETY NOTES

"EVERY EXCAVATION ON A SITE LOCATED 5 FT OR LESS FROM THE STREET AND ALLEY LOT LINE SHALL BE ENCLOSED WITH A BARRIER NOT LESS THAN 6 FT IN HEIGHT. [CBC 3306.9]"

"ALL OF THE GRADING PROCEDURES, RECOMMENDATIONS, AND SPECIFICATIONS THAT ARE INDICATED ON THE GEOTECHNICAL REPORT NO.3-220-0008, DATED JANUARY 31, 2020, PREPARED BY SALEM ENGINEERING GROUP MUST BE ADHERED TO."

"THIS PLAN HAS BEEN REVIEWED AND CONFORMS TO THE RECOMMENDATIONS PROVIDED IN THE SOIL REPORT DATED JANUARY 31, 2020." SIGNATURE AND DATE _________________." SHALL BE SIGNED AND DATED BY THE SOIL ENGINEER PRIOR TO THE PLAN FINAL APPROVAL

"PRIOR TO REQUESTING A FOUNDATION INSPECTION FROM THE DEPARTMENT OF BUILDING AND SAFETY, THE SOILS ENGINEER SHALL INSPECT AND APPROVE THE FOUNDATION EXCAVATIONS".

"THE FILL MATERIAL SHALL NOT INCLUDE ORGANIC OR OTHER DELETERIOUS MATERIALS." [CBC J107.4]

"NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL GREATER THAN 12", OR AS INDICATED IN THE SOIL REPORT, (WHICHEVER IS SMALLER), IN ANY DIMENSION SHALL BE INCLUDED IN FILLS." [CBC J107.4]

"ALL FILL MATERIAL SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557, MODIFIED PROCTOR, IN LIFTS NOT EXCEEDING 12" IN DEPTH, OR AS INDICATED IN THE SOIL REPORT, WHICHEVER IS MORE CONSERVATIVE." [CBC J107.5]

"THE GROUND SURFACE SHALL BE PREPARED TO RECEIVE FILL BY REMOVING VEGETATION, TOPSOIL, AND OTHER UNSUITABLE MATERIALS, AND SCARIFYING THE GROUND TO PROVIDE A BOND WITH THE FILL MATERIAL." [CBC J107.2]

"THE REQUIRED PERMANENT EROSION CONTROL DEVICES AND/OR METHODS SHALL BE INSTALLED AS SOON AS PRACTICABLE AND PRIOR TO CALLING FOR FINAL INSPECTIONS." [CBC J110.1]

"PROVIDE BENCHING WHERE EXISTING GRADE IS AT A SLOPE STEEPER THAN 5 HORIZONTAL TO 1 VERTICAL (20%) AND THE DEPTH OF THE FILL EXCEEDS 5', AND MUST BE IN ACCORDANCE WITH CBC FIGURE J107.3. A KEY SHALL BE PROVIDED THAT IS AT LEAST 10 FEET IN WIDTH AND 2 FEET IN DEPTH." [CBC J107.3]

"BUILDING TO HAVE A LEVEL SETBACK FROM ASCENDING SLOPES EXCEEDING 3:1 (H:V) A MINIMUM OF H/2 BUT NEED NOT EXCEED 15 FT." [CBC 1808.7.1, FIGURE 1808.7.1]

"FOUNDATION TO BE SETBACK FROM DESCENDING SLOPES EXCEEDING 3:1(H:V) A MINIMUM OF H/3 BUT NEED NOT EXCEED 40FT." [CBC 1808.7.2, FIGURE 1808.7.1]

"ALL GRADED CUT OR FILL SLOPES SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (50%)." [CBC J106.1, J107.6]

"TOE OF CUT OR FILL SLOPES SHALL NOT BE NEARER TO A SITE PROPERTY LINE THAN ONE-FIFTH THE HEIGHT OF THE FILL, WITH A MINIMUM 2 FT. AND A MAXIMUM 20 FT." [CBC J108.2, FIGURE J108.1]

"TOP OF CUT OR FILL SLOPE SHALL NOT BE NEARER TO A SITE PROPERTY LINE THAN ONE-FIFTH THE HEIGHT OF THE SLOPE, WITH A MINIMUM 2 FT. AND A MAXIMUM 10 FT." [CBC J108.2, FIGURE J108.1

PRIVATE ENGINEER'S CIVIL CONSTRUCTION NOTES

1. STANDARDS AND PLANS:
   ALL CONSTRUCTION AND PLANS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE CITY OF BEAUMONT, STANDARD SPECIFICATIONS AND DETAILS, WITH THESE PLANS, THE PROJECT SPECIFICATIONS, AND UNLESS SHOWN OR SPECIFIED OTHERWISE, WITH THE LATEST EDITIONS OF THE STATE ("CALTRANS") STANDARD SPECIFICATIONS AND STANDARD PLANS, SIGN SPECIFICATION SHEETS AND TRAFFIC MANUAL.

   IT IS INTENDED THAT THESE PLANS AND SPECIFICATIONS REQUIRE ALL LABOR AND MATERIALS NECESSARY AND PROPER FOR THE WORK CONTEMPLATED AND THAT THE WORK BE COMPLETED IN ACCORDANCE WITH THEIR TRUE INTENT AND PURPOSE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY REGARDING ANY DISCREPANCIES OR AMBIGUITIES WHICH MAY EXIST IN THE PLANS OR SPECIFICATIONS. THE ENGINEER'S INTERPRETATION OR CORRECTION THEREOF SHALL BE CONCLUSIVE.

   WHERE THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.

   THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BE THE PREPARER OF THESE PLANS.
2. EXISTING UTILITIES AND COORDINATION OF WORK:
   THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE IMPROVEMENT PLANS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY, THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. KIMLEY-HORN AND ASSOCIATES, INC., HEREINAFTER DESIGNATED AS THE ENGINEER, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ITS DELINEATION OF SUCH UNDERGROUND UTILITIES, NOR FOR THE EXISTENCE OF OTHER BURIED OBJECTS OR UTILITIES WHICH ARE NOT SHOWN ON THESE DRAWINGS.

   IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED AND REQUESTING A VISUAL VERIFICATION OF THE LOCATIONS OF THEIR UNDERGROUND FACILITIES. THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR OF THE SCHEDULED TIME AND PLACE OF SUCH VISUAL VERIFICATION TO ENABLE SAID FIRM TO HAVE A REPRESENTATIVE PRESENT.

   THE CITY IS A MEMBER OF THE UNDERGROUND SERVICE ALERT (U.S.A.) ONE-CALL PROGRAM. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS CONTRACT SHALL NOTIFY MEMBERS OF U.S.A. 48 HOURS IN ADVANCE OF PERFORMING EXCAVATION WORK BY CALLING THE TOLL-FREE NUMBER 1-800-227-2600.
3. CONFLICTS:
   THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO PERFORMING ANY CORRECTIVE ACTION REQUIRED DUE TO UNFORESEEN CONFLICTS IN THE IMPROVEMENT PLANS OR DUE TO POSSIBLE STAKING ERRORS. THE ENGINEER ASSUMES NO LIABILITY FOR THE COST OR DESIGN OF ANY MODIFICATION PERFORMED WITHOUT SUCH NOTIFICATION, AND ALSO ASSUMES NO LIABILITY FOR STAKING PROVIDED BY OTHERS.
4. CONTROL POINTS AND SURVEY MONUMENTS:
   CERTAIN CONTROL POINTS WILL BE SET BY THE ENGINEER, OR ITS REPRESENTATIVE, WHICH ARE CRITICAL TO THE CONSTRUCTION STAKING OF THE PROJECT. THESE POINTS WILL BE DESIGNATED AT A PRE-CONSTRUCTION CONFERENCE BETWEEN REPRESENTATIVES OF THE ENGINEER AND THE CONTRACTOR. THE CONTROL POINTS WILL BE CLEARLY MARKED ON THE JOB SITE. THE CONSTRUCTION SHALL NOT DISTURB THE CONTROL POINTS IN ANY MANNER. IF IT BECOMES NECESSARY TO REMOVE SAID CONTROL POINTS DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS IN ADVANCE OF SAID REMOVAL TO ALLOW FOR REFERENCING SAID CONTROL POINTS AND THEIR EVENTUAL REPLACEMENT. IF CONTROL POINTS ARE REMOVED OR DESTROYED WITHOUT SAID NOTIFICATION, THE COST OF REPLACEMENT SHALL BE DEDUCTED FROM THE CONTRACTOR'S PAYMENT, AND PAYMENT SHALL BE MADE BY OWNER TO THE ENGINEER.
5. OBSTRUCTIONS:
   THE CONTRACTOR SHALL REMOVE ALL OBSTRUCTIONS, BOTH ABOVE GROUND AND UNDERGROUND, EXCEPT AS NOTED IN ITEM 2 ABOVE, AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED IMPROVEMENT.

   ALL UNSUITABLE AND SURPLUS MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UNLESS SPECIFIED OTHERWISE.

   TREE AND STUMP REMOVAL SHALL INCLUDE REMOVAL OF THE MAJOR ROOT SYSTEM TO THE SATISFACTION OF THE CITY GRADING INSPECTOR. SUCH REMOVAL SHALL BE PERFORMED WITHOUT DAMAGE TO ADJACENT TREES THAT ARE TO BE PRESERVED. STUMP REMOVAL WITH THE DRIP LINE OF A TREE TO BE REMOVED SHALL BE BY GRINDING METHOD TO A DEPTH OF 0.5 FEET BELOW ADJACENT GRADE EXISTING OR PROPOSED WHICH EVER IS DEEPER.

   ALL WELLS AND SEPTIC SYSTEMS FOUND ON THE SITE SHALL BE ABANDONED IN ACCORDANCE WITH COUNTY HEALTH DEPARTMENT STANDARDS.
6. PUBLIC SAFETY AND TRAFFIC CONTROL:
   CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ANY CURRENTLY APPLICABLE SAFETY LAW OF ANY JURISDICTIONAL BODY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BARRICADES, SAFETY DEVICES, AND CONTROL OF TRAFFIC WITHIN AND AROUND THE CONSTRUCTION AREA. FOR ALL TRENCH EXCAVATIONS 5 FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE DIVISION OF INDUSTRIAL SAFETY, PRIOR TO BEGINNING ANY EXCAVATION.

   PUBLIC SAFETY AND TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE CALTRANS TRAFFIC MANUAL (SEE CHAPTER 5: MANUAL OF TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE WORK ZONES). SAFE VEHICULAR AND PEDESTRIAN ACCESS SHALL BE PROVIDED AT ALL TIMES DURING CONSTRUCTION.

   CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONALS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.
7. ENCROACHMENT PERMITS:
   UNLESS SPECIFIED OTHERWISE, THE CONTRACTOR SHALL OBTAIN THE NECESSARY ENCROACHMENT PERMITS FROM THE CITY, COUNTY, CALTRANS AND ALL OTHER AGENCIES HAVING JURISDICTION PRIOR TO COMMENCING ANY WORK. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST 48 HOURS PRIOR TO THE INTENT TO COMMENCE WORK.
8. EARTHWORK:
   - A. ALL EARTHWORK ACTIVITIES, INCLUDING EXCAVATION, GRADING, SCARIFYING, MOISTURIZING, FILL PLACEMENT, COMPACTION, LIME TREATMENT, ETC., SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS PER GEOTECH REPORT AND ALL ADDENDUMS, AND IN CONFORMANCE WITH THE CITY STANDARD SPECIFICATIONS AND WITH THE GRADING PLAN.
   - B. THE GEOTECHNICAL ENGINEER SHALL OBSERVE THE GRADING ACTIVITIES AND PERFORM COMPACTION TESTING FOR THIS PROJECT. THE CONTRACTOR SHALL PROVIDE AT LEAST 24 HOURS NOTICE TO THE GEOTECHNICAL ENGINEER OF THE NEED FOR OBSERVATION AND TESTING SERVICES.
   - C. EARTHWORK SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO CONSTRUCT THE SITE TO THE GRADES SHOWN. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THE DISPOSAL OF EXCESS EXCAVATED MATERIAL OR FOR THE IMPORT OF MATERIAL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN ADVANCE OF ANY CHANGES HE MAY DEEM NECESSARY TO OBTAIN BALANCED CUT-FILL DEGRADING.
   - D. ALL CUT SLOPES SHALL BE ROUNDED AT THE "BREAK" SO THAT THEY BLEND WITH THE NATURAL GROUND CONTOUR.
   - E. THE CONTRACTOR SHALL UTILIZE DUST CONTROL STANDARDS CONSISTENT WITH CITY OF BEAUMONT STANDARDS.
   - F. EXCAVATION AND EMBANKMENT SIDE SLOPES SHOWN ON THE PLANS AS A RATIO, E.G. 4:1, REFER TO THE RATION OF HORIZONTAL TO VERTICAL DISTANCES. "MINIMUM" SLOPE MEANS "NOT FLATTER THAN", AND "MAXIMUM" SLOPE MEANS "NOT STEEPER THAN". ALL EMBANKMENT AND EXCAVATION SLOPES SHALL BE 4:1 UNLESS NOTED OTHERWISE.
   - G. TO ACCOMMODATE TRENCH SPOIL, THE CONTRACTOR'S GRADING SHALL INCLUDE UNDERCUTTING OF STREETS AS APPROPRIATE, OR SOME OTHER METHOD APPROVED BY THE CITY.
   - H. ALLOWABLE GRADING TOLERANCE IS PLUS OR MINUS 0.10 FOOT OF THE ELEVATIONS SHOWN HEREON.
   - I. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING PROJECT CONSTRUCTION. COMPLY WITH EROSION AND SEDIMENTATION CONTROL PLAN. IF GRADING AND DRAINAGE CONSTRUCTION IS NOT COMPLETE PRIOR TO RAINY SEASON, THEN THE CONTRACTOR SHALL:
     - I.A. PROVIDE EROSION PROTECTION ON SLOPES THAT ARE 10:1 OR STEEPER AND IN SWALES THAT ARE 2% OR STEEPER.
     - I.B. GRADE GUTTER SAG POINTS TO DRAIN.
     - I.C. PROVIDE SILT CATCHMENTS TO PREVENT SEDIMENTATION IN EXISTING STORM DRAIN SYSTEMS.
     - I.H. CLEAN DOWNSTREAM PIPES AS DIRECTED BY THE CITY ENGINEER.
     - I.I. CLEAN AND MAINTAIN ALL STREETS AND SIDEWALKS AS DIRECTED BY THE CITY ENGINEER.
   - J. THE TOP 6 INCHES (MINIMUM) OF ALL LANDSCAPED AREAS SHALL BE CLEAN SOIL.
   - K. EXISTING ASPHALT PAVEMENT MAY BE USED AS FILL MATERIAL ONLY AS SPECIFIED BY THE GEOTECHNICAL ENGINEER OF RECORD. ALL DELETERIOUS MATERIAL AND REBAR MUST BE REMOVED. AC PLACEMENT INFILL CAN ONLY BE PLACED UNDERNEATH PARKING AREAS AND CANNOT BE PLACED UNDERNEATH OR DOWNSTREAM OF INFILTRATION BASIN.
9. PIPELINES
   ANY EXISTING UTILITY, WHICH IS TO BE EXTENDED, WHICH IS THE CONNECTION POINT FOR NEW UNDERGROUND UTILITIES, OR WHICH NEW FACILITIES CROSS, SHALL BE EXPOSED BY THE CONTRACTOR PRIOR TO PLACEMENT OF THE NEW UTILITIES. COST OF SUCH EXCAVATION AND SUBSEQUENT BACKFILL SHALL BE INCLUDED IN THE PRICES PAID FOR THE VARIOUS ITEMS OF WORK. THE ELEVATIONS AND LOCATIONS OF THE EXISTING FACILITIES WILL BE CHECKED BY THE PUBLIC WORKS INSPECTOR AND THE ENGINEER. IF IN THE OPINION OF THE INSPECTOR A CONFLICT EXISTS, THEN THE ENGINEER SHALL MAKE ANY NEEDED GRADE AND/OR ALIGNMENT ADJUSTMENTS AND REVISE THE PLANS ACCORDINGLY. ALL GRAVITY FLOW PIPELINES TO BE LAID UPGRADE FROM THE LOWEST POINT STARTING AT THE END OF EXISTING IMPROVEMENTS.

   THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 24 HOURS PRIOR TO BACKFILLING OF ANY PIPE WHICH STUBS TO A FUTURE PHASE OF CONSTRUCTION FOR INVERT VERIFICATION. TOLERANCE SHALL BE IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS.
10. ADJUSTING MANHOLES, VALVE AND MONUMENT BOXES:
   THE CONTRACTOR SHALL ADJUST AND/OR RECONSTRUCT TO GRADE, ALL EXISTING UTILITY STRUCTURES, INCLUDING MANHOLES AND VALVE BOXES AND MONUMENT BOXES, WITHIN THE WORK AREA UNLESS NOTED OTHERWISE
11. STORM DRAIN SYSTEM:
   - A. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE FACILITIES WITHIN THE CONSTRUCTION AREA UNTIL THE DRAINAGE IMPROVEMENTS ARE IN PLACE AND FUNCTIONING AND ACCEPTED BY THE CITY.
   - B. STORM DRAIN PIPE SHALL BE HDPE, UNLESS OTHERWISE SHOWN ON PLAN, AND FITTINGS INSTALLED IN ACCORDANCE WITH THESE PLANS AND THE MANUFACTURER'S RECOMMENDATIONS.
   - C. EACH STUB END PIPE SHALL BE PLUGGED WITH A PREFABRICATED, WATERTIGHT PLUG.
   - D. TRENCH EXCAVATION, BEDDING AND BACKFILL SHALL COMPLY WITH CITY STANDARDS AND PROJECT GEOTECHNICAL REPORT.
12. PRESERVATION OF PROPERTY:
   TREES AND SHRUBBERY THAT ARE NOT TO BE REMOVED, AND POLE LINES, FENCES, SIGNS, SURVEY MARKERS AND MONUMENTS, BUILDINGS AND STRUCTURES, CONDUITS, PIPELINES, ALL STREET FACILITIES, AND ANY OTHER IMPROVEMENTS OR FACILITIES WITHIN OR ADJACENT TO THE STREET OR CONSTRUCTION AREA SHALL BE PROTECTED FROM INJURY OR DAMAGE, AND UPON ORDER BY THE CITY ENGINEER, THE CONTRACTOR SHALL PROVIDE AND INSTALL SAFE-GUARDS APPROVED BY THE CITY ENGINEER TO PROTECT SUCH OBJECTS FROM INJURY OR DAMAGE. IF SUCH OBJECTS ARE INJURED OR DAMAGED BY REASON OF THE CONTRACTORS OPERATIONS, THEY SHALL BE REPLACED OR RESTORED AT THE CONTRACTOR'S EXPENSE. THE FACILITIES SHALL BE REPLACED OR RESTORED TO A CONDITION AS GOOD AS WHEN THE CONTRACTOR ENTERED UPON THE WORK, OR AS GOOD AS REQUIRED BY THE SPECIFICATION ACCOMPANYING THE CONTRACT, IF ANY SUCH OBJECTS ARE A PART OF THE WORK BEING PERFORMED UNDER CONTRACT. THE CITY ENGINEER MAY MAKE OR CAUSE TO BE MADE SUCH TEMPORARY REPAIRS AS ARE NECESSARY TO RESTORE TO SERVICE ANY DAMAGED FACILITY. THE COST OF SUCH REPAIRS SHALL BE BORNE BY THE CONTRACTOR.
13. DEMOLITION:
   EXISTING FEATURES THAT ENCUMBER THE PROPOSED CONSTRUCTION AREA ARE INTENDED TO BE SHOWN AND SCHEDULED FOR REMOVAL. SOME INCIDENTAL ITEMS MAY HAVE BEEN INADVERTENTLY OMITTED FROM THE PLAN. THE CONTRACTOR IS ENCOURAGED TO THOROUGHLY INSPECT THE SITE AS WELL AS REVIEW THE PLANS AND SPECIFICATIONS. THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO COMMENCING CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ONSITE LOCATIONS OF EXISTING UTILITIES AND FIELD VERIFY ALL UNDERGROUND UTILITIES. DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN WILL BE REPLACED/RESTORED TO ORIGINAL CONDITION AT CONTRACTOR'S EXPENSE.

PRIVATE ENGINEER'S CIVIL UTILITY NOTES

1. ALL FILL MATERIAL IS TO BE IN PLACE AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
2. CONTRACTOR SHALL NOTIFY THE UTILITIES AUTHORITY INSPECTOR 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
3. UNDERGROUND LINES SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
4. DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING UTILITIES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING WATER MAINS, FORCE MAINS, SANITARY SEWER AND STORM MAIN AND MAINTAIN MINIMUM CLEARANCES BETWEEN WATER MAINS AND OTHER UTILITIES AT ALL POINTS ALONG THEIR LENGTH AS REQUIRED IN THE PLANS, DETAILS AND SPECIFICATIONS.
6. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOW ON THESE PLANS.
7. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE SPECIFICATIONS OF THE LOCAL AUTHORITIES WITH REGARD TO MATERIALS AND INSTALLATION OF WATER AND SEWER LINES.
8. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICE.
9. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
10. WATER FOR FIREFIGHTING SHALL BE AVAILABLE FOR USE PRIOR TO COMBUSTIBLES BEING BROUGHT ON SITE.
11. ALL MANHOLE TOP ELEVATIONS ARE APPROXIMATE. CONTRACTOR SHALL SET MANHOLE TOPS LEVEL WITH FINISH GRADES IN PAVED AND UNPAVED AREAS.
12. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS, BUILDING UTILITY ENTRANCE LOCATIONS/INVERTS, EXACT LOCATIONS AND DIMENSIONS OF EXIT PORCHES, RAMPS, TRUCK DOCKS, DOWNSPOUTS AND BOLLARDS.
13. TRACER WIRE SHALL BE INSTALLED ON ALL WATER, SEWER AND RECLAIMED WATER MAINS. CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING THE CONTINUITY OF THE WIRE.

WDID#: N/A

PW2021 – 0690

DIGALERT
Call 2 Working Days Before You Dig! 811

BENCHMARK: NO. 07.A.82

LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF OAK VALLEY PARKWAY AND PENNSYLVANIA AVENUE, 59.0 FEET SOUTHERLY AND 22.0 FEET EASTERLY OF THE CENTERLINE INTERSECTION. 1–3/8" BRASS CAP MONUMENT MARKED "CITY B.M. 7".

ELEV. 2678.277 U.S. SURVEY FEET (1982)

BY	MARK	DESCRIPTION	APPR.	DATE
	1			
ENGINEER		REVISIONS	CITY	

DESIGN BY:
DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: –
JOB NUMBER:

Kimley»Horn
401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619–234–9411
WWW.KIMLEY–HORN.COM

REGISTERED PROFESSIONAL ENGINEER
BRYAN C. NORD
No. 87326
CIVIL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION 07.09.2021
BRYAN NORD
R.C.E. 87326
DATE

REVIEWED BY: __________ DATE: ______
STAFF ENGINEER

RECOMMENDED BY: __________ DATE: ______
PRINCIPAL ENGINEER

APPROVED BY: __________ DATE: ______
CITY ENGINEER

CITY OF BEAUMONT, PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
550 E. 6TH ST
BEAUMONT, CA 92223
TEL: (951) 769–8520
FAX: (951) 769–8526

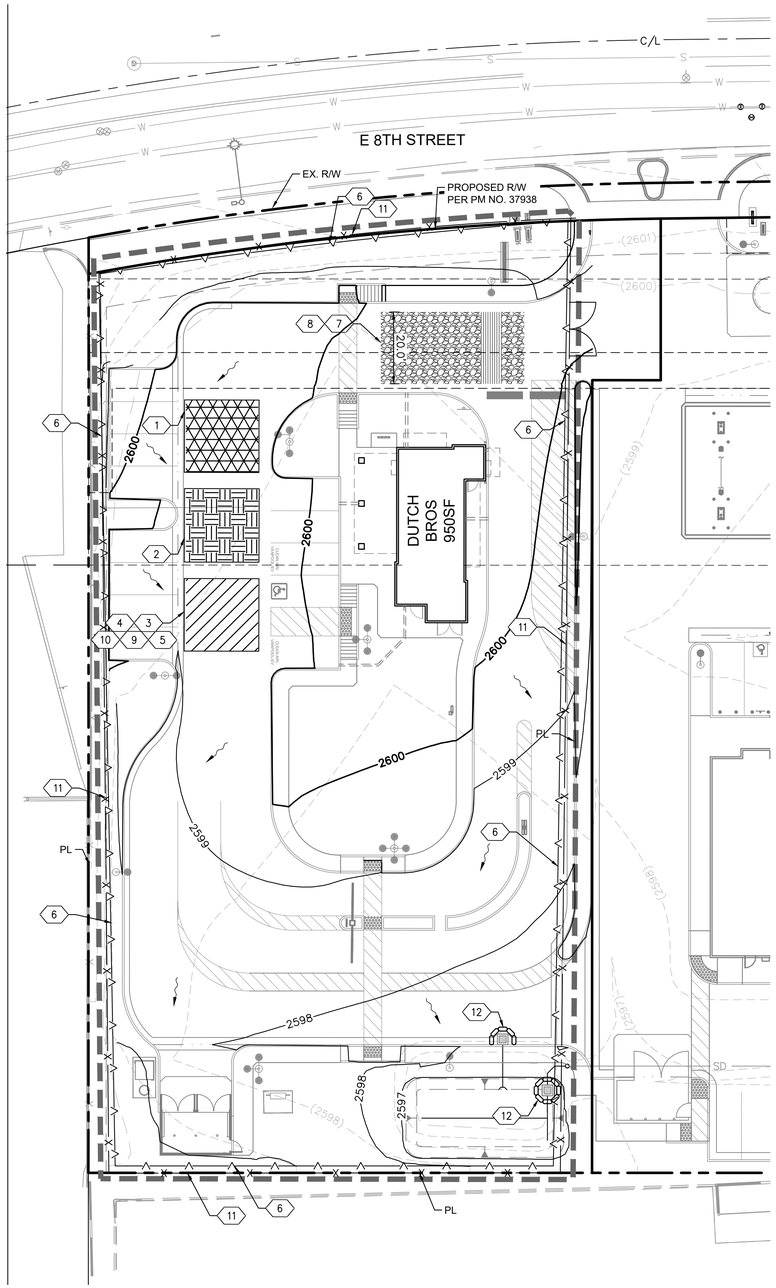
CITY OF BEAUMONT, CALIFORNIA
ONSITE IMPROVEMENT PLANS FOR:

DUTCH BROS COFFEE INC.
1675 E EIGHTH STREET

GENERAL NOTES

SHEET 2 OF 11 SHEETS

FILE NO: PW2021 – 0690



LEGEND

- EX. PROPERTY LINE / ROW
- PROPOSED PL / ROW (PM 37938)
- CENTERLINE
- SETBACK LINE
- EASEMENT
- APPROXIMATE CIVIL LIMIT OF WORK LINE
- SILT FENCE (DETAIL 2 SHEET 4)
- CONSTRUCTION FENCE WITH GREEN SCREEN
- XXXX — PROPOSED CONTOUR
- (XXXX) — EXISTING CONTOUR
- CONSTRUCTION ENTRANCE (DETAIL 4, SHEET 4)
- STOCKPILE AREA
- SANITARY AREA, TRASH STORAGE, HAZARDOUS MATERIAL, CONCRETE MANAGEMENT, VEHICLE MAINTENANCE AND EQUIPMENT STORAGE AREA
- MATERIAL STORAGE AND DELIVERY
- DIRECTION OF FLOW

BMP NOTES

THE FOLLOWING BMPS AS OUTLINED IN, BUT NOT LIMITED TO, THE CALIFORNIA STORMWATER BMP HANDBOOK DATED NOVEMBER 2009, OR THE LATEST REVISED EDITION, MAY APPLY DURING THE CONSTRUCTION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED AS NEEDED:

EC-1, SCHEDULING
EC-2, PRESERVATION OF EXISTING VEGETATION
EC-3, HYDRAULIC MULCH
WE-1, WIND EROSION CONTROL
NS-1, WATER CONSERVATION PRACTICES
NS-3, PAVING AND GRINDING OPERATIONS
NS-7, POTABLE WATER/IRRIGATION
NS-12, CONCRETE CURING
NS-13, CONCRETE FINISHING
WM-4, SPILL PREVENTION AND CONTROL
WM-5, SOLID WASTE MANAGEMENT
WM-7, CONTAMINATED SOIL MANAGEMENT
WM-9, SANITARY/SEPTIC WASTE MANAGEMENT
WM-10, LIQUID WASTE MANAGEMENT
SE-7, STREET SWEEPING AND VACUUMING

CONTRACTOR RESPONSIBLE FOR TRAFFIC CONTROL AND PEDESTRIAN CONTROL WHILE PERFORMING WORK IN THE PUBLIC RIGHT-OF-WAY.

SITE PREPARATION SHOULD BE IN ACCORDANCE WITH GEOTECHNICAL INVESTIGATION

CONTRACTOR TO USE BEST MANAGEMENT PRACTICES TO ENSURE COMPLIANCE WITH NPDES AND WATER MANAGEMENT DISTRICT REGULATIONS FOR STORMWATER DISCHARGE FROM CONSTRUCTION ACTIVITIES AND DEWATERING OPERATIONS.

SEQUENCE OF CONSTRUCTION

UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAYDOWN, PORTA-POTTY, WHEEL WASH, CONCRETE WASHOUT, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., IMMEDIATELY DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.

PHASE 1:
1. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AND CHAIN LINK FENCE WITH GREEN SCREEN AND THEN SILT FENCE WHERE SHOWN ON PLAN.
2. INSTALL INLET PROTECTION AT EXISTING INLET(S).
3. PREPARE CLEARING AND GRUBBING OF THE SITE, IF APPLICABLE.

PHASE 2:
4. PERFORM MASS GRADING. ROUGH GRADE TO ESTABLISH PROPOSED DRAINAGE PATTERNS.
5. START CONSTRUCTION OF THE BUILDING PAD AND STRUCTURES.
6. TEMPORARILY SEED WITH PURE LIVE SEED, THROUGHOUT CONSTRUCTION, DISTURBED AREAS THAT WILL BE INACTIVE FOR 7 DAYS OR MORE OR AS REQUIRED BY GENERIC PERMIT.

MAINTENANCE

ALL MEASURES STATED ON THE EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE CHECKED BY A QUALIFIED PERSON ON A SCHEDULE THAT MEETS OR EXCEEDS THE GOVERNING REQUIREMENTS, AND CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
3. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
4. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.
5. ALL MAINTENANCE OPERATIONS SHALL BE DONE IN A TIMELY MANNER.

GENERAL EROSION CONTROL NOTES

1. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
2. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
3. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND MUST NOT CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER MANNER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.
4. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
5. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
6. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR ANY OTHER MEANS.
7. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
8. STORM WATER POLLUTION CONTROL REQUIREMENTS MUST BE INTEGRATED ONTO THE EROSION CONTROL PLANS FOR ANY CONSTRUCTION BETWEEN OCTOBER 1 AND APRIL 15. THE FOLLOWING NOTES AND BMP'S AS OUTLINED IN, BUT NOT LIMITED TO, THE BEST MANAGEMENT PRACTICE HANDBOOK, CALIFORNIA STORM WATER QUALITY TASK FORCE. SACRAMENTO, CALIFORNIA 1993, OR THE LATEST REVISED EDITION MAY APPLY DURING THE CONSTRUCTION OF PROJECT (ADDITIONAL MEASURES MAY BE REQUIRED IF DEEMED APPROPRIATE BY CITY INSPECTIONS).
9. TEMPORARY EROSION CONTROL DEVICES SHOWN ON THE PLAN WHICH INTERFERE WITH THE WORK SHALL BE RELOCATED OR MODIFIED AS AND WHEN THE CONTRACTOR AND/OR THE INSPECTOR SO DIRECTS AS THE WORK PROGRESSES.
10. ALL STANDARDS REFERENCED FROM 2015 CASQA CONSTRUCTION BMP BOOK.

EROSION CONTROL NOTES

1. WM-1, MATERIAL DELIVERY AND STORAGE.
2. WM-3, STOCKPILE MANAGEMENT, CONTRACTOR TO SET UP STOCKPILE AREA.
3. WM-5, SOLID WASTE MANAGEMENT.
4. WM-6, HAZARDOUS WASTE MANAGEMENT.
5. WM-8, CONCRETE WASTE MANAGEMENT.
6. SE-1 - SILT FENCE; REFER TO DETAIL 2, SHEET 4. CONTRACTOR TO MAINTAIN DURING ALL GRADING & MOBILIZATION ACTIVITIES.
7. TC-1, STABILIZED CONSTRUCTION ENTRANCE/EXIT; REFER TO DETAIL 4, SHEET 4.
8. TR-3, ENTRANCE/OUTLET TIRE WASH; REFER TO DETAIL 3, SHEET 4.
9. NS-10, VEHICLE AND EQUIPMENT MAINTENANCE.
10. WM-9, SANITARY/SEPTIC WASTE MANAGEMENT.
11. CHAIN LINK FENCE WITH GREEN SCREEN.
12. SE-10, STORM DRAIN INLET PROTECTION; REFER TO DETAIL 1, SHEET 4.

CITY OF BEAUMONT EROSION CONTROL NOTES

1. IN CASE OF EMERGENCY CALL DANIEL BATTY, CONSTRUCTION MANAGER, AT 541-218-8806
2. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
3. EROSION CONTROL DEVICES SHALL NOT BE MOVED OR MODIFIES WITHOUT THE APPROVAL OF THE QSP.
4. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 72-HOUR RAIN PROBABILITY FORECAST EXCEEDS 50%.
5. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FORM STREET. SURGE BERMS, SILT FENCES, AND DESILTING BASINS WITH THE BASINS PUMPED AND WATER TO BE DISPERSED ON SITE.
6. GRADED AREAS ON THE PERMITTED AREA PERIMETER MUST DRAIN AWAY FORM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE IS TO BE DIRECTED TOWARD DESILTING FACILITIES.
7. THE PERMITTEE AND CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.
8. ALL TEMPORARY GRADING HAUL ROADS WITHIN AREAS WHICH ARE TO REMAIN UNDEVELOPED AD NATURAL SHALL BE RESTORED TO NATURAL CONDITIONS AND REVEGETATED WITH NATIVE GRASSES UPON COMPLETION OF GRADING OPERATIONS.
9. STOCKPILING AND/OR VEHICLE STAGING AREAS SHALL BE LOCATED AS FAR AS PRACTICABLE FORM DWELLINGS.
10. EROSION CONTROL DEVICES WILL BE MODIFIED AS NEEDED AS THE PROJECT PROGRESSES.
11. THE PLACEMENT OF ADDITIONAL DEVICES TO REDUCE EROSION DAMAGE WITHIN THE SITE IS LEFT TO THE DISCRETION OF THE QSP.
12. THE QSP SHALL OBSERVE EROSION CONTROL WORK AND MUST INFORM THE CITY AND THE DEVELOPER IF THE WORK IS NOT IN ACCORDANCE WITH THE APPROVED PLAN.

WDID#: N/A

PW2021 – 0690

DIGALERT — Call 2 Working Days Before You Dig! 811

BENCHMARK: NO. 07.A.82

LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF OAK VALLEY PARKWAY AND PENNSYLVANIA AVENUE, 59.0 FEET SOUTHERLY AND 22.0 FEET EASTERLY OF THE CENTERLINE INTERSECTION. 1–3/8" BRASS CAP MONUMENT MARKED "CITY B.M. 7".

ELEV. 2678.277 U.S. SURVEY FEET (1982)

BY	MARK	DESCRIPTION	APPR.	DATE
ENGINEER		REVISIONS	CITY	

DESIGN BY:
DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: –
JOB NUMBER:

Kimley»Horn
401 B STREET, SUITE 600,
SAN DIEGO, CA 92101
PHONE: 619–234–9411
WWW.KIMLEY–HORN.COM

NOT FOR CONSTRUCTION

BRYAN NORD
R.C.E. 87326

07.09.2021
DATE

REGISTERED PROFESSIONAL ENGINEER — BRYAN C. NORD — No. 87326 — CIVIL — STATE OF CALIFORNIA

REVIEWED BY: _____ DATE: _____
STAFF ENGINEER

RECOMMENDED BY: _____ DATE: _____
PRINCIPAL ENGINEER

APPROVED BY: _____ DATE: _____
CITY ENGINEER

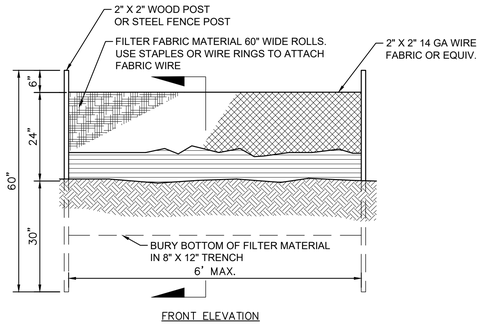
CITY OF BEAUMONT, PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
550 E. 6TH ST
BEAUMONT, CA 92223
TEL: (951) 769–8520
FAX: (951) 769–8526

CITY OF BEAUMONT, CALIFORNIA
ONSITE IMPROVEMENT PLANS FOR:
DUTCH BROS COFFEE INC.
1675 E EIGHTH STREET

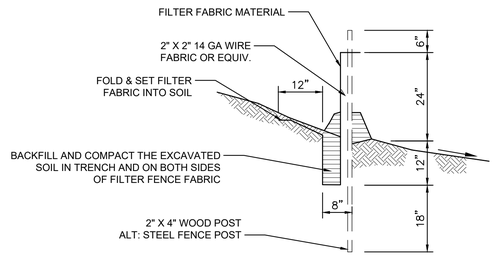
EROSION CONTROL

SHEET 3 OF 11 SHEETS

FILE NO: PW2021 – 0690



FRONT ELEVATION

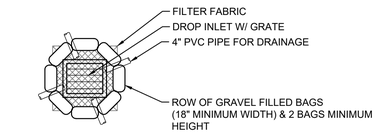


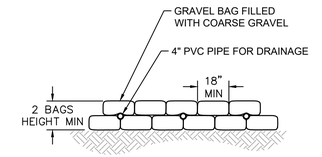
SECTION A–A

NOTES:

1. CONSTRUCT SILT FENCE ALONG A LEVEL CONTOUR.
2. WHEN STANDARD STRENGTH FILTER FABRIC IS USED A WIRE MESH SUPPORT FENCE SHALL BE FASTENED TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY- DUTY WIRE STAPLES AR LEAST 1" LONG TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4".
3. STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE AND 40" OF THE FABRIC SHALL EXTEND INTO THE TRENCH. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED AND THE FILTER FABRIC STAPLED OR WIRED DIRECTLY TO THE POSTS.
4. FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL THEN CUT TO THE LENGTH OF THE BARRIER. WHEN JOINTS ARE NECESSARY FILTER CLOTH SHALL BE SPICED TOGETHER ONLY TO A SUPPORT POST WITH A MINIMUM 6" OVERLAP AND BOTH AND SECURELY FASTENED TO THE POST.
5. THE TRENCH SHALL BE BACKFILLED WITH IMPACTED NATIVE MATERIAL.
6. IF 85% OR MORE OF A SOIL BY WEIGHT PASSES THROUGH THE OPENINGS IN A NO. 200 SIEVE (U.S. STANDARD) FILTER FABRIC SHALL NOT BE USED.
7. FILTER FABRIC MATERIAL SHALL CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 DEGREES FAHRENHEIT TO 120 DEGREES FAHRENHEIT.
8. SILT FENCES SHALL REMAIN IN PLACE UNTIL THE SLOPED AREA IS PERMANENTLY STABILIZED.
9. LEAVE AN UNDISTURBED OR STABILIZED AREA IMMEDIATELY DOWNSLOPE FROM THE FENCE.

SILT FENCE
N.T.S. REV. DATE: 2



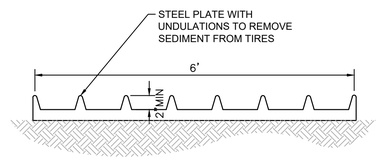


SECTION

NOTES:

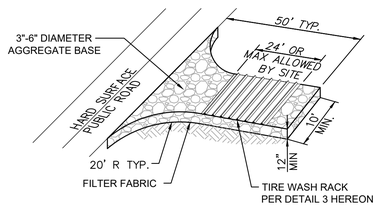
1. GRAVEL BAG MATERIAL: POLYPROPYLENE, POLYETHYLENE OR POLYMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OUNCES PER SQUARE YARD, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%
2. GRAVEL BAG SHALL BE FILLED WITH 3/4" ROCK OR 1/4" PEA GRAVEL.
3. PLACE SEVERAL LAYERS OF SAND BAGS (12" MINIMUM HIGH) OVERLAPPING THE BAGS AND PACKING THEM TIGHTLY TOGETHER.
4. LEAVE GAP OF ONE BAG ON THE TOP ROW TO SERVE AS A SPILLWAY.
5. PLACE WIRE MESH OVER AND 1' (MINIMUM) BEYOND THE INLET STRUCTURE.
6. PLACE FILTER FABRIC OVER WIRE MESH. FILTER FABRIC SHALL BE MANUFACTURED FROM UV RESISTANT POLYPROPYLENE, NYLON, POLYESTER, OR ETHYLENE FABRIC WITH AN EQUIVALENT OPENING SIZE NOT GREATER THAN 20 SIEVE AND WITH A MINIMUM FLOW RATE OF 40 GALLONS/MINUTE/SQ. FT.
7. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT.

DROP INLET SEDIMENT BARRIER
N.T.S. REV. DATE: 1



STEEL PLATE DETAIL

TIRE WASH RACK
N.T.S. REV. DATE: 3



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE
N.T.S. REV. DATE: 4

WDID#: N/A PW2021 – 0690

DIGALERT Call 2 Working Days Before You Dig! 811

BENCHMARK: NO. 07.A.82

LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF OAK VALLEY PARKWAY AND PENNSYLVANIA AVENUE, 59.0 FEET SOUTHERLY AND 22.0 FEET EASTERLY OF THE CENTERLINE INTERSECTION. 1–3/8" BRASS CAP MONUMENT MARKED "CITY B.M. 7".

ELEV. 2678.277 U.S. SURVEY FEET (1982)

BY	MARK	DESCRIPTION	APPR.	DATE
ENGINEER		REVISIONS	CITY	

DESIGN BY:
DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: –
JOB NUMBER:

Kimley»Horn
401 B STREET, SUITE 600,
SAN DIEGO, CA 92101
PHONE: 619–234–9411
WWW.KIMLEY–HORN.COM

NOT FOR CONSTRUCTION 07.09.2021
BRYAN NORD DATE
R.C.E. 87326

REGISTERED PROFESSIONAL ENGINEER BRYAN C. NORD No. 87326 CIVIL STATE OF CALIFORNIA

REVIEWED BY: _____ DATE: _____
STAFF ENGINEER

RECOMMENDED BY: _____ DATE: _____
PRINCIPAL ENGINEER

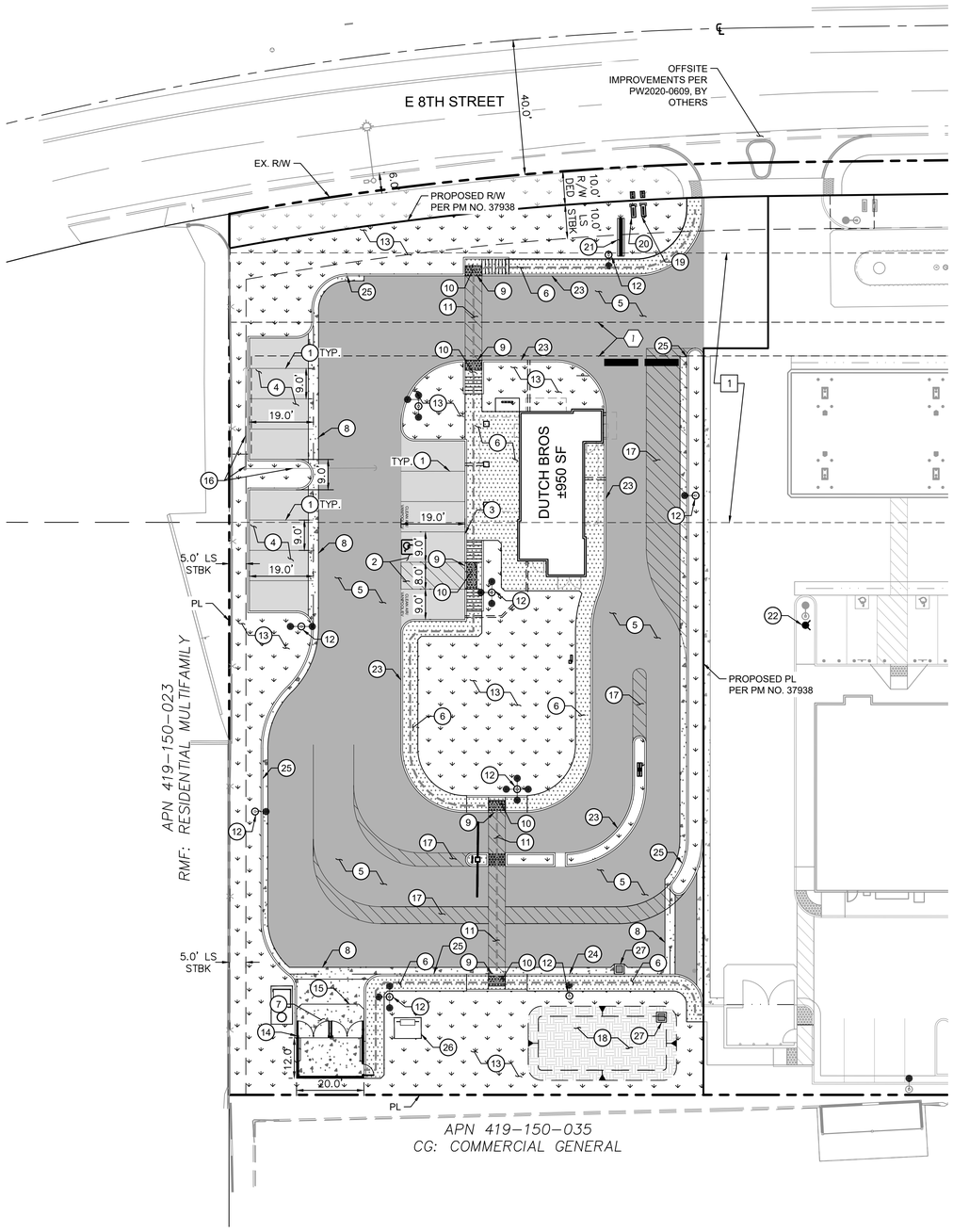
APPROVED BY: _____ DATE: _____
CITY ENGINEER

CITY OF BEAUMONT, PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
550 E. 6TH ST
BEAUMONT, CA 92223
TEL: (951) 769–8520
FAX: (951) 769–8526

CITY OF BEAUMONT, CALIFORNIA
ONSITE IMPROVEMENT PLANS FOR:
DUTCH BROS COFFEE INC.
1675 E EIGHTH STREET

EROSION CONTROL DETAILS

SHEET 4 OF 11 SHEETS
FILE NO: PW2021 – 0690



CONSTRUCTION NOTES

1. INSTALL STANDARD 90° PARKING STALL STRIPING PER DETAIL 16, SHEET 11
2. INSTALL ACCESSIBLE STALL AND LOADING AISLE PER DETAIL 12, SHEET 11
3. INSTALL ACCESSIBLE PARKING SIGN PER DETAIL 13 AND 14, SHEET11
4. STANDARD DUTY ASPHALT PAVING PER DETAIL 1, SHEET 10
5. HEAVY DUTY ASPHALT PAVING PER DETAIL 1, SHEET 10
6. STANDARD DUTY CONCRETE PER DETAIL 1, SHEET 10
7. HEAVY DUTY CONCRETE PER DETAIL 1, SHEET 10
8. INSTALL RIBBON GUTTER PER DETAIL 7, SHEET 10
9. INSTALL 0" CURB PER DETAIL 4, SHEET 10
10. INSTALL ACCESSIBLE RAMP WITH DETECTABLE WARNING (TRUNCATED DOMES) PER DETAIL 17, SHEET 11 AND DETAIL 10, SHEET 10
11. INSTALL ACCESSIBLE PATH STRIPING PER DETAIL 15, SHEET 11
12. SITE LIGHTING AND CONCRETE FOUNDATION PER ARCHITECTURAL PLANS
13. PROPOSED LANDSCAPING (REFER TO LANDSCAPE PLANS FOR MORE INFORMATION)
14. TRASH ENCLOSURE PER ARCHITECTURAL PLANS
15. CONSTRUCT CONCRETE PAVEMENT AT DUMPSTER PAD PER DETAIL 6, SHEET 10
16. EXISTING POWER POLE AND OVERHEAD LINES SERVICING ADJACENT SITE TO REMAIN. EXISTING GUY WIRES TO BE RELOCATED TO ADJACENT PLANTER AREAS
17. INSTALL 45° DIAGONAL 4" WIDE YELLOW PAVEMENT MARKINGS, 2' ON CENTER
18. BIO-RETENTION/WATER QUALITY BASIN PER SHEET 7 & 8
19. DOMESTIC IRRIGATION WATER METER AND BACKFLOW PER SEPARATE PERMIT
20. DOMESTIC WATER METER AND BACKFLOW PER SEPARATE PERMIT
21. MONUMENT SIGN PER SEPARATE SIGN PERMIT
22. FIRE HYDRANT PER SEPARATE PLAN AND PERMIT
23. INSTALL 6" VERTICAL CURB PER DETAIL 3, SHEET 10
24. INSTALL DEEPENED CURB PER DETAIL 18, SHEET 11
25. INSTALL 6" CURB AND GUTTER PER DETAIL 2, SHEET 10
26. TRANSFORMER LOCATION TO BE APPROVED BY SCE
27. PROPOSED STORM DRAIN INLET. REF GRADING PLAN SHEET 8

LEGEND

- EXISTING PROPERTY LINE/ ROW
- PROPOSED PL / ROW (PM 37938)
- CENTERLINE
- SETBACK LINE
- EASEMENT
- ACCESSIBLE PATH OF TRAVEL
- HEAVY DUTY ASPHALT PER DETAIL 1, SHEET 10
- ASPHALT SECTION PER DETAIL 1, SHEET 10
- HEAVY DUTY CONCRETE PER DETAIL 1, SHEET 10
- STANDARD DUTY CONCRETE PER DETAIL 1, SHEET 10
- LANDSCAPING. SEE LANDSCAPE PLAN
- BIO-RETENTION BASIN

PARKING INFORMATION

REQUIRED PARKING	10 STALLS
PARKING PROVIDED	
STANDARD:	12 STALLS
VAN ACCESSIBLE:	1 STALLS
TOTAL:	13 STALLS
BICYCLE PARKING (SHORT TERM)	0 STALLS

REFERENCE

SITE DESIGN SHALL BE IN ACCORDANCE WITH PP2020-0276, CUP2020-0046, & TPM PM2020-0007

OFFSITE IMPROVEMENTS PER PW2020-0609

EXISTING EASEMENTS

1. AN EASEMENT FOR UTILITIES AND INCIDENTAL, PURPOSES, GRANTED TO THE COUNTY OF RIVERSIDE, RECORDED NOVEMBER 13, 1962 AS INSTRUMENT NO. 104649 OF OFFICIAL RECORDS.

PROPOSED EASEMENTS

1. A 10.0' WIDE EASEMENT FOR PUBLIC UTILITY PURPOSES DEDICATED TO SOUTHERN CALIFORNIA GAS COMPANY PER SEPARATE INSTRUMENT NO. 5001-353

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

WDID#: N/A

PW2021 – 0690

DIGALERT
Call 2 Working Days Before You Dig!
811

BENCHMARK: NO. 07.A.82

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ELEV. 2678.277 U.S. SURVEY FEET (1982)

BY	MARK	DESCRIPTION	APPR.	DATE
	1			

ENGINEER — REVISIONS — CITY

DESIGN BY:
DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: –
JOB NUMBER:

Kimley»Horn
401 B STREET, SUITE 600,
SAN DIEGO, CA 92101
PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

NOT FOR CONSTRUCTION
07.09.2021
DATE

BRYAN NORD
R.C.E. 87326

REGISTERED PROFESSIONAL ENGINEER — BRYAN C. NORD — No. 87326 — CIVIL — STATE OF CALIFORNIA

REVIEWED BY: _____ STAFF ENGINEER DATE: _____

RECOMMENDED BY: _____ PRINCIPAL ENGINEER DATE: _____

APPROVED BY: _____ CITY ENGINEER DATE: _____

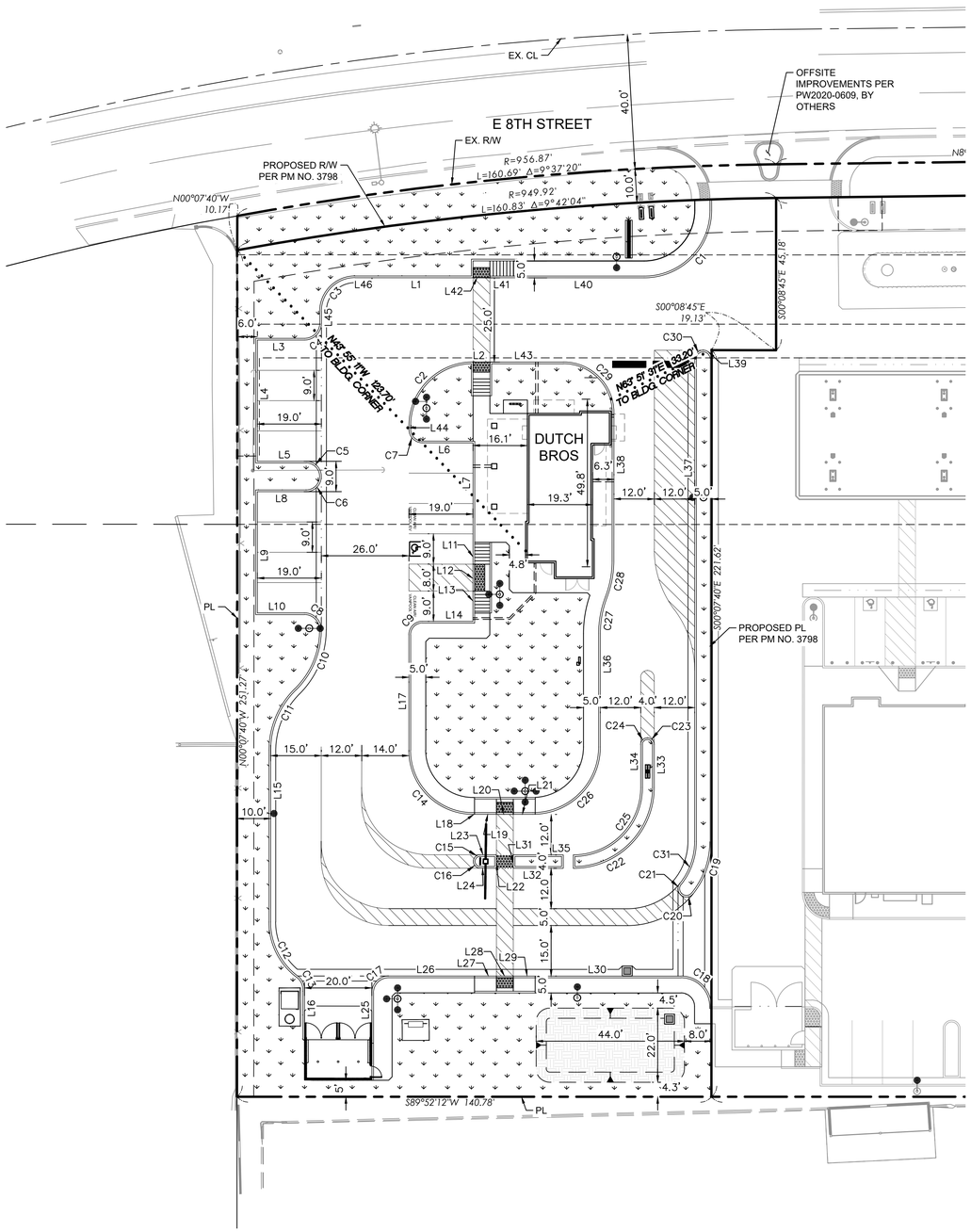
CITY OF BEAUMONT, PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
550 E. 6TH ST
BEAUMONT, CA 92223
TEL: (951) 769-8520
FAX: (951) 769-8526

CITY OF BEAUMONT, CALIFORNIA
ONSITE IMPROVEMENT PLANS FOR:

DUTCH BROS COFFEE INC.
1675 E EIGHTH STREET

SITE PLAN

SHEET 5 OF 11 SHEETS
FILE NO: PW2021 – 0690



LEGEND

- EX. PROPERTY LINE/ ROW
- PROPOSED PL / ROW
- CENTERLINE
- SETBACK LINE
- EASEMENT LINE
- BUILDING TIE-DOWN LINE
- LANDSCAPING. SEE LANDSCAPE PLAN
- BIO-RETENTION BASIN

LINE AND CURVE DESCRIPTION NOTES

6" CURB	SEE DETAIL 3, SHEET 10
6" C & G	SEE DETAIL 2, SHEET 10
TRANSITION	TRANSITION CURB HEIGHT
0" CURB	SEE DETAIL 4, SHEET 10
HEADER	SEE DETAIL 20, SHEET 11
DEEPENED CURB	SEE DETAIL 21, SHEET 11

LINE AND CURVE DESCRIPTION NOTES

ALL DIMENSIONS ARE TO FACE OF CURB UNLESS SPECIFIED OTHERWISE

LINE TABLE

LINE	LENGTH	BEARING	DESCRIPTION
L1	30.00	N89°52'19.86"E	6" CURB
L2	5.00	N89°52'19.86"E	0" CURB
L3	14.18	N89°52'20.01"E	6" CURB
L4	36.00	N0°07'40.00"W	6" CURB
L5	14.50	S89°52'20.01"W	6" CURB
L6	15.00	S89°52'19.86"W	6" CURB
L7	29.50	N0°07'40.17"W	6" CURB
L8	14.50	N89°52'20.01"E	6" CURB
L9	36.00	N0°07'40.00"W	6" CURB
L10	14.00	S89°52'19.86"W	6" CURB
L11	6.50	N0°07'40.00"W	TRANSITION
L12	8.00	N0°07'40.16"W	0" CURB
L13	9.00	N0°07'40.14"W	TRANSITION
L14	15.00	N89°52'19.86"E	6" CURB
L15	51.02	N0°07'40.01"W	6" C & G
L16	14.91	N0°07'40.14"W	6" CURB
L17	34.25	N0°07'40.24"W	6" CURB
L18	1.00	S89°52'19.86"W	6" CURB
L19	6.00	S89°52'19.86"W	TRANSITION
L20	5.00	S89°52'19.86"W	0" CURB
L21	5.80	S89°52'19.86"W	TRANSITION
L22	4.00	N0°07'40.14"W	6" CURB
L23	4.81	S89°52'20.00"W	6" CURB

LINE TABLE

LINE	LENGTH	BEARING	DESCRIPTION
L24	4.81	N89°52'20.00"E	6" CURB
L25	13.92	N0°07'40.14"W	6" CURB
L26	25.45	N89°52'20.00"E	6" C & G
L27	6.50	N89°52'20.00"E	TRANSITION
L28	5.00	N89°52'20.00"E	0" CURB
L29	6.50	N89°52'20.00"E	TRANSITION
L30	43.30	N89°52'20.00"E	6" C & G
L31	4.00	S0°07'40.14"E	6" CURB
L32	17.80	N89°52'20.00"E	6" CURB
L33	12.71	N0°07'40.00"W	6" CURB
L34	12.71	S0°07'40.00"E	6" CURB
L35	17.80	S89°52'20.00"W	6" CURB
L36	33.67	S0°07'42.32"E	6" CURB
L37	143.25	N0°07'40.14"W	6" C & G
L38	44.05	S0°07'36.88"E	6" CURB
L39	33.20	N63°51'31.45"E	6" CURB
L40	37.78	N89°52'19.86"E	6" CURB
L41	8.00	N89°52'19.86"E	TRANSITION
L42	5.00	N89°52'19.86"E	0" CURB
L43	21.80	N89°52'19.86"E	6" CURB
L44	1.00	N0°07'36.36"W	6" CURB
L45	3.50	N0°07'40.00"W	6" C & G
L46	5.00	N89°52'19.86"E	6" C & G

CURVE TABLE

CURVE	RADIUS	LENGTH	DESCRIPTION
C1	20.42'	34.89'	6" CURB
C2	19.00'	29.85'	6" CURB
C3	10.00'	15.71'	6" C & G
C4	5.01'	7.67'	6" C & G
C5	4.50'	7.07'	6" C & G
C6	4.50'	7.07'	6" C & G
C7	4.00'	6.28'	6" CURB
C8	5.00'	7.85'	6" C & G
C9	4.00'	6.28'	6" CURB
C10	25.00'	19.88'	6" C & G
C11	25.00'	19.88'	6" C & G
C12	20.00'	18.59'	6" C & G
C13	5.00'	4.65'	6" C & G
C14	19.00'	29.85'	6" CURB
C15	2.00'	3.14'	6" CURB
C16	2.00'	3.14'	6" CURB
C17	5.00'	7.85'	6" C & G
C18	9.00'	14.14'	6" C & G
C19	25.00'	16.85'	6" CURB
C20	2.50'	4.21'	6" C & G
C21	2.50'	3.65'	6" C & G
C22	24.00'	37.70'	6" CURB

CURVE TABLE

CURVE	RADIUS	LENGTH	DESCRIPTION
C23	2.00'	3.14'	6" CURB
C24	2.00'	3.14'	6" CURB
C25	20.00'	31.42'	6" CURB
C26	20.00'	31.42'	6" CURB
C27	29.88'	11.00'	6" CURB
C28	29.88'	11.04'	6" CURB
C29	15.00'	23.56'	6" CURB
C30	2.50'	3.93'	6" C & G
C31	20.00'	13.48'	6" C & G

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

WDID#: N/A

PW2021 – 0690

DIGALERT
Call 2 Working Days Before You Dig! 811

BENCHMARK: NO. 07.A.82

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ELEV. 2678.277 U.S. SURVEY FEET (1982)

BY	MARK	DESCRIPTION	APPR.	DATE
ENGINEER		REVISIONS	CITY	

DESIGN BY:
DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: –
JOB NUMBER:

Kimley»Horn
401 B STREET, SUITE 600,
SAN DIEGO, CA 92101
PHONE: 619–234–9411
WWW.KIMLEY–HORN.COM

NOT FOR CONSTRUCTION

BRYAN NORD
R.C.E. 87326

07.09.2021
DATE

REGISTERED PROFESSIONAL ENGINEER
BRYAN C. NORD
No. 87326
CIVIL
STATE OF CALIFORNIA

REVIEWED BY: _____ DATE: _____
STAFF ENGINEER

RECOMMENDED BY: _____ DATE: _____
PRINCIPAL ENGINEER

APPROVED BY: _____ DATE: _____
CITY ENGINEER

CITY OF BEAUMONT, PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
550 E. 6TH ST
BEAUMONT, CA 92223
TEL: (951) 769–8520
FAX: (951) 769–8526

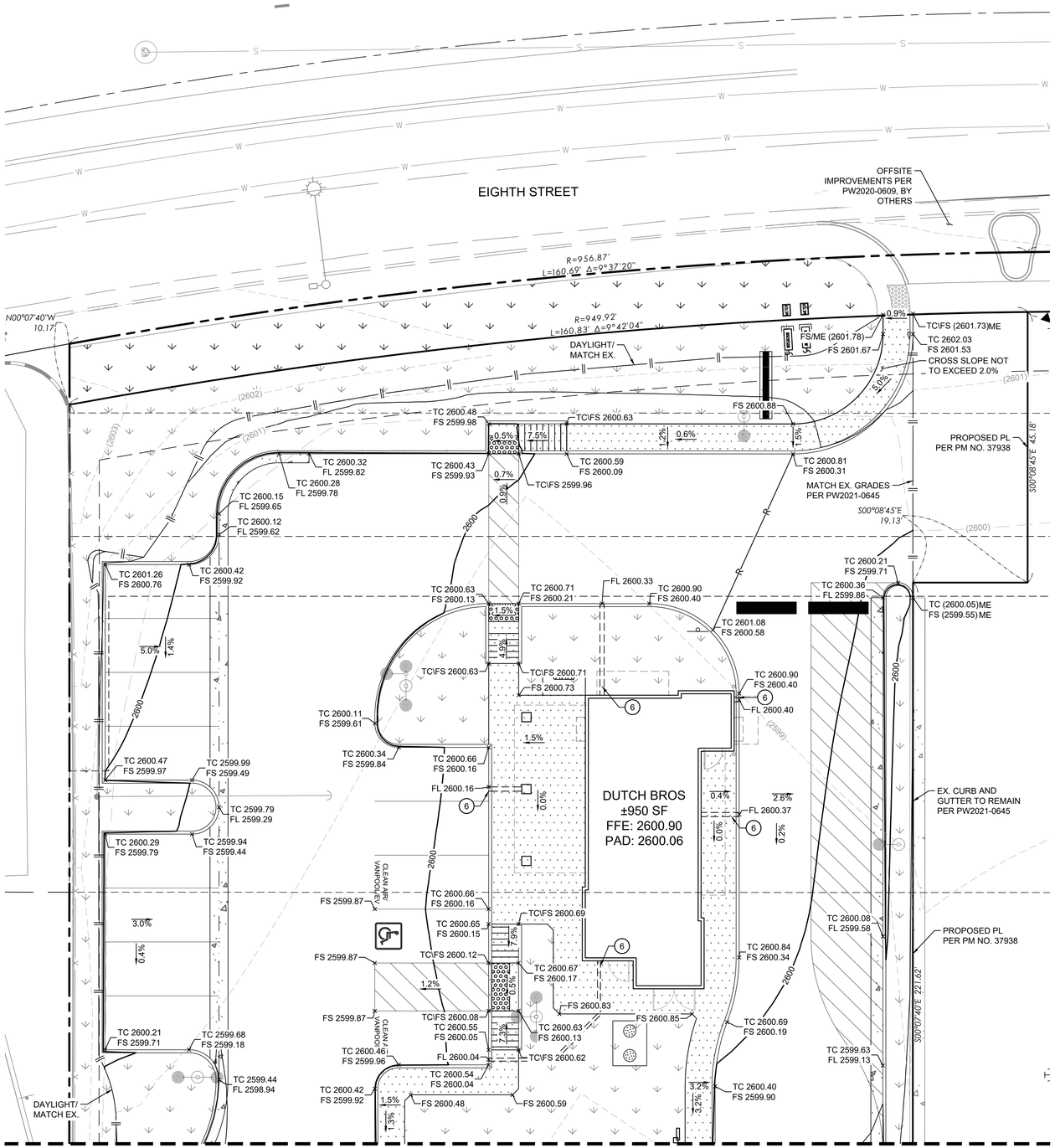
CITY OF BEAUMONT, CALIFORNIA
ONSITE IMPROVEMENT PLANS FOR:

DUTCH BROS COFFEE INC.
1675 E EIGHTH STREET

HORIZONTAL CONTROL

SHEET 6 OF 11 SHEETS

FILE NO: PW2021 – 0690



MATCHLINE - SEE SHEET 8

STORM DRAIN NOTES

(6) INSTALL 'CURB-O-LET' UNDER SIDEWALK RECTANGULAR DRAIN PIPE AND COVER. CONNECT TO ROOF DRAINS PER MEP PLANS

LEGEND

- EXISTING PROPERTY LINE/ ROW
- PROPOSED PL / ROW (PM 37938)
- CENTERLINE
- SETBACK LINE
- EASEMENT
- ACCESSIBLE PATH OF TRAVEL
- XXXX — FINISHED SURFACE CONTOUR ELEVATION
- XXXX — EXISTING SURFACE ELEVATION CONTOUR
- MATCH LINE. SEE SHEET 8 FOR CONTINUATION
- SD — PROPOSED PRIVATE STORM DRAIN
- DAYLIGHT LINE. MATCH ROUGH GRADE
- R — R — RIDGE LINE
- FLOW LINE
- LANDSCAPING. SEE LANDSCAPE PLAN
- BIO-RETENTION AREA
- CONCRETE. SEE SHEET 5 FOR PAVING SPECIFICATIONS
- STANDARD DUTY CONCRETE. SEE SHEET 5 FOR PAVING SPECIFICATIONS

ABBREVIATIONS

FG XX.XX	FINISHED GRADE SPOT ELEVATION
TC XX.XX	TOP OF CURB SPOT ELEVATION
FL XX.XX	FLOW LINE SPOT ELEVATION
TW XX.XX	TOP OF WALL SPOT ELEVATION
BW XX.XX	BOTTOM OF WALL SPOT ELEVATION
FS XX.XX	FINISHED SURFACE ELEVATION

(X.XX)	EXISTING ELEVATION	SD	STORM DRAIN
BLDG	BUILDING	SF	SQUARE FEET
BW	BACK OF WALL	SS	SANITARY SEWER
EG	EXISTING GRADE	TYP	TYPICAL
EP	EDGE OF PAVEMENT	XING	CROSSING
EX	EXISTING		
FF	FINISHED FLOOR ELEVATION		
IE	INVERT ELEVATION		
ME	MATCH EXISTING		
RL	RIDGE LINE		

NOTES

1. CONTRACTOR TO VERIFY ALL EXISTING TOPOGRAPHY AND STRUCTURES ON THE SITE AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING WORK.
2. MAXIMUM SLOPE IN ACCESSIBLE PARKING SPACES AND LOADING ZONES SHALL NOT EXCEED 2.0% IN ALL DIRECTIONS.
3. MAXIMUM RUNNING SLOPE SHALL NOT EXCEED 5% AND CROSS SLOPE SHALL NOT EXCEED 2% ON ALL SIDEWALKS AND ACCESSIBLE ROUTES.
4. MATCH EXISTING ELEVATIONS AT THE PROPERTY LIMITS.
5. EARTHWORK AND PAVING SPECIFICATION BASED ON GEOTECHNICAL REPORT.
6. EARTHWORK QUANTITIES SHOWN HEREON ARE APPROXIMATE. QUANTITIES HAVE BEEN CALCULATED FROM PROPOSED ROUGH GRADES TO PROPOSED FINISHED SURFACE. QUANTITIES FOR PROPOSED UTILITIES OR REMOVAL OF EXISTING UTILITIES/SUBSTRUCTURES HAVE NOT BEEN INCLUDED. QUANTITIES FOR FOUNDATION EXCAVATIONS HAVE NOT BEEN INCLUDED. EARTHWORK FOR UNDERGROUND STORAGE TANK PIT IS APPROXIMATION AND IS SHOWN FOR REFERENCE ONLY.

EARTHWORK RESULTS	
LOT SIZE (ACRES)	0.84
CUT (CU. YD.)	16
FILL (CU. YD.)	1205
NET FILL (CU. YD.)	**1190**

NORTH

GRAPHIC SCALE IN FEET
0 5 10 20

WDID#: N/A

PW2021 – 0690

DIGALERT — Call 2 Working Days Before You Dig! 811

BENCHMARK: NO. 07.A.82

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ELEV. 2678.277 U.S. SURVEY FEET (1982)

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ENGINEER		REVISIONS	CITY	

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401 B STREET, SUITE 600,
SAN DIEGO, CA 92101
PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

NOT FOR CONSTRUCTION 07.09.2021
BRYAN NORD DATE
R.C.E. 87326

REGISTERED PROFESSIONAL ENGINEER — BRYAN C. NORD — No. 87326 — CIVIL — STATE OF CALIFORNIA

REVIEWED BY: _____ STAFF ENGINEER DATE: _____
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CITY OF BEAUMONT, PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
550 E. 6TH ST
BEAUMONT, CA 92223
TEL: (951) 769-8520
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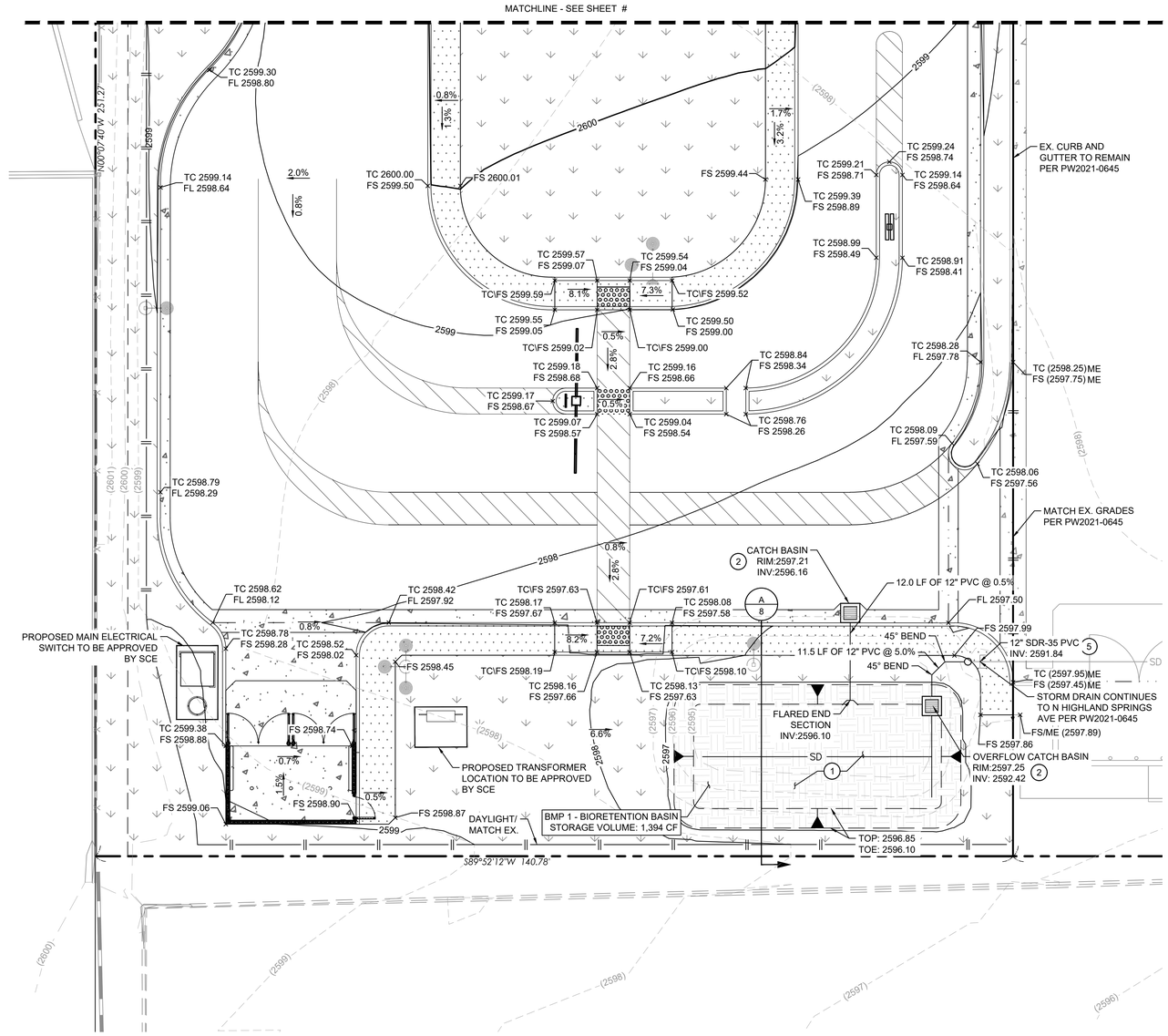
CITY OF BEAUMONT, CALIFORNIA
ONSITE IMPROVEMENT PLANS FOR:
DUTCH BROS COFFEE INC.
1675 E EIGHTH STREET

PRECISE GRADING

SHEET 7 OF 11 SHEETS
FILE NO: PW2021 – 0690



STORM DRAIN NOTES

1. CONSTRUCT BIORETENTION BASIN PER SECTION A HEREON. TOP AND BOTTOM OF BASIN PER PLAN, SEE HORIZONTAL CONTROL SHEET 4 FOR LAYOUT
2. 24"X24" JENSEN PRECAST DROP INLET OVERFLOW DRAIN. RIM ELEVATION AND INVERT PER PLAN
5. CONNECT TO EXISTING STORM DRAIN PIPE PROVIDED PER PW2021-0645

ABBREVIATIONS

FG XX.XX	FINISHED GRADE SPOT ELEVATION
TC XX.XX	TOP OF CURB SPOT ELEVATION
FL XX.XX	FLOW LINE SPOT ELEVATION
TW XX.XX	TOP OF WALL SPOT ELEVATION
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FS XX.XX	FINISHED SURFACE ELEVATION

(X.XX)	EXISTING ELEVATION	SD	STORM DRAIN
BLDG	BUILDING	SF	SQUARE FEET
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EP	EDGE OF PAVEMENT	XING	CROSSING
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ME	MATCH EXISTING		
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LEGEND

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- XXXX — FINISHED SURFACE CONTOUR ELEVATION
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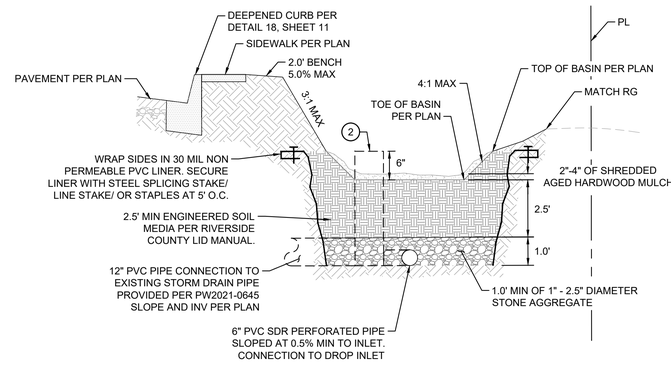
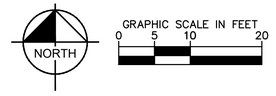
- LANDSCAPING. SEE LANDSCAPE PLAN
- BIO-RETENTION AREA
- CONCRETE. SEE SHEET 5 FOR PAVING SPECIFICATIONS
- STANDARD DUTY CONCRETE. SEE SHEET 5 FOR PAVING SPECIFICATIONS



SECTION A (TYPICAL BIO-FILTRATION BASIN)

N.T.S



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ELEV. 2678.277 U.S. SURVEY FEET (1982)

BY	MARK	DESCRIPTION	APPR.	DATE
	1			–

ENGINEER — REVISIONS — CITY

DESIGN BY:
DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: –
JOB NUMBER:

Kimley»Horn
401 B STREET, SUITE 600,
SAN DIEGO, CA 92101
PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

NOT FOR CONSTRUCTION

BRYAN NORD
R.C.E. 87326

07.09.2021
DATE

REGISTERED PROFESSIONAL ENGINEER — BRYAN C. NORD — No. 87326 — CIVIL — STATE OF CALIFORNIA

REVIEWED BY: _____ DATE: _____
STAFF ENGINEER

RECOMMENDED BY: _____ DATE: _____
PRINCIPAL ENGINEER

APPROVED BY: _____ DATE: _____
CITY ENGINEER

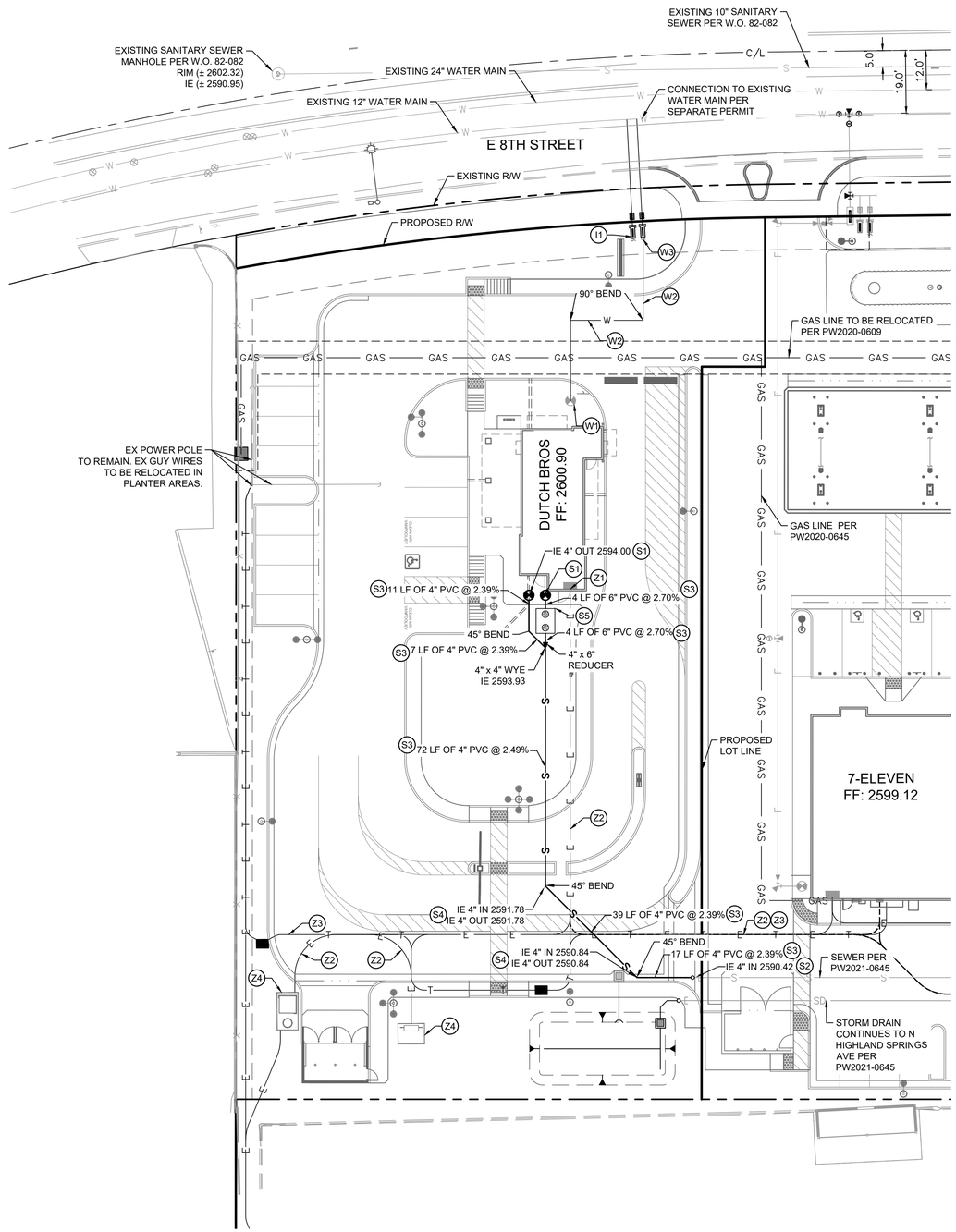
CITY OF BEAUMONT, PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
550 E. 6TH ST
BEAUMONT, CA 92223
TEL: (951) 769-8520
FAX: (951) 769-8526

CITY OF BEAUMONT, CALIFORNIA
ONSITE IMPROVEMENT PLANS FOR:

DUTCH BROS COFFEE INC.
1675 E EIGHTH STREET

PRECISE GRADING

SHEET 8 OF 11 SHEETS
FILE NO: PW2021 – 0690



LEGEND

- PROPERTY LINE/ ROW
- LOT LINE
- CENTERLINE
- EASEMENT
- S — PROPOSED SANITARY SEWER PIPE
- W — PROPOSED WATER PIPE
- F — PROPOSED FIRE PIPE
- SD — PROPOSED STORM DRAIN LINE. SEE SHEET 7 & 8 FOR DETAILS
- GAS — PROPOSED GAS LINE
- T — UNDERGROUND TELECOMMUNICATIONS
- E — UNDERGROUND ELECTRICAL
- PROPOSED POINT OF CONNECTION (@ BLDG)
- GREASE INTERCEPTOR
- (S) SEWER MANHOLE

NOTES

1. ALL INLETS AND OUTLETS INTO AND OUT OF THE MANHOLES SHALL INCORPORATE THE USE OF A FLEXIBLE COMPRESSION JOINTS LOCATED BETWEEN 12" AND 36" FROM THE MANHOLE. NO FLEXIBLE COMPRESSION JOINT SHALL BE EMBEDDED IN THE MANHOLE BASE. [CPC 719.6 AND 1101.13.1].

MEP SITE UTILITIES

NOTE: MEP SITE UTILITIES ARE SHOWN FOR REFERENCE ONLY. REFER TO MEP DRAWINGS AND SPECS FOR MORE INFORMATION. SHOWN FOR COORDINATION PURPOSES ONLY.

- (Z1) BUILDING POINT OF CONNECTION FOR ELECTRICAL SWITCHGEAR. REFER TO ELECTRICAL PLANS FOR CONTINUATION
- (Z2) PROPOSED ELECTRICAL CONDUIT. COORDINATE INSTALLATION AND FINAL ROUTING WITH SOUTHERN CALIFORNIA EDISON
- (Z3) PROPOSED TELECOM CONDUIT. COORDINATE INSTALLATION AND FINAL ROUTING WITH TELECOM PROVIDER
- (Z4) PROPOSED TRANSFORMER PER SEPARATE PERMIT. COORDINATE CONNECTION WITH SOUTHERN CALIFORNIA EDISON

PRIVATE WATER

- (W1) BUILDING POINT OF CONNECTION (5 FT FROM BUILDING FACE). REFER TO PLUMBING PLANS FOR CONTINUATION
- (W2) INSTALL 1-1/2" TYPE K COPPER DOMESTIC WATER PIPE. COPPER PIPE BELOW GRADE TO BE WRAPPED IN 8 MIL POLYETHYLENE PLASTIC BEFORE ANY BACKFILL IS COMPLETED. MINIMUM EMBEDMENT DEPTH = 2.5'. TRENCH AND BACKFILL PER DETAIL 11 SHEET 10
- (W3) CONNECT TO 1" WATER SERVICE STUB. WATER METER METER AND REDUCED PRESSURE BACKFLOW PREVENTION DEVICE PER SEPARATE PERMIT

PRIVATE SEWER

- (S1) BUILDING POINT OF CONNECTION. REFER TO PLUMBING PLANS FOR CONTINUATION
- (S2) CONNECT TO 6" SEWER STUB PROVIDED PER PW2020-0609
- (S3) INSTALL SDR-35 SEWER LATERAL SIZE PER PLAN. TRACER WIRE SHALL BE INSTALLED IMMEDIATELY ADJACENT TO SEWER LATERAL. TRENCHING AND BEDDING PER DETAIL 11 SHEET 10
- (S4) INSTALL SEWER CLEANOUT PER DETAIL 9, SHEET 10
- (S5) GREASE INTERCEPTOR. SEE ARCHITECTURAL PLANS FOR DETAILS AND LOCATION

PRIVATE IRRIGATION

- (I1) REFER TO LANDSCAPE PLANS FOR CONTINUATION OF IRRIGATION LINE
- (I2) CONNECT TO IRRIGATION SERVICE STUB. IRRIGATION WATER METER AND REDUCED PRESSURE BACKFLOW PREVENTION DEVICE PER SEPARATE PERMIT

EXISTING UTILITY NOTE

1. THE EXISTING UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST FIELD DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. REPORT DISCREPANCIES AND POTENTIAL CONFLICTS WITH PROPOSED UTILITIES TO ENGINEER PRIOR TO INSTALLATION OF ANY PIPING.

2. COORDINATION WITH UTILITY PURVEYORS WILL BE REQUIRED TO DETERMINE FINAL LOCATION OF ALL PROPOSED CONNECTIONS TO PUBLIC MAIN LINES.

3. ALL DRY AND WET UTILITY CROSSINGS SHALL HAVE A MIN 12" MIN VERTICAL CLEARANCE.

DIGALERT — Call 2 Working Days Before You Dig! 811

BENCHMARK: NO. 07.A.82

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ENGINEER	1	REVISIONS	CITY	

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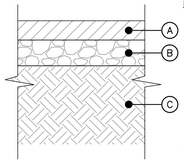
CITY OF BEAUMONT, CALIFORNIA
ONSITE IMPROVEMENT PLANS FOR:
DUTCH BROS COFFEE INC.
1675 E EIGHTH STREET
UTILITIES

SHEET 9 OF 11 SHEETS
FILE NO: PW2021 – 0690

WDID#: N/A



NOTES:
1. CONTRACTOR SHALL CONFIRM THESE PAVEMENT SECTIONS WITH THE GEOTECHNICAL REPORT BY SALEM ENGINEERING GROUP, PROJECT NUMBER 3-220-0008, DATED JANUARY 31, 2020.
2. MATCH EXISTING PAVEMENT SECTION IF MORE STRINGENT THAN SECTION PER THIS DETAIL.
3. CONTRACTOR TO PROVIDE R-VALUE OF COMPACTED SUBGRADE TO ENGINEER PRIOR TO PAVEMENT OPERATIONS, IN ORDER TO MAKE ANY NECESSARY ADJUSTMENTS TO THE PAVEMENT SECTION.
4. ALL TREAD SURFACES SHALL BE SLIP-RESISTANT.
5. REFER TO ARCHITECTURAL PLANS FOR COLOR, TEXTURE, PATTERN AND FINISH.
6. SEE DETAIL 6 FOR THICKENED EDGE DETAIL AT ALL EDGE CONDITIONS.

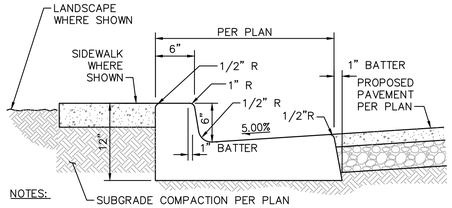
(A) PAVEMENT TYPE PER PLANS.

(B) CLASS II CRUSHED MISCELLANEOUS BASE COMPACTED TO 95% MAXIMUM DRY DENSITY BASED ON ASTM D1557-07 TEST METHOD OR CLASS 2 AGGREGATE BASE COMPACTED TO 95% OF THE MATERIAL'S ASTM D-1557 MAXIMUM DRY DENSITY.

(C) SUBGRADE SCARIFIED AND RECOMPACTED TO 95% MAXIMUM DRY DENSITY BASED ON ASTM D1557-07 TEST METHOD

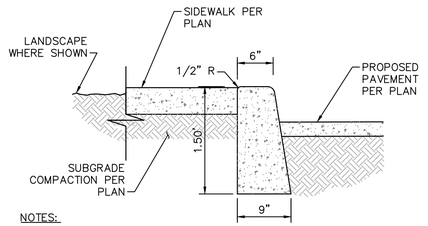
	HEAVY DUTY ASPHALT CONCRETE	STANDARD DUTY ASPHALT CONCRETE	STANDARD DUTY SIDEWALK CONCRETE	HEAVY DUTY CONCRETE (MIN 4,000 PSI)
(A)				
(B)	0'-4"	0'-3"	0'-5"	0'-6"
(C)	0'-6"	0'-4"	0'-4"	0'-6"
	1'-0"	1'-0"	1'-0"	1'-0"

PAVEMENT SECTIONS
N.T.S. 1



NOTES:
1. CONCRETE SHALL BE 2500 PSI.
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT 15' INTERVALS O.C.
4. WHERE A WALK IS ADJACENT TO THE CURB THE JOINTS SHALL ALIGN WITH JOINTS IN THE WALK.
5. NATURAL CONCRETE COLOR IS ACCEPTABLE FOR CURBS

6" CONCRETE CURB & GUTTER
N.T.S. 2



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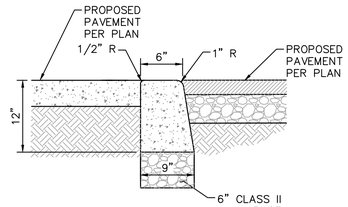
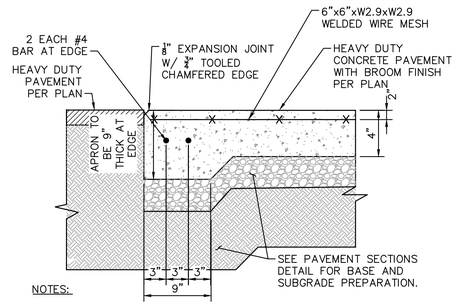
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT 15' INTERVALS O.C.
4. WHERE A WALK IS ADJACENT TO THE CURB THE JOINTS SHALL ALIGN WITH JOINTS IN THE WALK.

6" CONCRETE CURB
N.T.S. 3



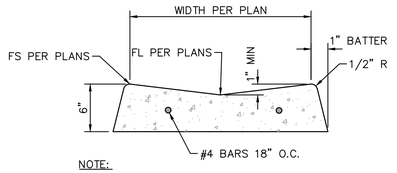
NOTES:
1. CONCRETE SHALL BE 2500 PSI.
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT 15' INTERVALS O.C.
4. WHERE A WALK IS ADJACENT TO THE CURB THE JOINTS SHALL ALIGN WITH JOINTS IN THE WALK.

0" CONCRETE CURB
N.T.S. 4



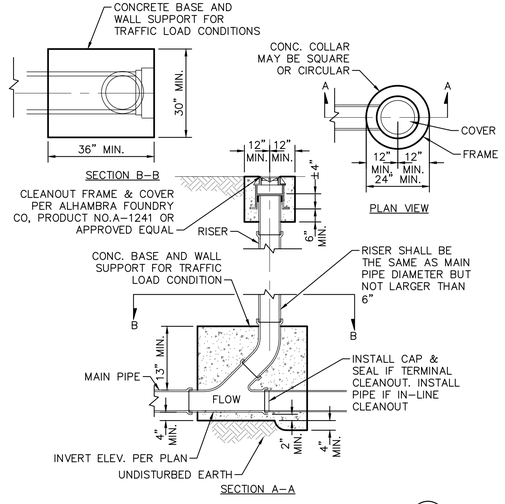
NOTES:
1. SEE PAVEMENT SECTION DETAIL FOR ADDITIONAL INFORMATION.
2. ISOLATION JOINTS, CONSTRUCTION JOINTS, AND CONTROL JOINTS SHALL BE PLACED ONLY AS SPECIFIED

CONCRETE PAVEMENT AT DUMPSTER PAD
N.T.S. 6

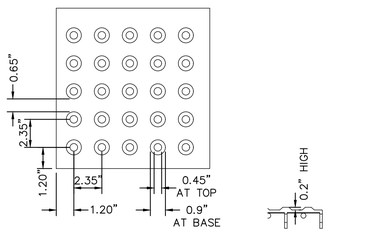


NOTE:
CONCRETE SHALL BE 3000 PSI.

VALLEY GUTTER
N.T.S. 7

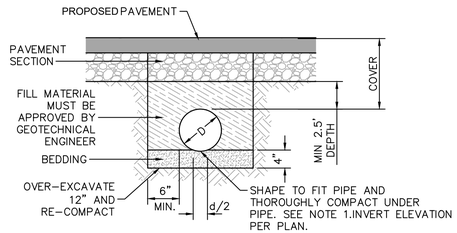


SANITARY SEWER CLEANOUT DETAIL
N.T.S. 9



NOTES: TRUNCATED DOME PLAN TRUNCATED DOME SECTION
1. CONTRACTOR TO REFERENCE MANUFACTURERS GUIDELINES FOR INSTALLATION OF TRUNCATED DOMES.
2. PALAZZO 12X12 TRUNCATED DOMES, ONYX FM – PTD 610

TRUNCATED DOMES
N.T.S. 10



NOTES	
BEDDING:	CLEAN COARSE SAND; SEE NOTE 1 BELOW FOR ADDITIONAL GEOTECHNICAL RECOMMENDATIONS
FILL MATERIAL:	NATIVE MATERIAL - MAXIMUM SIZE NOT TO EXCEED 1 1/2"
COVER:	36" MINIMUM, OR MINIMUM OF AGENCY HAVING JURISDICTION
NOTE 1:	EXCAVATE FOR BELLS OR HUBS SO FULL LOAD IS CARRIED BY PIPE BARRELS.

PIPE TRENCHING AND EMBEDMENT
N.T.S. 11

WDID#: N/A PW2021 – 0690

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BRYAN NORD R.C.E. 87326
07.09.2021 DATE

REGISTERED PROFESSIONAL ENGINEER BRYAN C. NORD No. 87326 CIVIL STATE OF CALIFORNIA

REVIEWED BY: _____ STAFF ENGINEER DATE: _____
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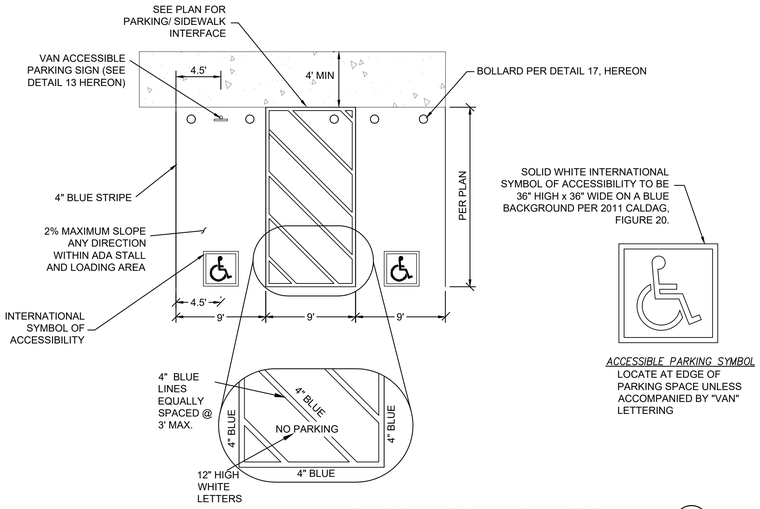
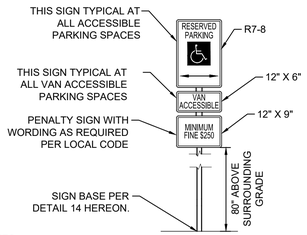
DETAILS

SHEET 10 OF 11 SHEETS
FILE NO: PW2021 – 0690



ACCESSIBLE 90° PARKING STALL STRIPING (12)
N.T.S.

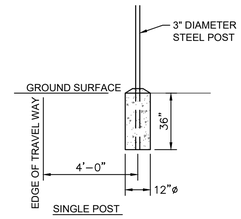
ACCESSIBLE PARKING SYMBOL
LOCATE AT EDGE OF PARKING SPACE UNLESS ACCOMPANIED BY "VAN" LETTERING



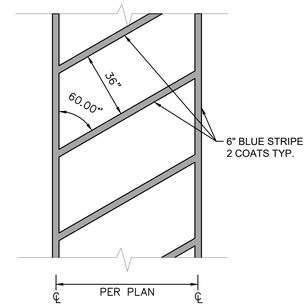
NOTES:

1. SIGNS SHALL CONFORM WITH THE MOST CURRENT CALIFORNIA MUTCD STANDARDS.
2. SIGNS SHALL BE MOUNTED ON A POST PER DETAIL 14 HEREON.

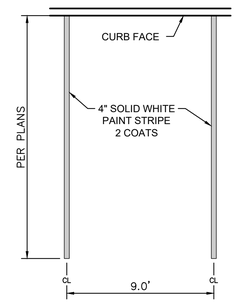
VAN ACCESSIBLE PARKING SIGN DETAIL (13)
N.T.S.



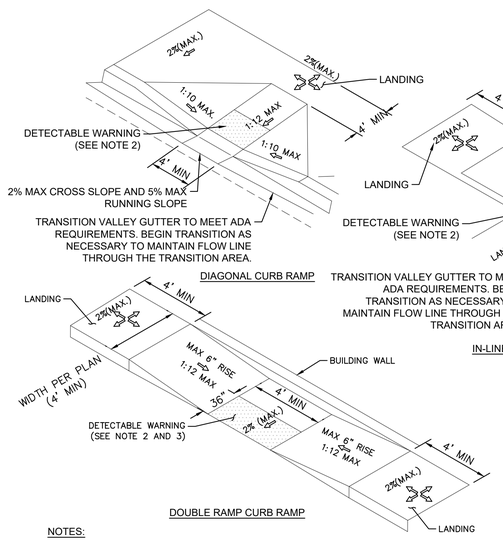
SIGN BASE DETAIL (14)
N.T.S.

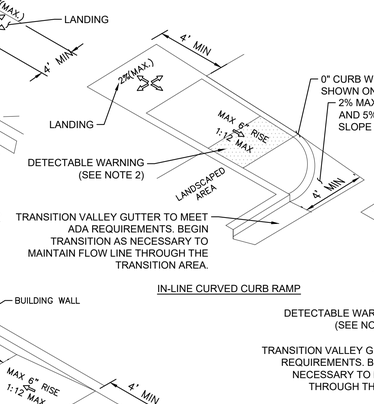


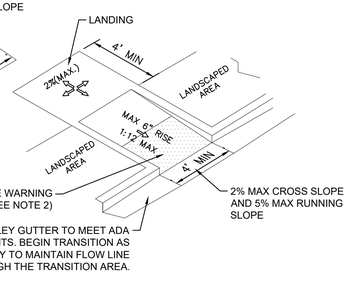
ACCESSIBLE PATH-OF-TRAVEL STRIPING (15)
N.T.S.



STANDARD 90° PARKING STALL STRIPING (16)
N.T.S.





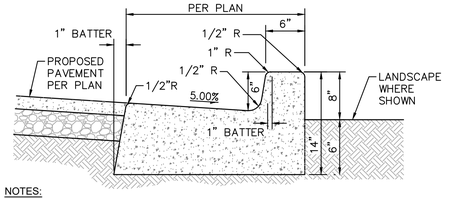


NOTES:

1. ALL ACCESSIBLE COMPONENTS CONSTRUCTED AS PART OF THESE PLANS SHALL COMPLY WITH THE LOCAL, STATE, AND FEDERAL REGULATIONS WHICHEVER ARE MORE STRINGENT.
2. CURB RAMPS SHALL HAVE A DETECTABLE WARNING EXTENDING THE FULL WIDTH OF THE CURB RAMP AND 3' DEEP. GROOVED SURFACES ON OUTDOOR CURB RAMPS ARE NOT PERMITTED. VERIFY LOCAL REQUIREMENTS WITH THE BUILDING DEPARTMENT. REFER TO TRUNCATED DOMES DETAIL 10, SHEET 10 AND REQUIREMENTS IN THE CALIFORNIA BUILDING CODE.
3. PARALLEL CURB RAMPS SHALL HAVE A DETECTABLE WARNING EXTENDING 36" DEEP ALONG THE FLUSH TRANSITION BETWEEN STREET AND SIDEWALK. REFER TO TRUNCATED DOMES DETAIL 10, SHEET 10.
4. PUBLIC SIDEWALK CURB RAMPS CONSTRUCTED WITHIN A PUBLIC RIGHT- OF -WAY, IN ABSENCE OF LOCAL ROADWAY GUIDELINES, SHALL MEET OR EXCEED LOCAL REGULATIONS.
5. CURB RAMP SURFACES (FLARES AND RAMP) SHALL HAVE A DIFFERENT TEXTURE FROM THE SURROUNDING PAVEMENT.
6. CURB RAMPS SHALL BE CONCRETE WITH STRENGTH OF 2500 PSI.
7. INSTALL 1/4" EXPANSION JOINT FILLER MATERIAL BETWEEN A NEW CURB RAMP AND THE EXISTING SIDEWALKS.
8. WATER PONDING WITHIN THE CURB RAMP LIMITS IS NOT ALLOWED.
9. NO GRADE BREAK IS ALLOWED ALONG THE RAMP SURFACE.
10. CROSS SLOPE OF THE CURB RAMP SURFACE SHALL BE LESS THAN 2%.
11. TRANSITION CHANGE IN ELEVATION IS NOT TO EXCEED 1/2" WITHIN AN ACCESSIBLE ROUTE.
12. DIAGONAL CURB RAMP SIDE SLOPE VARIES UNIFORMLY FROM A MAXIMUM OF UP TO 10% AT CURB TO CONFORM WITH LONGITUDINAL SIDEWALK SLOPE ADJACENT TO TOP OF THE RAMP.

ACCESSIBLE RAMP DETAILS (17)
N.T.S.

REV. DATE:



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3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT 15' INTERVALS O.C.
4. DEEPENED CURB TO BE PROVIDED AT LENGTHS ADJACENT TO BIO-RETENTION BASINS
5. NATURAL CONCRETE COLOR IS ACCEPTABLE FOR CURBS

DEEPENED CURB (18)
N.T.S.

WDID#: N/A

PW2021 – 0690

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1675 E EIGHTH STREET

DETAILS

SHEET 11 OF 11 SHEETS
FILE NO: PW2021 – 0690

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

GEOTECHNICAL • ENVIRONMENTAL • GEOLOGY • MATERIALS TESTING & INSPECTION • FORENSIC • LABORATORY

SALEM
engineering group, inc.

GEOTECHNICAL ENGINEERING INVESTIGATION

PROPOSED MULTI-TENANT DEVELOPMENT
8TH STREET AND HIGHLAND SPRINGS AVENUE
BEAUMONT, CALIFORNIA

SALEM PROJECT NO. 3-220-0008
JANUARY 31, 2020

PREPARED FOR:

MS. KAYTLIN FOX
EVERGREEN DEVCO, INC.
2390 EAST CAMELBACK ROAD, SUITE 410
PHOENIX, AZ 85016

PREPARED BY:

SALEM ENGINEERING GROUP, INC.
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January 31, 2020 Project No. 3-220-0008

Ms. Kaytlin Fox
Development Manager
Evergreen Devco, Inc.
2390 East Camelback Road, Suite 410
Phoenix, AZ 85016

SUBJECT: **GEOTECHNICAL ENGINEERING INVESTIGATION**
PROPOSED MULTI-TENANT DEVELOPMENT
8TH STREET AND HIGHLAND SPRINGS AVENUE
BEAUMONT, CALIFORNIA

Dear Ms. Fox:

At your request and authorization, SALEM Engineering Group, Inc. (SALEM) has prepared this Geotechnical Engineering Investigation report for the Proposed Multi-Tenant Development to be located at the subject site.

The accompanying report presents our findings, conclusions, and recommendations regarding the geotechnical aspects of designing and constructing the project as presently proposed. In our opinion, the proposed project is feasible from a geotechnical viewpoint provided our recommendations are incorporated into the design and construction of the project.

We appreciate the opportunity to assist you with this project. Should you have questions regarding this report or need additional information, please contact the undersigned at (909) 980-6455.

Respectfully Submitted,

SALEM ENGINEERING GROUP, INC.

Clarence Jiang, GE
Geotechnical Division Manager
RGE 2477

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Principal Engineer
RCE 52762 / RGE 2549

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GEOTECHNICAL ENGINEERING INVESTIGATION
PROPSOED MULTI-TENANT DEVELOPMENT
8TH STREET AND HIGHLAND SPRINGS AVENUE
BEAUMONT, CALIFORNIA

1. PURPOSE AND SCOPE

This report presents the results of our Geotechnical Engineering Investigation for the site of the Proposed Multi-Tenant Development to be located at the southwest corner of 8th Street and Highland Springs Avenue in Beaumont, California (see Figure 1, Vicinity Map).

The purpose of our geotechnical engineering investigation was to observe and sample the subsurface conditions encountered at the site, and provide conclusions and recommendations relative to the geotechnical aspects of constructing the project as presently proposed.

The scope of this investigation included a field exploration, percolation testing, laboratory testing, engineering analysis and the preparation of this report. Our field exploration was performed on January 17, 2020 and included the drilling of eleven (11) small-diameter soil borings to a maximum depth of 50 feet at the site. Additionally, two (2) percolation tests were performed at depths of approximately 5 and 10 feet below existing grade for the determination of the infiltration rate. The locations of the soil borings and percolation tests are depicted on Figure 2, Site Plan. A detailed discussion of our field investigation, percolation tests, and exploratory boring logs are presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to evaluate pertinent physical properties for engineering analyses. Appendix B presents the laboratory test results in tabular and graphic format.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. If project details vary significantly from those described herein, SALEM should be contacted to determine the necessity for review and possible revision of this report. Earthwork and Pavement Specifications are presented in Appendix C. If text of the report conflict with the specifications in Appendix C, the recommendations in the text of the report have precedence.

2. PROJECT DESCRIPTION

Based on the Site Plan provided to us, we understand that the proposed development will include construction of a 3,500 square-foot quick service restaurant (QSR) with a drive-thru, a 4,088 square-foot convenience store (7-Eleven), a 6-MPD canopy, and underground storage tanks. Parking, trash enclosures, and landscaping are planned to be associated with the proposed development. Maximum wall

load is expected to be on the order of 5 kips per linear foot. Maximum column load is expected to be on the order of 100 kips. Floor slab soil bearing pressure is expected to be on the order of 150 psf.

A site grading plan was not available at the time of preparation of this report. As the existing project area is essentially level, we anticipate that cuts and fills during earthwork will be minimal and limited to providing a level pad and positive site drainage. In the event that changes occur in the nature or design of the project, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and the conclusions of our report are modified. The site configuration and locations of proposed improvements are shown on the Site Plan, Figure 2.

3. SITE LOCATION AND DESCRIPTION

The subject site is rectangular in shape and encompasses approximately 2.07 acres. The site is located on the southwest corner of 8th Street and Highland Springs Avenue in the City of Beaumont, California (see Vicinity Map, Figure 1).

The site is currently a vacant lot with miscellaneous grasses and weeds throughout the site. Overhead power lines run along the western portion of the site and are grounded at the power line pole in the northwest corner of the site. The site is relatively flat with no major changes in grade. The average elevation of the site is approximately 2,600 feet above mean sea level based on Google Earth imagery.

4. FIELD EXPLORATION

Our field exploration consisted of site surface reconnaissance and subsurface exploration. The exploratory test borings (B-1 through B-11) were drilled on January 17, 2020 in the area shown on the Site Plan, Figure 2. The test borings were advanced with 4-inch diameter solid flight augers rotated by a truck-mounted CME 45 drill rig. The test borings were extended to a maximum depth of 50 feet below existing grade.

The materials encountered in the test borings were visually classified in the field, and logs were recorded by a field engineer and stratification lines were approximated on the basis of observations made at the time of drilling. Visual classification of the materials encountered in the test borings were generally made in accordance with the Unified Soil Classification System (ASTM D2487). A soil classification chart and key to sampling is presented on the Unified Soil Classification Chart, in Appendix "A." The logs of the test borings are presented in Appendix "A." The Boring Logs include the soil type, color, moisture content, dry density, and the applicable Unified Soil Classification System symbol.

The location of the test borings were determined by measuring from features shown on the Site Plan, provided to us. Hence, accuracy can be implied only to the degree that this method warrants. The actual boundaries between different soil types may be gradual and soil conditions may vary. For a more detailed description of the materials encountered, the Boring Logs in Appendix "A" should be consulted.

Soil samples were obtained from the test borings at the depths shown on the logs of borings. The MCS samples were recovered and capped at both ends to preserve the samples at their natural moisture content; SPT samples were recovered and placed in a sealed bag to preserve their natural moisture content. The borings were backfilled with soil cuttings after completion of the drilling.

5. LABORATORY TESTING

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory-testing program was formulated with emphasis on the evaluation of natural moisture, in-situ density, shear strength, consolidation potential, expansion index, maximum density and optimum moisture determination, R-Value and gradation of the materials encountered.

In addition, chemical tests were performed to evaluate the corrosivity of the soils to buried concrete and metal. Details of the laboratory test program and the results of laboratory test are summarized in Appendix "B." This information, along with the field observations, was used to prepare the final boring logs in Appendix "A."

6. GEOLOGIC SETTING

The subject site is located near the eastern portion of the Inland Valley, within the Peninsular Ranges Geomorphic Province of California. The Inland Valley is situated between the San Bernardino Mountains to the northeast, the San Gabriel Mountains to the north, the Chino Hills to the southwest, and to the southeast by the hilly uplands that separate it from the San Jacinto Basin. These mountain ranges are part of the Transverse Ranges Geomorphic Province of California.

The Inland Valley is dominated by northwest-trending faults and adjacent anticlinal uplifts. The intervening deep synclinal troughs are filled with poorly consolidated Upper Pleistocene and unconsolidated Holocene sediments. Tectonism of the region is dominated by the interaction of the East Pacific Plate and the North American Plate along a transform boundary. The Inland Valley has been filled with a variable thickness of relatively young, heterogeneous alluvial deposits. The Inland Valley, in the vicinity of the project site, is drained by minor tributaries toward the Santa Ana River. This drainage system trends towards the southwest in the vicinity of the subject site. Soil deposits encountered on the subject site during exploratory drilling are discussed in detail in this report

7. GEOLOGIC HAZARDS

7.1 Faulting and Seismicity

The Peninsular Range has historically been a province of relatively high seismic activity. The nearest faults to the project site are associated with the San Andreas Fault system located approximately 6.8 miles from the site. There are no known active fault traces in the project vicinity. Based on mapping and historical seismicity, the seismicity of the Peninsular Range has been generally considered high by the scientific community.

The project area is not within an Alquist-Priolo Earthquake Fault (Special Studies) Zone and will not require a special site investigation by an Engineering Geologist. Soils on site are classified as Site Class D in accordance with Chapter 16 of the California Building Code. The proposed structures are determined to be in Seismic Design Category D.

To determine the distance of known active faults within 100 miles of the site, we used the United States Geological Survey (USGS) web-based application *2008 National Seismic Hazard Maps - Fault Parameters*.

Site latitude is 33.9322° North; site longitude is 116.9475° West. The ten closest active faults are summarized below in Table 7.1.

TABLE 7.1
REGIONAL FAULT SUMMARY

Fault Name	Distance to Site (miles)	Max. Earthquake Magnitude, M_w
S. San Andreas; PK+CH+CC+BB+NM+SM+NSB+SSB+BG+CO	6.8	8.2
San Jacinto; SBV+SJV	6.8	7.4
San Jacinto; SBV+SJV+A+CC+B+SM	7.5	7.9
S. San Andreas; BG+CO	8.5	7.4
San Jacinto; A+CC+B	8.7	7.6
Pinto Mtn	15.5	7.3
San Jacinto; SBV	17.7	7.1
S. San Andreas; PK+CH+CC+BB+NM+SM+NSB	21.8	8.0
Helendale-So Lockhart	28.1	7.4
Elsinore; W+GI	28.3	7.3

The faults tabulated above and numerous other faults in the region are sources of potential ground motion. However, earthquakes that might occur on other faults throughout California are also potential generators of significant ground motion and could subject the site to intense ground shaking.

7.2 Surface Fault Rupture

The site is not within a currently established State of California Earthquake Fault Zone for surface fault rupture hazards. No active faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low.

7.3 Ground Shaking

Seismic coefficients and spectral response acceleration values were developed based on the 2019 California Building Code (CBC). The CBC methodology for determining design ground motion values is based on the Office of Statewide Health Planning and Development (OSHPD) Seismic Design Maps, which incorporate both probabilistic and deterministic seismic ground motion.

Based on the 2019 CBC, a Site Class D represents the on-site soil conditions with standard penetration resistance, N-values, averaging between 15 and 50 blows per foot in the upper 100 feet below site grade. A table providing the recommended design acceleration parameters for the project site, based on the Site Class D designation, is included in Section 9.2.1 of this report.

Based on Office of Health Planning and Development (OSHPD) Seismic Design Maps, the estimated design peak ground acceleration adjusted for site class effects (PGA_M) was determined to be 0.926g (based on both probabilistic and deterministic seismic ground motion).

7.4 Liquefaction

Soil liquefaction is a state of soil particles suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. Primary factors that trigger liquefaction are: moderate to strong ground shaking (seismic source), relatively clean, loose granular soils (primarily poorly graded sands and silty sands), and saturated soil conditions (shallow groundwater). Due to the increasing overburden pressure with depth, liquefaction of granular soils is generally limited to the upper 50 feet of a soil profile. However, liquefaction has occurred in soils other than clean sand.

The soils encountered within the depth of 50 feet on the project site consisted predominately of medium dense to dense silty sand. The historically highest groundwater is estimated to be at a depth of more than 50 feet below ground surface according regional groundwater well data. Low to very low cohesion strength is associated with the sandy soil. A seismic hazard, which could cause damage to the proposed development during seismic shaking, is the post-liquefaction settlement of the liquefied sands. The liquefaction potential of the site is considered to be low due the absence of shallow groundwater. The Riverside County Office of Information Technology GIS website shows the subject site to be in a low liquefaction potential area. Therefore, no mitigation measures are warranted.

7.5 Lateral Spreading

Lateral spreading is a phenomenon in which soils move laterally during seismic shaking and is often associated with liquefaction. The amount of movement depends on the soil strength, duration and intensity of seismic shaking, topography, and free face geometry. Due to the relatively flat site topography and low liquefaction potential, we judge the likelihood of lateral spreading to be low.

7.6 Landslides

There are no known landslides at the site, nor is the site in the path of any known or potential landslides. We do not consider the potential for a landslide to be a hazard to this project.

7.7 Tsunamis and Seiches

The site is not located within a coastal area. Therefore, tsunamis (seismic sea waves) are not considered a significant hazard at the site. Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately up gradient from the project site. Flooding from a seismically-induced seiche is considered unlikely.

8. SOIL AND GROUNDWATER CONDITIONS

8.1 Subsurface Conditions

The subsurface conditions encountered appear typical of those found in the geologic region of the site. In general, the soils within the depth of exploration consisted of loose to dense silty sand with lenses of sandy silt and sand.

Fill soils may be present on site between our boring locations. Verification of the extent of fill should be determined during site grading. Field and laboratory tests suggest that the deeper native soils are

moderately strong and slightly compressible. These soils extended to the termination depth of our borings.

The soils were classified in the field during the drilling and sampling operations. The stratification lines were approximated by the field engineer on the basis of observations made at the time of drilling. The actual boundaries between different soil types may be gradual and soil conditions may vary. For a more detailed description of the materials encountered, the Boring Logs in Appendix "A" should be consulted.

The Boring Logs include the soil type, color, moisture content, dry density, and the applicable Unified Soil Classification System symbol. The locations of the test borings were determined by measuring from feature shown on the Site Plan, provided to us. Hence, accuracy can be implied only to the degree that this method warrants.

8.2 Groundwater

The test boring locations were checked for the presence of groundwater during and after the drilling operations. Free groundwater was not encountered during this investigation. The historically highest groundwater is estimated to be at a depth of more than 50 feet below ground surface according to regional groundwater well data.

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use, localized pumping, and climatic conditions as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

8.3 Soil Corrosion Screening

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete and the soil. The 2014 Edition of ACI 318 (ACI 318) has established criteria for evaluation of sulfate and chloride levels and how they relate to cement reactivity with soil and/or water.

A soil sample was obtained from the project site and was tested for the evaluation of the potential for concrete deterioration or steel corrosion due to attack by soil-borne soluble salts and soluble chloride. The water-soluble sulfate concentration in the saturation extract from the soil sample was detected to be 113 mg/kg. ACI 318 Tables 19.3.1.1 and 19.3.2.1 outline exposure categories, classes, and concrete requirements by exposure class. ACI 318 requirements for site concrete based upon soluble sulfate are summarized in Table 8.3 below.

TABLE 8.3
WATER SOLUBLE SULFATE EXPOSURE REQUIREMENTS

Water Soluble Sulfate (SO_4) in Soil, Percentage by Weight	Exposure Severity	Exposure Class	Maximum w/cm Ratio	Minimum Concrete Compressive Strength	Cementitious Materials Type
0.0113	Not Applicable	S0	N/A	2,500 psi	No Restriction

The water-soluble chloride concentration detected in saturation extract from the soil samples was 58 mg/kg. This level of chloride concentration is considered to be mildly corrosive.

It is recommended that a qualified corrosion engineer be consulted regarding protection of buried steel or ductile iron piping and conduit or, at a minimum, applicable manufacturer's recommendations for corrosion protection of buried metal pipe be closely followed.

8.4 Percolation Testing

Two percolation tests (P-1 and P-2) were performed within assumed infiltration areas and were conducted in accordance with in accordance with the guidelines established by the County of Riverside. The approximate locations of the percolation tests are shown on the attached Site Plan, Figure 2. The boreholes were advanced to the depths shown on the percolation test worksheets. The holes were pre-saturated before percolation testing commenced.

Percolation rates were measured by filling the test holes with clean water and measuring the water drops at a certain time interval. The percolation rate data are presented in tabular format at the end of this Report. The difference in the percolation rates are reflected by the varied type of soil materials at the bottom of the test holes. The test results are shown on the table below.

PERCOLATION TEST RESULTS

Test No.	Depth (feet)	Measured Percolation Rate (min/inch)	Infiltration Rate* (inch/hour)	Soil Type
P-1	10	19.2	**0.35**	Silty SAND (SM)
P-2	5	250.0	**0.02**	Clayey SAND (SC)

*** Tested infiltration Rate = (ΔH 60 r) / (Δt(r + 2H_{avg}))**

The soil infiltration or percolation rates are based on tests conducted with clear water. The infiltration/percolation rates may vary with time as a result of soil clogging from water impurities. The infiltration/percolation rates will deteriorate over time due to the soil conditions.

The soils may also become less permeable to impermeable if the soil is compacted. Thus, periodic maintenance consisting of clearing the bottom of the drainage system of clogged soils should be expected. The infiltration/percolation rate may become slower if the surrounding soil is wet or saturated due to prolonged rainfalls. Additional percolation tests should be conducted at bottom of the infiltration system during construction to verify the infiltration/percolation rate. Groundwater, if closer to the bottom of the drainage system, will also reduce the infiltration/percolation rate.

The scope of our services did not include a groundwater study and was limited to the performance of percolation testing and soil profile description, and the submitted data only. Our services did not include those associated with septic system design. Neither did services include an Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands.

Any statements, or absence of statements, in this report or on any boring logs regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potential hazardous and/or toxic assessment.

The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices. The work conducted through the course of this investigation, including the preparation of this report, has been performed in accordance with the generally accepted standards of geotechnical engineering practice, which existed in the geographic area at the time the report was written. No other warranty, express or implied, is made.

Please be advised that when performing percolation testing services in relatively small diameter borings, that the testing may not fully model the actual full scale long term performance of a given site. This is particularly true where percolation test data is to be used in the design of large infiltration system such as may be proposed for the site. The measured percolation rate includes dispersion of the water at the sidewalls of the boring as well as into the underlying soils. Subsurface conditions, including percolation rates, can change over time as fine-grained soils migrate. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 General

9.1.1 Based upon the data collected during this investigation, and from a geotechnical engineering standpoint, it is our opinion that the site is suitable for the proposed construction of improvements at the site as planned, provided the recommendations contained in this report are incorporated into the project design and construction. Conclusions and recommendations provided in this report are based on our review of available literature, analysis of data obtained from our field exploration and laboratory testing program, and our understanding of the proposed development at this time.

9.1.2 The primary geotechnical constraints identified in our investigation is the presence of upper loose and potentially compressible material at the site. Recommendations to mitigate the effects of these soils are provided in this report.

9.1.3 Fill soils may be present on-site between our test boring locations. Undocumented fill materials are not suitable to support any future structures and should be replaced with Engineered Fill. Prior to fill placement, Salem Engineering Group, Inc. should inspect the bottom of the excavation to verify the fill condition.

9.1.4 Site demolition activities shall include removal of all surface obstructions not intended to be incorporated into final site design. In addition, underground buried structures and/or utility lines encountered during demolition and construction should be properly removed and the resulting excavations backfilled with Engineered Fill. It is suspected that possible demolition activities of the existing structures may disturb the upper soils. After demolition activities, it is recommended that disturbed soils be removed and/or recompacted.

9.1.5 The near-surface onsite soils are moisture-sensitive and are moderately to highly compressible (collapsible soil) under saturated conditions. Structures within the project vicinity have experienced excessive post-construction settlement, when the foundation soils become near saturated. The collapsible or weak soils should be removed and recompacted according to the recommendations in the Grading section of this report (Section 9.5).

9.1.6 Surface vegetation consisting of grasses and other similar vegetation should be removed by stripping to a sufficient depth to remove organic-rich topsoil. The upper 2 to 4 inches of the soils containing, vegetation, roots and other objectionable organic matter encountered at the time of grading should be stripped and removed from the surface. Deeper stripping may be required in localized areas. The stripped vegetation, will not be suitable for use as Engineered Fill or within 5 feet of building pads or within pavement areas. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas or exported from the site.

9.1.7 Based on the subsurface conditions at the site and the anticipated structural loading, we anticipate that the proposed building may be supported using conventional shallow foundations provided that the recommendations presented herein are incorporated in the design and construction of the project.

9.1.8 Provided the site is graded in accordance with the recommendations of this report and foundations constructed as described herein, we estimate that total settlement due to static loads utilizing conventional shallow foundations for the proposed building will be within 1 inch and corresponding differential settlement will be less than ½ inch.

9.1.9 All references to relative compaction and optimum moisture content in this report are based on ASTM D 1557 (latest edition).

9.1.10 SALEM shall review the project grading and foundation plans prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required. If SALEM is not provided plans and specifications for review, we cannot assume any responsibility for the future performance of the project.

9.1.11 SALEM shall be present at the site during site demolition and preparation to observe site clearing/demolition, preparation of exposed surfaces after clearing, and placement, treatment and compaction of fill material.

9.1.12 SALEM's observations should be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. Moisture content of footings and slab subgrade should be tested immediately prior to concrete placement. SALEM should observe foundation excavations prior to placement of reinforcing steel or concrete to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

9.2 Seismic Design Criteria

9.2.1 For seismic design of the structures, and in accordance with the seismic provisions of the 2019 CBC, our recommended parameters are shown below. These parameters were determined using California's Office of Statewide Health Planning and Development (OSHPD) Seismic Design Map Tool Website (https://seismicmaps.org/) in accordance with the 2019 CBC. The Site Class was determined based on the soils encountered during our field exploration.

TABLE 9.2.1
SEISMIC DESIGN PARAMETERS

Seismic Item	Symbol	Value	2016 ASCE 7 or 2019 CBC Reference
Site Coordinates (Datum = NAD 83)		33.9322 Lat -116.9475 Lon	
Site Class	--	D	ASCE 7 Table 20.3-1
Soil Profile Name	--	Stiff Soil	ASCE 7 Table 20.3-1
Risk Category	--	II	Table 1604.5
Site Coefficient for PGA	F_{PGA}	1.1	ASCE 7 Table 11.8-1
Peak Ground Acceleration (adjusted for Site Class effects)	PGA_M	0.926	ASCE 7 Equation 11.8-1
Seismic Design Category	SDC	D	CBC Table 1613.2.5
Mapped Spectral Acceleration (Short period - 0.2 sec)	S_S	2.064 g	CBC Figure 1613.2.1(1-8)
Mapped Spectral Acceleration (1.0 sec. period)	S_1	0.708 g	CBC Figure 1613.2.1(1-8)
Site Class Modified Site Coefficient	F_a	1.000	CBC Figure 1613.2.3(1)
Site Class Modified Site Coefficient	F_v	* 1.700	CBC Figure 1613.2.3(2)
MCE Spectral Response Acceleration (Short period - 0.2 sec) $S_{MS} = F_a S_S$	S_{MS}	2.064 g	CBC Equation 16-36
MCE Spectral Response Acceleration (1.0 sec. period) $S_{M1} = F_v S_1$	S_{M1}	* 1.204 g	CBC Equation 16-37
Design Spectral Response Acceleration $S_{DS}=⅔S_{MS}$ (short period - 0.2 sec)	S_{DS}	1.376 g	CBC Equation 16-38
Design Spectral Response Acceleration $S_{D1}=⅔S_{M1}$ (1.0 sec. period)	S_{D1}	* 0.802 g	CBC Equation 16-39
Short Term Transition Period (S_{D1}/S_{DS}), Seconds	T_S	0.583	ASCE 7-16, Section 11.4.6
Long Period Transition Period (seconds)	T_L	8	ASCE 7-16, Figure 22-14

Note: * Determined per ASCE Table 11.4-2 for use in calculating T_S only

Site Specific Ground Motion Analysis was not included in the scope of this investigation. Per ASCE 11.4.8, structures on Site Class D with S_1 greater than or equal to 0.2 may require Site Specific Ground Motion Analysis. However, a site specific motion analysis may not be required based on Exceptions listed in ASCE 11.4.8. The Structural Engineer should verify whether Exception No. 2 of ASCE 7-16, Section 11.4.8, is valid for the site. In the event that a site specific ground motion analysis is required, SALEM should be contacted for these services.

9.2.2 Conformance to the criteria in the above table for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

9.3 Soil and Excavation Characteristics

9.3.1 Based on the soil conditions encountered in our soil borings, the onsite soils can be excavated with moderate effort using conventional earthmoving equipment.

9.3.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable Occupational Safety and Health Administration (OSHA) rules and regulations to maintain safety and maintain the stability of adjacent existing improvements. Temporary excavations are further discussed in a later Section of this report.

9.3.3 The upper soils are moisture-sensitive and moderately collapsible under saturated conditions. These soils, in their present condition, possess moderate risk to construction in terms of possible post-construction movement of the foundations and floor systems if no mitigation measures are employed. Accordingly, measures are considered necessary to reduce anticipated expansion and collapse potential. As recommended in Section 9.5, the collapsible soils should be overexcavated and recompacted. Mitigation measures will not eliminate post-construction soil movement, but will reduce the soil movement. Success of the mitigation measures will depend on the thoroughness of the contractor in dealing with the soil conditions.

9.3.4 The near surface soils identified as part of our investigation are, generally, slightly moist to moist due to the absorption characteristics of the soil. Earthwork operations may encounter very moist unstable soils which may require removal to a stable bottom. Exposed native soils exposed as part of site grading operations shall not be allowed to dry out and should be kept continuously moist prior to placement of subsequent fill.

9.4 Materials for Fill

9.4.1 Excavated soils generated from cut operations at the site are suitable for use as general Engineered Fill in structural areas, provided they do not contain deleterious matter, organic material, or rock material larger than 3 inches in maximum dimension.

9.4.2 The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since they have complete control of the project site.

9.4.3 Import soil shall be well-graded, slightly cohesive silty fine sand or sandy silt, with relatively impervious characteristics when compacted. A clean sand or very sandy soil is not acceptable for this purpose. This material should be approved by the Engineer prior to use and should typically possess the soil characteristics summarized below in Table 9.4.3.

TABLE 9.4.3
IMPORT FILL REQUIREMENTS

Minimum Percent Passing No. 200 Sieve	20
Maximum Percent Passing No. 200 Sieve	50
Minimum Percent Passing No. 4 Sieve	80
Maximum Particle Size	3"
Maximum Plasticity Index	12
Maximum CBC Expansion Index	20

9.4.4 Environmental characteristics and corrosion potential of import soil materials should also be considered.

9.4.5 Proposed import materials should be sampled, tested, and approved by SALEM prior to its transportation to the site.

9.5 Grading

9.5.1 A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service as acceptance of earthwork construction is dependent upon compaction of the material and the stability of the material. The Geotechnical Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section as well as other portions of this report.

9.5.2 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer and geotechnical engineer in attendance.

9.5.3 Site preparation should begin with removal of existing surface/subsurface structures, underground utilities (as required), any existing uncertified fill, and debris. Excavations or depressions resulting from site clearing operations, or other existing excavations or depressions, should be restored with Engineered Fill in accordance with the recommendations of this report.

9.5.4 Surface vegetation consisting of grasses and other similar vegetation should be removed by stripping to a sufficient depth to remove organic-rich topsoil. The upper 2 to 4 inches of the soils containing, vegetation, roots and other objectionable organic matter encountered at the time of grading should be stripped and removed from the surface. Deeper stripping may be required in localized areas. In addition, existing concrete and asphalt materials shall be removed from areas of proposed improvements and stockpiled separately from excavated soil material. The stripped vegetation, asphalt and concrete materials will not be suitable for use as Engineered Fill or within 5 feet of building pads or within pavement areas. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas or exported from the site.

9.5.5 Any undocumented fill materials encountered during grading should be removed and replaced with engineered fill. The actual depth of the overexcavation and recompaction should be determined by our field representative during construction.

9.5.6 Structural building pad areas should be considered as areas extending a minimum of 5 feet horizontally beyond the outside dimensions of building, including footings and non-cantilevered overhangs carrying structural loads.

9.5.7 To minimize post-construction soil movement and provide uniform support for the proposed building, overexcavation and recompaction within the proposed building areas should be performed to a minimum depth of **four (4) feet** below existing grade or **two (2) feet** below proposed shallow footing bottom, whichever is deeper. The overexcavation and recompaction should also extend laterally to a minimum of 5 feet beyond the outer edges of the proposed footings.

9.5.8 Within pavement and canopy areas, it is recommended that the overexcavation and recompaction be performed to a minimum depth of **one (1) foot** below existing grade or proposed grade, whichever is deeper. The overexcavation and recompaction should also extend laterally to a minimum of 2 feet beyond the pavement area.

9.5.9 Prior to placement of fill soils, the upper 10 to 12 inches of native subgrade soils should be scarified, moisture-conditioned to no less than the optimum moisture content and recompacted to a minimum of 95% (90% for fine grained, cohesive soils) of the maximum dry density based on ASTM D1557 Test Method.

9.5.10 All Engineered Fill (including scarified ground surfaces and backfill) should be placed in thin lifts which will allow for adequate bonding and compaction (typically 6 to 8 inches in loose thickness).

9.5.11 Engineered Fill soils should be moisture conditioned to near optimum moisture content and compacted to at least 95% (90% for fine grained, cohesive soils) of the maximum dry density based on ASTM D1557-07 Test Method.

9.5.12 An integral part of satisfactory fill placement is the stability of the placed lift of soil. If placed materials exhibit excessive instability as determined by a SALEM field representative, the lift will be considered unacceptable and shall be remedied prior to placement of additional fill material. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

9.5.13 Final pavement subgrade should be finished to a smooth, unyielding surface. We further recommend proof-rolling the subgrade with a loaded water truck (or similar equipment with high contact pressure) to verify the stability of the subgrade prior to placing aggregate base.

9.5.14 The most effective site preparation alternatives will depend on site conditions prior to grading. We should evaluate site conditions and provide supplemental recommendations immediately prior to grading, if necessary.

9.5.15 We do not anticipate groundwater or seepage to adversely affect construction if conducted during the drier moths of the year (typically summer and fall). However, groundwater and soil moisture conditions could be significantly different during the wet season (typically winter and spring) as surface soil becomes wet; perched groundwater conditions may develop. Grading during this time period will likely encounter wet materials resulting in possible excavation and fill placement difficulties.

Project site winterization consisting of placement of aggregate base and protecting exposed soils during construction should be performed. If the construction schedule requires grading operations during the wet season, we can provide additional recommendations as conditions warrant.

9.5.16 The wet soils may become non conducive to site grading as the upper soils yield under the weight of the construction equipment. Therefore, mitigation measures should be performed for stabilization.

Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material or placement of slurry, crushed rocks or aggregate base material; or mixing the soil with an approved lime or cement product.

The most common remedial measure of stabilizing the bottom of the excavation due to wet soil condition is to reduce the moisture of the soil to near the optimum moisture content by having the subgrade soils scarified and aerated or mixed with drier soils prior to compacting. However, the drying process may require an extended period of time and delay the construction operation.

To expedite the stabilizing process, slurry or crushed rock may be utilized for stabilization provided this method is approved by the owner for the cost purpose. If the use of slurry or crushed rock is considered, it is recommended that the upper soft and wet soils be replaced by 6 to 24 inches of 2-sack slurry or ¾-inch to 1-inch crushed rocks. The thickness of the slurry or rock layer depends on the severity of the soil instability.

The recommended 6 to 24 inches of slurry or crushed rock material will provide a stable platform. It is further recommended that lighter compaction equipment be utilized for compacting the crushed rock. A layer of geofabric is recommended to be placed on top of the compacted crushed rock to minimize migration of soil particles into the voids of the crushed rock, resulting in soil movement. Although it is not required, the use of geogrid (e.g. Tensar TX7) below the crushed rock will enhance stability and reduce the required thickness of crushed rock necessary for stabilization.

Our firm should be consulted prior to implementing remedial measures to provide appropriate recommendations.

9.6 Shallow Foundations

9.6.1 The site is suitable for use of conventional shallow foundations consisting of continuous footings and isolated pad footings bearing in properly compacted Engineered Fill.

9.6.2 The bearing wall footings considered for the structure should be continuous with a minimum width of 18 inches and extend to a minimum depth of 18 inches below the lowest adjacent grade. Isolated column footings should have a minimum width of 24 inches and extend a minimum depth of 18 inches below the lowest adjacent grade.

9.6.3 The bottom of footing excavations should be maintained free of loose and disturbed soil. Footing concrete should be placed into a neat excavation.

9.6.4 Footings proportioned as recommended above may be designed for the maximum allowable soil bearing pressures shown in the table below.

Loading Condition	Allowable Bearing
Dead Load Only	2,000 psf
Dead-Plus-Live Load	2,500 psf
Total Load, Including Wind or Seismic Loads	3,325 psf

9.6.5 For design purposes, total settlement due to static loadings on the order of 1 inch may be assumed for shallow footings. Differential settlement due to static loadings, along a 20-foot exterior wall footing or between adjoining column footings, should be ½ inch, producing an angular distortion of 0.002. Most of the settlement is expected to occur during construction as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated. The footing excavations should not be allowed to dry out any time prior to pouring concrete.

9.6.6 Resistance to lateral footing displacement can be computed using an allowable coefficient of friction factor of 0.40 acting between the base of foundations and the supporting native subgrade.

9.6.7 Lateral resistance for footings can alternatively be developed using an equivalent fluid passive pressure of 350 pounds per cubic foot acting against the appropriate vertical native footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. An increase of one-third is permitted when using the alternate load combination that includes wind or earthquake loads.

9.6.8 Minimum reinforcement for continuous footings should consist of four No. 5 steel reinforcing bars; two placed near the top of the footing and two near the bottom. Reinforcement for spread footings should be designed by the project structural engineer.

9.6.9 Underground utilities running parallel to footings should not be constructed in the zone of influence of footings. The zone of influence may be taken to be the area beneath the footing and within a 1:1 plane extending out and down from the bottom edge of the footing.

9.6.10 The foundation subgrade should be sprinkled as necessary to maintain a moist condition without significant shrinkage cracks as would be expected in any concrete placement. Prior to placing rebar reinforcement, foundation excavations should be evaluated by a representative of SALEM for appropriate support characteristics and moisture content. Moisture conditioning may be required for the materials exposed at footing bottom, particularly if foundation excavations are left open for an extended period.

9.7 Caisson Foundations

9.7.1 It is recommended that the caisson foundation should have a minimum depth of 10 feet below the lowest adjacent grade.

9.7.2 The caissons may be designed using an allowable sidewall friction of 200 psf. This value is for dead-plus-live loads. An allowable end bearing capacity of 4,500 psf may be used provided that the bottom of the caisson is cleaned with the use of a clean-out bucket or equivalent and inspected by our representative prior to placement of reinforcement and concrete. An increase of one-third is permitted when using the alternate load combination that includes wind or earthquake loads.

9.7.3 Uplift loads can be resisted by caissons using an allowable sidewall friction of 150 psf of the surface area and the weight of the caisson.

9.7.4 The total static settlement of the caisson footing is not expected to exceed 1 inch. Differential settlement should be less than ½ inch. Most of the settlement is expected to occur during construction as the loads are applied.

9.7.5 The drilled caissons may be designed for a lateral capacity of 350 pounds per square foot per foot of depth below the lowest adjacent grade to a maximum of 5,250 psf.

9.7.6 These values may be increased by one-third when using the alternative load combinations that include wind or earthquake loads. The lateral loading criteria is based on the assumption that the load application is applied at the ground level, flexible cap connections applied and a minimum embedment depth of 10 feet.

9.7.7 Sandy soils were encountered at the site. Casing of the drilled caisson will be required if seepage is encountered or the drilled hole has to be left open for an extended period of time.

9.8 Concrete Slabs-on-Grade

9.8.1 Slab thickness and reinforcement should be determined by the structural engineer based on the anticipated loading. We recommend that non-structural slabs-on-grade be at least 4 inches thick and underlain by six (6) inches of compacted granular aggregate subbase material compacted to at least 95% relative compaction.

9.8.2 Granular aggregate subbase material shall conform to ASTM D-2940, Latest Edition (Table 1, bases) with at least 95 percent passing a 1½-inch sieve and not more than 8% passing a No. 200 sieve or its approved equivalent to prevent capillary moisture rise.

9.8.3 The use of processed asphalt in the granular aggregate subbase material (i.e. recycled or miscellaneous base) will have to be approved by the owner. Asphalt is a petroleum hydrocarbon with numerous components, including naphthalene and other semi-volatile constituents that are regulated by California. This material in the subsurface could become a potential vapor intrusion risk (naphthalene is a recent risk-driver that DTSC is actively pursuing).

9.8.4 We recommend reinforcing slabs, at a minimum, with No. 4 reinforcing bars placed 18 inches on center, each way.

9.8.5 Slabs subject to structural loading may be designed utilizing a modulus of subgrade reaction K of 150 pounds per square inch per inch. The K value was approximated based on inter-relationship of soil classification and bearing values (Portland Cement Association, Rocky Mountain Northwest).

9.8.6 The spacing of crack control joints should be designed by the project structural engineer. In order to regulate cracking of the slabs, we recommend that construction joints or control joints be provided at a maximum spacing of 15 feet in each direction for 5-inch thick slabs and 12 feet for 4-inch thick slabs.

9.8.7 Crack control joints should extend a minimum depth of one-fourth the slab thickness and should be constructed using saw-cuts or other methods as soon as practical after concrete placement. The exterior floors should be poured separately in order to act independently of the walls and foundation system.

9.8.8 It is recommended that the utility trenches within the structure be compacted, as specified in our report, to minimize the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the structures is recommended.

9.8.9 Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To minimize moisture vapor intrusion, it is recommended that a vapor retarder be installed in accordance with manufacturer's recommendations and/or ASTM guidelines, whichever is more stringent. In addition, ventilation of the structure is recommended to reduce the accumulation of interior moisture.

9.8.10 In areas where it is desired to reduce floor dampness where moisture-sensitive coverings are anticipated, construction should have a suitable waterproof vapor retarder (a minimum of 15 mils thick polyethylene vapor retarder sheeting, Raven Industries "VaporBlock 15, Stego Industries 15 mil "StegoWrap" or W.R. Meadows Sealtight 15 mil "Perminator") incorporated into the floor slab design. The water vapor retarder should be decay resistant material complying with ASTM E96 not exceeding 0.04 perms, ASTM E154 and ASTM E1745 Class A. The vapor barrier should be placed between the concrete slab and the compacted granular aggregate subbase material. The water vapor retarder (vapor barrier) should be installed in accordance with ASTM Specification E 1643-94.

9.8.11 The concrete may be placed directly on vapor retarder. The vapor retarder should be inspected prior to concrete placement. Cut or punctured retarder should be repaired using vapor retarder material lapped 6 inches beyond damaged areas and taped.

9.8.12 The recommendations of this report are intended to reduce the potential for cracking of slabs due to soil movement. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to soil movement. This is common for project areas that contain expansive soils since designing to eliminate potential soil movement is cost prohibitive. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

9.8.13 Proper finishing and curing should be performed in accordance with the latest guidelines provided by the American Concrete Institute, Portland Cement Association, and ASTM.

9.9 Lateral Earth Pressures and Frictional Resistance

9.9.1 Active, at-rest and passive unit lateral earth pressures against footings and walls are summarized in the table below:

Lateral Pressure Level Backfill and Drained Conditions	**Equivalent Fluid Pressure, pcf**
Active Pressure	37
At-Rest Pressure	57
Passive Pressure	350
Related Parameters	
Allowable Coefficient of Friction	0.40
In-Place Soil Density (lbs/ft^3)	120

9.9.2 Active pressure applies to walls, which are free to rotate. At-rest pressure applies to walls, which are restrained against rotation. The preceding lateral earth pressures assume sufficient drainage behind retaining walls to prevent the build-up of hydrostatic pressure.

9.9.3 The top one-foot of adjacent subgrade should be deleted from the passive pressure computation.

9.9.4 A safety factor consistent with the design conditions should be included when using the values in the above table.

9.9.5 For stability against lateral sliding, which is resisted solely by the passive pressure, we recommend a minimum safety factor of 1.5.

9.9.6 For stability against lateral sliding, which is resisted by the combined passive and frictional resistance, a minimum safety factor of 2.0 is recommended.

9.9.7 For lateral stability against seismic loading conditions, we recommend a minimum safety factor of 1.1.

9.9.8 For dynamic seismic lateral loading the following equation shall be used:

Dynamic Seismic Lateral Loading Equation
Dynamic Seismic Lateral Load = $\frac{3}{8}\gamma K_h H^2$
Where: γ = In-Place Soil Density
K_h = Horizontal Acceleration = $\frac{2}{3}PGA_M$
H = Wall Height

9.10 Retaining Walls

9.10.1 Retaining and/or below grade walls should be drained with either perforated pipe encased in free-draining gravel or a prefabricated drainage system. The gravel zone should have a minimum width of 12 inches wide and should extend upward to within 12 inches of the top of the wall. The upper 12 inches of backfill should consist of native soils, concrete, asphaltic-concrete or other suitable backfill to minimize surface drainage into the wall drain system. The gravel should conform to Class II permeable materials graded in accordance with the current CalTrans Standard Specifications.

9.10.2 Prefabricated drainage systems, such as Miradrain®, Enkadrain®, or an equivalent substitute, are acceptable alternatives in lieu of gravel provided they are installed in accordance with the manufacturer's recommendations. If a prefabricated drainage system is proposed, our firm should review the system for final acceptance prior to installation.

9.10.3 Drainage pipes should be placed with perforations down and should discharge in a non-erosive manner away from foundations and other improvements. The top of the perforated pipe should be placed at or below the bottom of the adjacent floor slab or pavements. The pipe should be placed in the center line of the drainage blanket and should have a minimum diameter of 4 inches. Slots should be no wider than 1/8-inch in diameter, while perforations should be no more than ¼-inch in diameter.

9.10.4 If retaining walls are less than 5 feet in height, the perforated pipe may be omitted in lieu of weep holes on 4 feet maximum spacing. The weep holes should consist of 2-inch minimum diameter holes (concrete walls) or unmortared head joints (masonry walls) and placed no higher than 18 inches above the lowest adjacent grade. Two 8-inch square overlapping patches of geotextile fabric (conforming to the CalTrans Standard Specifications for "edge drains") should be affixed to the rear wall opening of each weep hole to retard soil piping.

9.10.5 During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall, or within a lateral distance

equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

9.11 Temporary Excavations

9.11.1 We anticipate that the majority of the sandy site soils will be classified as Cal-OSHA “Type C” soil when encountered in excavations during site development and construction. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should conform to the latest applicable Cal-OSHA standards. The contractor should have a Cal-OSHA-approved “competent person” onsite during excavation to evaluate trench conditions and make appropriate recommendations where necessary.

9.11.2 It is the contractor’s responsibility to provide sufficient and safe excavation support as well as protecting nearby utilities, structures, and other improvements which may be damaged by earth movements. All onsite excavations must be conducted in such a manner that potential surcharges from existing structures, construction equipment, and vehicle loads are resisted. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation or vehicle load.

9.11.3 Temporary excavations and slope faces should be protected from rainfall and erosion. Surface runoff should be directed away from excavations and slopes.

9.11.4 Open, unbraced excavations in undisturbed soils should be made according to the slopes presented in the following table:

RECOMMENDED EXCAVATION SLOPES

Depth of Excavation (ft)	Slope (Horizontal : Vertical)
0-5	1:1
5-10	2:1

9.11.5 If, due to space limitation, excavations near property lines or existing structures are performed in a vertical position, slot cuts, cantilever shoring, braced shorings or shields may be used for supporting vertical excavations. Therefore, in order to comply with the local and state safety regulations, a properly designed and installed shoring system would be required to accomplish planned excavations and installation. A Specialty Shoring Contractor should be responsible for the design and installation of such a shoring system during construction.

9.11.6 Braced shorings should be designed for a maximum pressure distribution of 30H, (where H is the depth of the excavation in feet). The foregoing does not include excess hydrostatic pressure or surcharge loading. Fifty percent of any surcharge load, such as construction equipment weight, should be added to the lateral load given herein. Equipment traffic should concurrently be limited to an area at least 3 feet from the shoring face or edge of the slope.

9.11.7 The excavation and shoring recommendations provided herein are based on soil characteristics derived from the borings within the area. Variations in soil conditions will likely be encountered during the excavations. SALEM Engineering Group, Inc. should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations not otherwise anticipated in the preparation of this recommendation. Slope height, slope inclination, or excavation depth should in no case exceed those specified in local, state, or federal safety regulation, (e.g. OSHA) standards for excavations, 29 CFR part 1926, or Assessor's regulations.

9.12 Underground Utilities

9.12.1 Underground utility trenches should be backfilled with properly compacted material. The material excavated from the trenches should be adequate for use as backfill provided it does not contain deleterious matter, vegetation or rock larger than 3 inches in maximum dimension. Trench backfill should be placed in loose lifts not exceeding 8 inches and compacted to at least 95% (90% for fine grained, cohesive soils) relative compaction at or above optimum moisture content.

9.12.2 Bedding and pipe zone backfill typically extends from the bottom of the trench excavations to approximately 6 to 12 inches above the crown of the pipe. Pipe bedding and backfill material should conform to the requirements of the governing utility agency.

9.12.3 It is suggested that underground utilities crossing beneath new or existing structures be plugged at entry and exit locations to the buildings or structures to prevent water migration. Trench plugs can consist of on-site clay soils, if available, or sand cement slurry. The trench plugs should extend 2 feet beyond each side of individual perimeter foundations.

9.12.4 The contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

9.13 Surface Drainage

9.13.1 Proper surface drainage is critical to the future performance of the project. Uncontrolled infiltration of irrigation excess and storm runoff into the soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change to important engineering properties. Proper drainage should be maintained at all times.

9.13.2 The ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than 5 percent for a minimum distance of 10 feet.

9.13.3 Impervious surfaces within 10 feet of the building foundation shall be sloped a minimum of 2 percent away from the building and drainage gradients maintained to carry all surface water to collection facilities and off site. These grades should be maintained for the life of the project.

Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed.

9.13.4 Roof drains should be installed with appropriate downspout extensions out-falling on splash blocks so as to direct water a minimum of 5 feet away from the structures or be connected to the storm drain system for the development.

9.14 Pavement Design

9.14.1 Based on site soil conditions and laboratory test results, an R-value of 40 was used for the preliminary flexible asphaltic concrete pavement design. The R-value may be verified during grading of the pavement areas.

9.14.2 The pavement design recommendations provided herein are based on the State of California Department of Transportation (CALTRANS) design manual. The asphaltic concrete (flexible pavement) is based on a 20-year pavement life utilizing 1200 passenger vehicles, 10 single unit trucks, and 2 multi-unit trucks. The following table shows the recommended pavement sections for various traffic indices.

TABLE 9.14.2
ASPHALT CONCRETE PAVEMENT THICKNESSES

Traffic Index	Asphaltic Concrete	Class II Aggregate Base*	Compacted Subgrade**
5.0 (Parking and Vehicle Drive Areas)	3.0"	4.0"	12.0"
6.5 (Heavy Truck Areas)	4.0"	6.0"	12.0"

95% compaction based on ASTM D1557-07 Test Method
****95% (90% for fine grained, cohesive soils) compaction based on ASTM D1557 Test Method***

9.14.3 The following recommendations are for light-duty and heavy-duty Portland Cement Concrete pavement sections.

TABLE 9.14.3
PORTLAND CEMENT CONCRETE PAVEMENT THICKNESSES

Traffic Index	Portland Cement Concrete*	Class II Aggregate Base**	Compacted Subgrade***
5.0 (Light Duty)	5.0"	4.0"	12.0"
6.5 (Heavy Duty)	6.0"	6.0"	12.0"

****Minimum Compressive Strength of 4,000 psi***
***** 95% compaction based on ASTM D1557-07 Test Method***
******95% (90% for fine grained, cohesive soils) compaction based on ASTM D1557 Test Method***

10. PLAN REVIEW, CONSTRUCTION OBSERVATION AND TESTING

10.1 Plan and Specification Review

10.1.1 SALEM should review the project plans and specifications prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

10.2 Construction Observation and Testing Services

10.2.1 The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer of Record throughout the construction phase. It is important to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. If we are not retained for these services, we cannot assume any responsibility for others interpretation of our recommendations, and therefore the future performance of the project.

10.2.2 SALEM should be present at the site during site preparation to observe site clearing, preparation of exposed surfaces after clearing, and placement, treatment and compaction of fill material.

10.2.3 SALEM's observations should be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. Moisture content of footings and slab subgrade should be tested immediately prior to concrete placement. SALEM should observe foundation excavations prior to placement of reinforcing steel or concrete to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

11. LIMITATIONS AND CHANGED CONDITIONS

The analyses and recommendations submitted in this report are based upon the data obtained from the test borings drilled at the approximate locations shown on the Site Plan, Figure 2. The report does not reflect variations which may occur between borings. The nature and extent of such variations may not become evident until construction is initiated.

If variations then appear, a re-evaluation of the recommendations of this report will be necessary after performing on-site observations during the excavation period and noting the characteristics of such variations. The findings and recommendations presented in this report are valid as of the present and for the proposed construction. If site conditions change due to natural processes or human intervention on the property or adjacent to the site, or changes occur in the nature or design of the project, or if there is a substantial time lapse between the submission of this report and the start of the work at the site, the conclusions and recommendations contained in our report will not be considered valid unless the changes are reviewed by SALEM and the conclusions of our report are modified or verified in writing.

The validity of the recommendations contained in this report is also dependent upon an adequate testing and observations program during the construction phase. Our firm assumes no responsibility for construction compliance with the design concepts or recommendations unless we have been retained to perform the on-

site testing and review during construction. SALEM has prepared this report for the exclusive use of the owner and project design consultants.

SALEM does not practice in the field of corrosion engineering. It is recommended that a qualified corrosion engineer be consulted regarding protection of buried steel or ductile iron piping and conduit or, at a minimum, that manufacturer's recommendations for corrosion protection be closely followed. Further, a corrosion engineer may be needed to incorporate the necessary precautions to avoid premature corrosion of concrete slabs and foundations in direct contact with native soil.

The importation of soil and or aggregate materials to the site should be screened to determine the potential for corrosion to concrete and buried metal piping. The report has been prepared in accordance with generally accepted geotechnical engineering practices in the area. No other warranties, either express or implied, are made as to the professional advice provided under the terms of our agreement and included in this report.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (909) 980-6455.

Respectfully Submitted,

SALEM ENGINEERING GROUP, INC.

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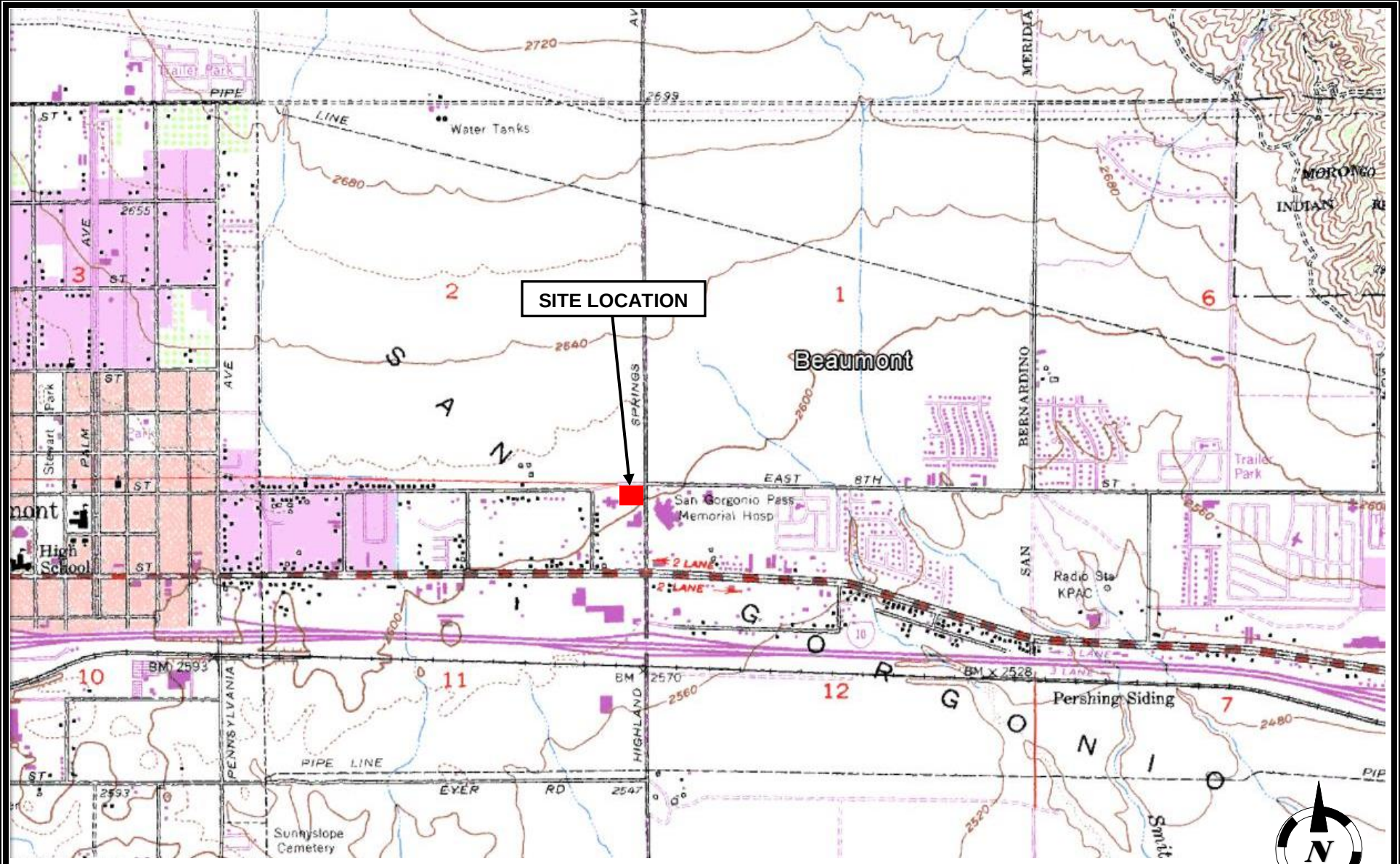


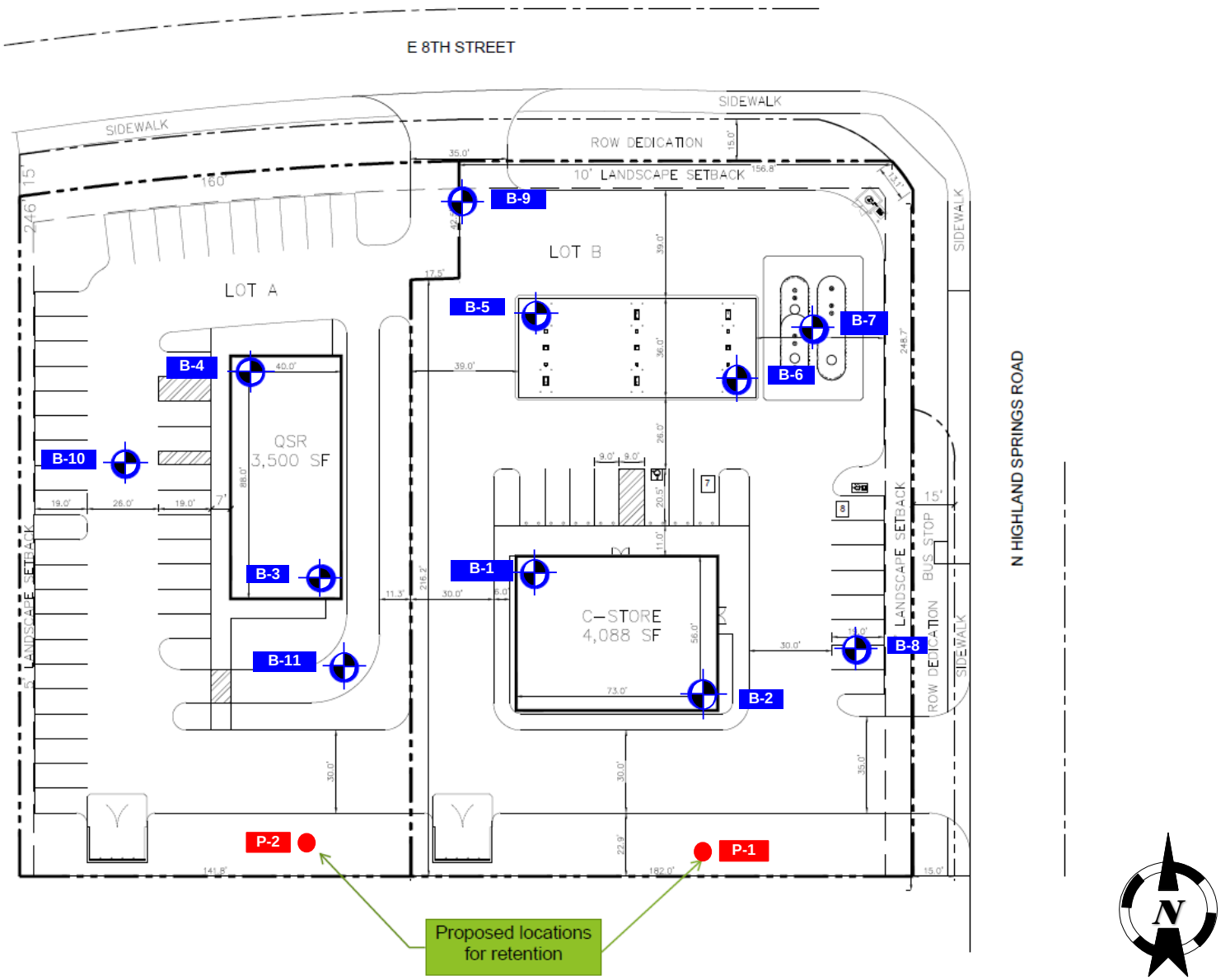
Source Image: U.S. Geological Survey, Ontario, California, N33400-W11737.5/7.5, 1967 (Photorevised 1981)

VICINITY MAP

GEOTECHNICAL ENGINEERING INVESTIGATION
Proposed Multi-Tenant Development
SWC Eight Street & Highland Springs Avenue
Beaumont, California

SCALE:	DATE:
NOT TO SCALE	01/2020
DRAWN BY:	APPROVED BY:
JC	CJ
PROJECT NO.	FIGURE NO.
3-220-0008	1

SALEM engineering group, inc.



SITE PLAN

GEOTECHNICAL ENGINEERING INVESTIGATION
Proposed Multi-Tenant Development
8th Street & Highland Springs Avenue
Beaumont, California

SCALE:	DATE:
NOT TO SCALE	01/2020
DRAWN BY:	APPROVED BY:
JC	CJ
PROJECT NO.	FIGURE NO.
3-220-0008	2

LEGEND:

B-1 Soil Boring Locations
P-1 Percolation Locations

All Locations Approximate

SALEM engineering group, inc.

APPENDIX

A

APPENDIX A
FIELD EXPLORATION

Fieldwork for our investigation (drilling) was conducted on January 17, 2020 and included a site visit, subsurface exploration, and soil sampling. Percolation tests were performed on January 18, 2020. The locations of the exploratory borings and percolation tests are shown on the Site Plan, Figure 2. Boring logs for our exploration are presented in figures following the text in this appendix. Borings were located in the field using existing reference points. Therefore, actual boring locations may deviate slightly.

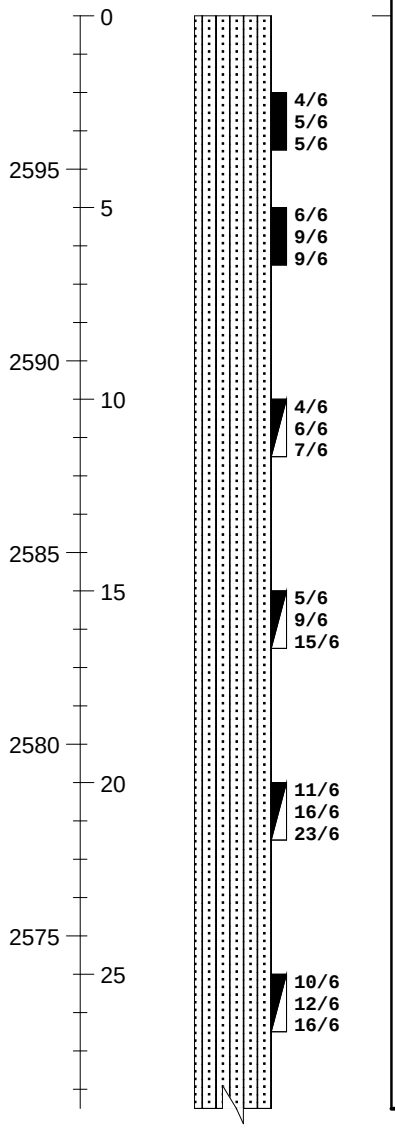
In general, our borings were performed using truck-mounted Mobile B-61 and CME 45 drill rigs equipped with an 8-inch hollow-stem auger and a 4-inch diameter solid flight auger. Sampling in the borings was accomplished using a hydraulic 140-pound hammer with a 30-inch drop. Samples were obtained with a 3-inch outside-diameter (OD), split spoon (California Modified) sampler, and a 2-inch OD, Standard Penetration Test (SPT) sampler. The number of blows required to drive the sampler the last 12 inches (or fraction thereof) of the 18-inch sampling interval were recorded on the boring logs. The blow counts shown on the boring logs should not be interpreted as standard SPT "N" values; corrections have not been applied. Upon completion, the borings were backfilled with soil cuttings.

Subsurface conditions encountered in the exploratory borings were visually examined, classified and logged in general accordance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D2488). This system uses the Unified Soil Classification System (USCS) for soil designations. The logs depict soil and geologic conditions encountered and depths at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, drill rig penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the field logs were revised based on subsequent laboratory testing.

SALEM
engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-1

Project: Proposed Multi-Tenant Development
Client: Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C
Logged By: SK
Auger Type: 4 in. Solid Flight Auger
Elevation: 2599'
Hammer Type: Automatic Trip - 140 lb/30 in
Depth to Groundwater: N/A



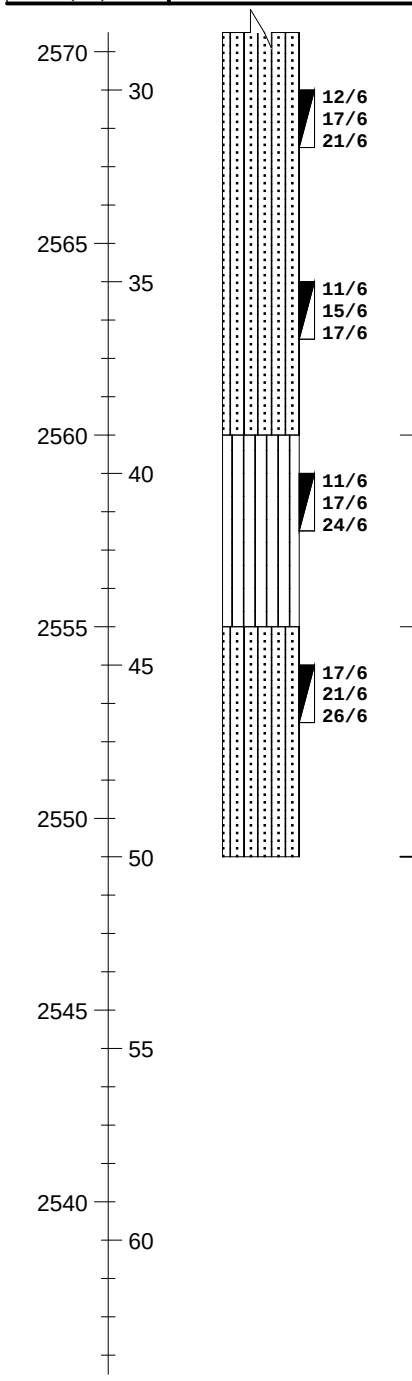
ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Loose; moist; brown; fine to medium grain sand; trace clay.	10	12.4	110.2	
			Grades as above; medium dense; light brown.	18	8.2	104.8	
			Grades as above; brown; no clay.	13	9		
			Grades as above; trace clay.	24	12		
			Grades as above; dense; slightly moist; light brown; trace gravel; no clay.	39	4.6		
			Grades as above; medium dense; no gravel.	28	7.8		

Notes:

Figure Number A-1

SALEM engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-1



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
			Grades as above; dense.	38	5.4		
			Grades as above; fine grain sand.	32	6.1		
		ML	Sandy SILT Hard; moist; brown.	41	10.5		
		SM	Silty SAND Dense; moist; fine grained sand.	47	10.9		
			End of boring at 50 feet BGS.				

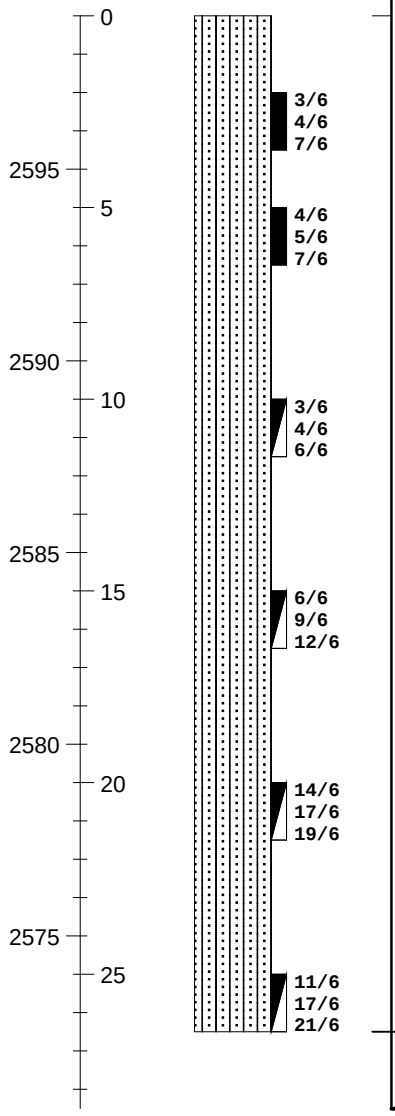
Notes:

Figure Number A-1

SALEM engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-2

Project: Proposed Multi-Tenant Development **Client:** Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C **Logged By:** SK
Auger Type: 4 in. Solid Flight Auger **Elevation:** 2599'
Hammer Type: Automatic Trip - 140 lb/30 in **Depth to Groundwater:** N/A



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Loose; moist; brown; fine to medium grain sand; trace clay.	11	11.9	114.7	
			Grades as above.	12	10.8	115.5	
			Grades as above.	10	11.6		
			Grades as above; medium dense; with clay.	21	12.7		
			Grades as above; dense; light brown; no clay.	36	5		
			Grades as above; no gravel.	38	3.5		
			End of boring at 26.5 feet BGS.				

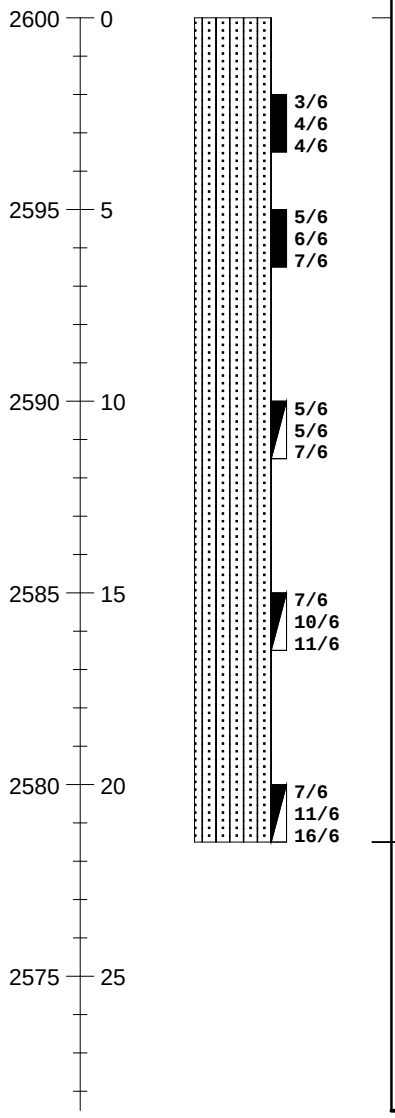
Notes:

Figure Number A-2

SALEM engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-3

Project: Proposed Multi-Tenant Development
Client: Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C
Logged By: SK
Auger Type: 4 in. Solid Flight Auger
Elevation: 2600'
Hammer Type: Automatic Trip - 140 lb/30 in
Depth to Groundwater: N/A



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Loose; moist; brown; fine to medium grain sand; trace clay.	8	13.1	112.6	
			Grades as above; light brown.	13	10.8	106.4	
			Grades as above; medium dense; brown.	12	10.8		
			Grades as above; with clay.	21	10.6		
			Grades as above; no clay.	27	9.6		
			End of boring at 21.5 feet BGS.				

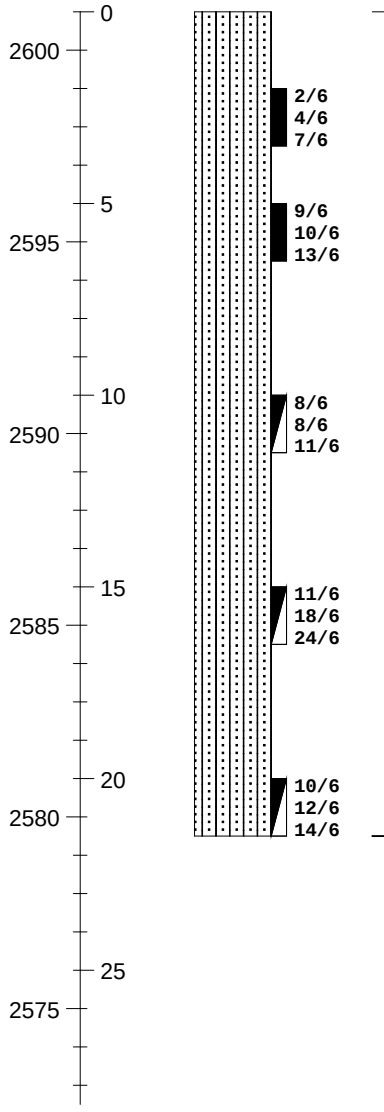
Notes:

Figure Number A-3

SALEM engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-4

Project: Proposed Multi-Tenant Development **Client:** Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C **Logged By:** SK
Auger Type: 4 in. Solid Flight Auger **Elevation:** 2601'
Hammer Type: Automatic Trip - 140 lb/30 in **Depth to Groundwater:** N/A



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Loose; moist; brown; fine to medium grain sand; trace clay.	11	10.4	97.9	
			Grades as above; medium dense.	23	8	103.6	
			Grades as above; no clay.	19	8.4		
			Grades as above; dense; light brown; trace gravel.	42	5.7		
			Grades as above; no gravel.	26	6.6		
			End of boring at 21.5 feet BGS.				

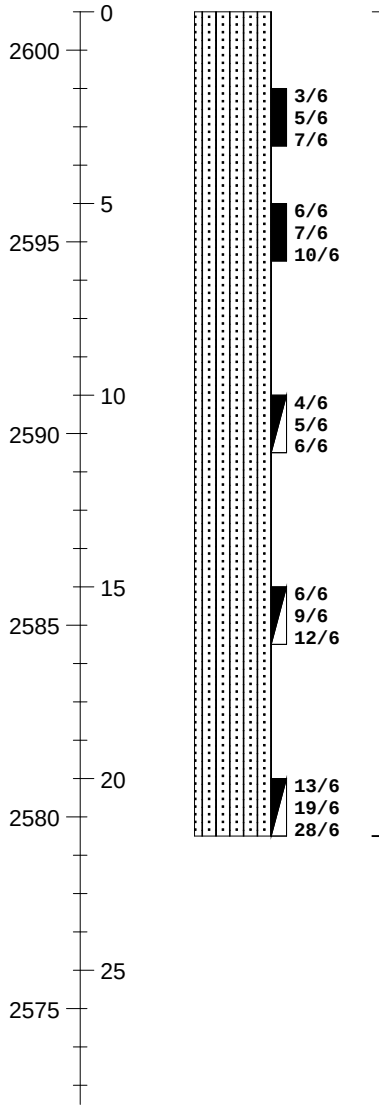
Notes:

Figure Number A-4

SALEM
engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-5

Project: Proposed Multi-Tenant Development **Client:** Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C **Logged By:** SK
Auger Type: 4 in. Solid Flight Auger **Elevation:** 2601'
Hammer Type: Automatic Trip - 140 lb/30 in **Depth to Groundwater:** N/A



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Loose; moist; brown; fine to medium grain sand; trace clay.	12	5.7	99.0	
			Grades as above; medium dense.	17	6.9	101.9	
			Grades as above; no clay.	11	8.2		
			Grades as above; trace clay.	21	8.1		
			Grades as above; dense; trace gravel; no clay.	47	3.6		
			End of boring at 21.5 feet BGS.				

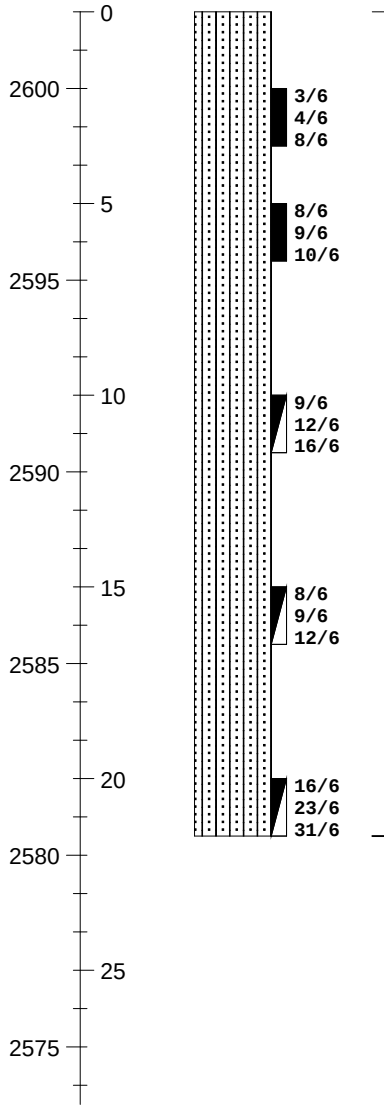
Notes:

Figure Number A-5

SALEM engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-6

Project: Proposed Multi-Tenant Development **Client:** Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C **Logged By:** SK
Auger Type: 4 in. Solid Flight Auger **Elevation:** 2602'
Hammer Type: Automatic Trip - 140 lb/30 in **Depth to Groundwater:** N/A



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Loose; moist; brown; fine to medium grain sand; trace clay.	12	5.9	100.6	
			Grades as above; medium dense.	19	6.1	93.7	
			Grades as above.	28	8		
			Grades as above; with clay.	21	13.1		
			Grades as above; very dense; with gravel; no clay.	54	3.5		
			End of boring at 21.5 feet BGS.				

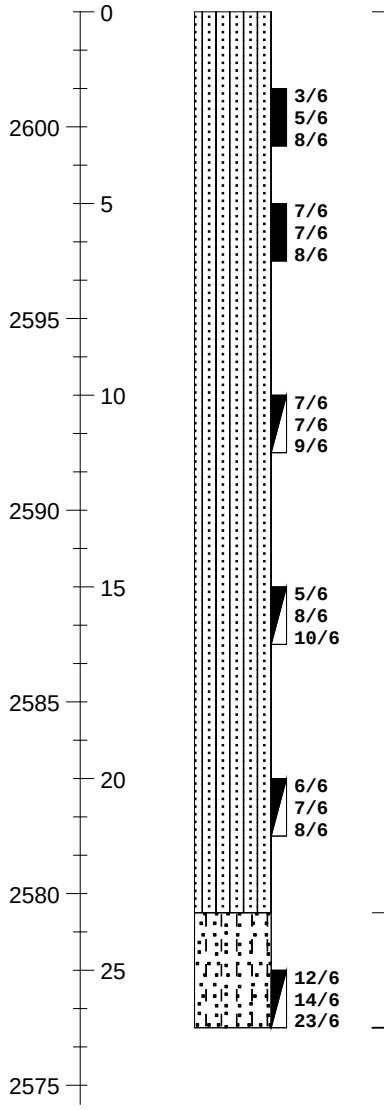
Notes:

Figure Number A-6

SALEM engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-7

Project: Proposed Multi-Tenant Development
Client: Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C
Logged By: SK
Auger Type: 4 in. Solid Flight Auger
Elevation: 2603'
Hammer Type: Automatic Trip - 140 lb/30 in
Depth to Groundwater: N/A



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Loose; moist; brown; fine to medium grain sand; trace clay.	13	5.5	94.1	
			Grades as above.	15	6.5	100.2	
			Grades as above; medium dense; no clay.	16	7.6		
			Grades as above; with clay.	18	14.4		
			Grades as above; no clay.	15	8.1		
		SP-SM	Poorly graded SAND with Silt Dense; slightly moist; light brown; fine to medium grain sand.	37	3.3		
			End of boring at 26.5 feet BGS.				

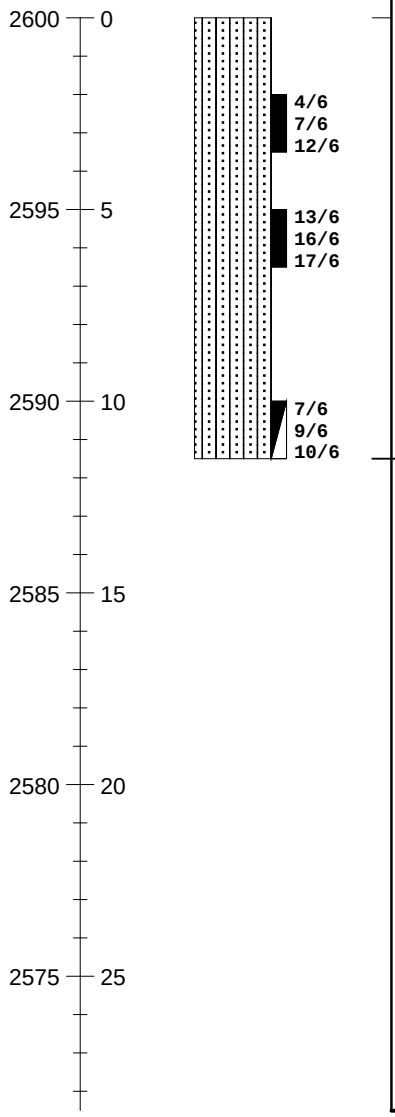
Notes:

Figure Number A-7

SALEM engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-8

Project: Proposed Multi-Tenant Development **Client:** Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C **Logged By:** SK
Auger Type: 4 in. Solid Flight Auger **Elevation:** 2600'
Hammer Type: Automatic Trip - 140 lb/30 in **Depth to Groundwater:** N/A



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand; trace clay.	19	7.5	104.4	
			Grades as above.	33	8.7	111.7	
			Grades as above; less clay.	19	7.1		
			End of boring at 11.5 feet BGS.				

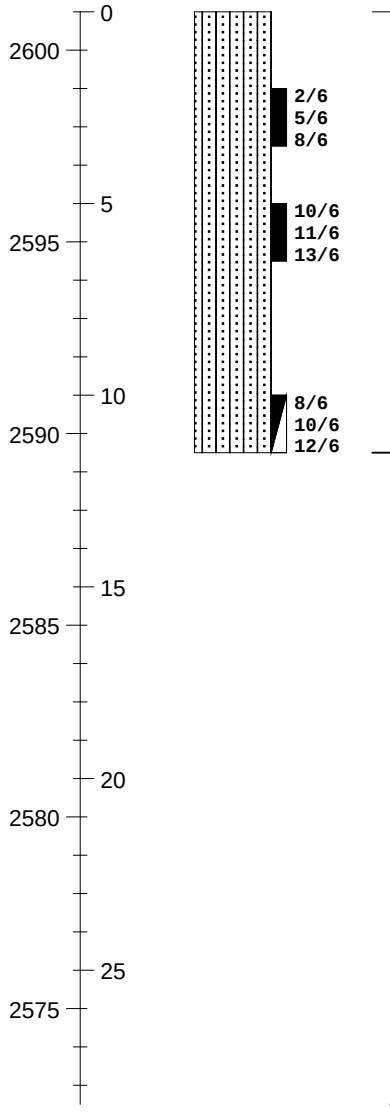
Notes:

Figure Number A-8

SALEM
engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-9

Project: Proposed Multi-Tenant Development **Client:** Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C **Logged By:** SK
Auger Type: 4 in. Solid Flight Auger **Elevation:** 2601'
Hammer Type: Automatic Trip - 140 lb/30 in **Depth to Groundwater:** N/A



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Loose; moist; brown; fine to medium grain sand; trace clay.	13	6	92	
			Grades as above; medium dense.	24	4.7	103.8	
			Grades as above; less clay.	22	7.3		
			End of boring at 11.5 feet BGS.				

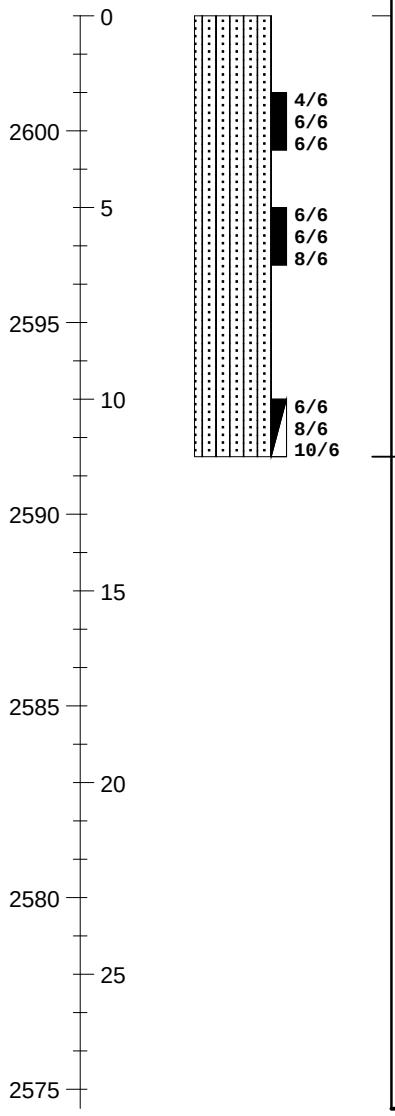
Notes:

Figure Number A-9

SALEM engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-10

Project: Proposed Multi-Tenant Development **Client:** Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C **Logged By:** SK
Auger Type: 4 in. Solid Flight Auger **Elevation:** 2603'
Hammer Type: Automatic Trip - 140 lb/30 in **Depth to Groundwater:** N/A



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Loose; moist; brown; fine to medium grain sand; trace clay.	12	8.5	100.5	
			Grades as above.	14	9.3	103.2	
			Grades as above; medium dense; no clay.	18	10.7		
			End of boring at 11.5 feet BGS.				

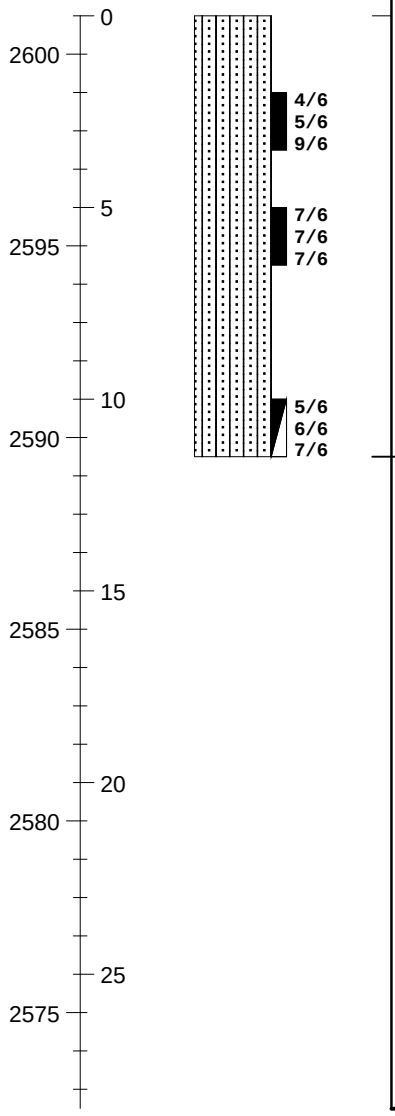
Notes:

Figure Number A-10

SALEM
engineering group, inc.

Project Number: 3-220-0008
Date: 01/17/2020
Test Boring: B-11

Project: Proposed Multi-Tenant Development
Client: Evergreen Devco, Inc.
Location: 8th Street and Highland Springs Avenue, Beaumont, California
Drilled By: SALEM
Drill Type: CME 45C
Logged By: SK
Auger Type: 4 in. Solid Flight Auger
Elevation: 2601'
Hammer Type: Automatic Trip - 140 lb/30 in
Depth to Groundwater: N/A



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SM	Silty SAND Loose; moist; brown; fine to medium grain sand; trace clay.	14	5.7	91.5	
			Grades as above.	14	5.6	106.6	
			Grades as above; medium dense; less clay.	13	6.9		
			End of boring at 11.5 feet BGS.				

Notes:

Figure Number A-11

KEY TO SYMBOLS

Symbol Description

Strata symbols

Silty sand

Silt

Poorly graded sand with silt

Misc. Symbols

Boring continues

Soil Samplers

California sampler

Standard penetration test

Percolation Test Worksheet

Project: **Proposed Multi-Tenant Development**
Eight Street & Highland Spring Avenue
Beaumont, California

Job No.: **3-220-0008**
Date Drilled: **1/17/2020**
Soil Classification: **Silty SAND (SM)**

Hole Radius: 4 in.
Pipe Dia.: 3 in.
Total Depth of Hole: 120 in.

Test Hole No.: **P-1**
Tested by: **SK**
Drilled Hole Depth: **10** ft.

Presoaking Date: **1/17/2020**
Test Date: **1/18/2020**

Pipe Stick up: 0 ft.

Time Start	Time Finish	Depth of Test Hole (ft)#	Refill-Yes or No	Elapsed Time (hrs:min)	Initial Water Level# (ft)	Final Water Level# (ft)	Δ Water Level (in.)	Δ Min.	Meas. Perc Rate (min/in)	Initial Height of Water (in)	Final Height of Water (in)	Average Height of Water (in)	Infiltration Rate, It (in/hr)
9:30	10:00	10.0	Y	0:30	7.24	7.62	4.56	30	6.6	33.1	28.6	30.8	0.56
10:00	10:30	10.0	N	0:30	7.62	7.95	3.96	30	7.6	28.6	24.6	26.6	0.55
10:30	11:00	10.0	N	0:30	7.95	8.20	3.00	30	10.0	24.6	21.6	23.1	0.48
11:00	11:30	10.0	N	0:30	8.20	8.39	2.28	30	13.2	21.6	19.3	20.5	0.41
11:30	12:00	10.0	N	0:30	8.39	8.56	2.04	30	14.7	19.3	17.3	18.3	0.40
12:00	12:30	10.0	N	0:30	8.56	8.71	1.80	30	16.7	17.3	15.5	16.4	0.39
12:30	13:00	10.0	N	0:30	8.71	8.84	1.56	30	19.2	15.5	13.9	14.7	0.37
13:02	13:32	10.0	**Y**	0:30	7.30	7.55	3.00	30	10.0	32.4	29.4	30.9	0.36
13:32	14:02	10.0	N	0:30	7.55	7.77	2.64	30	11.4	29.4	26.8	28.1	0.35
14:02	14:32	10.0	N	0:30	7.77	7.97	2.40	30	12.5	26.8	24.4	25.6	0.35
14:32	15:02	10.0	N	0:30	7.97	8.16	2.28	30	13.2	24.4	22.1	23.2	0.36
15:02	15:32	10.0	N	0:30	8.16	8.33	2.04	30	14.7	22.1	20.0	21.1	0.35
Recommended for Design:										**Infiltration Rate**			**0.35**

SALEM engineering group, inc.

Percolation Test Worksheet

Project: **Proposed Multi-Tenant Development**
Eight Street & Highland Spring Avenue
Beaumont, California

Job No.: **3-220-0008**
Date Drilled: **1/17/2020**
Soil Classification: **Clayey SAND (SC)**

Hole Radius: 4 in.
Pipe Dia.: 3 in.
Total Depth of Hole: 60 in.

Test Hole No.: **P-2**
Tested by: **SK**
Drilled Hole Depth: **5** ft.

Presoaking Date: **1/17/2020**
Test Date: **1/18/2020**

Pipe Stick up: 0 ft.

Time Start	Time Finish	Depth of Test Hole (ft)#	Refill-Yes or No	Elapsed Time (hrs:min)	Initial Water Level# (ft)	Final Water Level# (ft)	Δ Water Level (in.)	Δ Min.	Meas. Perc Rate (min/in)	Initial Height of Water (in)	Final Height of Water (in)	Average Height of Water (in)	Infiltration Rate, It (in/hr)
8:50	9:20	5.0	Y	0:30	2.73	2.78	0.60	30	50.0	27.2	26.6	26.9	0.08
9:20	9:50	5.0	N	0:30	2.78	2.81	0.36	30	83.3	26.6	26.3	26.5	0.05
9:50	10:20	5.0	N	0:30	2.81	2.83	0.24	30	125.0	26.3	26.0	26.2	0.03
10:20	10:50	5.0	N	0:30	2.83	2.85	0.24	30	125.0	26.0	25.8	25.9	0.03
10:50	11:20	5.0	N	0:30	2.85	2.86	0.12	30	250.0	25.8	25.7	25.7	0.02
11:20	11:50	5.0	N	0:30	2.86	2.87	0.12	30	250.0	25.7	25.6	25.6	0.02
11:50	12:20	5.0	N	0:30	2.87	2.88	0.12	30	250.0	25.6	25.4	25.5	0.02
12:20	12:50	5.0	N	0:30	2.88	2.89	0.12	30	250.0	25.4	25.3	25.4	0.02
12:50	13:20	5.0	N	0:30	2.89	2.90	0.12	30	250.0	25.3	25.2	25.3	0.02
13:20	13:50	5.0	N	0:30	2.90	2.91	0.12	30	250.0	25.2	25.1	25.1	0.02
13:50	14:20	5.0	N	0:30	2.91	2.92	0.12	30	250.0	25.1	25.0	25.0	0.02
14:20	14:50	5.0	N	0:30	2.92	2.93	0.12	30	250.0	25.0	24.8	24.9	0.02
Recommended for Design:										**Infiltration Rate**			**0.02**

SALEM engineering group, inc.

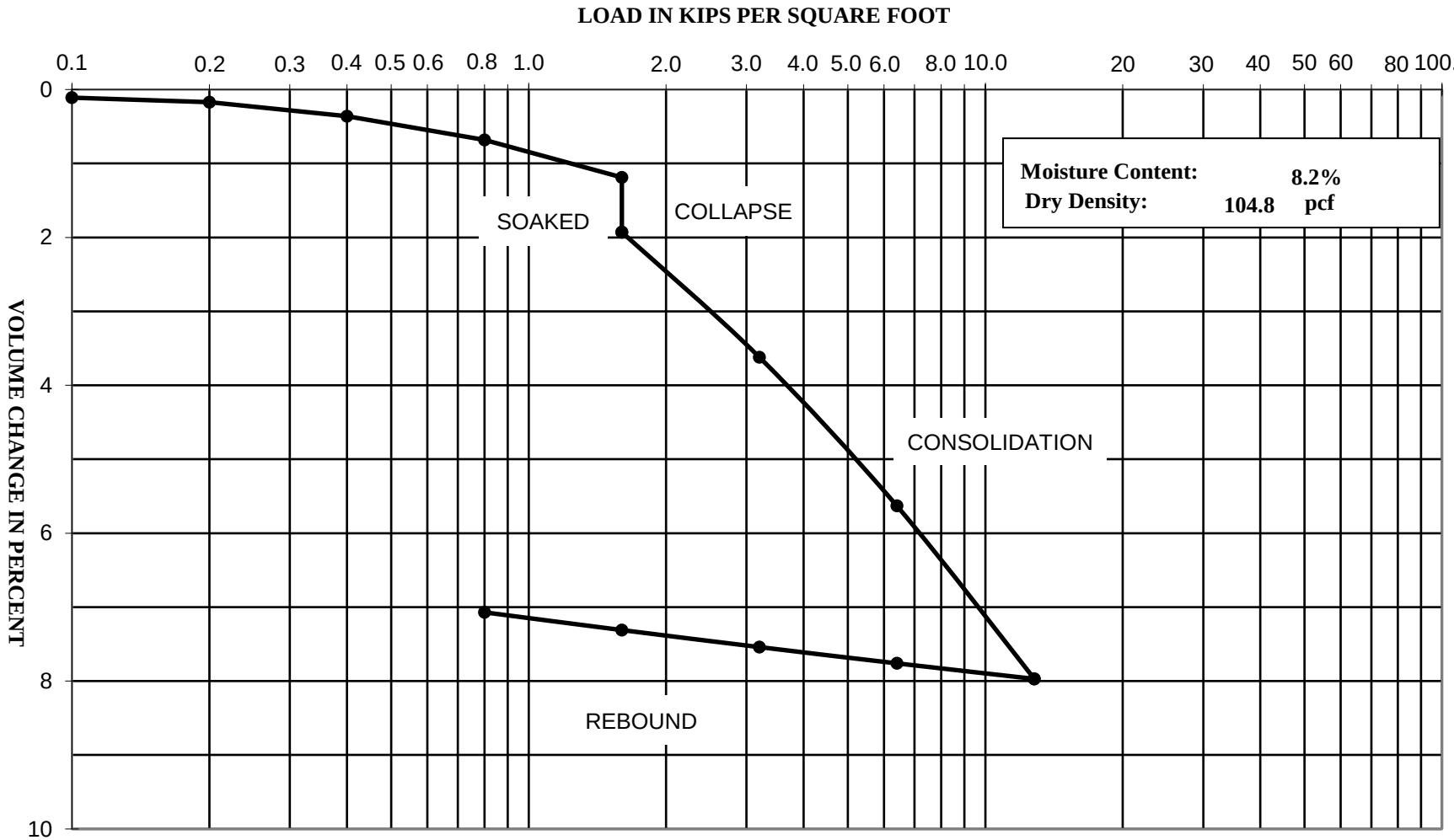
APPENDIX

B

APPENDIX B
LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM), Caltrans, or other suggested procedures. Selected samples were tested for in-situ dry density and moisture content, corrosivity, consolidation, shear strength, maximum density and optimum moisture content, expansion index, and grain size distribution. The results of the laboratory tests are summarized in the following figures.

CONSOLIDATION - PRESSURE TEST DATA
ASTM D2435



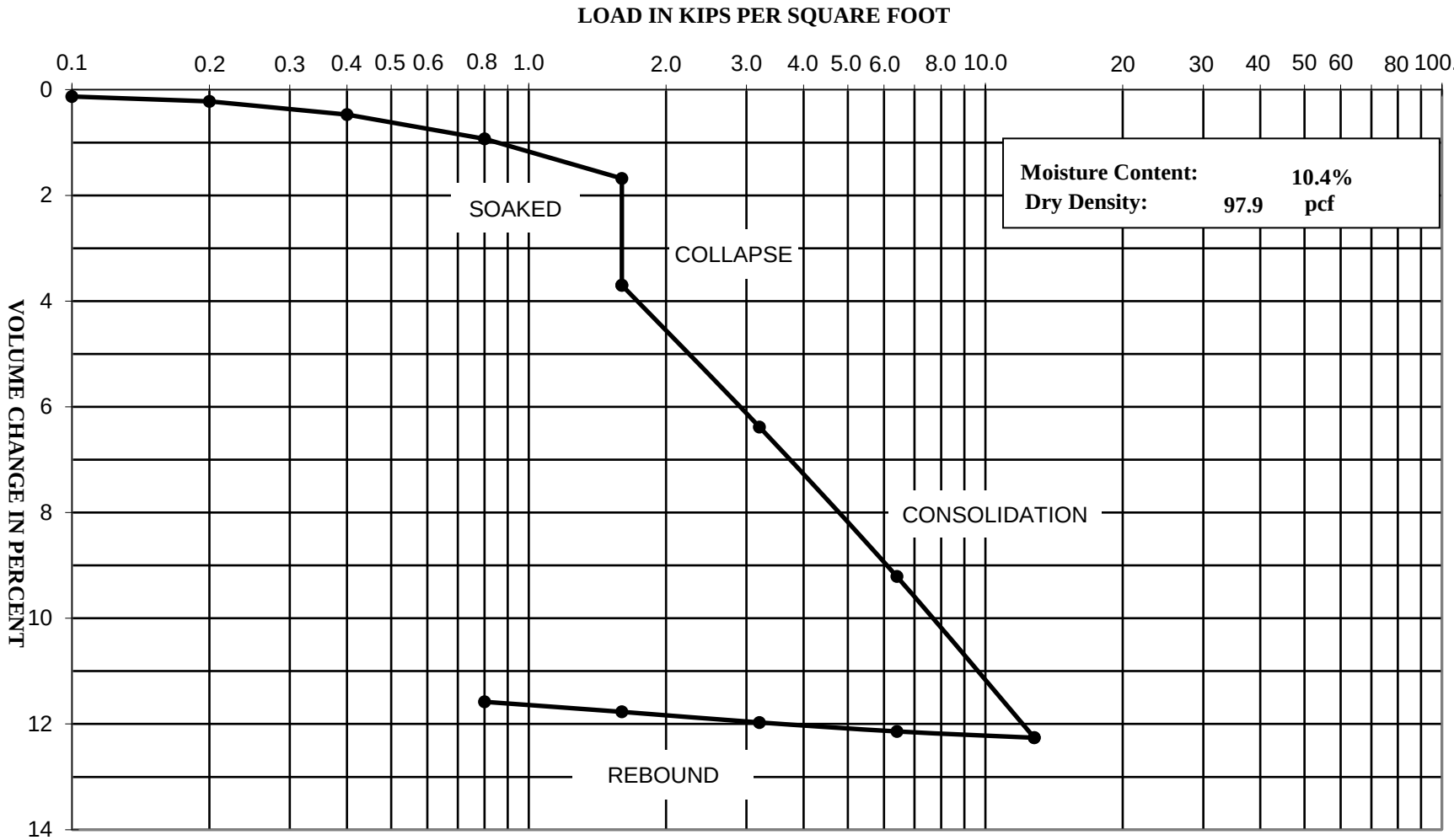
Project Name: Proposed Multi-Tenant Development - Beaumont, CA

Project Number: 3-220-0008

Boring: B-1 @ 5'

SALEM engineering group, inc.

CONSOLIDATION - PRESSURE TEST DATA
ASTM D2435



Project Name: Proposed Multi-Tenant Development - Beaumont, CA

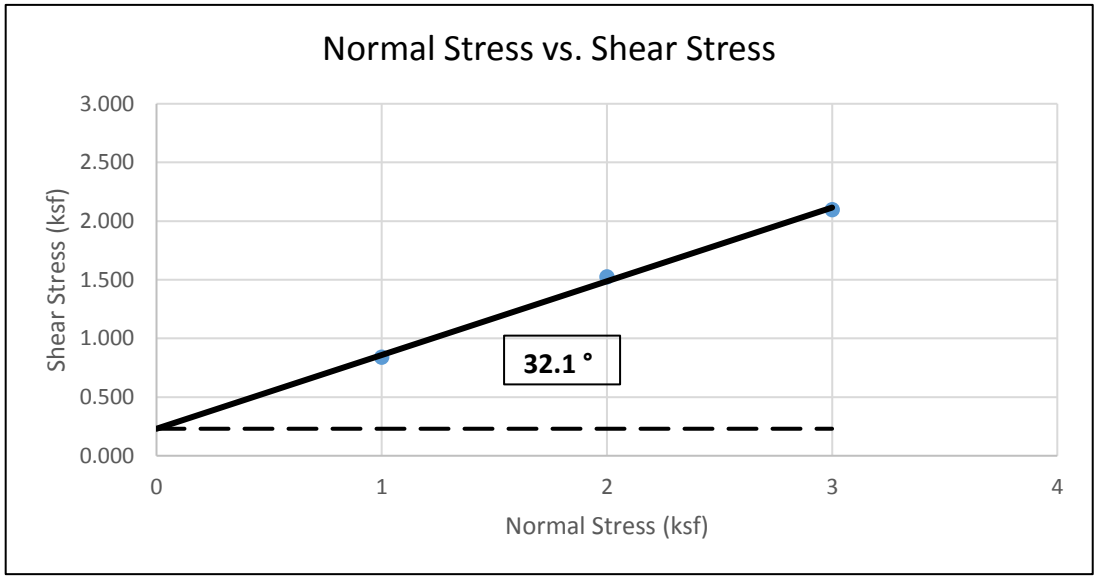
Project Number: 3-220-0008

Boring: B-4 @ 2'

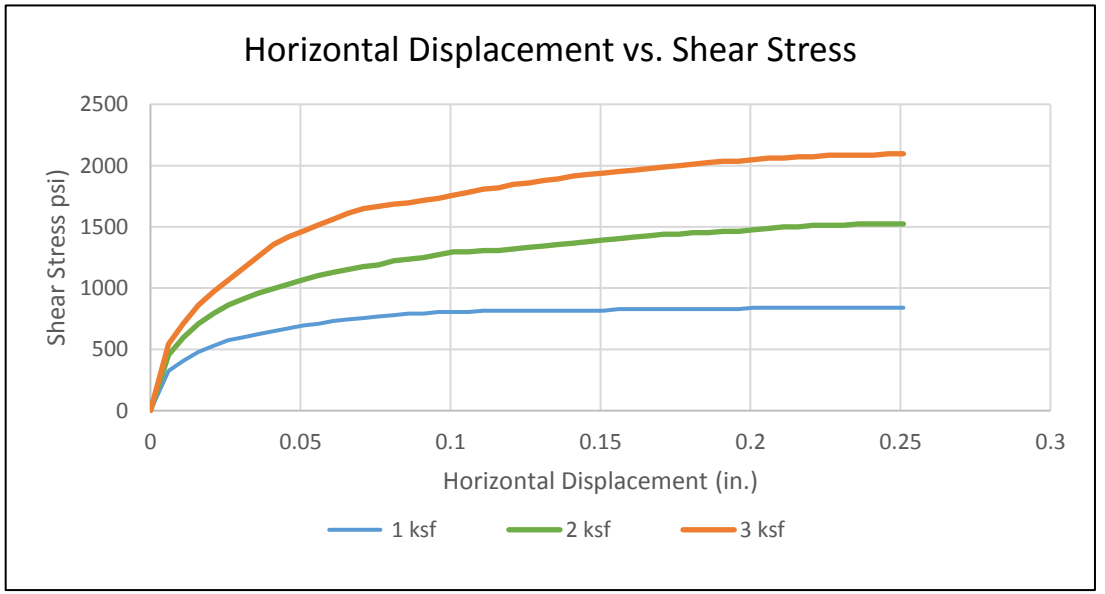
SALEM engineering group, inc.

Direct Shear Test (ASTM D3080)

Project Name:	Commercial- Beaumont, CA
Project Number:	3-220-0008
Client:	0.00
Sample Location:	B-1 @ 2'
Sample Type:	Undisturbed Ring
Soil Classification:	SM/ML
Tested By:	M. Noorzay
Reviewed By:	CJ
Date:	1/22/2020
Equipment Used:	Geomatic Direct Shear Machine



	Sample 1	Sample 2	Sample 3
Normal Stress (ksf)	1.000	2.000	3.000
Shear Rate (in/min)	0.004		
Peak Shear Stress (ksf)	0.840	1.524	2.097
Residual Shear Stress (ksf)	0.000	0.000	0.000



Initial Height of Sample (in)	1.000	1.000	1.000
Height of Sample before Shear (in.)	1	1	1
Diameter of Sample (in)	2.416	2.416	2.416
Initial Moisture Content (%)	11.9		
Final Moisture Content (%)	15.3	14.7	14.3
Dry Density (pcf)	110.9	114.1	113.5

Peak Shear Strength Values	
Slope	0.63
Friction Angle	32.1
Cohesion (psf)	230.16

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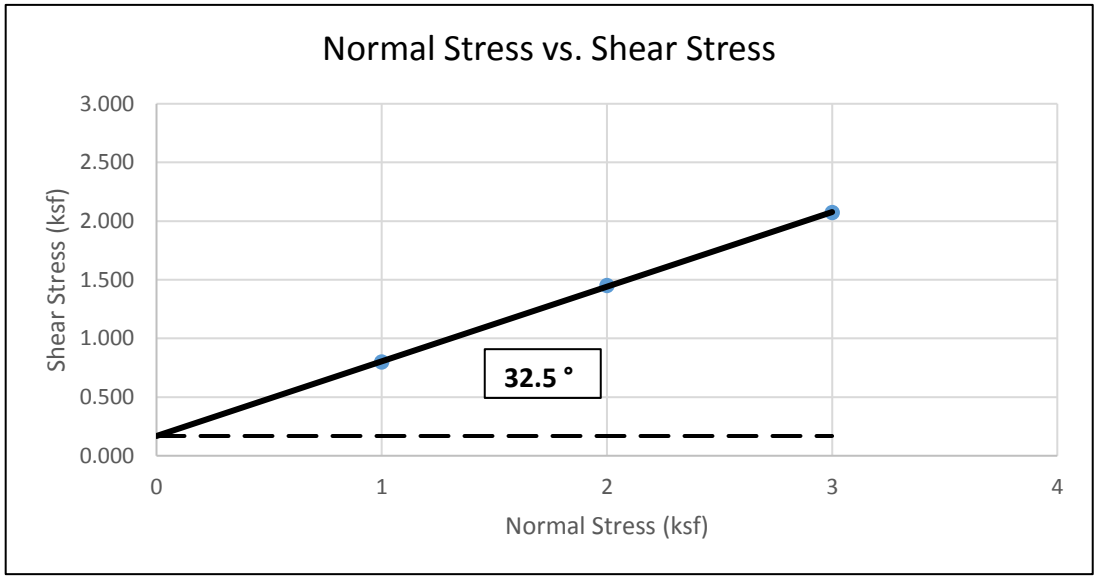
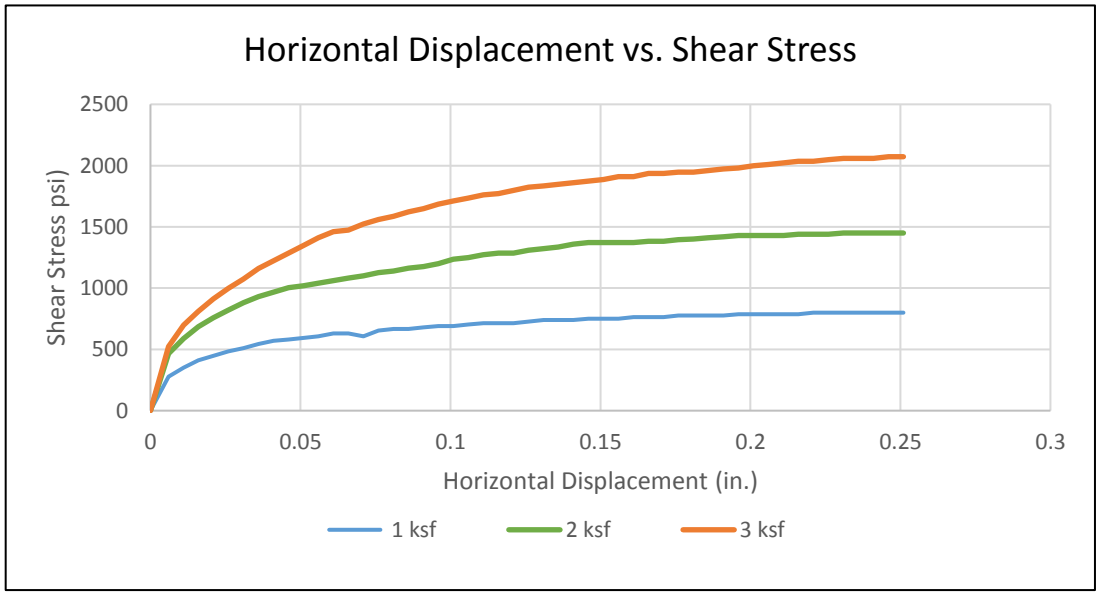
SALEM engineering group, inc.

Direct Shear Test (ASTM D3080)

Project Name:	Commercial- Beaumont, CA
Project Number:	3-220-0008
Client:	0.00
Sample Location:	B-4 @ 5'
Sample Type:	Undisturbed Ring
Soil Classification:	SM/ML
Tested By:	M. Noorzay
Reviewed By:	CJ
Date:	1/23/2020
Equipment Used:	Geomatic Direct Shear Machine



	Sample 1	Sample 2	Sample 3
Normal Stress (ksf)	1.000	2.000	3.000
Shear Rate (in/min)	0.004		
Peak Shear Stress (ksf)	0.800	1.450	2.072
Residual Shear Stress (ksf)	0.000	0.000	0.000



Initial Height of Sample (in)	1.000	1.000	1.000
Height of Sample before Shear (in.)	1	1	1
Diameter of Sample (in)	2.416	2.416	2.416
Initial Moisture Content (%)	7.7		
Final Moisture Content (%)	18.7	18.5	18.4
Dry Density (pcf)	101.8	102.4	108.5

Peak Shear Strength Values	
Slope	0.64
Friction Angle	32.5
Cohesion (psf)	168.242133

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SALEM engineering group, inc.

Direct Shear Test (ASTM D3080)

Project Name:	Commercial- Beaumont, CA
Project Number:	3-220-0008
Client:	0.00
Sample Location:	B-6 @ 5'
Sample Type:	Undisturbed Ring
Soil Classification:	SM/ML
Tested By:	M. Noorzay
Reviewed By:	CJ
Date:	1/24/2020
Equipment Used:	Geomatic Direct Shear Machine

	Sample 1	Sample 2	Sample 3
Normal Stress (ksf)	1.000	2.000	3.000
Shear Rate (in/min)	0.004		
Peak Shear Stress (ksf)	0.710	1.541	2.015
Residual Shear Stress (ksf)	0.000	0.000	0.000

Initial Height of Sample (in)	1.000	1.000	1.000
Height of Sample before Shear (in.)	1	1	1
Diameter of Sample (in)	2.416	2.416	2.416
Initial Moisture Content (%)	5.9		
Final Moisture Content (%)	18.0	16.1	15.6
Dry Density (pcf)	94.9	96.7	95.6

Peak Shear Strength Values	
Slope	0.65
Friction Angle	33.1
Cohesion (psf)	117.1252

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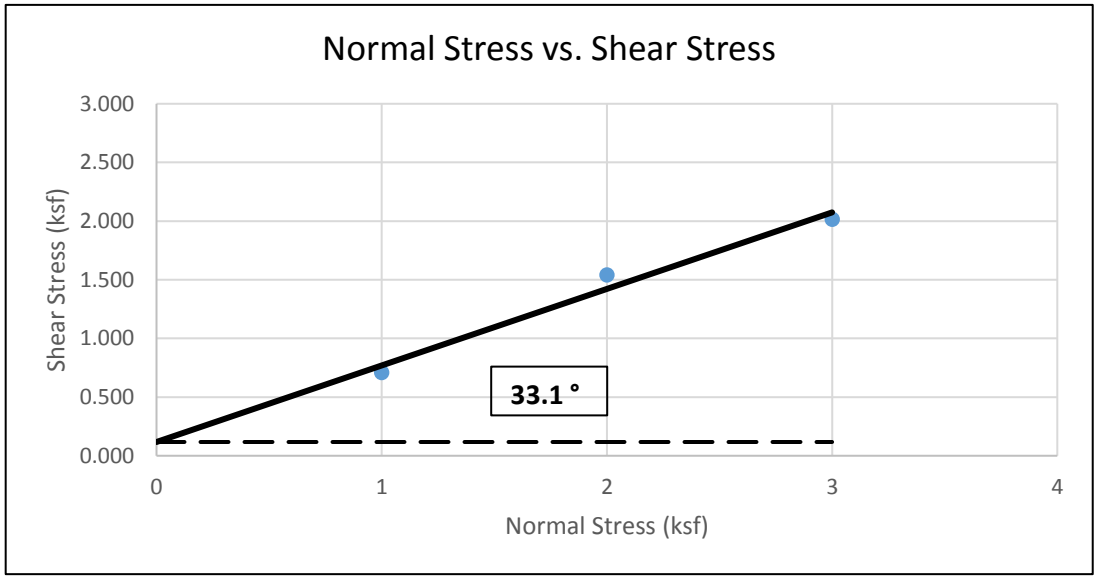
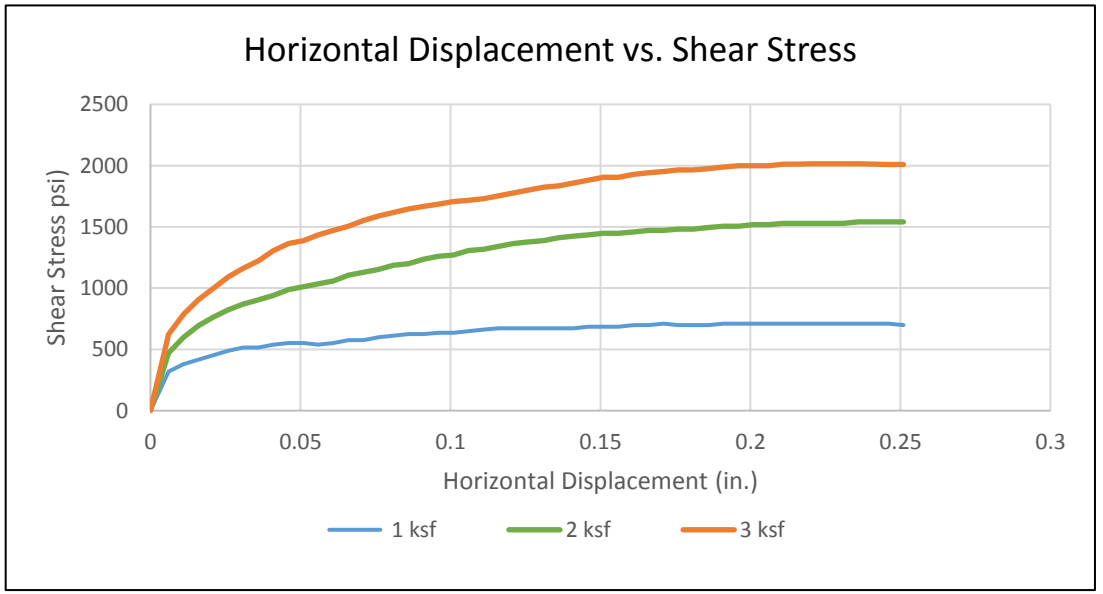
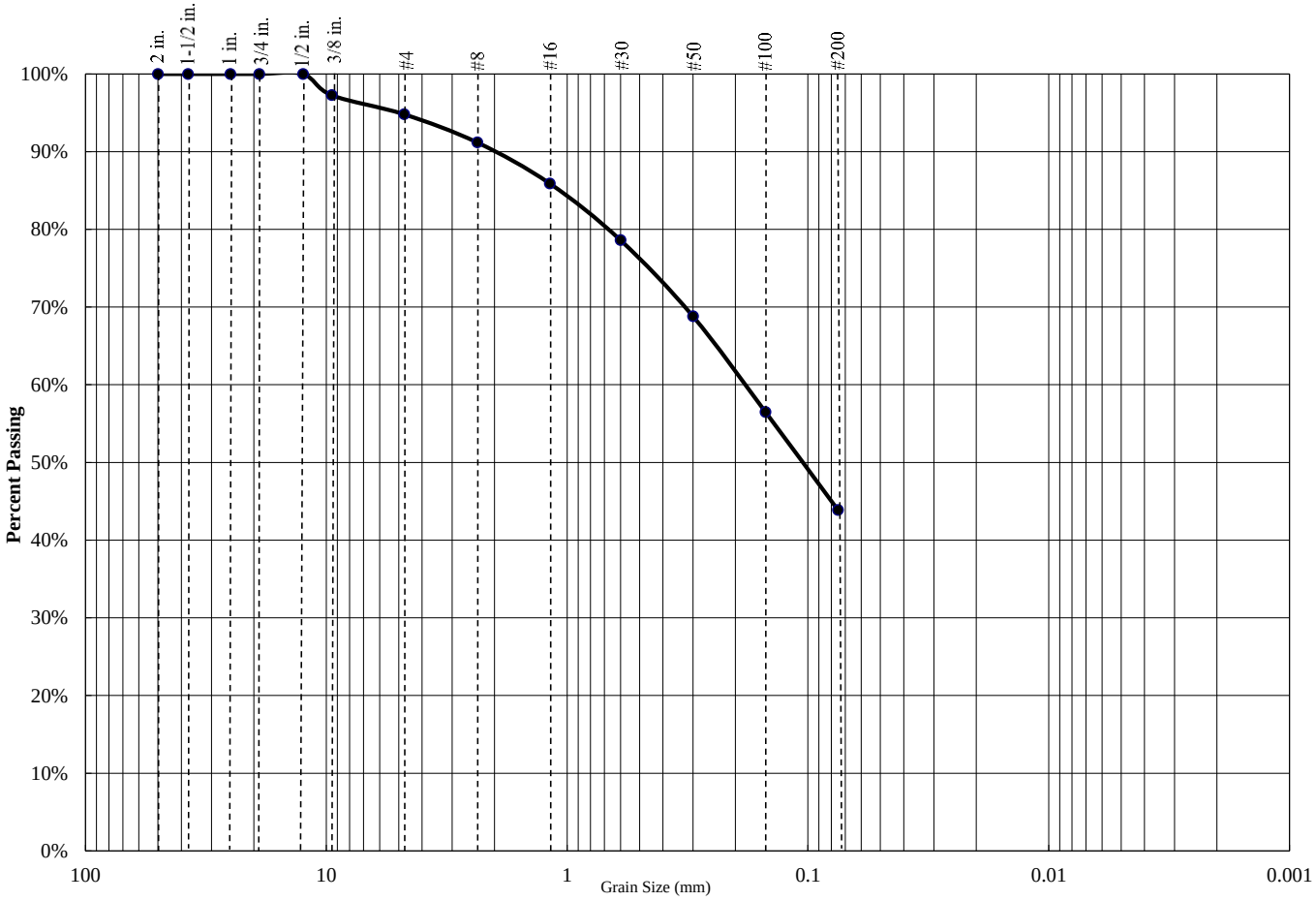




SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
5%	51%	44%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	97.3%
#4	94.8%
#8	91.2%
#16	85.9%
#30	78.6%
#50	68.8%
#100	56.5%
#200	43.9%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
0

Project Name: Proposed Multi-Tenant Development - Beaumont, CA

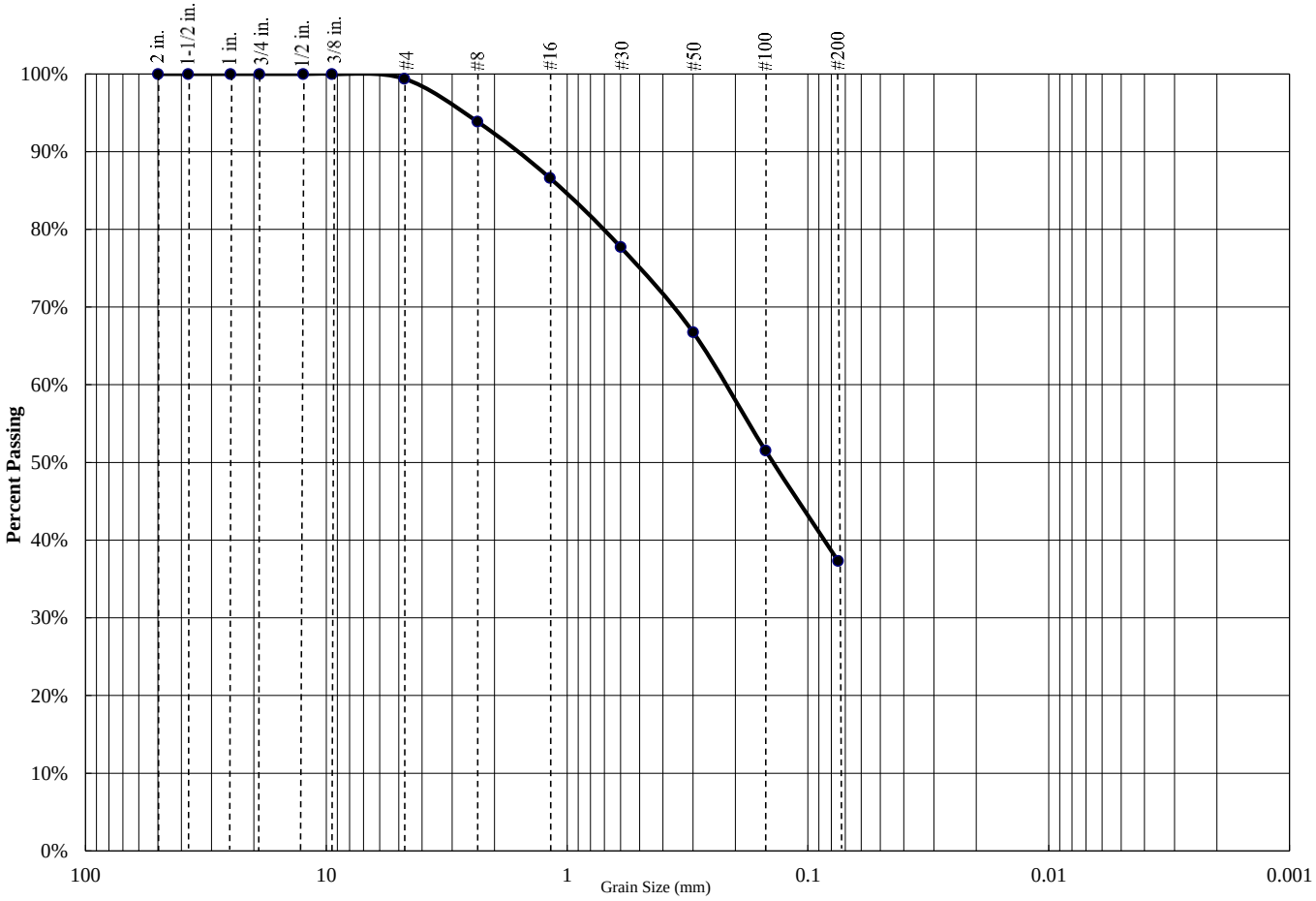
Project Number: 3-220-0008

Boring: B-1 @ 2'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	62%	37%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.4%
#8	93.9%
#16	86.6%
#30	77.7%
#50	66.8%
#100	51.5%
#200	37.3%

Atterberg Limits		
PL=	**LL=**	**PI=**

Coefficients					
D_{85}=		**D_{60}=**		**D_{50}=**	
D_{30}=		**D_{15}=**		**D_{10}=**	
C_u=	N/A	**C_c=**	N/A		

USCS CLASSIFICATION
0

Project Name: Proposed Multi-Tenant Development - Beaumont, CA

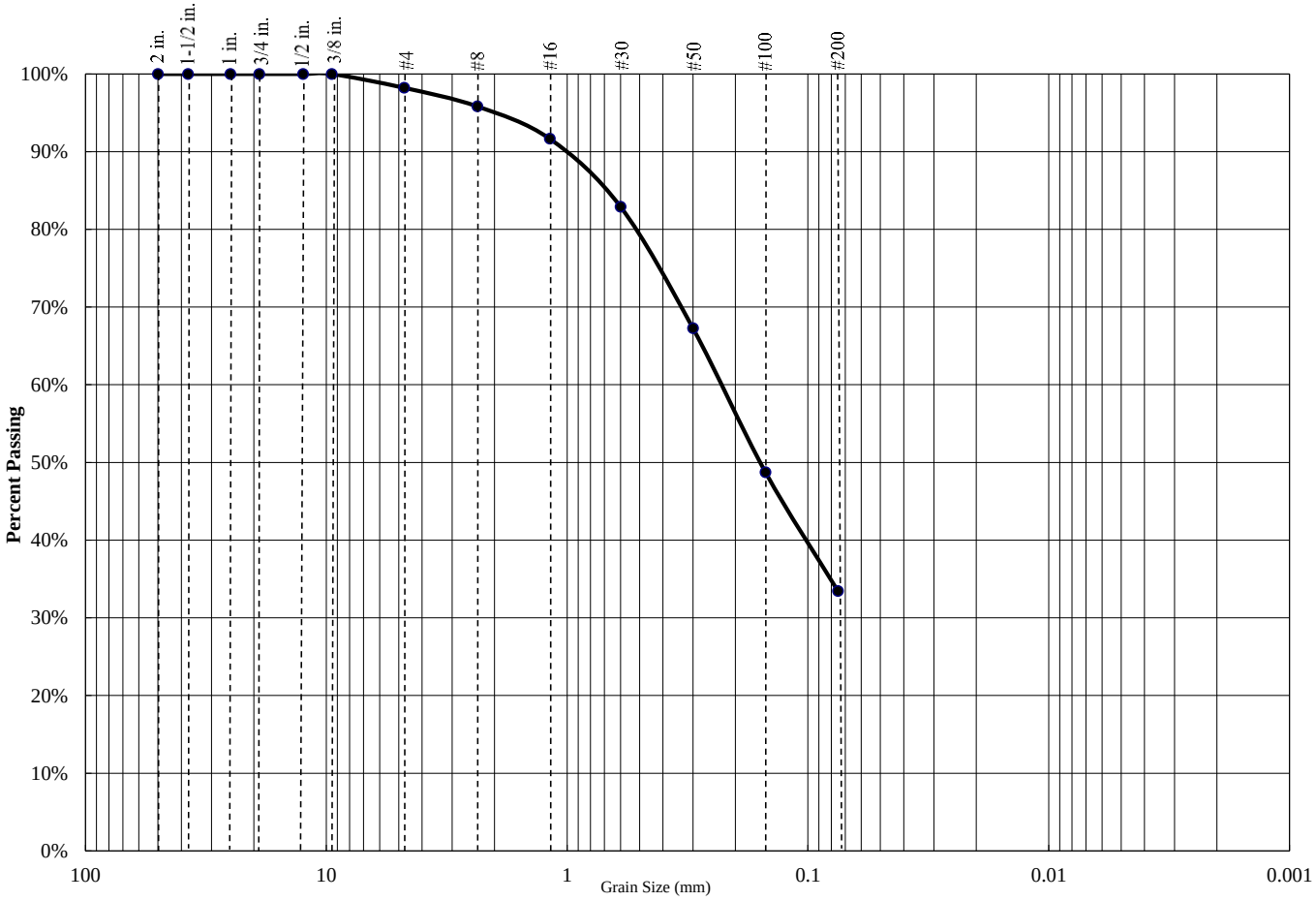
Project Number: 3-220-0008

Boring: B-1 @ 5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
2%	65%	33%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	98.2%
#8	95.8%
#16	91.7%
#30	82.9%
#50	67.3%
#100	48.7%
#200	33.4%

Atterberg Limits		
PL=	**LL=**	**PI=**

Coefficients					
D_{85}=		**D_{60}=**		**D_{50}=**	
D_{30}=		**D_{15}=**		**D_{10}=**	
C_u=	N/A	**C_c=**	N/A		

USCS CLASSIFICATION
0

Project Name: Proposed Multi-Tenant Development - Beaumont, CA

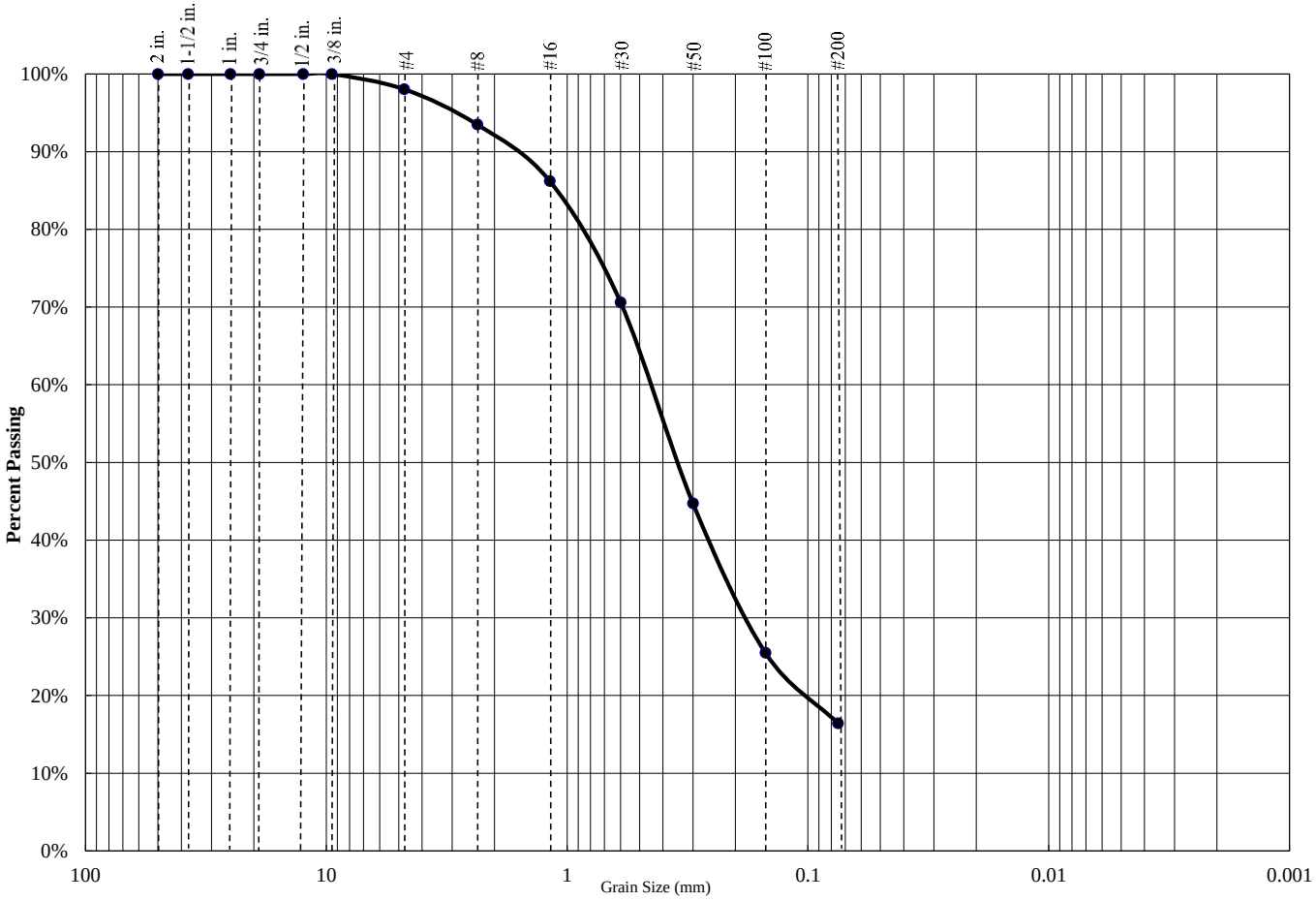
Project Number: 3-220-0008

Boring: B-1 @ 10'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
2%	82%	16%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	98.0%
#8	93.5%
#16	86.2%
#30	70.6%
#50	44.7%
#100	25.5%
#200	16.4%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
0

Project Name: Proposed Multi-Tenant Development - Beaumont, CA

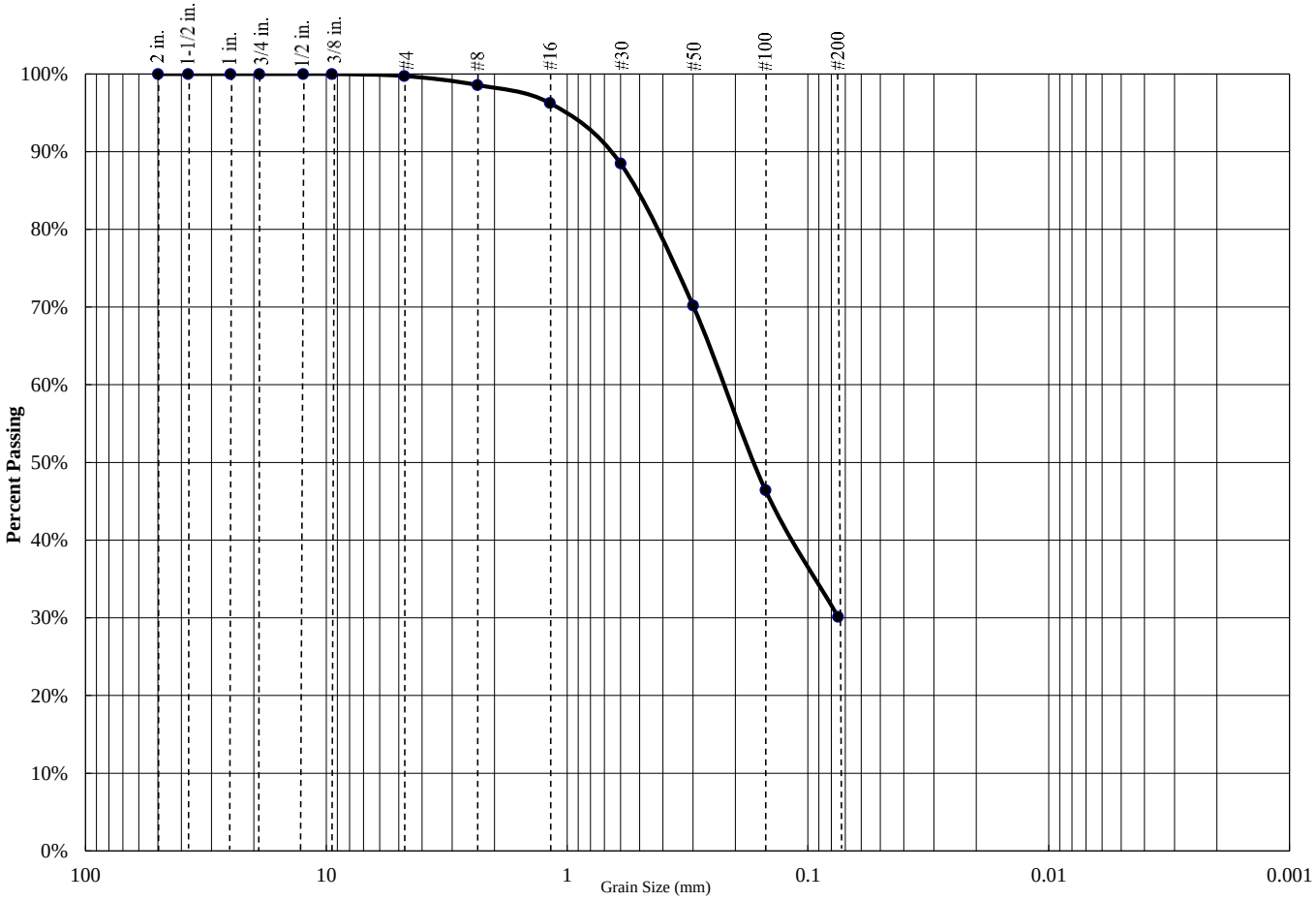
Project Number: 3-220-0008

Boring: B-1 @ 20'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	70%	30%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.7%
#8	98.6%
#16	96.3%
#30	88.5%
#50	70.2%
#100	46.4%
#200	30.1%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
0

Project Name: Proposed Multi-Tenant Development - Beaumont, CA

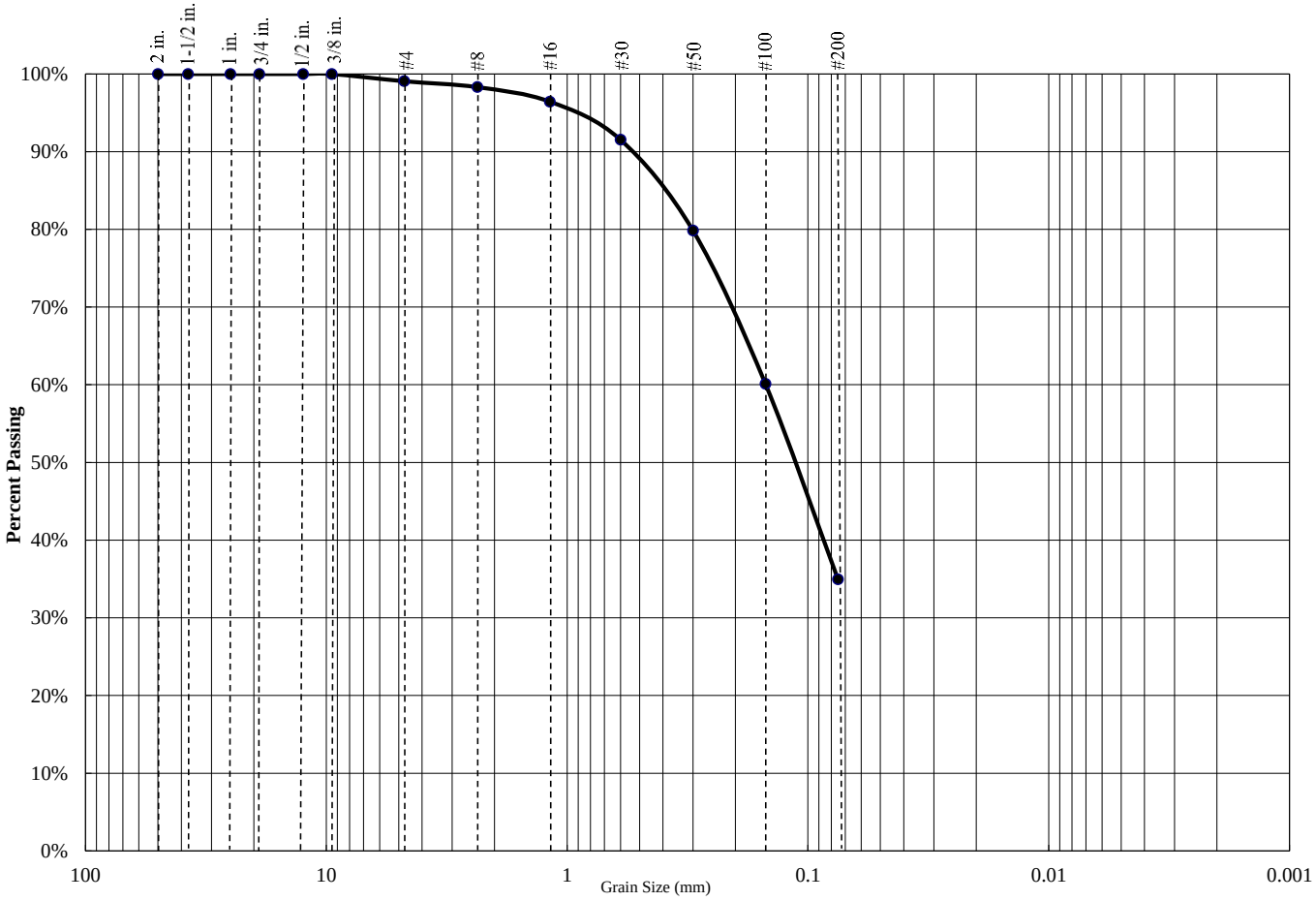
Project Number: 3-220-0008

Boring: B-1 @ 25'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	64%	35%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.1%
#8	98.3%
#16	96.4%
#30	91.5%
#50	79.8%
#100	60.1%
#200	34.9%

Atterberg Limits		
PL=	**LL=**	**PI=**

Coefficients					
D_{85}=		**D_{60}=**		**D_{50}=**	
D_{30}=		**D_{15}=**		**D_{10}=**	
C_u=	N/A	**C_c=**	N/A		

USCS CLASSIFICATION
0

Project Name: Proposed Multi-Tenant Development - Beaumont, CA

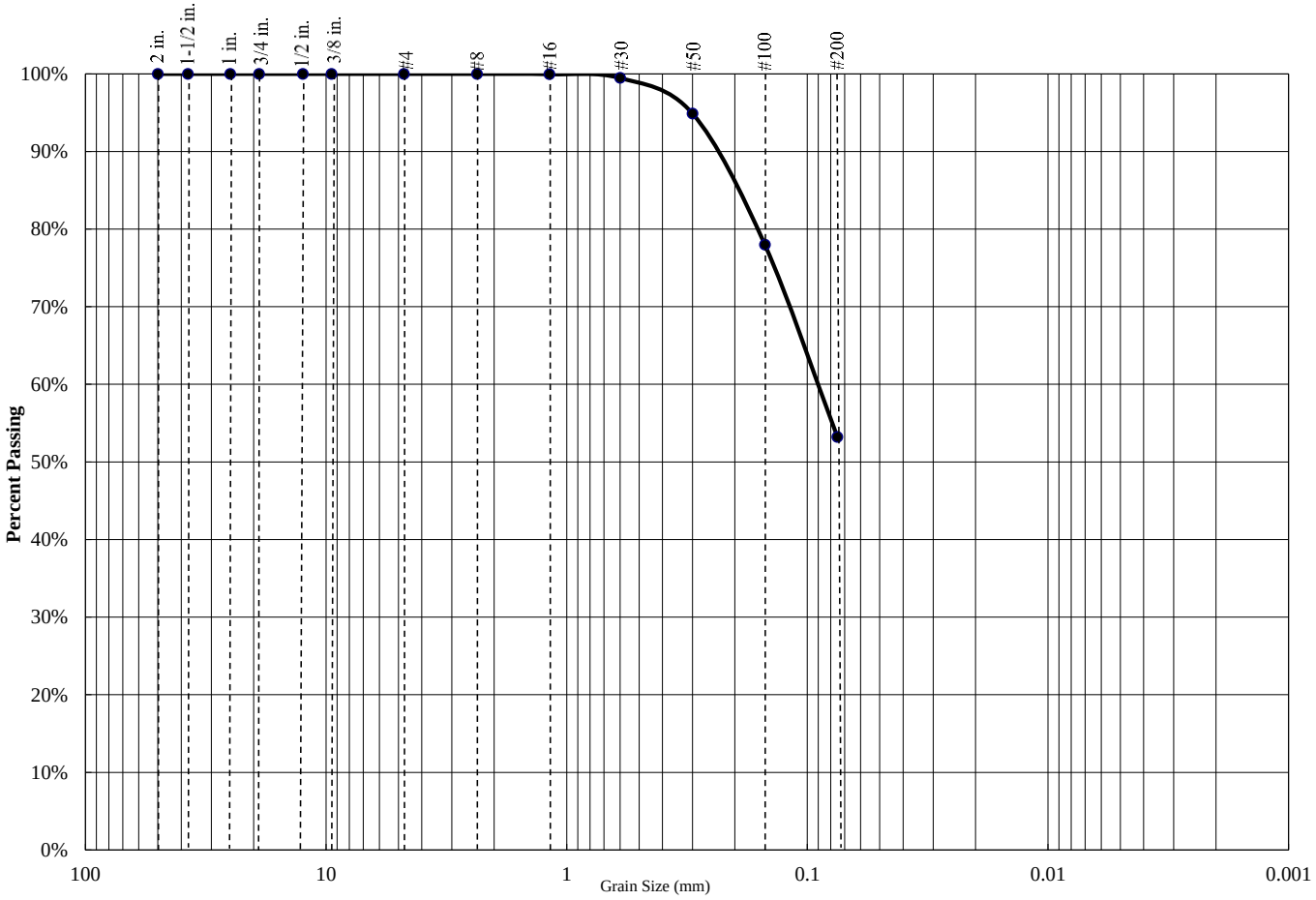
Project Number: 3-220-0008

Boring: B-1 @ 35'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	47%	53%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	100.0%
#8	100.0%
#16	100.0%
#30	99.5%
#50	94.9%
#100	78.0%
#200	53.2%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
0

Project Name: Proposed Multi-Tenant Development - Beaumont, CA

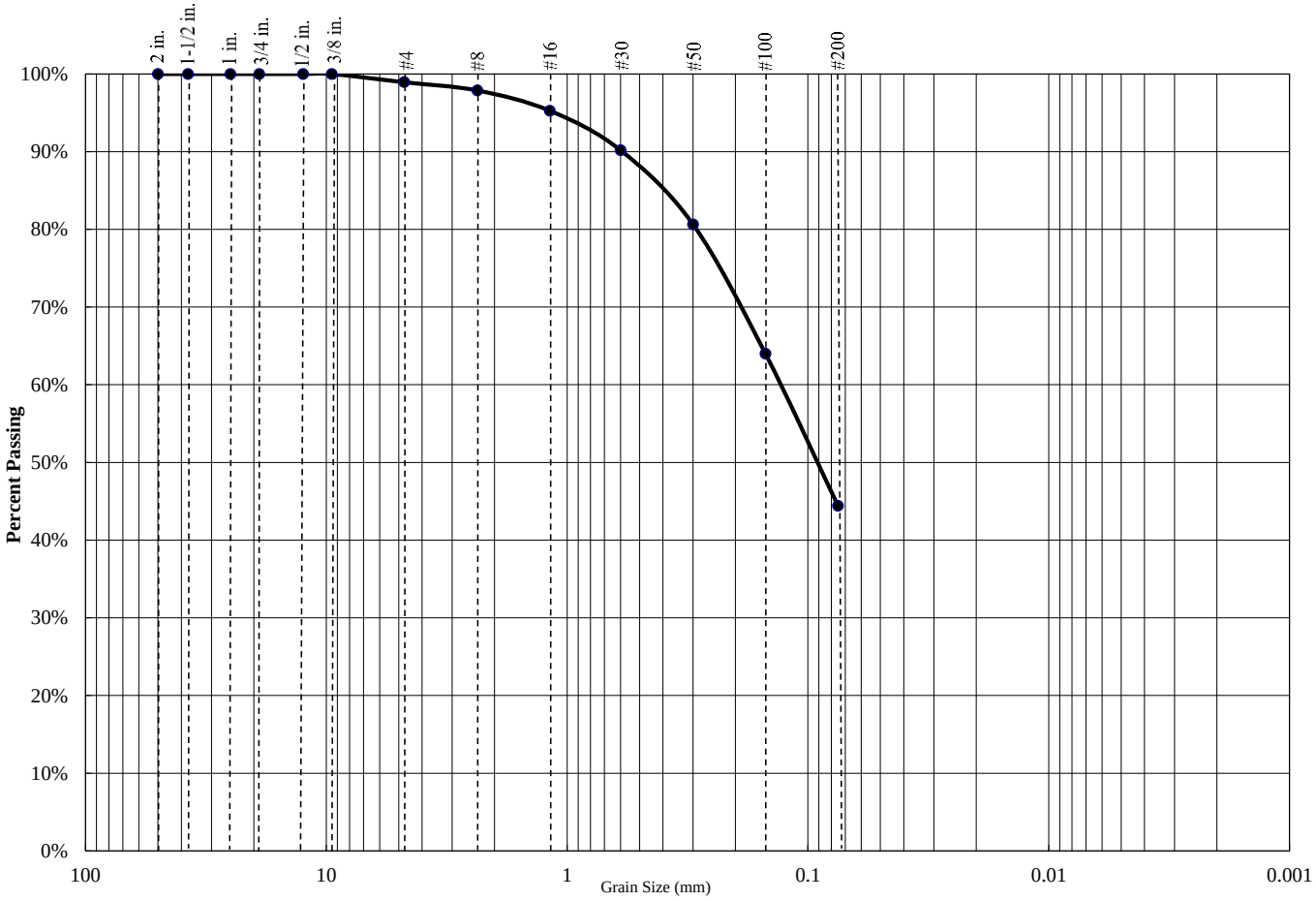
Project Number: 3-220-0008

Boring: B-1 @ 40'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	54%	44%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	98.9%
#8	97.9%
#16	95.3%
#30	90.2%
#50	80.6%
#100	64.0%
#200	44.4%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
0

Project Name: Proposed Multi-Tenant Development - Beaumont, CA

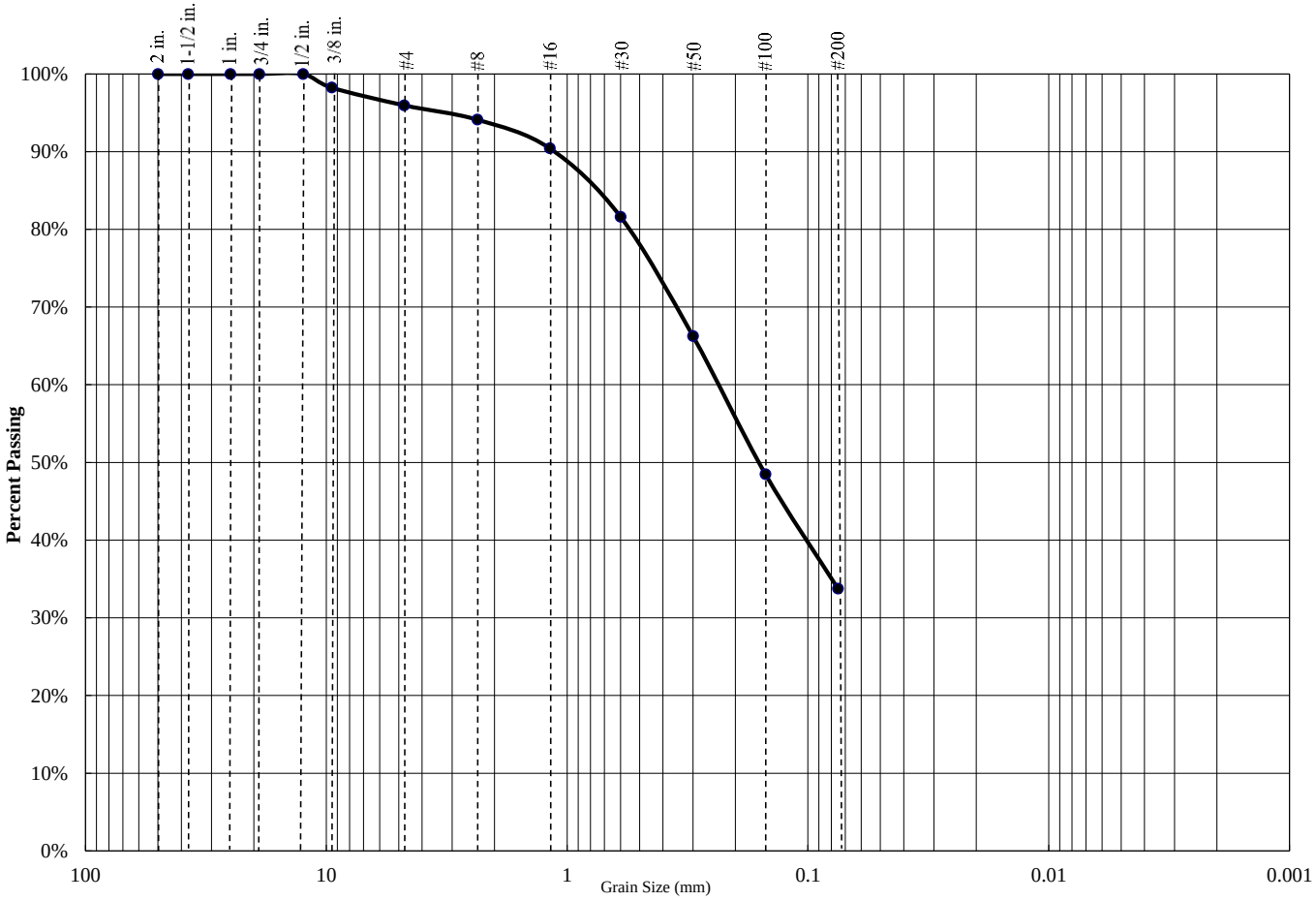
Project Number: 3-220-0008

Boring: B-1 @ 45'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
4%	62%	34%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	98.2%
#4	96.0%
#8	94.1%
#16	90.4%
#30	81.6%
#50	66.3%
#100	48.5%
#200	33.7%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
0

Project Name: Proposed Multi-Tenant Development - Beaumont, CA

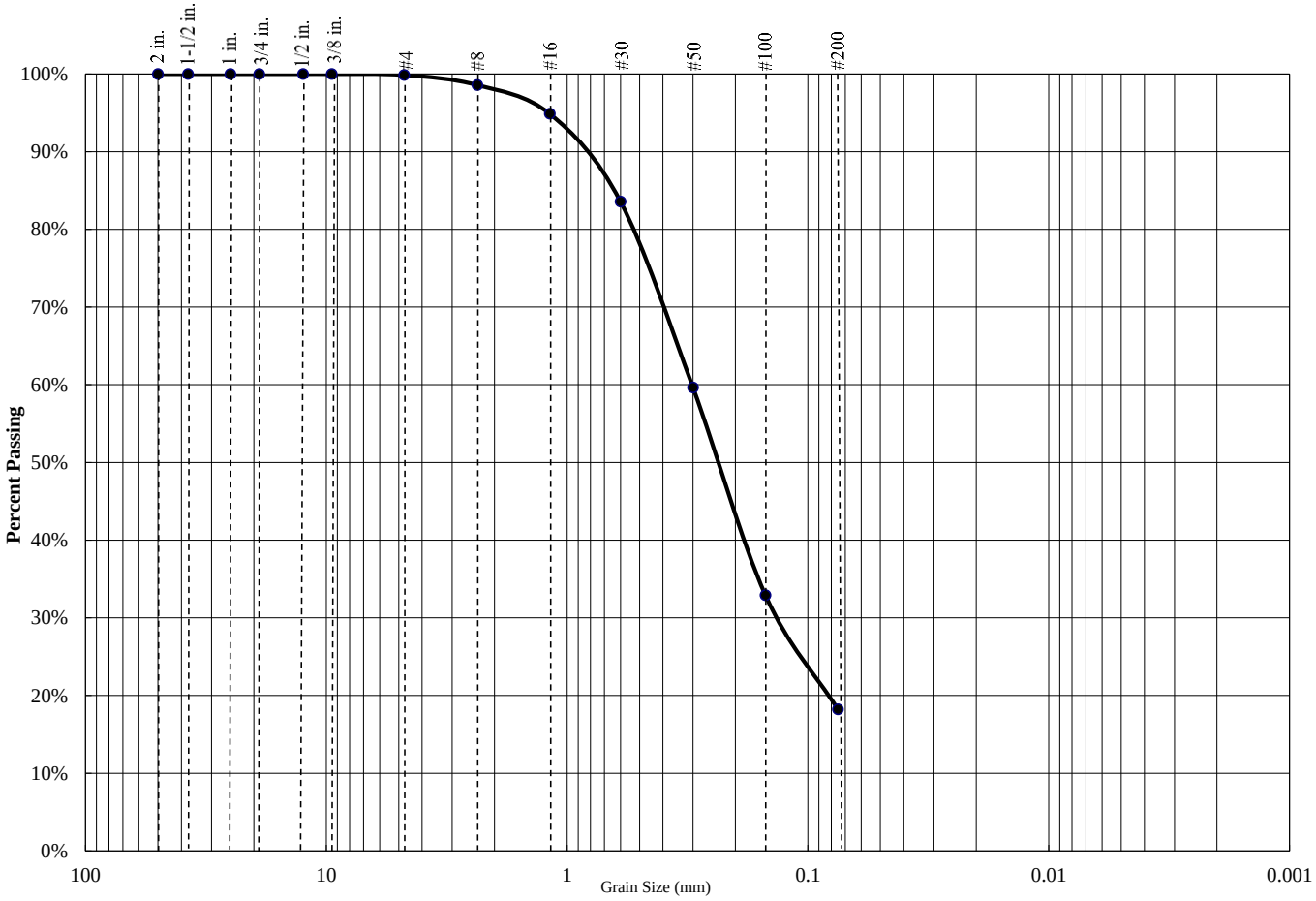
Project Number: 3-220-0008

Boring: B-7 @ 10'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	82%	18%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.9%
#8	98.6%
#16	94.9%
#30	83.6%
#50	59.6%
#100	32.9%
#200	18.2%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
0

Project Name: Proposed Multi-Tenant Development - Beaumont, CA

Project Number: 3-220-0008

Boring: B-7 @ 20'

SALEM engineering group, inc.

EXPANSION INDEX TEST
ASTM D4829

Project Name: Proposed Multi-Tenant Development - Beaumont, CA
Project Number: 3-220-0008
Date Sampled: 1/17/2020 Date Tested: 1/24/2020
Sampled By: SK Tested By: MN
Sample Location: B-1 @ 0'-3'
Soil Description: Reddish brown Silty SAND (SM)

Trial #	1	2	3
Weight of Soil & Mold, g.	767.1		
Weight of Mold, g.	368.5		
Weight of Soil, g.	398.6		
Wet Density, pcf	120.2		
Weight of Moisture Sample (Wet), g.	800.0		
Weight of Moisture Sample (Dry), g.	730.6		
Moisture Content, %	9.5		
Dry Density, pcf	109.8		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	48.0		

Time	Inital	30 min	1 hr	6 hrs	12 hrs	24 hrs
Dial Reading	0	0.002	0.002	0.003	--	0.003

Expansion Index $_{measured}$ = 3
Expansion Index $_{50}$ = 2.2

Expansion Index = **2**

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

SALEM engineering group, inc.

CHEMICAL ANALYSIS

SO_4 - Modified CTM 417 & Cl - Modified CTM 417/422

Project Name: Proposed Multi-Tenant Development - Beaumont, CA
Project Number: 3-220-0008
Date Sampled: 1/17/2020 Date Tested: 1/22/2020
Sampled By: SK Tested By: MN
Soil Description: Reddish brown Silty SAND (SM)

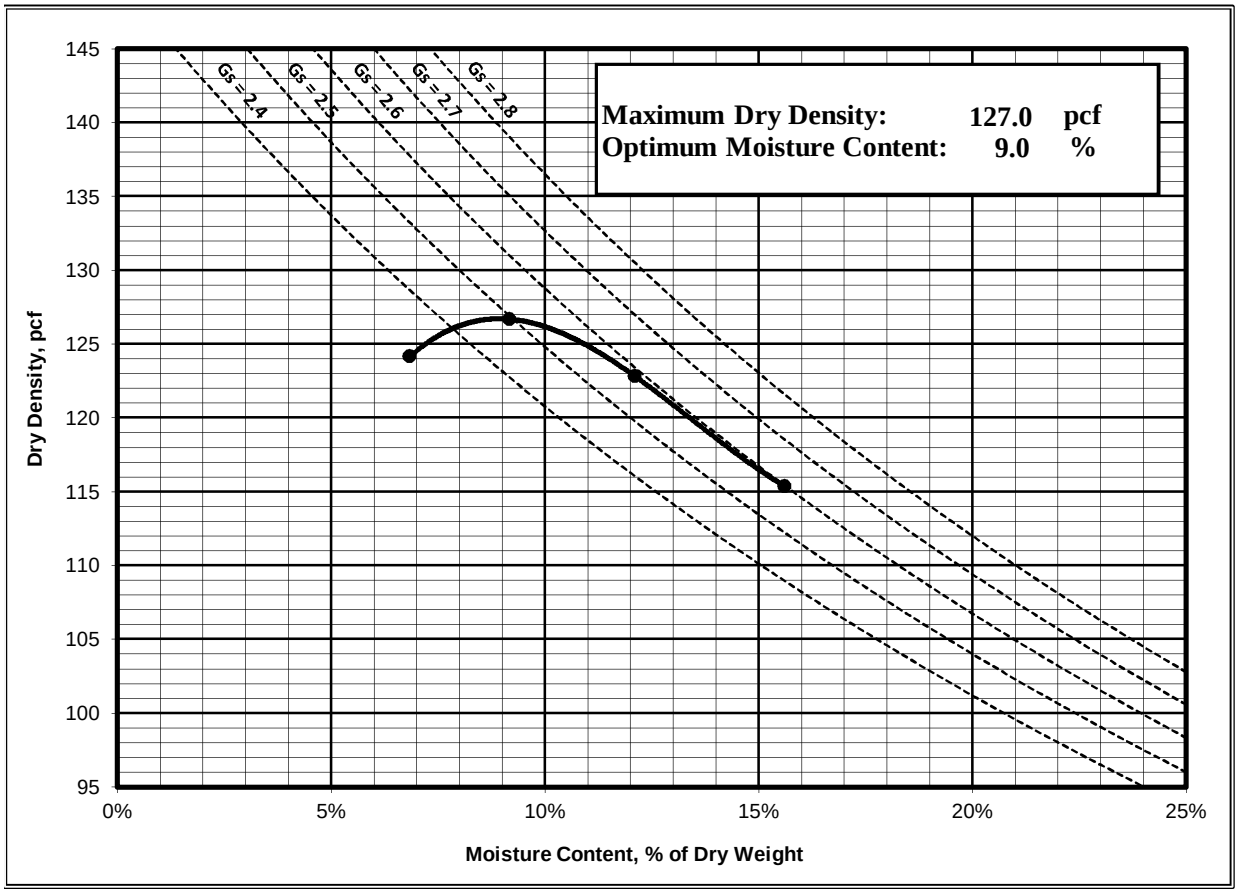
Sample Number	Sample Location	Soluble Sulfate SO_4-S	Soluble Chloride Cl	pH
1a.	B-1 @ 0'-3'	110 mg/kg	57 mg/kg	7.7
1b.	B-1 @ 0'-3'	120 mg/kg	58 mg/kg	7.7
1c.	B-1 @ 0'-3'	110 mg/kg	58 mg/kg	7.7
Average:		**113 mg/kg**	**58 mg/kg**	**7.7**

SALEM engineering group, inc.

Laboratory Compaction Curve
ASTM D1557

Project Name: Proposed Multi-Tenant Development - Beaumont, CA
Project Number: 3-220-0008
Date Sampled: 1/17/2020 Date Tested: 1/22/2020
Sampled By: SK Tested By: MN
Sample Location: B-1 @ 0'-3'
Soil Description: Reddish brown Silty SAND (SM)
Test Method: Method A

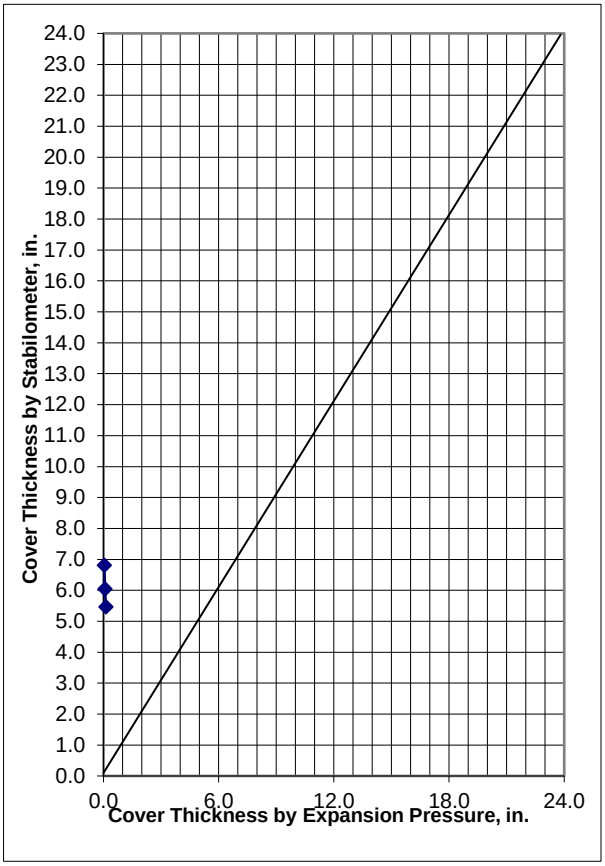
	1	2	3	4
Weight of Moist Specimen & Mold, (g)	4263.7	4349.2	4340.0	4274.8
Weight of Compaction Mold, (g)	2258.4	2258.4	2258.4	2258.4
Weight of Moist Specimen, (g)	2005.3	2090.8	2081.6	2016.4
Volume of Mold, (ft^3)	0.0333	0.0333	0.0333	0.0333
Wet Density, (pcf)	132.6	138.3	137.7	133.4
Weight of Wet (Moisture) Sample, (g)	100.0	100.0	100.0	100.0
Weight of Dry (Moisture) Sample, (g)	93.6	91.6	89.2	86.5
Moisture Content, (%)	6.8%	9.2%	12.1%	15.6%
Dry Density, (pcf)	124.1	126.7	122.8	115.4

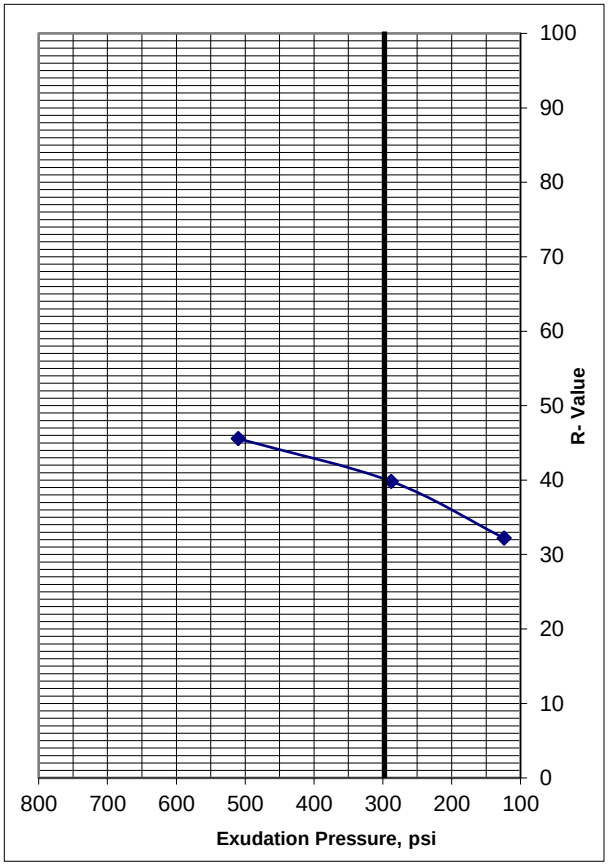


SALEM engineering group, inc.

Resistance R-Value
and Expansion Pressure of Compacted Soils
ASTM D2844, CTM 301

Project Name: Multi-Tenant Development - Beaumont, CA
Project Number: 3-220-0008
Sample Date: 01/17/2020 Date Tested: 1/27/2020
Sampled By: SK Tested By: CM
Sample Location: B-1
Soil Classification: Silty SAND





Specimen	1	2	3
Exudation Pressure, psi	510	288	123.6
Moisture at Test, %	9.2	9.7	10.2
Dry Density, pcf	120.9	120.0	119.4
Expansion Pressure, psf	13	9	4
Thickness by Stabilometer, in.	5.5	6.0	6.8
Thickness by Expansion Pressure, in	0.1	0.1	0.0
R-Value by Stabilometer	46	40	32
R-Value by Expansion Pressure	N/A		
R-Value at 300 psi Exudation Pressure	40		

Controlling R-Value	**40**

SALEM engineering group, inc.

APPENDIX

C

APPENDIX C
GENERAL EARTHWORK AND PAVEMENT SPECIFICATIONS

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

1.0 SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including, but not limited to, the furnishing of all labor, tools and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans and disposal of excess materials.

2.0 PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of SALEM Engineering Group, Incorporated, hereinafter referred to as the Soils Engineer and/or Testing Agency. Attainment of design grades, when achieved, shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary adjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer, or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

3.0 TECHNICAL REQUIREMENTS: All compacted materials shall be densified to no less that 95 percent of relative compaction (90 percent for fine grained soils) based on ASTM D1557 Test Method (latest edition), UBC or CAL-216, or as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

4.0 SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the Geotechnical Engineering Report. The Contractor shall make his own interpretation of the data contained in the Geotechnical Engineering Report and the Contractor shall not be relieved of liability for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

5.0 DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or wind-blown materials attributable to his work. Site preparation shall consist of site clearing and grubbing and preparation of foundation materials for receiving fill.

6.0 CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter and all other matter determined by the Soils Engineer to be deleterious. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed improvement areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots greater than 1 inch in diameter. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations is not permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

7.0 SUBGRADE PREPARATION: Surfaces to receive Engineered Fill and/or building or slab loads shall be prepared as outlined above, scarified to a minimum of 12 inches, moisture-conditioned as necessary, and recompacted to 95 percent relative compaction (90 percent for fine grained soils).

Loose soil areas and/or areas of disturbed soil shall be moisture-conditioned as necessary and recompacted to 95 percent relative compaction (90 percent for fine grained soils). All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials shall be approved by the Soils Engineer prior to the placement of any fill material.

8.0 EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

9.0 FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence or approval of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills, provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

10.0 PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. Compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer. Both cut and fill shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

11.0 SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing, or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill is as specified.

12.0 DEFINITIONS - The term "pavement" shall include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term "Standard Specifications": hereinafter referred to, is the most recent edition of the Standard Specifications of the State of California, Department of Transportation. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as determined by ASTM D1557 Test Method (latest edition) or California Test Method 216 (CAL-216), as applicable.

13.0 PREPARATION OF THE SUBGRADE - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 95 percent (90 percent for find grained soils) based upon ASTM D1557. The finished subgrades shall be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

14.0 AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class II material, ¾-inch or 1½-inches maximum size. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent based upon CAL-216. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

15.0 AGGREGATE SUBBASE - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class II Subbase material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent based upon CAL-216, and it shall be spread and compacted in accordance with the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

16.0 ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades, and dimensions shown on the plans. The viscosity grade of the asphalt shall be PG 64-10, unless otherwise stipulated or local conditions warrant more stringent grade. The mineral aggregate shall be Type A or B, ½ inch maximum size, medium grading, and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning, and mixing of the materials shall conform to Section 39. The prime coat, spreading and compacting equipment, and spreading and compacting the mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50 degrees F. The surfacing shall be rolled with a combination steel-wheel and pneumatic rollers,

as described in the Standard Specifications. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

NOT APPLICABLE

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

NOT APPLICABLE

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: Kimley Horn | Date: 6/4/2021
Designed by: SH | Case No: PW2021-
Company Project Number/Name: 8th and Highland - Dutch Bros Coffee Inc.

BMP Identification

BMP NAME / ID: BMP 1 - SOUTH

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.85 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
DMA 1	*36682*	*Mixed Surface Types*	*0.7*	*0.49*	*18117*			
	36682	***Total***			**18117**	**0.85**	***1283.3***	***1284***

Notes:

Bioretention Facility - Design Procedure	BMP ID: BMP1-SOUTH	Legend:	Required Entries / Calculated Cells

Company Name:	KIMLEY-HORN	Date:	6/4/2021
Designed by:	SH	County/City Case No.:	

Design Volume

Enter the area tributary to this feature	A_T=	0.84	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	1,284	ft^3

Type of Bioretention Facility Design

(●) Side slopes required (parallel to parking spaces or adjacent to walkways)

( ) No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	2.5	ft
Top Width of Bioretention Facility, excluding curb	w_T =	20.0	ft
Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$	d_E =	1.62	ft
Minimum Surface Area, A_m $A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$	A_M =	796	ft^2
Proposed Surface Area	A=	833	ft^2

Bioretention Facility Properties

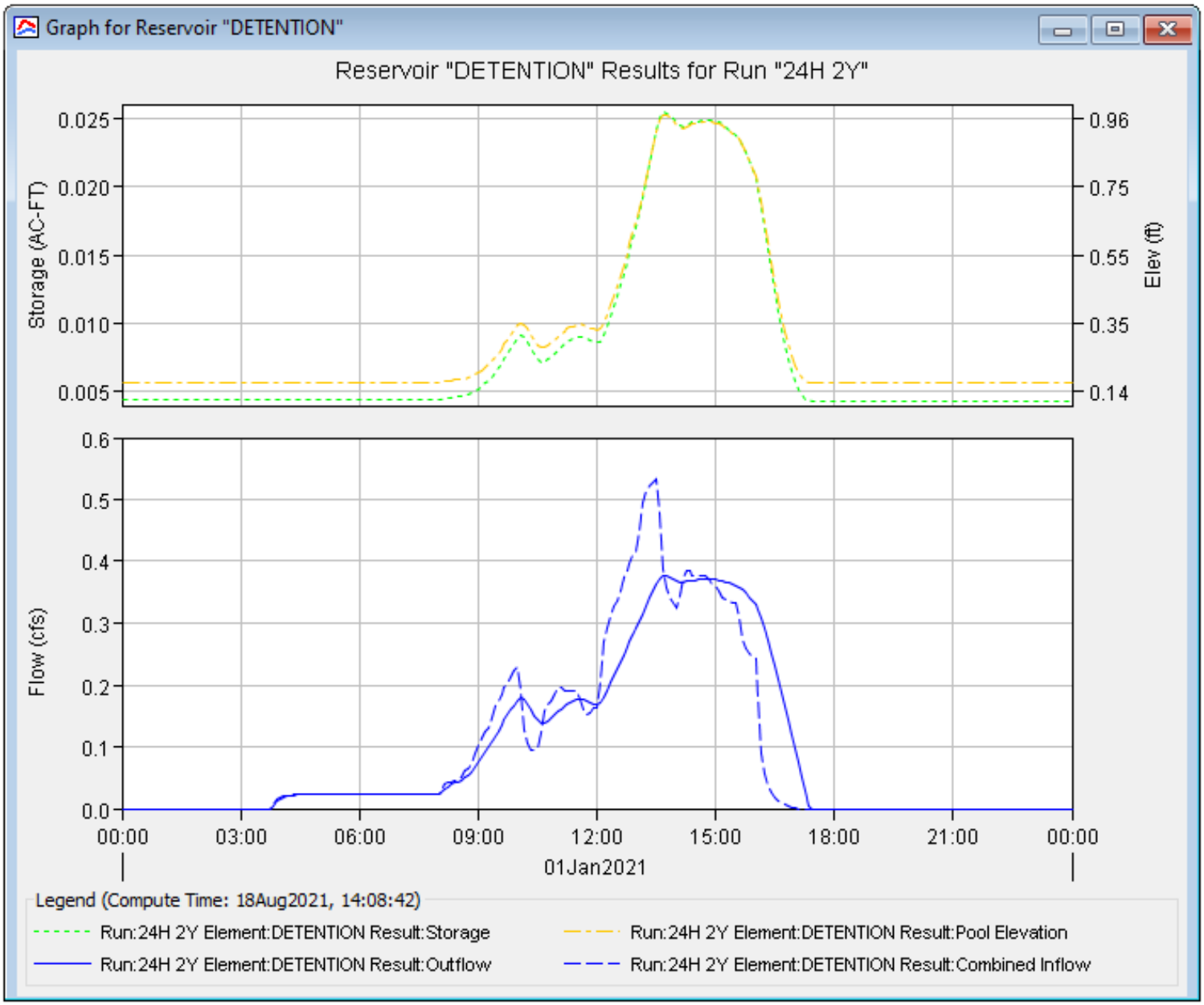
Side Slopes in Bioretention Facility	z =	4	:1
Diameter of Underdrain		6	inches
Longitudinal Slope of Site (3% maximum)		0	%
6" Check Dam Spacing		0	feet
Describe Vegetation:			

Notes:

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

2-YEAR, 24-HOUR
HYDROMODIFICATION



Summary Results for Reservoir "DETENTION"

Project: 8th & Highland Simulation Run: 24H 2Y
Reservoir: DETENTION

Start of Run:	01Jan2021, 00:00	Basin Model:	DMA 1
End of Run:	02Jan2021, 00:00	Meteorologic Model:	24H 2Y
Compute Time:	18Aug2021, 14:08:42	Control Specifications:	24H

Volume Units: (•) IN ( ) AC-FT

Computed Results

Peak Inflow:	0.5 (CFS)	Date/Time of Peak Inflow:	01Jan2021, 13:30
Peak Discharge:	0.4 (CFS)	Date/Time of Peak Discharge:	01Jan2021, 13:40
Inflow Volume:	1.09 (IN)	Peak Storage:	0.0 (AC-FT)
Discharge Volume:	1.09 (IN)	Peak Elevation:	1.0 (FT)

Project: 8th & Highland Simulation Run: 24H 2Y
Reservoir: DETENTION

Start of Run: 01Jan2021, 00:00 Basin Model: DMA 1
End of Run: 02Jan2021, 00:00 Meteorologic Model: 24H 2Y
Compute Time: 18Aug2021, 14:08:42 Control Specifications: 24H

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2021	00:00	0.0	0.0	0.2	0.0
01Jan2021	00:05	0.0	0.0	0.2	0.0
01Jan2021	00:10	0.0	0.0	0.2	0.0
01Jan2021	00:15	0.0	0.0	0.2	0.0
01Jan2021	00:20	0.0	0.0	0.2	0.0
01Jan2021	00:25	0.0	0.0	0.2	0.0
01Jan2021	00:30	0.0	0.0	0.2	0.0
01Jan2021	00:35	0.0	0.0	0.2	0.0
01Jan2021	00:40	0.0	0.0	0.2	0.0
01Jan2021	00:45	0.0	0.0	0.2	0.0
01Jan2021	00:50	0.0	0.0	0.2	0.0
01Jan2021	00:55	0.0	0.0	0.2	0.0
01Jan2021	01:00	0.0	0.0	0.2	0.0
01Jan2021	01:05	0.0	0.0	0.2	0.0
01Jan2021	01:10	0.0	0.0	0.2	0.0
01Jan2021	01:15	0.0	0.0	0.2	0.0
01Jan2021	01:20	0.0	0.0	0.2	0.0
01Jan2021	01:25	0.0	0.0	0.2	0.0
01Jan2021	01:30	0.0	0.0	0.2	0.0
01Jan2021	01:35	0.0	0.0	0.2	0.0
01Jan2021	01:40	0.0	0.0	0.2	0.0
01Jan2021	01:45	0.0	0.0	0.2	0.0
01Jan2021	01:50	0.0	0.0	0.2	0.0
01Jan2021	01:55	0.0	0.0	0.2	0.0
01Jan2021	02:00	0.0	0.0	0.2	0.0
01Jan2021	02:05	0.0	0.0	0.2	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2021	02:10	0.0	0.0	0.2	0.0
01Jan2021	02:15	0.0	0.0	0.2	0.0
01Jan2021	02:20	0.0	0.0	0.2	0.0
01Jan2021	02:25	0.0	0.0	0.2	0.0
01Jan2021	02:30	0.0	0.0	0.2	0.0
01Jan2021	02:35	0.0	0.0	0.2	0.0
01Jan2021	02:40	0.0	0.0	0.2	0.0
01Jan2021	02:45	0.0	0.0	0.2	0.0
01Jan2021	02:50	0.0	0.0	0.2	0.0
01Jan2021	02:55	0.0	0.0	0.2	0.0
01Jan2021	03:00	0.0	0.0	0.2	0.0
01Jan2021	03:05	0.0	0.0	0.2	0.0
01Jan2021	03:10	0.0	0.0	0.2	0.0
01Jan2021	03:15	0.0	0.0	0.2	0.0
01Jan2021	03:20	0.0	0.0	0.2	0.0
01Jan2021	03:25	0.0	0.0	0.2	0.0
01Jan2021	03:30	0.0	0.0	0.2	0.0
01Jan2021	03:35	0.0	0.0	0.2	0.0
01Jan2021	03:40	0.0	0.0	0.2	0.0
01Jan2021	03:45	0.0	0.0	0.2	0.0
01Jan2021	03:50	0.0	0.0	0.2	0.0
01Jan2021	03:55	0.0	0.0	0.2	0.0
01Jan2021	04:00	0.0	0.0	0.2	0.0
01Jan2021	04:05	0.0	0.0	0.2	0.0
01Jan2021	04:10	0.0	0.0	0.2	0.0
01Jan2021	04:15	0.0	0.0	0.2	0.0
01Jan2021	04:20	0.0	0.0	0.2	0.0
01Jan2021	04:25	0.0	0.0	0.2	0.0
01Jan2021	04:30	0.0	0.0	0.2	0.0
01Jan2021	04:35	0.0	0.0	0.2	0.0
01Jan2021	04:40	0.0	0.0	0.2	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2021	04:45	0.0	0.0	0.2	0.0
01Jan2021	04:50	0.0	0.0	0.2	0.0
01Jan2021	04:55	0.0	0.0	0.2	0.0
01Jan2021	05:00	0.0	0.0	0.2	0.0
01Jan2021	05:05	0.0	0.0	0.2	0.0
01Jan2021	05:10	0.0	0.0	0.2	0.0
01Jan2021	05:15	0.0	0.0	0.2	0.0
01Jan2021	05:20	0.0	0.0	0.2	0.0
01Jan2021	05:25	0.0	0.0	0.2	0.0
01Jan2021	05:30	0.0	0.0	0.2	0.0
01Jan2021	05:35	0.0	0.0	0.2	0.0
01Jan2021	05:40	0.0	0.0	0.2	0.0
01Jan2021	05:45	0.0	0.0	0.2	0.0
01Jan2021	05:50	0.0	0.0	0.2	0.0
01Jan2021	05:55	0.0	0.0	0.2	0.0
01Jan2021	06:00	0.0	0.0	0.2	0.0
01Jan2021	06:05	0.0	0.0	0.2	0.0
01Jan2021	06:10	0.0	0.0	0.2	0.0
01Jan2021	06:15	0.0	0.0	0.2	0.0
01Jan2021	06:20	0.0	0.0	0.2	0.0
01Jan2021	06:25	0.0	0.0	0.2	0.0
01Jan2021	06:30	0.0	0.0	0.2	0.0
01Jan2021	06:35	0.0	0.0	0.2	0.0
01Jan2021	06:40	0.0	0.0	0.2	0.0
01Jan2021	06:45	0.0	0.0	0.2	0.0
01Jan2021	06:50	0.0	0.0	0.2	0.0
01Jan2021	06:55	0.0	0.0	0.2	0.0
01Jan2021	07:00	0.0	0.0	0.2	0.0
01Jan2021	07:05	0.0	0.0	0.2	0.0
01Jan2021	07:10	0.0	0.0	0.2	0.0
01Jan2021	07:15	0.0	0.0	0.2	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2021	07:20	0.0	0.0	0.2	0.0
01Jan2021	07:25	0.0	0.0	0.2	0.0
01Jan2021	07:30	0.0	0.0	0.2	0.0
01Jan2021	07:35	0.0	0.0	0.2	0.0
01Jan2021	07:40	0.0	0.0	0.2	0.0
01Jan2021	07:45	0.0	0.0	0.2	0.0
01Jan2021	07:50	0.0	0.0	0.2	0.0
01Jan2021	07:55	0.0	0.0	0.2	0.0
01Jan2021	08:00	0.0	0.0	0.2	0.0
01Jan2021	08:05	0.0	0.0	0.2	0.0
01Jan2021	08:10	0.0	0.0	0.2	0.0
01Jan2021	08:15	0.0	0.0	0.2	0.0
01Jan2021	08:20	0.0	0.0	0.2	0.0
01Jan2021	08:25	0.0	0.0	0.2	0.0
01Jan2021	08:30	0.0	0.0	0.2	0.0
01Jan2021	08:35	0.1	0.0	0.2	0.0
01Jan2021	08:40	0.1	0.0	0.2	0.0
01Jan2021	08:45	0.1	0.0	0.2	0.1
01Jan2021	08:50	0.1	0.0	0.2	0.1
01Jan2021	08:55	0.1	0.0	0.2	0.1
01Jan2021	09:00	0.1	0.0	0.2	0.1
01Jan2021	09:05	0.1	0.0	0.2	0.1
01Jan2021	09:10	0.1	0.0	0.2	0.1
01Jan2021	09:15	0.1	0.0	0.2	0.1
01Jan2021	09:20	0.1	0.0	0.2	0.1
01Jan2021	09:25	0.2	0.0	0.2	0.1
01Jan2021	09:30	0.2	0.0	0.3	0.1
01Jan2021	09:35	0.2	0.0	0.3	0.1
01Jan2021	09:40	0.2	0.0	0.3	0.1
01Jan2021	09:45	0.2	0.0	0.3	0.2
01Jan2021	09:50	0.2	0.0	0.3	0.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2021	09:55	0.2	0.0	0.3	0.2
01Jan2021	10:00	0.2	0.0	0.3	0.2
01Jan2021	10:05	0.2	0.0	0.3	0.2
01Jan2021	10:10	0.1	0.0	0.3	0.2
01Jan2021	10:15	0.1	0.0	0.3	0.2
01Jan2021	10:20	0.1	0.0	0.3	0.2
01Jan2021	10:25	0.1	0.0	0.3	0.2
01Jan2021	10:30	0.1	0.0	0.3	0.1
01Jan2021	10:35	0.1	0.0	0.3	0.1
01Jan2021	10:40	0.2	0.0	0.3	0.1
01Jan2021	10:45	0.2	0.0	0.3	0.1
01Jan2021	10:50	0.2	0.0	0.3	0.1
01Jan2021	10:55	0.2	0.0	0.3	0.2
01Jan2021	11:00	0.2	0.0	0.3	0.2
01Jan2021	11:05	0.2	0.0	0.3	0.2
01Jan2021	11:10	0.2	0.0	0.3	0.2
01Jan2021	11:15	0.2	0.0	0.3	0.2
01Jan2021	11:20	0.2	0.0	0.3	0.2
01Jan2021	11:25	0.2	0.0	0.3	0.2
01Jan2021	11:30	0.2	0.0	0.3	0.2
01Jan2021	11:35	0.2	0.0	0.3	0.2
01Jan2021	11:40	0.2	0.0	0.3	0.2
01Jan2021	11:45	0.2	0.0	0.3	0.2
01Jan2021	11:50	0.2	0.0	0.3	0.2
01Jan2021	11:55	0.2	0.0	0.3	0.2
01Jan2021	12:00	0.2	0.0	0.3	0.2
01Jan2021	12:05	0.2	0.0	0.3	0.2
01Jan2021	12:10	0.3	0.0	0.3	0.2
01Jan2021	12:15	0.3	0.0	0.4	0.2
01Jan2021	12:20	0.3	0.0	0.4	0.2
01Jan2021	12:25	0.3	0.0	0.4	0.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2021	12:30	0.3	0.0	0.5	0.2
01Jan2021	12:35	0.4	0.0	0.5	0.2
01Jan2021	12:40	0.4	0.0	0.5	0.2
01Jan2021	12:45	0.4	0.0	0.6	0.3
01Jan2021	12:50	0.4	0.0	0.6	0.3
01Jan2021	12:55	0.4	0.0	0.6	0.3
01Jan2021	13:00	0.4	0.0	0.6	0.3
01Jan2021	13:05	0.4	0.0	0.7	0.3
01Jan2021	13:10	0.5	0.0	0.7	0.3
01Jan2021	13:15	0.5	0.0	0.8	0.3
01Jan2021	13:20	0.5	0.0	0.8	0.3
01Jan2021	13:25	0.5	0.0	0.9	0.4
01Jan2021	13:30	0.5	0.0	0.9	0.4
01Jan2021	13:35	0.5	0.0	1.0	0.4
01Jan2021	13:40	0.4	0.0	1.0	0.4
01Jan2021	13:45	0.4	0.0	1.0	0.4
01Jan2021	13:50	0.3	0.0	1.0	0.4
01Jan2021	13:55	0.3	0.0	1.0	0.4
01Jan2021	14:00	0.3	0.0	0.9	0.4
01Jan2021	14:05	0.3	0.0	0.9	0.4
01Jan2021	14:10	0.4	0.0	0.9	0.4
01Jan2021	14:15	0.4	0.0	0.9	0.4
01Jan2021	14:20	0.4	0.0	0.9	0.4
01Jan2021	14:25	0.4	0.0	0.9	0.4
01Jan2021	14:30	0.4	0.0	0.9	0.4
01Jan2021	14:35	0.4	0.0	0.9	0.4
01Jan2021	14:40	0.4	0.0	0.9	0.4
01Jan2021	14:45	0.4	0.0	0.9	0.4
01Jan2021	14:50	0.4	0.0	0.9	0.4
01Jan2021	14:55	0.4	0.0	0.9	0.4
01Jan2021	15:00	0.4	0.0	0.9	0.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2021	15:05	0.4	0.0	0.9	0.4
01Jan2021	15:10	0.3	0.0	0.9	0.4
01Jan2021	15:15	0.3	0.0	0.9	0.4
01Jan2021	15:20	0.3	0.0	0.9	0.4
01Jan2021	15:25	0.3	0.0	0.9	0.4
01Jan2021	15:30	0.3	0.0	0.9	0.4
01Jan2021	15:35	0.3	0.0	0.9	0.4
01Jan2021	15:40	0.3	0.0	0.9	0.4
01Jan2021	15:45	0.3	0.0	0.9	0.3
01Jan2021	15:50	0.3	0.0	0.8	0.3
01Jan2021	15:55	0.2	0.0	0.8	0.3
01Jan2021	16:00	0.2	0.0	0.8	0.3
01Jan2021	16:05	0.2	0.0	0.8	0.3
01Jan2021	16:10	0.1	0.0	0.7	0.3
01Jan2021	16:15	0.1	0.0	0.6	0.3
01Jan2021	16:20	0.0	0.0	0.6	0.3
01Jan2021	16:25	0.0	0.0	0.5	0.3
01Jan2021	16:30	0.0	0.0	0.5	0.2
01Jan2021	16:35	0.0	0.0	0.4	0.2
01Jan2021	16:40	0.0	0.0	0.4	0.2
01Jan2021	16:45	0.0	0.0	0.3	0.2
01Jan2021	16:50	0.0	0.0	0.3	0.1
01Jan2021	16:55	0.0	0.0	0.2	0.1
01Jan2021	17:00	0.0	0.0	0.2	0.1
01Jan2021	17:05	0.0	0.0	0.2	0.1
01Jan2021	17:10	0.0	0.0	0.2	0.1
01Jan2021	17:15	0.0	0.0	0.2	0.0
01Jan2021	17:20	0.0	0.0	0.2	0.0
01Jan2021	17:25	0.0	0.0	0.2	0.0
01Jan2021	17:30	0.0	0.0	0.2	0.0
01Jan2021	17:35	0.0	0.0	0.2	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2021	17:40	0.0	0.0	0.2	0.0
01Jan2021	17:45	0.0	0.0	0.2	0.0
01Jan2021	17:50	0.0	0.0	0.2	0.0
01Jan2021	17:55	0.0	0.0	0.2	0.0
01Jan2021	18:00	0.0	0.0	0.2	0.0
01Jan2021	18:05	0.0	0.0	0.2	0.0
01Jan2021	18:10	0.0	0.0	0.2	0.0
01Jan2021	18:15	0.0	0.0	0.2	0.0
01Jan2021	18:20	0.0	0.0	0.2	0.0
01Jan2021	18:25	0.0	0.0	0.2	0.0
01Jan2021	18:30	0.0	0.0	0.2	0.0
01Jan2021	18:35	0.0	0.0	0.2	0.0
01Jan2021	18:40	0.0	0.0	0.2	0.0
01Jan2021	18:45	0.0	0.0	0.2	0.0
01Jan2021	18:50	0.0	0.0	0.2	0.0
01Jan2021	18:55	0.0	0.0	0.2	0.0
01Jan2021	19:00	0.0	0.0	0.2	0.0
01Jan2021	19:05	0.0	0.0	0.2	0.0
01Jan2021	19:10	0.0	0.0	0.2	0.0
01Jan2021	19:15	0.0	0.0	0.2	0.0
01Jan2021	19:20	0.0	0.0	0.2	0.0
01Jan2021	19:25	0.0	0.0	0.2	0.0
01Jan2021	19:30	0.0	0.0	0.2	0.0
01Jan2021	19:35	0.0	0.0	0.2	0.0
01Jan2021	19:40	0.0	0.0	0.2	0.0
01Jan2021	19:45	0.0	0.0	0.2	0.0
01Jan2021	19:50	0.0	0.0	0.2	0.0
01Jan2021	19:55	0.0	0.0	0.2	0.0
01Jan2021	20:00	0.0	0.0	0.2	0.0
01Jan2021	20:05	0.0	0.0	0.2	0.0
01Jan2021	20:10	0.0	0.0	0.2	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2021	20:15	0.0	0.0	0.2	0.0
01Jan2021	20:20	0.0	0.0	0.2	0.0
01Jan2021	20:25	0.0	0.0	0.2	0.0
01Jan2021	20:30	0.0	0.0	0.2	0.0
01Jan2021	20:35	0.0	0.0	0.2	0.0
01Jan2021	20:40	0.0	0.0	0.2	0.0
01Jan2021	20:45	0.0	0.0	0.2	0.0
01Jan2021	20:50	0.0	0.0	0.2	0.0
01Jan2021	20:55	0.0	0.0	0.2	0.0
01Jan2021	21:00	0.0	0.0	0.2	0.0
01Jan2021	21:05	0.0	0.0	0.2	0.0
01Jan2021	21:10	0.0	0.0	0.2	0.0
01Jan2021	21:15	0.0	0.0	0.2	0.0
01Jan2021	21:20	0.0	0.0	0.2	0.0
01Jan2021	21:25	0.0	0.0	0.2	0.0
01Jan2021	21:30	0.0	0.0	0.2	0.0
01Jan2021	21:35	0.0	0.0	0.2	0.0
01Jan2021	21:40	0.0	0.0	0.2	0.0
01Jan2021	21:45	0.0	0.0	0.2	0.0
01Jan2021	21:50	0.0	0.0	0.2	0.0
01Jan2021	21:55	0.0	0.0	0.2	0.0
01Jan2021	22:00	0.0	0.0	0.2	0.0
01Jan2021	22:05	0.0	0.0	0.2	0.0
01Jan2021	22:10	0.0	0.0	0.2	0.0
01Jan2021	22:15	0.0	0.0	0.2	0.0
01Jan2021	22:20	0.0	0.0	0.2	0.0
01Jan2021	22:25	0.0	0.0	0.2	0.0
01Jan2021	22:30	0.0	0.0	0.2	0.0
01Jan2021	22:35	0.0	0.0	0.2	0.0
01Jan2021	22:40	0.0	0.0	0.2	0.0
01Jan2021	22:45	0.0	0.0	0.2	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2021	22:50	0.0	0.0	0.2	0.0
01Jan2021	22:55	0.0	0.0	0.2	0.0
01Jan2021	23:00	0.0	0.0	0.2	0.0
01Jan2021	23:05	0.0	0.0	0.2	0.0
01Jan2021	23:10	0.0	0.0	0.2	0.0
01Jan2021	23:15	0.0	0.0	0.2	0.0
01Jan2021	23:20	0.0	0.0	0.2	0.0
01Jan2021	23:25	0.0	0.0	0.2	0.0
01Jan2021	23:30	0.0	0.0	0.2	0.0
01Jan2021	23:35	0.0	0.0	0.2	0.0
01Jan2021	23:40	0.0	0.0	0.2	0.0
01Jan2021	23:45	0.0	0.0	0.2	0.0
01Jan2021	23:50	0.0	0.0	0.2	0.0
01Jan2021	23:55	0.0	0.0	0.2	0.0
02Jan2021	00:00	0.0	0.0	0.2	0.0

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☑ A. **On-site storm drain inlets**	☑ **Locations of inlets.**	☑ **Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.**	☑ **Maintain and periodically repaint or replace inlet markings.** ☑ **Provide stormwater pollution prevention information to new site owners, lessees, or operators.** ☑ **See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** ☑ **Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."**
☑ B. **Interior floor drains and elevator shaft sump pumps**		☑ **State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.**	☑ **Inspect and maintain drains to prevent blockages and overflow.**
☐ C. **Interior parking garages**		☐ **State that parking garage floor drains will be plumbed to the sanitary sewer.**	☐ **Inspect and maintain drains to prevent blockages and overflow.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☐ D1. **Need for future indoor & structural pest control**		☐ **Note building design features that discourage entry of pests.**	☐ **Provide Integrated Pest Management information to owners, lessees, and operators.**
☑ D2. **Landscape/ Outdoor Pesticide Use**	☑ **Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.** ☑ **Show self-retaining landscape areas, if any.** ☑ **Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)**	**State that final landscape plans will accomplish all of the following.** ☑ **Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.** ☑ **Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.** **Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.** ☑ **Consider using pest-resistant plants, especially adjacent to hardscape.** **To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.**	☑ **Maintain landscaping using minimum or no pesticides.** ☑ **See applicable operational BMPs in "What you should know for…..Landscape and Gardening"** at http://rcflood.org/stormwater/**Error! Hyperlink reference not valid.** ☑ **Provide IPM information to new owners, lessees and operators.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☐ E. **Pools, spas, ponds, decorative fountains, and other water features.**	☐ **Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)**	**If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.**	☐ **See applicable operational BMPs in** "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
☐ F. **Food service**	☐ **For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment.** ☐ **On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.**	☐ **Describe the location and features of the designated cleaning area.** ☐ **Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.**	☐ **See the brochure, "**The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ **Provide this brochure to new site owners, lessees, and operators.**
☑ G. **Refuse areas**	☑ **Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas.** ☑ **If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area.** ☑ **Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.**	☑ **State how site refuse will be handled and provide supporting detail to what is shown on plans.** ☑ **State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.**	☑ **State how the following will be implemented:** **Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ H. **Industrial processes.**	❑ **Show process area.**	❑ **If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."**	❑ **See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ I. **Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)**	❑ **Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area.** ❑ **Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults.** ❑ **Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.**	**Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.** **Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:** ▪ **Hazardous Waste Generation** ▪ **Hazardous Materials Release Response and Inventory** ▪ **California Accidental Release (CalARP)** ▪ **Aboveground Storage Tank** ▪ **Uniform Fire Code Article 80 Section 103(b) & (c) 1991** ▪ **Underground Storage Tank** **www.cchealth.org/groups/hazmat/**	❑ **See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ J. **Vehicle and Equipment Cleaning**	❑ **Show on drawings as appropriate:** **(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.** **(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).** **(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.** **(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.**	❑ **If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.**	**Describe operational measures to implement the following (if applicable):** ❑ **Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.** Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ ❑**Car dealerships and similar may rinse cars with water only.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ K. **Vehicle/Equipment Repair and Maintenance**	❑ **Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.** ❑ **Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas.** ❑ **Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.**	❑ **State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.** ❑ **State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.** ❑ **State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.**	**In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:** ❑ **No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains.** ❑ **No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.** ❑ **No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.** Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ L. **Fuel Dispensing Areas**	❑ **Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.** ❑ **Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.**		❑ **The property owner shall dry sweep the fueling area routinely.** ❑ **See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

[6] **The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ M. **Loading Docks**	❑ **Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer.** ❑ **Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation.** ❑ **Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.**		❑ **Move loaded and unloaded items indoors as soon as possible.** ❑ **See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☐ N. **Fire Sprinkler Test Water**		☐ **Provide a means to drain fire sprinkler test water to the sanitary sewer.**	☐ **See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**
O. **Miscellaneous Drain or Wash Water or Other Sources** ☑ **Boiler drain lines** ☑ **Condensate drain lines** ☑ **Rooftop equipment** ☑ **Drainage sumps** ☑ **Roofing, gutters, and trim.** ☑ **Other sources**		☑ **Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.** ☑ **Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.** ☑ **Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.** ☑ **Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.** ☑ **Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.** **Include controls for other sources as specified by local reviewer.**	

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☑ P. **Plazas, sidewalks, and parking lots.**			☑ **Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.**

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

Dutch Bros Coffee inc. – 8TH & HIGHLAND SPRINGS
Operation and Maintenance Plan
September 2021

I. Inspection and Maintenance Log

BMP INSPECTION & MAINTENANCE LOG
DUTCH BROS COFFEE - BEAUMONT

Today's Date: _____

Name of Person Performing Activity (Printed): _____

Signature: _____

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed	Date
Bioretention No. 1	• Trash, debris and sediment must be removed from basin curb cut inlet locations, along gutters, and within the basins and disposed of per local jurisdiction requirements. • Inspection and maintenance required after ever rain event greater than 0.5 inches. Inspections should occur on a monthly basis to ensure optimum performance. • Records of inspection shall be maintained for a minimum of 5 years. At minimum, these records shall document: • Inspection Date • Depth of Sediment/ Trash/ Debris • Type of Maintenance Performed • Maintenance Personnel • Comments	

II. Updates, Revisions, and Errata

This page is left intentionally blank to allow for updates and revisions to be added.

III. Introduction

The project site is located within the Commercial Zone on the Southwest Corner of 8th & Highland Springs Ave,

The existing project site consists of natural earth.

The proposed project will consist of new retail buildings, parking lots and landscaping. Landscaping will be constructed along the perimeters of the proposed retail center.

Stormwater will be treated by a Bioretention basin located in a landscaped area in the south-east corner of the property. Stormwater enters the bioretention basin, passes through a mulch layer and into the subsurface perforated PVC pipe. The cleansed water passes into the private storm drain system. The onsite storm drain system is piped to underground detention systems designed to release stormwater at the pre-development peak flow for the 2-year and 100-year storm event. Once stormwater passes through the underground detention system it is discharged to the offsite public storm drain catch basin within Highland Springs Ave.

IV. Responsibility of Maintenance

A. General

A copy of the operation and maintenance agreement has been included as an attachment to the Operation and Maintenance (O&M) Plan:

The following party is responsible for the operation and maintenance of all LID BMPs and roadway adjacent bioretention facilities within the landscape easement:

Dutch Bros Coffee inc.
110 SW 4th Street
Grant Pass, OR 97526

The responsible party shall serve or designate a corporate officer authorized to negotiate and execute any contracts that might be necessary for future changes to operation and maintenance of the LID BMPs or implement remedial measures if problems occur.

Employees or contractors who will report to the designated contact and are responsible for conducting Stormwater BMP operation and maintenance procedures within this document. All pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs have been included in Appendix 10.

Designated Respondent in case of off-hours maintenance problem:

Daniel Batty / VP of Construction

Designated Respondent Printed Name/Title

541-955-4700

Phone Number

Note: Updated contact information must be provided to the Permittee immediately whenever a property is sold or transferred and whenever designated individuals or contractors change.

WQMP Implementation and Funding Responsibility

This project-specific WQMP has been prepared by Kimley-Horn and Associates, Inc. for the Dutch Bros Coffee inc. Beaumont project. This document is intended to provide guidance for proper BMP implementation and on-going maintenance for the Project BMP facilities.

The undersigned shall be responsible for the implementation of this O&M Plan and ensure that this document is amended as appropriate to reflect up-to-date conditions at the site. The O&M plan will be reviewed by maintenance and service employees, outside contractors, or any other persons having responsibility from implementation portions of the O&M plan. At least one copy of this O&M Plan and WQMP will be maintained at the project site or project office in perpetuity.

The undersigned is authorized to certify and to approve implementation of this O&M Plan and WQMP. The undersigned is aware that implementation of this O&M Plan and WQMP is enforceable under the County of Riverside Water Quality Ordinance. If the undersigned transfers interest in the subject property, the undersigned shall notify the successor their responsibility to implement the O&M Plan and WQMP. It is still the responsibility of the owner to maintain the LID BMPs in accordance with the O&M Plan until that responsibility is formally transferred.

The funding source for operation and maintenance of each BMP identified in the project-specific WQMP shall be the responsibility of MJPA until responsibility is transferred. The owner/operator recognizes that a source of funding is required to support the ongoing operation and maintenance of BMPs, and that funding will continue for the life of the project. By certifying the final project specific WQMP, the Project applicant is certifying that the funding responsibilities have been addressed and will be transferred to future owners as deemed necessary.

DocuSigned by:

81A606CD01E244E...

Owner's /Responsible Party Signature

Daniel Batty

Owner's /Responsible Party Printed Name

VP of Construction

Owner's /Responsible Party Title or Position

December 10, 2021

Date

B. Staff Training Program

All staff will undergo training to learn about the stormwater treatment mechanism and proper maintenance of the LID BMPs. Training will be required for all persons responsible for maintenance of the roadside BMPs. Due to the location of the BMPs along the roadway, safety training for maintenance personnel will be required. Documentation and records of each staff (contractor or personal) member who has received training shall be recorded in the log below.

BMP STAFF TRAINING
DUTCH BROS BEAUMONT

Today's Date: _____

Name of Person Performing Activity (Printed): _____

Signature: _____

Staff Name	Date	Brief Description of training received

V. Summary of Drainage Management Areas and BMPs

Stormwater will be treated by a Bioretention basin located in a landscaped area at the south-eastern corner of the site. Stormwater enters the bioretention basin, passes through a mulch layer and into the subsurface perforated PVC pipe. The cleansed water passes into the private storm drain system. The onsite storm drain system is piped to underground detention systems designed to release stormwater at the pre-development peak flow for the 2-year and 100-year storm event. Once stormwater passes through the underground detention system it is discharged to the offsite public storm drain catch basin within Highland Springs Ave.

VI. Stormwater BMP Design Documentation

This section of the O&M Manual is designated for As-Builts of each stormwater BMP and Manufacturer's data, manuals and maintenance requirements.

VII. Maintenance Schedule or Matrix

A. Maintenance Schedule for each Facility with Specific requirements

Pervious/Landscaped Areas: Open space areas shall be kept free of trash and debris. All trimming, pruning, and removal of fallen organic material from plants, shrubs, and trees are to be collected per an established landscape maintenance plan and disposed in the appropriate location or transported to a green-waste collection facility. The planting materials are to remain as indicated on the approved set of landscape planting plans. Additional actions should be taken to ensure that the surface flow paths, storm drain outlet and inlet in the area are cleared of debris or vegetation obstructions.

Pavement: Impervious areas draining to the project BMPs shall be kept free of trash, debris, and other environmentally hazardous material at all times. Remove and dispose of these materials immediately.

Irrigation Systems: Water conservation is to be maintained at all times per the approved irrigation plans. Monitoring of the irrigation system should be provided at least twice monthly or as necessary to ensure that appropriate watering levels are maintained as well as to verify that no piping or irrigation heads are leaking. Any debris, sediment, mineral and grit deposits should be removed from the irrigation system at regular intervals to provide consistent watering.

Bioretention Facilities (without infiltration): The Bioretention Facility area shall be inspected for erosion, dead vegetation, soggy soils, or standing water. The use of fertilizers and pesticides on the plants inside the Infiltration Facility should be minimized. Keep adjacent landscape areas maintained, remove clippings from landscape maintenance activities, remove trash and debris, replace damaged grass and/or plants, and replace surface mulch/cobble as needed to maintain a 2 to 3-inch soil cover. Facilities should be inspected for ponding after storm events and ensure underdrains are not clogged.

BMP Maintenance Matrix

BMP Requiring Maintenance	Responsible Party	Visual Inspection Frequency	Inspection Location	Maintenance Frequency	Maintenance Requirements
Pervious/Landscaped Areas	Owner	Twice Monthly or according to an established maintenance schedule.	Throughout the pervious cover areas.	At least twice monthly or according to the established maintenance schedule	(See above)
Irrigation Systems	Owner	Twice Monthly or according to an established maintenance schedule.	Throughout the landscaped areas along Via Del Rio, Border Avenue, and parking lot.	As necessary based on observations made during inspection or per maintenance schedule.	(See above)
Pavement	Owner	Weekly or according to an established maintenance schedule.	Throughout the projects limits for driveway and parking lot.	At least twice monthly or immediately following the visual observation of any adverse conditions.	(See above)
Bioretention Facilities (without infiltration)	Owner	Twice Monthly and after storm events, or according to an established maintenance schedule.	Locations shown within landscaped areas on the WQMP Site Plan (Appendix 1).	Twice Monthly and after storm events, or according to an established maintenance schedule.	(See above)

Recording requested by and mail to:

City Clerk
City of Beaumont
550 E. Sixth Street
Beaumont, CA 92223

SPACE ABOVE THIS LINE FOR RECORDER'S USE
EXEMPT FROM RECORDER'S FEES PURSUANT TO GOVERNMENT CODE SECTION 6103 AND 27383

APN:

STORM WATER MANAGEMENT WQMP/BMP FACILITIES

COVENANT AND AGREEMENT NO. _

City of Beaumont, Riverside County, California

THIS COVENANT AND AGREEMENT is made and entered into this of 2019, by and between Dutch Bros Coffee inc., ("Owner"), and the City of Beaumont, California, ("City").

The Owner hereby certifies I am (we are) the sole owner of certain real property located at 1675 E Eighth Street (Site Address) in the City of Beaumont, County of Riverside, State of California, more specifically described in **Exhibit "A"** and depicted in **Exhibit "B" (**"Property").

The Owner covenants and agrees to comply with the Project Water Quality Management Plan ("WQMP"), attached hereto as **Exhibit "C"**, providing for storm water quality treatment within the confines of the Property.

The Owner covenants and agrees that the health, safety and welfare of the residents of the City of Beaumont, require that the Best Management Practice ("BMP") facilities, more specifically described in the WQMP (for example bio- swales, catch basins, roof drains and appurtenances) be constructed and maintained to minimize pollutants in urban runoff by the Owner.

The Owner further covenants and agrees as follows:

1. The on-site storm water management/BMP facilities mentioned above shall be constructed by the Owner at its sole cost and expense, in accordance with the plans and specifications identified in the WQMP approved by City.

2. The Owner shall adequately maintain the storm water management/BMP facilities in a manner assuring peak performance at all times, including source control BMPs at all times as its sole responsibility, at its sole cost and expense. This includes all pipes and channels built to convey storm water on the Property, including

catch basin inserts, underground detention ponds, swales and vegetation provided to control the quantity and quality of the storm water. Adequate maintenance is herein defined as good working condition so that these facilities are performing in accordance with their design functions continuously at all times.

3. The Owner shall annually inspect the storm water management/BMP facilities mentioned above and submit an inspection report annually to the Public Works Department by the anniversary of the date of this Agreement of each year. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the storm water management BMPs listed in the WQMP such as bio-swales, catch basins and related filter units, etc. Deficiencies shall be noted in the inspection report and corrected by Owner promptly.

4. The Owner hereby grants permission to City, its authorized agents and employees, to enter upon the Property and to inspect the storm water management/BMP facilities, take samples and perform testing whenever the City deems necessary and as required by the City's most current National Pollutant Discharge Elimination System (NPDES) Permit. The purpose of the inspection, testing and sampling is to follow up on apparent and reported deficiencies and/or to respond to citizen complaints and meet the requirements of the City's NPDES Permit issued by the State Water Resources Control Board – Santa Ana River Region. The City shall provide the Owner with advanced notice of entering upon the Property, except in the event of an emergency, as determined by the City. The City shall provide the Owner copies of the inspection findings and a directive to commence with the repairs if necessary. Owner or Owner's successors or assigns shall pay City for all costs incurred by City in the inspection, sampling, testing of the BMPs within thirty (30) calendar days of City invoice.

5. In the event the Owner fails to maintain the storm water management/BMP facilities in good working condition acceptable to the City, upon five (5) days advanced written notice, the City may enter upon the Property and take whatever steps necessary to correct deficiencies identified in any inspection report and to charge the costs of such repairs to the Owner the cost of which shall constitute a lien against the Property. In the event of an emergency, as determined by City, advanced notice as aforesaid, shall not be required. Notwithstanding the forgoing, it is expressly understood and agreed that the City is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation to the City.

6. The Owner will perform the work necessary to keep these facilities in good working order as appropriate. The maintenance schedule for the storm water management BMP facilities (including sediment removal) is outlined in the approved WQMP and the schedule must be followed at all times. In the future, City of Beaumont may adopt an annual Stormwater Inspection Fee that would be assessed to the Owner.

7. In the event the City, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials and the like, the Owner, its successors and assigns shall reimburse the City upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the City hereunder.

8. This Agreement imposes no liability of any kind whatsoever on the City. Owner agrees to indemnify, defend (with counsel reasonably approved by the City) and hold harmless the City and its authorized officers, employees, agents and volunteers from any and all claims, actions, losses, damages, and/or liability arising out of this Agreement from any cause whatsoever, including the acts, errors or omissions of any person and

for any costs or expenses incurred by the City on account of any claim except where such indemnification is prohibited by law. This indemnification provision shall apply regardless of the existence or degree of fault of indemnitees. The Owner's indemnification obligation applies to the City's "active" as well as "passive" negligence but does not apply to the City's "sole negligence" or "willful misconduct" within the meaning of Civil Code Section 2782, or to any claims, actions, losses, damages, and/or liabilities, to the extent caused by the acts or omissions of any third party contractors undertaking any work (other than field inspections) or other maintenance on the Property on behalf of the City under this Agreement.

9. This Agreement shall be recorded with the County Recorder for the County of Riverside and shall constitute a covenant running with the land, equitable servitude and lien against the Property, and shall be binding on the Owner, its successors, assigns, transferees, administrators, executors, heirs, encumbrancers and any other successors in interests, including any homeowner's association.

10. In addition to any remedy available to City under this Agreement, if Owner violates any term of this Agreement and does not cure the violation within the time already provided in this Agreement, or, if not provided, within thirty (30) calendar days, or within such time authorized by the City if said cure reasonably requires more than the subject time, the City may bring an action at law or in equity in a court of competent jurisdiction to enforce compliance by the Owner with the terms of this Agreement. In such action, the City may recover any damages to which the City may be entitled for the violation, enjoin the violation by temporary or permanent injunction without the necessity of proving actual damages or the inadequacy of otherwise available legal remedies, or obtain other equitable relief, including, but not limited to, the restoration of the Property and/or the BMPs identified in the WQMP to the condition in which it/they existed prior to any such violation or injury.

11. Owner shall provide printed educational materials with any sale of the Property which provide information on what storm water management facilities are present, the types and locations of maintenance signs that are required and how the necessary maintenance can be maintained.

12. Owner shall provide actual notice of this Agreement and its terms to any respective buyers or successor(s) in interest.

13. In order to be valid, amendment or change to this Agreement including the WQMP and BMPs requires an amendment executed by the City and Owner which is recorded with the Riverside County Recorder.

WITNESS the following signatures:

OWNER:

By: _____ By: _____

Name: _____ Name: _____

Title: _____ Title: _____

CITY OF BEAUMONT

By: _____
Director of Public Works, Beaumont

ATTEST:

_____
City Clerk, City of Beaumont

All signatures on this Agreement on behalf of the Owner must be acknowledged before a Notary Public. In the event that the owner is a corporation, the President/Vice President and the corporate secretary of the corporation must sign.

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Riverside)

On _____, 2019, before me, _____, notary public, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____ (Seal)

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Riverside)

On _____, 2019, before me, _____, notary public, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.
WITNESS my hand and official seal.

Signature: (Seal)

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Riverside)

On _____, 2019, before me, _____, notary public, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____ (Seal)

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Riverside)

On _____, 2019, before me, _____, notary public, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.
WITNESS my hand and official seal.

Signature: (Seal)

EXHIBIT "A"
LEGAL DESCRIPTION

PARCEL 1 OF PARCEL MAP NO. 5570, AS SHOWN BY MAP ON FILE IN BOOK 10, PAGE 34 OF PARCEL MAPS, RIVERSIDE COUNTY RECORDS

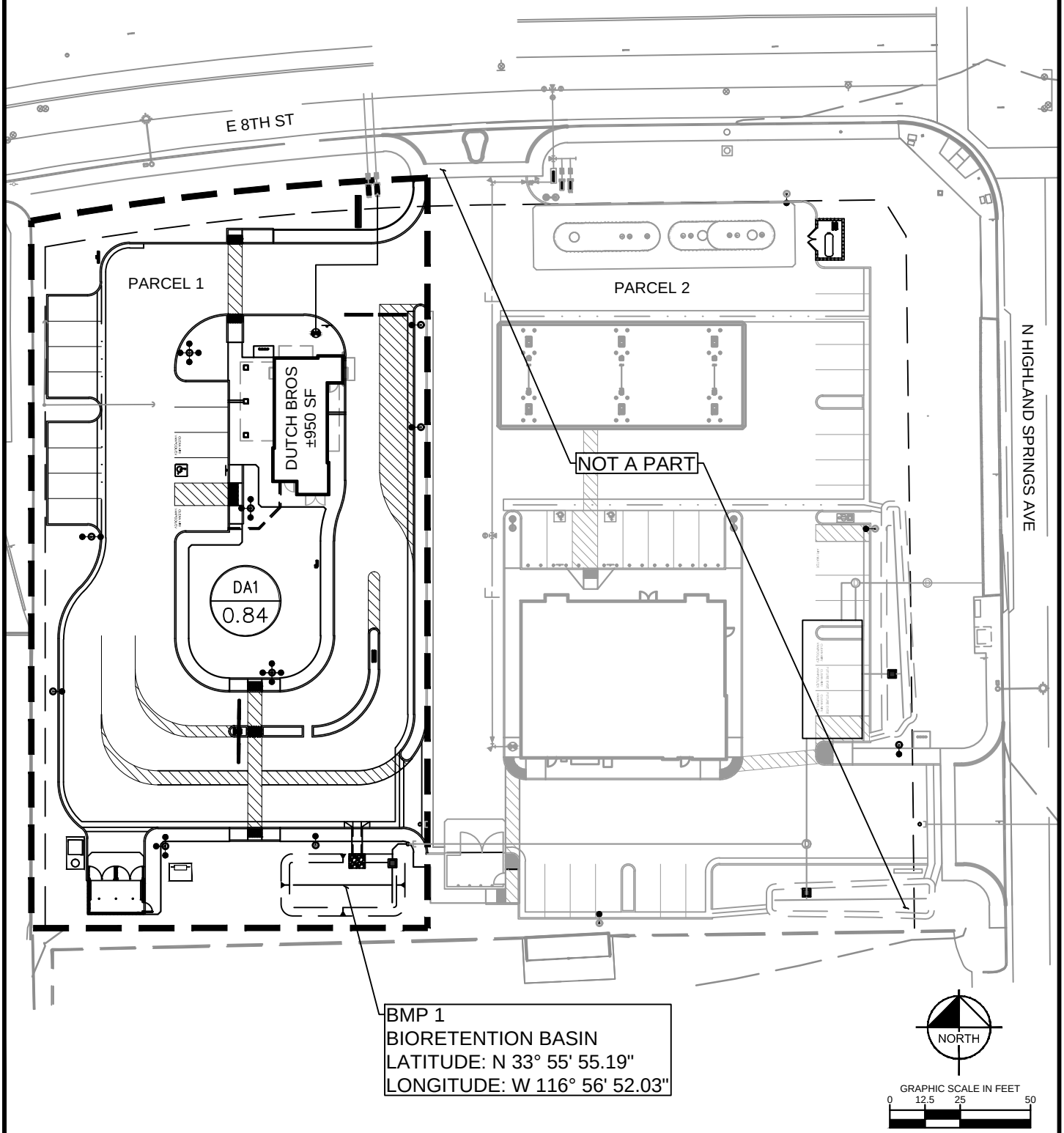
NOTE: THE BELOW LEGAL DESCRIPTION REPRESENTS THE DUTCH BROS LEASEHOLD:

PARCEL 1 OF PARCEL MAP NO. 37938, AS SHOWN BY MAP ON FILE IN BOOK ##, PAGE ## OF PARCEL MAPS, RIVERSIDE COUNTY RECORDS.

Kimley»Horn
401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

EXHIBIT “B”
DIAGRAM OF PROPERTY

EXHIBIT "B"
BMP LOCATION MAP



Kimley»Horn
401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

EXHIBIT B - BMP LOCATION MAP
PW 2021-0728; 1675 E EIGHTH STREET
BEAUMONT, CA 92223

k:\snd_ldev\7-eleven_z riverside\8th & highland - 1045933 - 41640\storm water\7_3rdsub - cds (dutch bros)\exhibit\exhibit a & b.dwg 10/26/2021

DOC # 2021-0106420
02/18/2021 02:26 PM Fees: $100.00
Page 1 of 25
Recorded in Official Records
County of Riverside
Peter Aldana
Assessor-County Clerk-Recorder

This document was electronically submitted to the County of Riverside for recording
Receipted by: KAREN #277

PLEASE COMPLETE THIS INFORMATION
RECORDING REQUESTED BY:
First American Title National
Commercial Services

AND WHEN RECORDED MAIL TO:

Evergreen Devco, Inc.
.2390 E. Camelback Road Suite 410
Phoenix, AZ 85016

Space above this line for recorder's use only

Title of Document

DECLARATION OF EASEMENTS, COVENANTS, CONDITOINS AND RESTRICTIONS

TRA:_____

DTT:_____

Exemption reason declared pursuant to Government Code 27388.1

☐ This document is a transfer that is subject to the imposition of documentary transfer tax.

☒ This is a document recorded in connection with a transfer that is subject to the imposition of documentary transfer tax.
Document reference: Grant Deed

☐ This document is a transfer of real property that is a residential dwelling to an owner-occupier.

☐ This is a document recorded in connection with a transfer of real property that is a residential dwelling to an owner-occupier.
Document reference:_____

THIS PAGE ADDED TO PROVIDE ADEQUATE SPACE FOR RECORDING INFORMATION
($3.00 Additional Recording Fee Applies)

When recorded, return to:
Evergreen Devco, Inc.
2390 East Camelback Road
Suite 410
Phoenix, Arizona 85016
Attn: Ms. Laura Ortiz

DECLARATION OF EASEMENTS, COVENANTS, CONDITIONS AND RESTRICTIONS

THIS DECLARATION OF EASEMENTS, COVENANTS, CONDITIONS AND RESTRICTIONS is made this 7th day of January, 2021, by EVERGREEN–8TH & HIGHLAND SPRINGS, L.L.C., an Arizona limited liability company ("**Declarant**").

RECITALS

A. Declarant is the owner of certain real property situated in the City of Beaumont, County of Riverside, State of California, comprising two parcels legally described as "**Parcel A**" and "**Parcel B**" on Exhibit "A" attached hereto (collectively, the "**Parcels**").

B. Declarant desires to impose certain easements upon the Parcels, and to establish certain covenants, conditions and restrictions with respect to the Parcels, for the mutual and reciprocal benefit and complement of the Parcels and the present and future owners, tenants and occupants thereof, on the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of the above premises and of the covenants herein contained, Declarant declares that the Parcels and all present and future owners, tenants and occupants of the Parcels, are subject to the easements, covenants, conditions, and restrictions set forth in this Declaration, so that the Parcels shall be maintained, kept, sold and used in full compliance with and subject to this Declaration and, in connection therewith, Declarant declares, covenants and agrees as follows:

AGREEMENTS

1. Definitions. For purposes hereof:

1.1 "**Access Drives**" means those driveways and related driveway improvements, paving, curbing, entrances and exits from time to time located on the Parcels and labeled as such on the Site Plan.

1.2 "**Building Envelope**" means that portion of each Parcel within which the construction of a building is permitted, as shown on the Site Plan.

1.3 "**Canopy Envelope**" means that portion of Parcel B within which the construction of a gas canopy is permitted, as shown on the Site Plan.

1.4 "**City**" means the City of Beaumont, California.

1.5 "**Drainage Plans**" means the original master grading and drainage plan for the Parcels and associated drawings, plans and specifications for specific improvements as originally approved by Declarant and installed on the Parcels, which plans are on file with Declarant.

1.6 "**Drives**" means all paved driveways, roadways and walkways now or hereafter constituting a part of Parcel A or Parcel B, including the Access Drives.

1.7 "**Evergreen**" means Evergreen–8th & Highland Springs, L.L.C., but not its successors or assigns.

1.8 "**Good Condition**" means good, clean, orderly, safe, well-marked, and well-lit condition and repair.

1.9 "**Owner**" or "**Owners**" means Declarant and any and all successors or assigns as the owner or owners of fee simple title to Parcel A and/or Parcel B, whether by sale, assignment, inheritance, operation of law, trustee's sale, foreclosure, or otherwise, but not including the holder of any lien or encumbrance on a Parcel or any tenant or subtenant of a Parcel.

1.10 "**Parcel**" or "**Parcels**" means Parcel A and/or Parcel B as shown on the Site Plan.

1.11 "**Permittees**" means the respective employees, agents, contractors, customers, invitees and licensees of an Owner or Tenant.

1.12 "**Required Landscaping**" means all landscaping and irrigation improvements, if any, required by applicable governmental authority to be constructed on or adjacent to both Parcels, even if only one Parcel is initially developed.

1.13 "**Shared Signs**" means the monument signs located or to be located on the Parcels upon which the Owner of each Parcel or its designee is entitled to sign representation as provided herein.

1.14 "**Site Plan**" means the site plan of the Parcels attached hereto as Exhibit "B" and made a part hereof.

1.15 "**Tenant**" means the holder of the entire leasehold interest in Parcel A or Parcel B, as the case may be, entitled to possession thereof under a valid lease with the Owner of the Parcel.

1.16 "**Utility Facilities**" means "wet" and "dry" utilities, systems, structures, mains, conduits, lines and associated installations, including, without limitation, water, sewer, storm sewer, electric, gas, telephone, and cable systems, that are not maintained by public authority, are to be located and installed on the Parcels in accordance with this Declaration (up to the point of connection to a building), and serve both Parcels.

2. Easements.

2.1 **Grant of Reciprocal Easements**. Subject to any express conditions, limitations or reservations contained herein, Declarant hereby declares that the Parcels, and all Owners and Permittees of the Parcels, shall be benefited and burdened by the following nonexclusive, perpetual and reciprocal easements which are hereby imposed upon the Parcels and all present and future Owners and Permittees of the Parcels:

(a) An easement for reasonable pedestrian and vehicular access, ingress and egress over and across the Drives, so as to provide for the passage of motor vehicles and pedestrians between all portions of the Parcels intended for such purposes, and to and from all abutting streets or rights-of-way furnishing access to the Parcels;

(b) An easement for the drainage of storm water runoff from one Parcel onto the other Parcel in accordance with the Drainage Plans, including via surface flow and underground piping.

(c) An easement under the Access Drives, and under an area around the perimeter of each Parcel within the landscape set-back area provided by City code, and in other locations reasonably approved by the Owners, for the installation, construction, use, repair, maintenance, removal and replacement of Utility Facilities and other utility lines and installations. All such utilities must be placed and maintained below the ground level or surface of the Parcel (except for such elements as cannot and are not intended to be placed below the surface, such as transformers and control panels, which must be placed in such location(s) as are reasonably approved by the Owner of the burdened Parcel (and its Tenant, if applicable)).

2.2 **Indemnification**. Each Owner and/or Tenant having rights with respect to an easement granted hereunder agrees to defend, indemnify and hold harmless the Owner and/or Tenant whose Parcel is burdened by the easement for, from and against all claims, liabilities and expenses (including reasonable attorneys' fees) relating to accidents, injuries, loss, or damage of or to any person or property arising from the negligent or intentional acts or omissions of the indemnifying Owner and/or Tenant, or their respective contractors, employees, and authorized agents.

2.3 **Reasonable Use of Easements**.

(a) The easements granted herein may only be used and enjoyed by an Owner and its Permittees so as not to unreasonably interfere with, obstruct or delay the conduct and operations of the business of the other Owner or its Permittees at any time conducted on its Parcel, including, without limitation, public access to and from said business, and the receipt or delivery of merchandise in connection therewith.

(b) The Owner of a Parcel served by Utility Facilities or other utility lines or installations and such Owner's Tenant may not unreasonably withhold their consent to the reasonable relocation of all or a portion of such utilities requested by the Owner of a burdened Parcel, at such requesting Owner's sole cost and expense, so long as such utilities are not interrupted and continue to function as originally designed and constructed and with at least the

same capacity as when originally constructed, and the provisions of this paragraph 2.3 are otherwise complied with, and so long as such relocation does not unreasonably interfere with the use and occupancy of the consenting Owner's Parcel.

(c) Once commenced, any construction, maintenance or repair undertaken in reliance upon an easement granted herein must be diligently prosecuted to completion, so as to minimize any interference with the business of the other Owner and its Permittees. Except in cases of emergency, the right of any Owner or its Tenant to enter upon a Parcel of the other Owner pursuant to the easements set forth herein, or to prosecute work on such Owner's or Tenant's own Parcel if such work interferes with utility or drainage easements or easements of access, ingress, or egress to or in favor of the other Owner's Parcel, shall be undertaken only in a manner calculated to minimize any interference with the business of the other Owner and its Permittees. In such case, no affirmative monetary obligation may be imposed upon the other Owner or its Tenant, and the Owner or Tenant undertaking such work must with due diligence repair at its sole cost and expense any and all damage caused by such work and restore the affected portion of the Parcel upon which such work is performed to a condition that is equal to or better than the condition existing prior to the commencement of such work. In addition, the Owner or Tenant undertaking such work must pay all costs and expenses associated therewith and indemnify and hold harmless the other Owner and its Permittees from all damages, losses, liens or claims attributable to the performance of such work.

2.3 **No Implied Easements**. Nothing contained in this Declaration creates any implied easements not otherwise expressly provided for herein. No easement for cross-parking is granted by this Declaration. Each Parcel, when improved, must contain a sufficient number of parking spaces to satisfy minimum City parking code requirements for the use made of such Parcel, without regard to parking spaces located on the other Parcel.

3. Maintenance.

3.1 **Unimproved Parcel**. Until a Parcel is initially improved, the Owner thereof must maintain its Parcel in Good Condition (excluding the obligation to keep the Parcel well-lit, except as provided in paragraph 3.3 with respect to Access Drives), and agrees to take such measures to reasonably control grass, weeds, blowing dust, dirt, litter or debris as are necessary to keep its Parcel from negatively affecting the other Parcel if it is then improved and open for business. In addition, if one Parcel is improved and the other is unimproved, the Owner of the unimproved Parcel must keep mud, dirt, and excess storm water runoff within the boundaries of its Parcel to prevent soiling of the improved Parcel.

3.2 **Improved Parcel**.

(a) Each Owner of a Parcel covenants to keep and maintain in Good Condition, at no expense to the other Owner, all improvements located from time to time on such Owner's Parcel, including, without limitation, the building and related improvements, the Drives, and all other common area improvements. This obligation includes areas, if any, in immediately contiguous right-of-way, including, without limitation, offsite landscaping, required by the City to be maintained by the Owner. Following the construction of common area improvements, maintenance thereof includes, without limitation, maintaining and repairing the surface of the

Drives, parking and roadway areas, and sidewalks, removing papers, debris and other refuse from and periodically sweeping all parking and roadway areas, maintaining appropriate lighting fixtures for the parking areas and Drives, maintaining markings, lines, striping and directional signs as needed, maintaining landscaping, maintaining signage, and performing any and all such other duties as are necessary to maintain the common areas in Good Condition.

(b) Once constructed, in the event of any damage to or destruction of a building or other improvement on any Parcel, the Owner of such Parcel must at no cost or expense to the other Owner and with due diligence either (i) repair, restore and rebuild the building or other improvement to its condition prior to the damage or destruction (or with such changes as do not conflict with this Declaration), or (ii) demolish and remove all portions of the damaged or destroyed building or improvement then remaining, including the debris resulting therefrom, and otherwise clean and restore the area affected by such casualty to a level, graded condition; provided, however, nothing contained herein invalidates or supersedes a more stringent obligation for repair, restoration and rebuilding contained in a lease or other written agreement between an Owner and its Tenant. Notwithstanding the foregoing, any damage to an Access Drive or a Shared Sign located on an Owner's Parcel must be promptly repaired, restored and rebuilt to its condition prior to such damage or destruction (or with such changes as do not conflict with this Declaration).

(c) Only one (1) building intended for occupancy may be constructed on a Parcel. Each building must be located within the Building Envelope for the Parcel shown on the Site Plan. Further, the gas canopy and any fuel dispensing stations must be located within the Canopy Envelope on Parcel B. Otherwise, support columns, overhangs, below-ground improvements and similar improvements that do not completely obstruct visibility from floor to roof, are permitted outside of Building Envelopes.

(d) The maximum area and maximum height, if any, of the building and/or canopy to be constructed on each Parcel are shown on the Site Plan.

3.3 **Access Drives**. If the Access Drives are completed at a time when only one Parcel is then improved with a building and other improvements (the "**First Improved Parcel**"), the Owner of the First Improved Parcel is obligated to initially maintain, repair and illuminate all Access Drives located on both Parcels in Good Condition, at no expense to the other Owner. From and after the commencement of construction (as conclusively evidenced by the pouring of footings) on the Parcel that is not the First Improved Parcel (the "**Second Improved Parcel**"), each Owner is obligated to thereafter maintain and repair in Good Condition at its expense those portions of the Access Drives located on its Parcel; provided, however, notwithstanding the foregoing, the Owner of Parcel B is obligated to maintain at no expense to the Owner of Parcel A that portion of the Access Drive located on Parcel A that is cross-hatched and identified on the Site Plan as "**Parcel B Maintenance Area**." Following commencement of construction on the Second Improved Parcel, the Owner of Parcel B will thereupon be obligated at its expense to illuminate the entirety of the Access Drives, and if necessary, lighting will promptly be appropriately recircuited by the Owner of Parcel B to its Parcel at its sole cost and expense as necessary to transfer electric metering. Once fully constructed, no change to all or any portion of the Access Drives as originally constructed, including, without limitation, any change to any curb cut connecting the Access Drives to adjacent public rights-of-way, is permitted without the prior written consent of all Owners and Tenants.

3.4 **Utility Facilities**.

(a) Each Owner must at all times during the term hereof construct, operate and maintain or cause to be constructed, operated and maintained, in Good Condition, at no expense to the other Owner, any utility lines and installations wherever located serving only the Parcel of such Owner.

(b) Until the commencement of construction on the Second Improved Parcel by the Owner thereof, Utility Facilities, if any, will be constructed, operated and maintained in Good Condition by the Owner of the First Improved Parcel. From and after commencement of construction on the Second Improved Parcel by the Owner thereof, the Owner of Parcel B agrees to operate and maintain or cause to be operated and maintained all Utility Facilities in Good Condition. The Owner of Parcel A shall reimburse the Owner of Parcel B for 42% of the actual costs of operation and maintenance of Utility Facilities incurred by the Owner of Parcel B after such Owner becomes responsible for such operation and maintenance under this subparagraph (b) within 30 days after receipt of a written statement (to be given not more often than monthly) from the Owner of Parcel B showing the amount of such costs in reasonable detail.

(c) In performing its obligation to operate and maintain Utility Facilities related to stormwater ("**Stormwater Facilities**"), the Owner of Parcel B agrees to follow "Best Management Practices" as mandated by applicable governmental authority in the State of California. In no event may the costs charged to the Owner of Parcel A related to the operation and maintenance of Stormwater Facilities ("**Stormwater Costs**") include (i) costs of environmental damage or contamination related to or arising from the fuel dispensing stations, underground storage tanks and related improvements located or to be located on Parcel B ("**Fuel Station Improvements**"), (ii) costs of any upgrades or additions to Stormwater Facilities, or maintenance or operation of such upgrades or additions, necessitated by Fuel Station Improvements on Parcel B, or (iii) any damages, fees, fines or other costs arising from the failure or the Owner of Parcel B to operate and maintain the Stormwater Facilities in Good Condition in accordance with this Paragraph 3.4. In the event the Parcel A Owner or such Parcel A Owner's Tenant should desire to alter the Stormwater Facilities located on or serving Parcel A (including, without limitation, any alterations which could or would materially increase the flow of surface water onto Parcel B) (collectively, the "Parcel A Stormwater Alterations"), the Parcel A Owner or such Parcel A Owner's Tenant shall not commence the Parcel A Stormwater Alterations without the prior written consent of the Parcel B Owner or the Parcel B Tenant, which consent shall not be unreasonably withheld, conditioned or delayed.

3.5 **Required Landscaping**. The Owner of the First Improved Parcel is obligated to initially maintain, repair, replace and irrigate in Good Condition all Required Landscaping, including, if applicable, all Required Landscaping on or immediately adjacent to the Second Improved Parcel, at no expense to the Owner of the Second Improved Parcel. From and after the issuance of a building permit for construction on the Second Improved Parcel, the Owner thereof is obligated to thereafter maintain, repair, and replace in Good Condition at its expense the Required Landscaping on or immediately adjacent to its Parcel. Following issuance of a certificate of occupancy for the Second Improved Parcel, the Owner thereof will thereupon be obligated at its expense to irrigate the Required Landscaping on its Parcel, and irrigation will promptly be appropriately repiped and recircuited by the Owner of the Second Improved Parcel at its sole cost

and expense as necessary to transfer water metering. In this regard, the Plans for the Required Landscaping will include a design to accommodate the changeover of irrigation. Subject to paragraph 2.3, each Owner of a Parcel grants to the other Owner of a Parcel, for the use and benefit of such other Owner, its successors and assigns, its Permittees and its Parcel, a nonexclusive easement over and across the Common Areas of the Parcel of the granting Owner for purposes of reasonably performing the maintenance, repair, replacement and irrigation of all or any portion of the Required Landscaping that is required by this Declaration to be maintained, repaired or replaced by the grantee Owner pursuant to this Declaration.

4. Construction and Modification of Improvements.

4.1 Access Drives, Utility Facilities and Required Landscaping.

(a) Each Owner of a Parcel or such Owner's Tenant is required at its sole expense concurrently with development of its Parcel to construct on its Parcel those portions of the Access Drives, Utility Facilities and Required Landscaping (collectively, "**Key Improvements**") that are located on its Parcel. However, if and to the extent that portions of the Key Improvements located on the Parcel of the other Owner are necessary or desirable for the use and operation of the first Parcel to be developed, the Owner of the first Parcel to be developed or such Owner's Tenant (the "**Constructing Party**") has the right to construct such Key Improvements on the Parcel of the other Owner (the "**Passive Party**"), subject to the terms and conditions of this paragraph 4.1.

(b) Prior to commencing construction of Key Improvements on the Parcel of the Passive Party ("**Cross Improvements**"), the Constructing Party must give the Passive Party (which, for purposes of this paragraph 4.1 includes the Passive Party's Tenant , if any) (i) a full set of drawings, plans and specifications for the Cross Improvements (the "**Cross Improvements Plans**"), and (ii) a construction schedule for completion of the Cross Improvements (the "**Schedule**"). The Cross Improvements Plans and the Schedule are subject to the approval of the Passive Party not to be unreasonably withheld or delayed. The Constructing Party must obtain all required governmental approvals and permits for the construction of the Cross Improvements (collectively, the "**Approvals**"), and the Passive Party agrees to reasonably cooperate in connection therewith. The Cross Improvements Plans as mutually approved by the Constructing Party, the Passive Party and the City are herein referred to as the "**Approved Plans**," and the Schedule approved by the Constructing Party and the Passive Party is herein referred to as the "**Approved Schedule**."

(c) After the Approved Plans and the Approved Schedule are mutually approved and the Approvals are obtained, if the Constructing Party desires reimbursement from the Passive Party for the costs of construction of the Cross Improvements, the Constructing Party must submit to the Passive Party the name of the proposed general contractor and a bid showing a fixed sum for the total actual costs to be incurred in constructing the Cross Improvements (collectively, "**Construction Costs**"). Unless otherwise agreed by the Passive Party, the contract with the general contractor for construction of the Cross Improvements must be expressly assignable to and enforceable by the Passive Party as a named third-party beneficiary (including, without limitation, all construction warranties set forth therein). Construction Costs must be segregated and itemized separately from other work, if any, being performed by the Constructing

Party, and may include an allocable share of the general contractor's fee and insurance mark-ups, but not an allocation of general conditions or overhead.

(d) The Passive Party has a period of ten (10) days following notice from the Constructing Party within which to object to Construction Costs by written notice to the Constructing Party. If the Passive Party raises objection(s), all parties agree to meet in good faith in an attempt to resolve the objections within 10 days thereafter. If the parties cannot agree within such 10-day period, the Passive Party must thereupon either (i) waive its objections in writing, or (ii) agree in writing to construct the Cross Improvements located on its Parcel in accordance with the Approved Plans and the Approved Schedule, at its sole cost and expense. The failure of the Passive Party to elect option (ii) prior to expiration of such 10-day period is deemed the Passive Party's election of option (i).

(e) Whichever party is responsible for constructing the Cross Improvements pursuant to the foregoing agrees to proceed with due diligence to construct the Cross Improvements in a good and workmanlike manner, free and clear of liens and encumbrances, substantially in accordance with the Approved Plans, in conformance with the Approved Schedule, in compliance with applicable law, and in a manner calculated to minimize to the extent reasonably practicable the disruption of business or construction activities, if any, then being conducted on the Parcels. If the Constructing Party is entitled to reimbursement for Constructions Costs, the Passive Party shall reimburse the Constructing Party for Construction Costs within 30 days after receipt of a written statement from the Constructing Party stating that the Cross Improvements have been completed, accompanied by paid invoices, unconditional lien waivers, certificates of occupancy or City inspection sign-offs, and other reasonable evidence showing the lien-free completion of the Cross Improvements.

(f) As a condition to payment by the Passive Party, the Constructing Party must either (i) assign to the Passive Party on a nonexclusive basis, any contractors' warranties and guaranties relating to the Cross Improvements that are assignable (so long as such assignment does not affect the validity of any warranty or guaranty in favor of the Constructing Party or its Parcel), or (ii) provide written evidence to the Passive Party that it is a named third-party beneficiary of such warranties and guarantees. Notwithstanding the foregoing, if the Constructing Party, after exercising all reasonable efforts, is unable to satisfy these requirements, but can demonstrate that it used reasonable efforts to so comply, the Passive Party must nonetheless make reimbursement as otherwise required herein, and thereafter upon request, the Constructing Party will enforce for the benefit of the Passive Party any contractor's warranties and guaranties not so assigned.

(g) The party constructing the Cross Improvements has the right, from time to time, to propose minor changes to the Cross Improvements and/or the Approved Plans and/or the Approved Schedule in connection with unforeseen conditions or for other reasonable reasons ("**Changes**"), with an explanation of such Changes and any resulting revisions to the amount of the Construction Costs and/or the Approved Schedule, which are subject to the approval of the Passive Party not to be unreasonably withheld or delayed if the Constructing Party is constructing the Cross Improvements.

(h) Notwithstanding anything to the contrary contained herein, if all Owners and Tenants mutually agree, each Owner or Tenant of a Parcel will construct that portion of the

Key Improvements located on its Parcel at its own cost and expense, subject to plans and specifications and a construction schedule reasonably approved by all Owners and Tenants, if applicable.

(i) Any failure of a party to construct Cross Improvements as required by this paragraph 4.1, including, without limitation, any failure to complete according to the Approved Schedule, is subject to the rights and remedies of Article 9, including self help.

4.2 **No Modifications**. Except as otherwise expressly provided herein, once constructed, the Access Drives may in no event be relocated, blocked, closed, obstructed or removed, without the prior written consent of all Owners and Tenants, which consent may be withheld by any party in its reasonable business judgment (excluding requests for temporary and commercially reasonable interruptions of access, as, for example, in connection with underground easement installation or maintenance, asphalt repaving or resealing, or initial construction, remodeling or reconstruction of improvements, in which event such consent may not be unreasonably withheld or delayed). Once constructed, a smooth and level grade transition must at all times be maintained in and around the Access Drives so as to allow the vehicular and pedestrian access, ingress and egress contemplated by this Declaration.

4.3 **General**. All improvements now or in the future constructed on a Parcel must be constructed, operated and maintained in compliance with all City requirements. Subject to the express requirements of this Declaration and applicable governmental authority, and the requirements of any lease of a Parcel, each Parcel may be developed and improved by an Owner without the consent of the other Owner. Without limiting the generality of the foregoing, each Owner may at its option construct on its Parcel adjacent to the Access Drives, Drives, parking spaces, walkways, landscaping, curbs, gutters, and other improvements typical to shopping center common areas, so long as the use of the Access Drives and parking contemplated by this Declaration are not unreasonably impaired.

4.4 **Stormwater and Sanitary Sewer Lines Serving Parcel A**. In connection and concurrently with the development of Parcel B (if it is the first to develop), in order to avoid future disturbance to the Access Drive and parking areas on Parcel B, the Owner of Parcel B or such Owner's Tenant (the "**Constructing Party**") shall construct for the use and benefit of Parcel A, extensions of the stormwater drain line (the "**Stormwater Extension Line**") and the sanitary sewer line (the "**Sanitary Sewer Extension Line**") serving Parcel B directly west to the property line of Parcel A in substantially the locations shown on the Site Plan, with the terminus points to be capped and marked, according to plans and specifications reasonably approved by the Owner of Parcel A (collectively, the "**Extension Lines**"). Such construction, once commenced, shall be prosecuted with reasonable diligence, in a good and workmanlike manner, free of liens and encumbrances, and in accordance with applicable law and the approved plans. Following completion of construction, any contractor's or supplier's guarantees or warranties pertaining to the Extension Lines will be assigned by the Constructing Party to the Owner of Parcel A. The Extension Lines are not Utility Lines within the meaning of this Declaration and maintenance thereof will be governed by paragraph 3.4(a). If the Constructing Party constructs the Extension Lines, the Owner of Parcel A or its Tenant shall reimburse the Constructing Party for 100% of the actual and reasonable costs of design and construction of the Extension Lines, payable on the later to occur of (a) 30 days after receipt of a written statement from the Constructing Party showing

the amount of such costs in reasonable detail, and (b) 90 days after the Constructing Party first opens for business to the public on Parcel B.

5. Restrictions.

5.1 **General**. Each Parcel must be used for lawful purposes in conformance with all restrictions imposed by all applicable governmental laws, ordinances, codes, and regulations, and no use or operation may be made, conducted or permitted on or with respect to all or any portion of a Parcel that is illegal. Neither Parcel A nor Parcel B may be used, in whole or in part, for any of the following: adult book store; adult theatre; adult amusement facility or similar shop selling or displaying sexually explicit or pornographic materials (but these "adult" restrictions are not applicable to a drugstore, to a full-line bookstore or full-line video store or to the sale of magazines, books and other publications (including, without limitation, Playboy, Maxim, Penthouse and Cosmopolitan), movies, videos, CD's, DVD's and other media, which although containing material of a sexual nature, are of the type typically sold in national newsstands, national bookstores, national video stores, national electronic stores, or national convenience stores); pawn shop; flea market; massage parlor (except for the provision of massages by licensed massage therapists in conjunction with a beauty salon, nail salon, day spa or any medical use); junk yard; mortuary; or funeral parlor.

5.2 **Restrictions Burdening Parcel B**. Neither all nor any portion of Parcel B may be used for the following purposes:

(a) fast-food or quick-serve restaurant primarily serving hamburgers, roast beef, chicken, Mexican food, Chinese or Asian food, or submarine sandwiches; provided, however, so long as Parcel B is being used primarily as a Convenience Store (as defined in paragraph 5.3(a)) without a drive-through, the restriction contained in this subparagraph (a) will not prohibit the use or operation on Parcel B of a chicken or Mexican food restaurant concept in combination with Convenience Store use, including, without limitation, the "Raise the Roost" or "Laredo Taco Company" restaurant concepts of the initial Parcel B Tenant;

(b) car wash;

(c) auto service center or tire store;

(d) medical office building;

(e) dollar store; or

(f) "Future Restricted Uses" (as defined below).

While Evergreen or an affiliate or related entity is the Owner of either Parcel, Declarant reserves the right to impose future use restrictions against Parcel B ("Future Restricted Uses") to protect the operation of a business on Parcel A, on the following terms and conditions:

(i) no Future Restricted Uses imposed on Parcel B may (A) prohibit or impair the business being conducted on Parcel B at the time the restrictions are

imposed, (B) prohibit or adversely affect the use of Parcel B for any of the uses described in Paragraph 5.3, or (C) with respect to 7-Eleven (defined below), prevent 7-Eleven from operating Parcel B for the permitted uses set forth in a valid and effective lease agreement between the Parcel B Owner and 7-Eleven (excluding the generic "any lawful use");

(ii) Future Restricted Uses may be for such term, and upon such conditions (including termination by reason of cessation of use for a specified period), as Declarant reasonably determines;

(iii) Future Restricted Uses will be effective against Parcel B when an Addendum to this Declaration setting forth the Future Restricted Uses is signed by Declarant and recorded in the official records of Riverside County, California, and a copy thereof given to the Owner and, if applicable, Tenant, of Parcel B;

(iv) at the time the Future Restricted Uses are imposed, Parcel A must be intended to be used and developed for the purposes protected by the Future Restricted Uses; and

(v) At such time as Evergreen or an affiliate or related entity no longer owns a Parcel, no additional Future Restricted Uses may be imposed on Parcel B under this Declaration without the unanimous written consent of the Owners and Tenants, not to be unreasonably withheld.

5.3 **Restrictions Burdening Parcel A**. Neither all nor any portion of Parcel A may be used to operate a "Convenience Store", a "Liquor Store," a "Tobacco Store" or a "Motor Fuels Business," as such terms are defined below:

(a) the term "Convenience Store" shall mean a retail store exclusively or primarily engaged in selling a combination of staple groceries, health and beauty aids, snacks, beverages, prepared foods, and beer, wine, and/or alcohol products, and including by way of example, but not limited to, merchandise and/or services customarily sold or provided from time to time at convenience stores within the State of California. For avoidance of doubt, sales of particular items described above by a store primarily engaged in a business other than a Convenience Store (for example, by a restaurant or a dollar store) shall not constitute the operation of a Convenience Store and shall not be restricted by this paragraph 5.3;

(b) the term "Liquor Store" shall mean a store primarily engaged in the sale of liquor, wine, beer, and/or other alcoholic beverages for off-premises consumption;

(c) the term "Tobacco Store" shall mean a smoke shop, cigarette shop, smoke or pipe/tobacco store; and

(d) the term "Motor Fuels Business" shall mean a business exclusively or primarily engaged in the retail sale of motor fuel dispensed into motor vehicles. For avoidance of doubt, a business without any motor fuels dispensers (i) selling bottled, canned, or otherwise packaged automotive products, including, without limitation, motor oils and automotive fuel additives (such as AutoZone), or (ii) providing automotive services that involve motor oils and

automotive fuel additives (such as Jiffy-Lube), shall not constitute the operation of a Motor Fuels Business and shall not be restricted by this paragraph 5.3.

5.4 **Sunset of Restrictions**. If after first opening for business for a use protected by the use restrictions set forth in paragraphs 5.2 or 5.3 above, such use ceases to be conducted for a period of twelve (12) consecutive months or more for any reason other than (a) strike, lockout or other labor difficulty, fire or casualty, condemnation, war, riot, insurrection, act of God, or other temporary closure beyond the reasonable control of the Owner of the benefited parcel, (b) temporary closure due to the restoration, reconstruction, expansion, alteration or remodeling of the building or other improvements located on the benefited parcel, or (c) governmental restrictions, the use restrictions for the benefited parcel will terminate; provided, however, notwithstanding the foregoing to the contrary, so long as 7-Eleven, Inc., a Texas corporation, or its affiliate, assignee, sublessee or a related entity (collectively, "7-Eleven"), is entitled to possession of Parcel B as the Parcel B Tenant under a valid and effective lease, or is the Owner of Parcel B, no use restriction set forth in paragraph 5.3 may terminate without the prior written consent of 7-Eleven, which consent may be given or withheld in its sole discretion.

5.5 **Environmental Restrictions**. Each Owner agrees that such Owner's Parcel and any and all facilities located or operations conducted on such Parcel will not be used to generate, manufacture, refine, transport, treat, store, handle, dispose of, transfer, produce or process hazardous, toxic or regulated substances or solid wastes of any kind, except in compliance with all applicable law. Each Owner agrees to indemnify, defend, and hold harmless Declarant and each and every other Owner for, from and against any and all actions, causes of action, claims, liabilities, damages, costs, expenses and losses of any nature whatsoever (including reasonable attorneys' fees), arising from a breach by the indemnifying Owner of this covenant.

6. Insurance.

6.1 **Commercial General Liability Insurance**. Throughout the term of this Declaration, each Owner shall procure and maintain, or cause its Tenant to procure and maintain, commercial general liability insurance against claims for death or bodily injury, personal injury (including contractual liability arising under the indemnification contained in paragraph 2.2 above), or property damage occurring upon such Owner's Parcel, with limits of not less than One Million Dollars ($1,000,000.00) per occurrence, and a general aggregate of not less than Two Million Dollars ($2,000,000.00) including umbrella coverage, if any, and naming each other Owner and Tenant (provided the Owner or Tenant obtaining such insurance has been supplied with the name of such other Owner and Tenant in the event of a change thereof) as additional insureds.

6.2 **Self Insurance**. Any Owner (or Tenant of such Owner responsible for carrying the insurance required by this Declaration) having a tangible net worth in excess of $150,000,000.00 may self insure. Upon reasonable request, each Owner (or Tenant, as applicable) must furnish to the requesting Owner certificates of insurance or other reasonable evidence indicating that insurance meeting the requirements hereof has been obtained and is in full force and effect, or in the case of self-insurance, reasonable evidence substantiating a tangible net worth in excess of $150,000,000.00 (e.g., audited financial statements prepared by a reputable national accounting firm in accordance with generally accepted accounting principles consistently applied, or an annual

SEC Form 10K report if such Owner (or Tenant) is publicly-traded on a national securities exchange). In lieu of providing audited financial statements to confirm its tangible net worth at the time of request, 7-Eleven may provide a certification from an officer of 7-Eleven certifying that 7-Eleven has a sufficient net worth as required by this Section. By self-insuring, an Owner (or Tenant) agrees to make payment in the event of loss at such times, in such amounts, and to such person(s) as would a reputable insurance company authorized to do business in the State of California, it being the intention in permitting self insurance hereunder that the same be equivalent to the third party insurance coverage otherwise required under this Article 6.

7. Taxes and Assessments. Each Owner must pay or cause to be paid all taxes, assessments, or charges of any type levied or made by any governmental body or agency with respect to its Parcel.

8. **No Rights in Public.** Nothing contained herein may be construed as creating any rights in the general public or as dedicating for public use any portion of Parcel A or Parcel B.

9. Remedies and Enforcement.

9.1 **All Legal and Equitable Remedies Available**. In the event of a breach or threatened breach by any Owner or its Tenant of any of the terms, covenants, restrictions or conditions hereof, the non-defaulting Owner(s) and Tenant(s) are entitled forthwith to full and adequate relief by injunction and/or all such other available legal and equitable remedies from the consequences of such breach, including payment of any amounts due and/or specific performance. Each Owner's Tenant has the right, but not the obligation, to enforce this Declaration on behalf of such Owner, or to cure a breach or default hereunder by such Owner, which enforcement or cure must be accepted by all other parties as if effected by the Owner of the Parcel.

9.2 **Self-Help**. In addition to all other remedies available at law or in equity, upon the failure of a defaulting Owner to cure a breach of this Declaration within thirty (30) days following written notice thereof by a non-defaulting Owner or Tenant (unless, with respect to any such breach the nature of which cannot reasonably be cured within such 30-day period, the defaulting Owner commences such cure within such 30-day period and thereafter diligently prosecutes such cure to completion), any non-defaulting Owner or Tenant has the right to perform such obligation contained in this Declaration on behalf of the defaulting Owner and be reimbursed by the defaulting Owner upon demand for the reasonable costs thereof together with interest at the prime rate charged from time to time by Bank of America (or its successors or assigns), plus two percentage points (not to exceed the maximum rate of interest allowed by law). Notwithstanding the foregoing, in the event of (i) an emergency, (ii) blockage or material impairment of access, utilities, or other easement rights, and/or (iii) the unauthorized parking of vehicles on a Parcel, any non-defaulting Owner or Tenant may immediately cure the breach and be reimbursed by the defaulting Owner upon demand for the reasonable costs thereof together with interest at the prime rate, plus two percentage points, as above described.

9.3 **Lien Rights**. Any claim for reimbursement, including interest as aforesaid, and all costs and expenses including reasonable attorneys' fees awarded to any Owner (or to a Tenant in connection with the exercise of its rights set forth in paragraphs 9.1 or 9.2 above) in enforcing any payment in any suit or proceeding under this Declaration shall be assessed against the defaulting

Owner in favor of the prevailing party and shall constitute a lien (the "**Assessment Lien**") against the Parcel of the defaulting Owner until paid, effective upon the recording of a notice of lien with respect thereto in the in the official records of Riverside County, California; provided, however, that any such Assessment Lien shall be subject and subordinate to (i) liens for taxes and other public charges which by applicable law are expressly made superior, (ii) all liens recorded in the official records of Riverside County, California prior to the date of recordation of said notice of lien, and (iii) all leases entered into, whether or not recorded, prior to the date of recordation of said notice of lien. All liens recorded subsequent to the recordation of the notice of lien described herein shall be junior and subordinate to the Assessment Lien. Upon the timely curing by the defaulting Owner of any default for which a notice of lien was recorded, the party recording the notice of lien must record an appropriate release of such notice of lien and Assessment Lien.

9.4 **Remedies Cumulative**. The remedies specified herein are cumulative and in addition to all other remedies permitted at law or in equity.

9.5 **No Termination For Breach**. Notwithstanding the foregoing to the contrary, no breach hereunder entitles any Owner or Tenant to cancel, rescind, or otherwise terminate this Declaration. No breach hereunder defeats or renders invalid the lien of any mortgage or deed of trust upon any Parcel made in good faith for value, but the easements, covenants, conditions and restrictions hereof are binding upon and effective against any Owner of such Parcel covered hereby whose title thereto is acquired by foreclosure, trustee's sale, or otherwise.

10. Term. The easements, covenants, conditions and restrictions contained in this Declaration are effective commencing on the date of recordation of this Declaration in the official records of Riverside County, California, and remain in full force and effect thereafter in perpetuity, unless this Declaration is modified, amended, canceled or terminated by the written consent of all then record Owners of Parcel A and Parcel B in accordance with paragraph 11.2 hereof.

11. Miscellaneous.

11.1 **Attorneys' Fees**. If an Owner or Tenant institutes a legal action or proceeding for the enforcement of any right or obligation herein contained, the prevailing party after a final adjudication is entitled to recover its costs and reasonable attorneys' fees incurred in the preparation and prosecution of such action or proceeding.

11.2 **Amendment**.

(a) This Declaration may be modified or amended, in whole or in part, or terminated, only by the written consent of all Owners of Parcel A and Parcel B, evidenced by a document that has been fully executed and acknowledged by all such Owners and recorded in the official records of Riverside County, California.

(b) Notwithstanding subparagraph 11.2(a) above to the contrary, no termination of this Declaration, and no modification or amendment of this Declaration may be made without the prior written consent of each then-existing Tenant of a Parcel, not to be unreasonably withheld unless otherwise expressly provided herein. The Tenant of Parcel B consents to this Declaration as indicated by its signature below.

11.3 **Consents.**

(a) Wherever in this Declaration the consent or approval of an Owner is required, unless otherwise expressly provided herein, such consent or approval shall not be unreasonably withheld or delayed. If a Tenant has the right to possession of an Owner's Parcel, any consent or approval of the Owner also requires the consent or approval of the Tenant, not to be unreasonably withheld or delayed except as otherwise expressly provided herein. Any request for consent or approval shall: (i) be in writing; (ii) specify the section hereof requiring that such notice be given or that such consent or approval be obtained; and (iii) be accompanied by such background data as is reasonably necessary to make an informed decision thereon. Except as provided in subparagraph (b) below, the consent of an Owner or Tenant under this Declaration, to be effective, must be given, denied or conditioned expressly and in writing.

(b) In connection with requesting consent or approval under subparagraph (a) above, in addition to the requirements set forth therein, if the cover letter or communication transmitting such request (i) specifically refers to this subparagraph 11.3(b), (ii) states the time period within which such consent or approval must be given under this Declaration, and (iii) conspicuously states in all-capital letters that the failure to approve or object within such time period will be deemed consent or approval, the failure of the Owner or Tenant to respond to the request (each, a "**First Delivery Notice**") for consent or approval within the time period specified will be deemed the consent or approval of such Owner or Tenant. With respect to any consent required of 7-Eleven, such consent by 7-Eleven shall not be deemed automatically given due to 7-Eleven's failure to timely respond to the First Delivery Notice unless and until a second Delivery Notice (the "**Second Delivery Notice**") is delivered. In order to be effective, the Second Delivery Notice must (i) state the following in the subject line thereof in bold, at least fourteen point font (and in all capital letters): "**THIS SECOND DELIVERY NOTICE IS BEING SENT TO 7-ELEVEN IN ACCORDANCE WITH SECTION 11.3(B) OF THE DEVELOPMENT ECR. 7-ELEVEN'S FAILURE TO RESPOND TO THIS NOTICE WITHIN FIVE (5) DAYS AFTER RECEIPT THEREOF SHALL RESULT 7-ELEVEN'S DEEMED CONSENT OR APPROVAL OF THE MATTERS SET FORTH IN THIS NOTICE.**", and (ii) be sent, in addition to the notice addresses set forth in paragraph 11.11 below, to the following email address: GM-storedevelopment@7-11.com. In the event that 7-Eleven fails to respond to the Second Delivery Notice within such five (5) day period, then such failure shall be deemed the consent or approval of 7-Eleven.

11.4 **No Waiver**. No waiver of any default of any obligation by any party hereto may be implied from any omission by the other party to take any action with respect to such default.

11.5 **No Agency**. Nothing in this Declaration may be deemed or construed by any Owner or Tenant or by any third person to create the relationship of principal and agent or of limited or general partners or of joint venturers or of any other association between the parties.

11.6 **Covenants to Run with Land**. Each of the easements, covenants, conditions, restrictions, rights and obligations set forth herein run with the land and create equitable servitudes in favor of the real property benefited thereby, bind every person having any fee, leasehold or other interest therein and inure to the benefit of the respective parties and their successors, assigns, heirs, and personal representatives.

11.7 **Grantee's Acceptance**. The grantee of any Parcel or any portion thereof, by acceptance of a deed conveying title thereto or the execution of a contract for the purchase thereof, whether from an original party or from a subsequent owner of such Parcel, shall accept such deed or contract upon and subject to each and all of the easements, covenants, conditions, restrictions and obligations contained herein. By such acceptance, any such grantee shall for himself and his successors, assigns, heirs, and personal representatives, covenant, consent, and agree to and with the other party, to keep, observe, comply with, and perform the obligations and agreements set forth herein with respect to the property so acquired by such grantee.

11.8 **Separability**. Each provision of this Declaration and the application thereof to Parcel A and Parcel B are hereby declared to be independent of and severable from the remainder of this Declaration. If any provision contained herein is held to be invalid or to be unenforceable or not to run with the land, such holding will not affect the validity or enforceability of the remainder of this Declaration. If the validity or enforceability of any provision of this Declaration is held to be dependent upon the existence of a specific legal description, the Owners agree to promptly cause such legal description to be prepared.

11.9 **Time of Essence**. Time is of the essence of this Declaration.

11.10 **Entire Agreement**. This Declaration contains the complete understanding and agreement of the parties hereto with respect to all matters referred to herein, and all prior representations, negotiations, and understandings are superseded hereby.

11.11 **Notices**. Notices or other communications hereunder must be in writing and must be sent certified or registered U.S. mail, return receipt requested, or by a reputable national overnight courier company, or by personal delivery. Notice is deemed given upon receipt or refusal to accept delivery. Each Owner or Tenant may change from time to time its address for notice hereunder by like notice to the other Owners and Tenants. Notice given to any Owner hereunder to be effective must also simultaneously be given to such Owner's Tenant (of which the notifying Owner has notice). The notice addresses of each Owner and Tenant at the date hereof are as follows:

Declarant: Evergreen–8th & Highland Springs, L.L.C.
2390 East Camelback Road, Suite 410
Phoenix, Arizona 85016
Telephone: (602) 808-8600
Attention: Ms. Laura Ortiz

Parcel B Tenant: 7-Eleven, Inc.
Cypress Waters
3200 Hackberry Road
Irving, Texas 75063
Attn: Corporate Real Estate, Store #41640

11.12 **Estoppel Certificates**. Each Owner and Tenant, within twenty (20) business days after its receipt of a written request from another Owner or Tenant, agrees to provide the requesting Owner or Tenant with a certificate binding upon the certifying Owner or Tenant stating: (a) to the

best of such person's actual knowledge, whether any party to this Declaration is in default or violation of this Declaration and if so identifying such default or violation; and (b) that this Declaration is in full force and effect and identifying any amendments to this Declaration as of the date of such certificate.

11.13 **Bankruptcy**. In the event of any bankruptcy affecting any Owner, Tenant or occupant of any Parcel, the parties agree that this Declaration, to the maximum extent permitted by law, will be considered an agreement that runs with the land and is not rejectable, in whole or in part, by the bankrupt person or entity.

11.14 **Mortgage Subordination**. Any mortgage or deed of trust affecting a Parcel must at all times be subject and subordinate to the terms of this Declaration, and any party foreclosing any such mortgage or deed of trust, or acquiring title by deed in lieu of foreclosure or trustee sale, acquires title subject to all the terms and conditions of this Declaration.

11.15 **Delegation**. Each Owner reserves the right to delegate to its Tenant on such basis as the Owner and Tenant mutually agree, all or any of the rights or obligations of the Owner contained in this Declaration, and the performance by the Tenant of an obligation of the Owner must be accepted by all parties as if performed by the Owner. Any ambiguity in this Declaration regarding whether payment or performance is due from the Owner or the Tenant of a Parcel will be resolved by the lease between them.

11.16 **Prescriptive Easements/Adverse Possession**. No title, easement or use pertaining to the Parcels or any portion thereof may be established by prescription or adverse possession, the statute of limitations for such purposes being expressly hereby waived.

11.17 **Ownership of Parcels**. The validity and binding effect of this Declaration is not affected or impaired by reason of the ownership of both Parcels by the same person.

11.18 **Termination of Declarant Liability**. At such time as Evergreen or an affiliated entity no longer has any interest in either Parcel, Evergreen is released from any liability as Declarant thereafter arising, and all rights and obligations of Declarant under this Declaration thereupon cease.

11.19 **Governing Law**. The laws of the State of California govern the interpretation, validity, performance, and enforcement of this Declaration.

12. Shared Signs.

12.1 **Shared Signs**. Two (2) Shared Signs will be constructed on the Parcels, one (1) on Parcel A and one (1) on Parcel B as shown on the Site Plan. The Owner of the First Improved Parcel agrees to construct or cause to be constructed both Shared Signs concurrently with its construction of a building on its Parcel, and, if necessary, a temporary easement for such purpose is hereby granted and reserved. The location, design, type, size, method of illumination, color and dimensions of each Shared Sign are subject to the approval of Declarant, not to be unreasonably withheld, subject to conformance with applicable law.

12.2 **Reimbursement for Construction**. At any time after the Owner or Tenant of the Second Improved Parcel opens for business on its Parcel, or installs its sign panels on any Shared Sign, the Owner of the Second Improved Parcel shall reimburse the Owner of the First Improved Parcel for its "Pro Rata Share" (as defined below) of the actual and reasonable costs of design and construction of the Shared Signs, payable within 30 days after receipt of a written statement from the Owner of the First Improved Parcel showing the amount of such costs in reasonable detail. For purposes of this paragraph 12.2 and paragraph 12.4 below, if the Owner of Parcel A is the reimbursing party, its Pro Rata Share is 36%, and if the Owner of Parcel B is the reimbursing party, its Pro Rata Share is 64%.

12.3 **Sign Panels**. Following completion of the Shared Signs, the Owner of Parcel B and the Owner of Parcel A (or their designees) are entitled to use those portions of the available signage area of each Shared Sign as is shown on Exhibit "C" attached hereto. Each Owner is responsible for all costs pertaining to the fabrication, installation, repair, maintenance and replacement, as necessary, of its sign panels installed on the Shared Signs, including associated permits, and agrees to install its sign panels on the Shared Signs within ninety (90) days after a business is first opened to the public on its Parcel. Each Owner (or such Owner's designee) is granted an easement to reasonably enter upon the Parcel of the other Owner in order to maintain and repair its sign panels.

12.4 **Maintenance**. Following completion of the Shared Signs, the Owner of the First Improved Parcel covenants to maintain, repair, replace as necessary, illuminate (from dusk until dawn or during such fewer hours as the Owners and Tenants of both Parcels mutually agree) and insure the Shared Signs in Good Condition, at its expense (subject to partial reimbursement as provided below). Maintenance of the Shared Signs includes such landscape maintenance, if any, as is necessary to assure that visibility of the Shared Signs and all sign panels installed thereon remains free and unobstructed. At any time after the Owner or Tenant of the Second Improved Parcel opens for business on its Parcel, or installs its sign panels on any Shared Sign, the Owner of the Second Improved Parcel shall reimburse the Owner of the First Improved Parcel for its Pro Rata Share (as defined in paragraph 12.2) of the actual costs incurred by the Owner of the First Improved Parcel under this paragraph 12.4 within 30 days after receipt of a written statement from the Owner of the First Parcel (to be given not more often than monthly) showing the amount of such costs in reasonable detail; provided, however, the Owner of Parcel B is solely responsible for all costs and expenses relating to the LED-illuminated pricing component of Shared Sign No. 1.

12.5 **No Modifications**. Following completion of the Shared Signs, no change in the design, color or any other architectural feature of the Shared Signs (excluding sign panels) is permitted without the prior written consent of all Owners.

12.6 **Business Closure**. If the business of an Owner or its designee identified on a Shared Sign permanently closes, such Owner agrees to cause the sign panels identifying such business to be replaced with blank panels, within thirty (30) days after the request of the other Owner. Such blank panels may thereafter be replaced with new panels when a replacement occupant opens for business.

12.7 **Delegation**. Any right or obligation of an Owner contained in this Article 12 may be delegated to the Tenant or occupant of such Owner's Parcel (provided that the delegating Owner remains liable for the performance of delegated obligations).

IN WITNESS WHEREOF, Declarant has executed this Declaration as of the date first written above.

EVERGREEN–8TH & HIGHLAND SPRINGS, L.L.C.,
an Arizona limited liability company
By: Evergreen Development Company-2019,
L.L.C., an Arizona limited liability company
Its: Manager
By: Evergreen Devco, Inc.,
a California corporation
Its: Manager

By: _____

Its: COO

STATE OF ARIZONA)
)ss.
County of Maricopa)

On this the 16th day of February, ~~2020~~ 2021, before me, the undersigned Notary Public in and for said County and State, personally appeared Douglas Leventhal, the COO of Evergreen Devco, Inc., a California corporation, Manager of Evergreen Development Company-2019, L.L.C., an Arizona limited liability company, Manager of EVERGREEN–8TH & HIGHLAND SPRINGS, L.L.C., an Arizona limited liability company, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he or she executed the instrument in such person's authorized capacity, and that by his or her signature on the instrument the entity on behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public

My Commission Expires:

1-15-2022

CYNTHIA L. MARTINEZ
Notary Public - Arizona
Maricopa County
Expires 01/15/2022

CONSENT

In accordance with paragraph 11.2(b) of the DECLARATION OF EASEMENTS, COVENANTS, CONDITIONS AND RESTRICTIONS to which this Consent is attached, the undersigned Tenant consents to said Declaration, agrees to be bound thereby, and agrees to comply at its expense with all construction, payment or reimbursement, maintenance and repair obligations that are otherwise the responsibility of the Owner of Parcel B set forth therein.

7-Eleven, Inc., a Texas corporation

By: _____

Its: Yoshihiro Matsuno, Attorney-in-Fact

By: _____

Its: Robin D. Bryant, Assistant Secretary

Exhibit "A"

Legal Descriptions

PARCEL A:

THAT PORTION OF PARCEL 1 OF PARCEL MAP NO. 5570, IN THE CITY OF BEAUMONT, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP FILED IN BOOK 10, PAGE 34, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID PARCEL 1, THENCE ALONG THE SOUTHERLY LINE THEREOF SOUTH 89°51'16" WEST 198.04 FEET TO THE **TRUE POINT OF BEGINNING**;
THENCE CONTINUING ALONG SAID SOUTHERLY LINE, SOUTH 89°51'16" WEST 140.80 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 1;
THENCE LEAVING SAID SOUTHERLY LINE ALONG THE WESTERLY LINE OF SAID PARCEL 1, NORTH 00°07'40" WEST 261.56 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 1, SAID POINT ALSO BEING THE BEGINNING OF A NON-TANGENT 960.00 FOOT RADIUS CURVE, CONCAVE SOUTHERLY, A RADIAL TO WHICH BEARS NORTH 10°24'33" WEST;
THENCE ALONG SAID NORTHERLY LINE, EASTERLY ALONG THE ARC OF SAID CURVE AN ARC LENGTH OF 160.58 FEET THROUGH A CENTRAL ANGLE OF 09°35'03" TO AN ANGLE POINT THEREIN;
THENCE LEAVING SAID NORTHERLY LINE, SOUTH 00°08'45" EAST 55.17 FEET;
THENCE SOUTH 89°52'20" WEST 18.88 FEET;
THENCE SOUTH 00°07'40" EAST 221.68 FEET TO THE **TRUE POINT OF BEGINNING**.

PARCEL B (7-ELEVEN):

THAT PORTION OF PARCEL 1 OF PARCEL MAP NO. 5570, IN THE CITY OF BEAUMONT, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP FILED IN BOOK 10, PAGE 34, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID PARCEL 1;
THENCE ALONG THE SOUTHERLY LINE THEREOF SOUTH 89°51'16" WEST 198.04 FEET;
THENCE LEAVING SAID SOUTHERLY LINE, NORTH 00°07'40" WEST 221.68 FEET;
THENCE NORTH 89°52'20" EAST 18.88 FEET;
THENCE NORTH 00°08'45" WEST 55.17 FEET TO A POINT IN THE NORTHERLY LINE OF SAID PARCEL 1 AND AN ANGLE POINT THEREIN;

THENCE ALONG THE SAID NORTHERLY LINE NORTH 89°10'30" EAST 130.79 FEET TO THE BEGINNING OF A TANGENT 30.00 FOOT RADIUS CURVE, CONCAVE SOUTHWESTERLY;
THENCE LEAVING SAID NORTHERLY LINE EASTERLY, SOUTHEASTERLY AND SOUTHERLY ALONG THE ARC OF SAID CURVE AN ARC LENGTH OF 47.17 FEET THROUGH A CENTRAL ANGLE OF 90°05'51" TO A POINT IN THE EASTERLY LINE OF SAID PARCEL 1;
THENCE ALONG SAID EASTERLY LINE SOUTH 00°43'39" EAST 39.40 FEET TO AN ANGLE POINT THEREIN;
THENCE CONTINUING ALONG SAID EASTERLY LINE SOUTH 00°50'43" EAST 40.07 FEET TO THE BEGINNING OF A NON-TANGENT 20.00 FOOT RADIUS CURVE, CONCAVE SOUTHWESTERLY, A RADIAL WHICH BEARS NORTH 13°37'59" EAST;
THENCE SOUTHEASTERLY AND SOUTHERLY ALONG THE ARC OF SAID CURVE AN ARC LENGTH OF 26.36 FEET THROUGH A CENTRAL ANGLE OF 75°31'18";
THENCE CONTINUING ALONG SAID EASTERLY SOUTH 00°50'43" EAST 150.07 FEET TO THE **TRUE POINT OF BEGINNING.**

Exhibit "B"

Site Plan

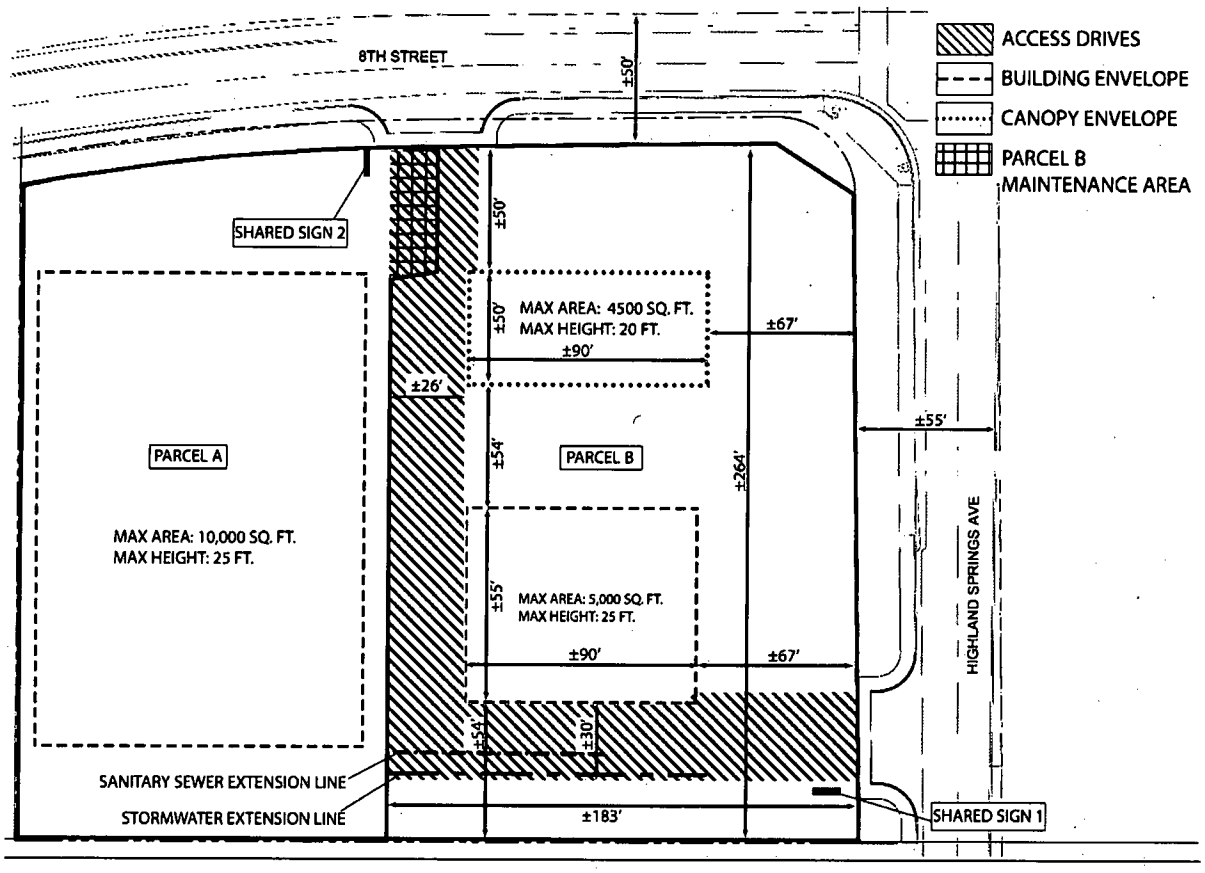
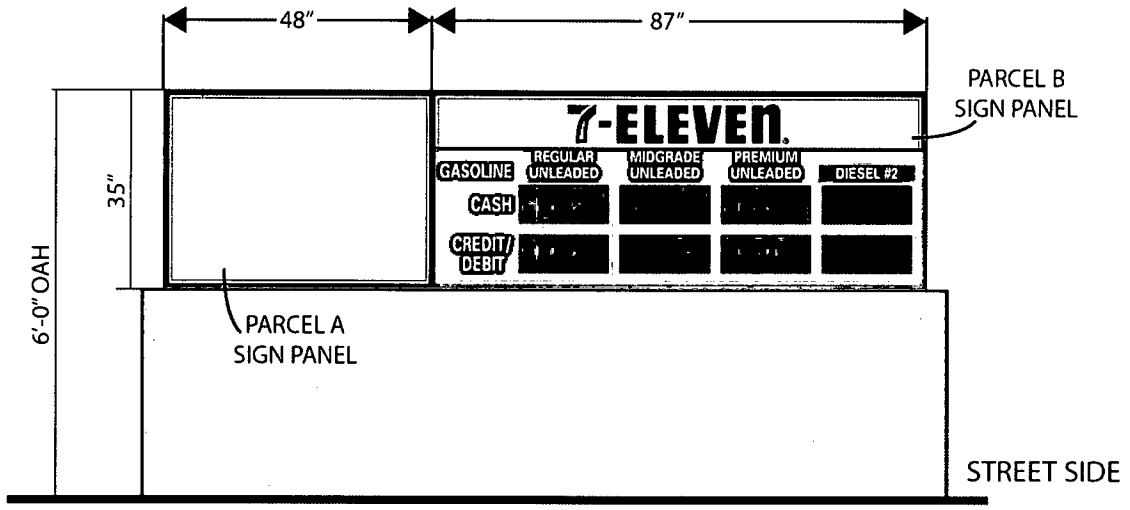


Exhibit "C"

Shared Sign Representation Allocation



Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

A Menu of Activities . . . to Keep Our Water Clean

Cleanin' It Right . . .

Pour mop and wash water into the mop sink or down floor drains . . . not into gutters, alleys, parking lots or a storm drain. Wash greasy equipment only in designated wash areas which are properly connected to the sewer system with an appropriate oil/water separator. Also, avoid washing kitchen mats, garbage containers, and other items in areas where wastewater is likely to flow into a storm drain.

Watch Out For Spills . . .

Use dry methods for spill cleanup. Don't hose down outside spills. Use rags or absorbents such as cat litter and then dispose of in the garbage, or handle as hazardous waste as appropriate. If necessary, mop the area with a minimum amount of water.

Proper Storage and Disposal . . .

General cleaners, floor cleaners, solvents, and detergents often contain toxic substances. Read labels carefully and store and dispose of these products properly.

REMEMBER: Don't throw toxic waste into the trash or into a storm drain. To report toxic spill call 911. For information on hazardous waste pick-up call (909) 358-5055.

Grease and Oil . . .

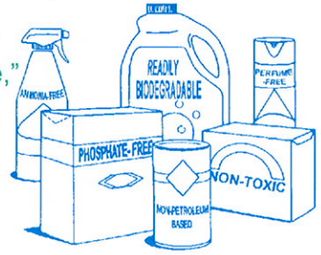
Handle and dispose of grease properly. Save used cooking grease and oil for recycling in tallow bins or sealed containers. Never pour grease into a sink, floor drain, dumpster or storm drain. Watch out for, and report to management, overflowing grease interceptors. Call (909) 358-5172 for disposal information.

How 'Bout That Dumpster . . .

Keep dumpster and loading dock areas clean. Control litter by sweeping - don't hose down the area. Replace leaky dumpsters and keep lids closed to keep out rainwater.

Use Water-Friendly Products . . .

Whenever possible, purchase water-based cleaning products. Look for products labeled "non-toxic," "non-petroleum based," "ammonia-free," "phosphate-free," and "perfume-free," or "readily biodegradable."



Outdoor/Sidewalk Areas . . .

Sweep up food particles, cigarette butts, and trash from outdoor dining areas before rinsing or steam cleaning. Don't use toxic bleaches or detergents when you pressure wash outdoor dining areas, entrances or surrounding sidewalk areas.

You may be *already implementing* ***many*** *of the BMPs prescribed in this brochure. However, if you discover any potential problem areas, please consider using one or more of the recommended BMPS.*

Also, *please note that the Riverside County Environmental Health Department will monitor potential sources of stormwater pollution activities during regularly scheduled inspections of food service facilities. If Health Department staff observe activities which may be contributing to stormwater pollution, suggestions will be provided and/or use of prescribed BMPS listed in this brochure will be offered.*

Please remember:

Everyone contributes a little to the problem of stormwater pollution. Now it's time for all of us to become part of the solution!

Why is stormwater runoff a problem?

Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

After the Storm

For more information contact:

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps

EPA 833-B-03-002

January 2003

Internet Address (URL) • HTTP://www.epa.gov
Recycled/Recyclable • Printed With Vegetable Oil Based Inks on 100% Postconsumer, Process Chlorine Free Recycled Paper

A Citizen's Guide to Understanding Stormwater

Stormwater Pollution Solutions

Residential

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

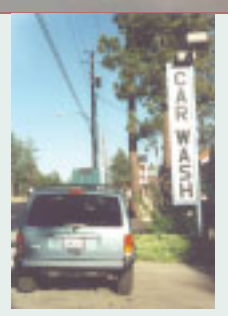
- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Auto care



Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

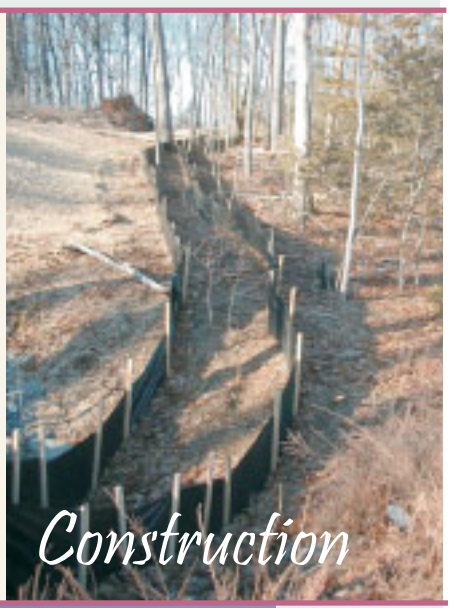
Commercial

Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.



Construction

Agriculture

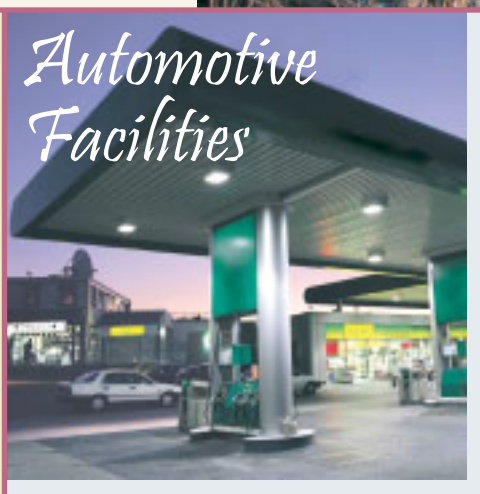
Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.

- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

Forestry

Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.



Automotive Facilities

Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

Stormwater Pollution

What you should know for...

Industrial & Commercial Facilities

Riverside County Stormwater Program Members

City of Banning
(951) 922-3105

City of Beaumont
(951) 769-8520

City of Calimesa
(909) 795-9801

City of Canyon Lake
(951) 244-2955

City of Cathedral City
(760) 770-0340

City of Coachella
(760) 398-3502

City of Corona
(951) 736-2447

City of Desert Hot Springs
(760) 329-6411

City of Eastvale
(951) 361-0900

City of Hemet
(951) 765-2300

City of Indian Wells
(760) 346-2489

City of Indio
(760) 391-4000

City of Jurupa Valley
(951) 332-6464

City of Lake Elsinore
(951) 674-3124

City of La Quinta
(760) 777-7000

City of Menifee
(951) 672-6777

City of Moreno Valley
(951) 413-3000

City of Murrieta
(951) 304-2489

City of Norco
(951) 270-5607

City of Palm Desert
(760) 346-0611

City of Palm Springs
(760) 323-8299

City of Perris
(951) 943-6100

City of Rancho Mirage
(760) 324-4511

City of Riverside
(951) 826-5311

City of San Jacinto
(951) 487-7330

City of Temecula
(951) 694-6444

City of Wildomar
(951) 677-7751

Coachella Valley Water District
(760) 398-2651

County of Riverside
(951) 955-1000

Riverside County Flood Control District
(951) 955-1200

Best Management Practices (BMPS) for:

- Industrial Facilities
- Commercial Facilities

YOU can prevent Stormwater Pollution following these practices...

Industrial and Commercial Facilities

The Riverside County Stormwater Program has identified a number of Best Management Practices (BMPs) for Industrial and Commercial Facilities. These BMPs control and reduce stormwater pollutants from reaching our storm drain system and ultimately our local water bodies. City and County ordinances require businesses to use these BMPs to protect our water quality. Local cities and the County are required to verify implementation of these BMPs by performing regular facility inspections.

Prohibited Discharges

Discontinue all non-stormwater discharges to the storm drain system. It is *prohibited* to discharge any chemicals, paints, debris, wastes or wastewater into the gutter, street or storm drain.

Outdoor Storage BMPs

- Install covers and secondary containment areas for all hazardous materials and wastes stored outdoors in accordance with County and/or City standards.
- Keep all temporary waste containers covered, at all times when not in use.
- Sweep outdoor areas instead of using a hose or pressure washer.
- Move all process operations including vehicle/equipment maintenance inside of the building or under a covered and contained area.
- Wash equipment and vehicles in a contained and covered wash bay which is closed-loop or connected to a clarifier sized to local standards and discharged to a sanitary sewer or take them to a commercial car wash.

Spills and Clean Up BMPs

- Keep the work site clean and orderly. Remove debris in a timely fashion. Sweep up the area.
- Clean up spills immediately when they occur, using dry clean up methods such as absorbent materials or sweep followed by proper disposal of materials.
- Always have a spill kit available near chemical loading dock doors and vehicle maintenance and fueling areas.
- Follow your Business Emergency Plan, as filed with the local Fire Department.
- Report all prohibited discharges and non-implementation of BMPs to your local Stormwater Coordinator as listed on the back of this pamphlet.
- Report hazardous materials spills to 951-358-5055 or call after hours to 951-782-2973 or, if an emergency, call the Fire Department's Haz Mat Team at 911.

Plastic Manufacturing Facilities BMPs

AB 258 requires plastic product manufacturers to use BMPs, such as safe storage and clean-up procedures to prevent plastic pellets (nurdles) from entering the waterway. The plastic pellets are released into the environment during transporting, packaging and processing and migrate to waterways through the storm drain system. AB 258 will help protect fish and wildlife from the hazards of plastic pollution.

Training BMPs

As prescribed by your City and County Stormwater Ordinance(s), train employees in spill procedures and prohibit non-stormwater discharges to the storm drain system. Applicable BMP examples can be found at www.cabmphandbooks.com.

Permitting

Stormwater discharges associated with specific categories for industrial facilities are regulated by the State Water Resources Control Board through an Industrial Stormwater General Permit. A copy of this General Permit and application forms are available at: www.waterboards.ca.gov, select stormwater then the industrial quick link.

To report illegal dumping or for more information on stormwater pollution prevention call: 1-800-506-2555 or e-mail us at: fcnpdes@rcflood.org.

Landscaping and garden maintenance activities can be major contributors to water pollution. Soils, yard wastes, over-watering and garden chemicals become part of the urban runoff mix that winds its way through streets, gutters and storm drains before entering lakes, rivers, streams, etc. Urban runoff pollution contaminates water and harms aquatic life!

In Riverside County, report illegal discharges into the storm drain, call
1-800-506-2555
"Only Rain Down the Storm Drain"

Important Links:

Riverside County Household Hazardous Waste Collection Information
1-800-304-2226 or www.rivcowm.org

Riverside County Backyard Composting Program
1-800-366-SAVE

Integrated Pest Management (IPM) Solutions
www.ipm.ucdavis.edu

California Master Gardener Programs
www.mastergardeners.org
www.camastergardeners.ucdavis.edu

California Native Plant Society
www.cnps.org

The Riverside County "Only Rain Down the Storm Drain" Pollution Prevention Program gratefully acknowledges Orange County's Storm Water Program for their contribution to this brochure.

...Only Rain Down ...the Storm Drain

What you should know for... Landscape and Gardening

Best Management tips for:

- Professionals
- Novices
- Landscapers
- Gardeners
- Cultivators

Tips for Landscape & Gardening

This brochure will help you to get the most of your lawn and gardening efforts and keep our waterways clean. Clean waterways provide recreation, establish thriving fish habitats, secure safe sanctuaries for wildlife, and add beauty to our communities. NEVER allow gardening products or waste water to enter the street, gutter or storm drain.

General Landscaping Tips

- Protect stockpiles and materials from wind and rain by storing them under tarps or secured plastic sheeting.
- Prevent erosion of slopes by planting fast-growing, dense ground covering plants. These will shield and bind the soil.

- Plant native vegetation to reduce the amount of water, fertilizers and pesticides applied to the landscape.
- Never apply pesticides or fertilizers when rain is predicted within the next 48 hours.

Garden & Lawn Maintenance

- Do not overwater. Use irrigation practices such as drip irrigation, soaker hoses or micro-spray systems. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of green waste by composting, hauling it to a permitted landfill, or recycling it through your city's program.

- Consider recycling your green waste and adding "nature's own fertilizer" to your lawn or garden.
- Read labels and use only as directed. Do not over-apply pesticides or fertilizers. Apply to spots as needed, rather than blanketing an entire area.
- Store pesticides, fertilizers and other chemicals in a dry covered area to prevent exposure that may result in the deterioration of containers and packaging.
- Rinse empty pesticide containers and re-use rinse water as you would use the product. Do not dump rinse water down storm drains or sewers. Dispose of empty containers in the trash.
- When available, use non-toxic alternatives to traditional pesticides, and use pesticides specifically designed to control the pest you are targeting.
- Try natural long-term common sense solutions first. Integrated Pest Management (IPM) can provide landscaping guidance and solutions, such as:
  - **Physical Controls** - Try hand picking, barriers, traps or caulking holes to control weeds and pests.
  - **Biological Controls** - Use predatory insects to control harmful pests.
  - **Chemical Controls** - Check out www.ipm.ucdavis.edu before using chemicals. Remember, all chemicals should be used cautiously and in moderation.
- If fertilizer is spilled, sweep up the spill before irrigating. If the spill is liquid, apply an absorbent material such as cat litter, and then sweep it up and dispose of it in the trash.
- Take unwanted pesticides to a Household Waste Collection Center to be recycled.
- *Dumping toxics into the street, gutter or storm drain is illegal!*

www.bewaterwise.com Great water conservation tips and drought tolerant garden designs.

www.ourwaterourworld.com Learn how to safely manage home and garden pests.

Additional information can also be found on the back of this brochure.

Helpful telephone numbers and links:

Riverside County Stormwater Protection Partners

Flood Control District	(951) 955-1200
County of Riverside	(951) 955-1000
City of Banning	(951) 922-3105
City of Beaumont	(951) 769-8520
City of Calimesa	(909) 795-9801
City of Canyon Lake	(951) 244-2955
Cathedral City	(760) 770-0327
City of Coachella	(760) 398-4978
City of Corona	(951) 736-2447
City of Desert Hot Springs	(760) 329-6411
City of Eastvale	(951) 361-0900
City of Hemet	(951) 765-2300
City of Indian Wells	(760) 346-2489
City of Indio	(760) 391-4000
City of Lake Elsinore	(951) 674-3124
City of La Quinta	(760) 777-7000
City of Menifee	(951) 672-6777
City of Moreno Valley	(951) 413-3000
City of Murrieta	(951) 304-2489
City of Norco	(951) 270-5607
City of Palm Desert	(760) 346-0611
City of Palm Springs	(760) 323-8299
City of Perris	(951) 943-6100
City of Rancho Mirage	(760) 324-4511
City of Riverside	(951) 361-0900
City of San Jacinto	(951) 654-7337
City of Temecula	(951) 694-6444
City of Wildomar	(951) 677-7751

REPORT ILLEGAL STORM DRAIN DISPOSAL
1-800-506-2555 or e-mail us at
fcnpdes@rcflood.org

- Riverside County Flood Control and Water Conservation District
  www.rcflood.org

Online resources include:

- California Storm Water Quality Association
  www.casqa.org
- State Water Resources Control Board
  www.waterboards.ca.gov
- Power Washers of North America
  www.thepwna.org

Stormwater Pollution

What you should know for...

Outdoor Cleaning Activities and Professional Mobile Service Providers

Storm drain pollution prevention information for:

- Car Washing / Mobile Detailers
- Window and Carpet Cleaners
- Power Washers
- Waterproofers / Street Sweepers
- Equipment cleaners or degreasers and all mobile service providers

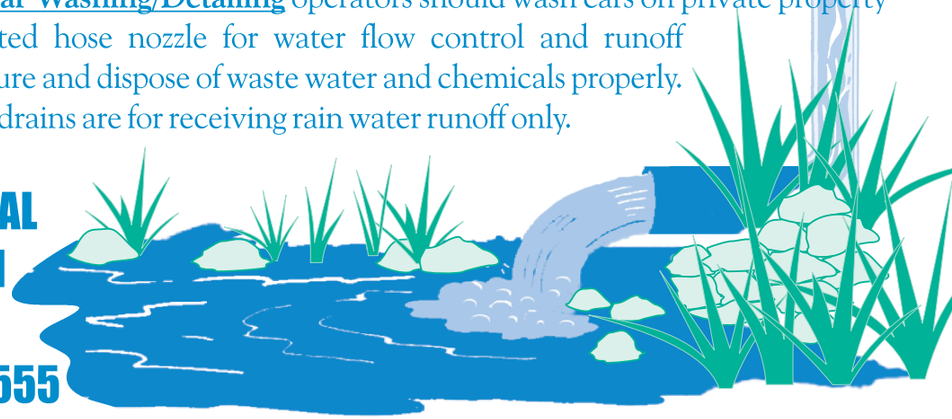
Do you know where street flows actually go?

Storm drains are NOT connected to sanitary sewer systems and treatment plants!

The primary purpose of storm drains is to carry *rain* water away from developed areas to prevent flooding. Pollutants discharged to storm drains are transported directly into rivers, lakes and streams. Soaps, degreasers, automotive fluids, litter and a host of materials are washed off buildings, sidewalks, plazas and parking areas. Vehicles and equipment must be properly managed to prevent the pollution of local waterways.

Unintentional spills by mobile service operators can flow into storm drains and pollute our waterways. **Avoid mishaps.** *Always* have a **Spill Response Kit** on hand to clean up unintentional spills. Only emergency **Mechanical** repairs should be done in City streets, using drip pans for spills. **Plumbing** should be done on private property. Always store chemicals in a leak-proof container and keep covered when not in use. **Window/Power Washing** waste water shouldn't be released into the streets, but should be disposed of in a sanitary sewer, landscaped area or in the soil. Soiled **Carpet Cleaning** wash water should be filtered before being discharged into the sanitary sewer. Dispose of all filter debris properly. **Car Washing/Detailing** operators should wash cars on private property and use a regulated hose nozzle for water flow control and runoff prevention. Capture and dispose of waste water and chemicals properly. Remember, storm drains are for receiving rain water runoff only.

REPORT ILLEGAL STORM DRAIN DISPOSAL 1-800-506-2555



Help Protect Our Waterways!

Use these guidelines for Outdoor Cleaning Activities and Wash Water Disposal

Did you know that disposing of pollutants into the street, gutter, storm drain or body of water is *PROHIBITED* by law and can result in stiff penalties?

Best Management Practices

Waste wash water from Mechanics, Plumbers, Window/Power Washers, Carpet Cleaners, Car Washing and Mobile Detailing activities may contain significant quantities of motor oil, grease, chemicals, dirt, detergents, brake pad dust, litter and other materials.

Best Management Practices, or BMPs as they are known, are guides to prevent pollutants from entering the storm drains. ***Each of us*** can do our part to keep stormwater clean by using the suggested BMPs below:

Simple solutions for both light and heavy duty jobs:

Do...consider dry cleaning methods first such as a mop, broom, rag or wire brush. Always keep a spill response kit on site.

Do...prepare the work area before power cleaning by using sand bags, rubber mats, vacuum booms, containment pads or temporary berms to keep wash water away from the gutters and storm drains.

Do...use vacuums or other machines to remove and collect loose debris or litter before applying water.

Do...obtain the property owner's permission to dispose of ***small amounts*** of power washing waste water on to landscaped, gravel or unpaved surfaces.

Do...check your local sanitary sewer agency's policies on wash water disposal regulations before disposing of wash water into the sewer. (See list on reverse side)

Do...be aware that if discharging to landscape areas, soapy wash water may damage landscaping. Residual wash water may remain on paved surfaces to evaporate. Sweep up solid residuals and dispose of properly. Vacuum booms are another option for capturing and collecting wash water.

Do...check to see if local ordinances prevent certain activities.

Do not let...wash or waste water from sidewalk, plaza or building cleaning go into a street or storm drain.

Report illegal storm drain disposal
Call Toll Free
1-800-506-2555

Using Cleaning Agents

Try using biodegradable/phosphate-free products. They are easier on the environment, but don't confuse them with being toxic free. Soapy water entering the storm drain system can impact the delicate aquatic environment.

When cleaning surfaces with a ***high-pressure washer*** or ***steam cleaner***, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning can loosen additional material that can contaminate local waterways.

Think Water Conservation

Minimize water use by using high pressure, low volume nozzles. Be sure to check all hoses for leaks. Water is a precious resource, don't let it flow freely and be sure to shut it off in between uses.

Screening Wash Water

Conduct thorough dry cleanup before washing exterior surfaces, such as buildings and decks ***with loose paint***, sidewalks or plaza areas. Keep debris from entering the storm drain after cleaning by first passing the wash water through a "20 mesh" or finer screen to catch the solid materials, then dispose of the mesh in a refuse container. Do not let the remaining wash water enter a street, gutter or storm drain.

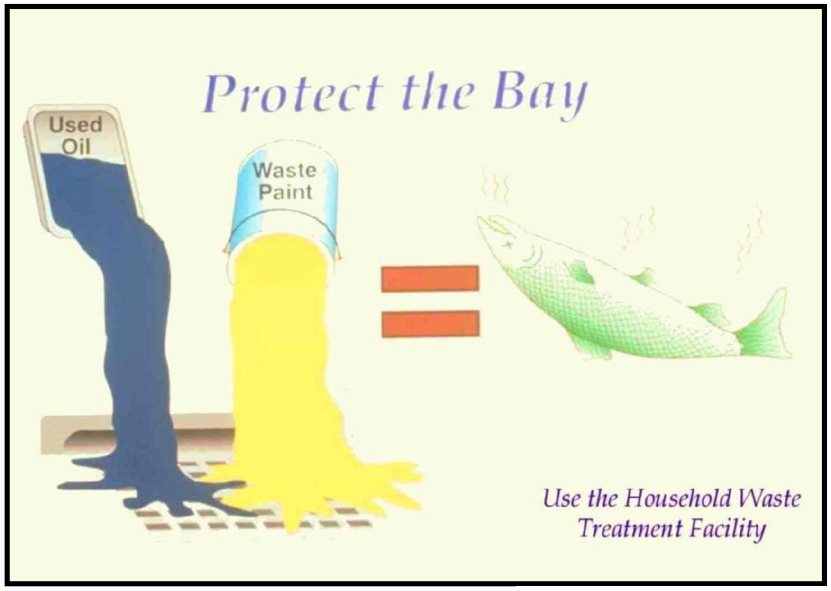
Drain Inlet Protection & Collection of Wash Water

- Prior to any washing, block all storm drains with an impervious barrier such as sandbags or berms, or seal the storm drain with plugs or other appropriate materials.
- Create a containment area with berms and traps or take advantage of a low spot to keep wash water contained.
- Wash vehicles and equipment on grassy or gravel areas so that the wash water can seep into the ground.
- Pump or vacuum up all wash water in the contained area.

Concrete/Coring/Saw Cutting and Drilling Projects

Protect any down-gradient inlets by using dry activity techniques whenever possible. If water is used, minimize the amount of water used during the coring/drilling or saw cutting process. Place a barrier of sandbags and/or absorbent berms to protect the storm drain inlet or watercourse. Use a shovel or wet vacuum to remove the residue from the pavement. Do not wash residue or particulate matter into a storm drain inlet or watercourse.

Non-Stormwater Discharges SC-10



Graphic by: Margie Winter

Objectives

- Contain
- Educate
- Reduce/Minimize

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	✓
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓
Oxygen Demanding	✓

Description

Non-stormwater discharges are those flows that do not consist entirely of stormwater. For municipalities non-stormwater discharges present themselves in two situations. One is from fixed facilities owned and/or operated by the municipality. The other situation is non-stormwater discharges that are discovered during the normal operation of a field program. Some non-stormwater discharges do not include pollutants and may be discharged to the storm drain. These include uncontaminated groundwater and natural springs. There are also some non-stormwater discharges that typically do not contain pollutants and may be discharged to the storm drain with conditions. These include car washing, and surface cleaning. However, there are certain non-stormwater discharges that pose environmental concern. These discharges may originate from illegal dumping or from internal floor drains, appliances, industrial processes, sinks, and toilets that are connected to the nearby storm drainage system. These discharges (which may include: process waste waters, cooling waters, wash waters, and sanitary wastewater) can carry substances (such as paint, oil, fuel and other automotive fluids, chemicals and other pollutants) into storm drains. The ultimate goal is to effectively eliminate non-stormwater discharges to the stormwater drainage system through implementation of measures to detect, correct, and enforce against illicit connections and illegal discharges.

Approach

The municipality must address non-stormwater discharges from its fixed facilities by assessing the types of non-stormwater discharges and implementing BMPs for the discharges determined to pose environmental concern. For field programs the field staff must be

CASQA California Stormwater Quality Association

trained to now what to look for regarding non-stormwater discharges and the procedures to follow in investigating the detected discharges.

Suggested Protocols

Fixed Facility

General

- Post "No Dumping" signs with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Stencil storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Landscaping and beautification efforts of hot spots might also discourage future dumping, as well as provide open space and increase property values.
- Lighting or barriers may also be needed to discourage future dumping.

Illicit Connections

- Locate discharges from the fixed facility drainage system to the municipal storm drain system through review of "as-built" piping schematics.
- Use techniques such as smoke testing, dye testing and television camera inspection (as noted below) to verify physical connections.
- Isolate problem areas and plug illicit discharge points.

Visual Inspection and Inventory

- Inventory and inspect each discharge point during dry weather.
- Keep in mind that drainage from a storm event can continue for several days following the end of a storm and groundwater may infiltrate the underground stormwater collection system. Also, non-stormwater discharges are often intermittent and may require periodic inspections.

Review Infield Piping

- Review the "as-built" piping schematic as a way to determine if there are any connections to the stormwater collection system.
- Inspect the path of floor drains in older buildings.

Smoke Testing

- Smoke testing of wastewater and stormwater collection systems is used to detect connections between the two systems.

- During dry weather the stormwater collection system is filled with smoke and then traced to sources. The appearance of smoke at the base of a toilet indicates that there may be a connection between the sanitary and the stormwater system.

Dye Testing

- A dye test can be performed by simply releasing a dye into either your sanitary or process wastewater system and examining the discharge points from the stormwater collection system for discoloration.

TV Inspection of Storm Sewer

- TV Cameras can be employed to visually identify illicit connections to the fixed facility storm drain system.

Illegal Dumping

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Clean up spills on paved surfaces with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste.
- Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
- Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
- For larger spills, a private spill cleanup company or Hazmat team may be necessary.
- See fact sheet SC-11 Spill Prevention, Control, and Clean Up.

Field Program

General

- Develop clear protocols and lines of communication for effectively prohibiting non-stormwater discharges, especially ones that involve more than one jurisdiction and those that are not classified as hazardous, which are often not responded to as effectively as they need to be.
- Stencil storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as “Dump No Waste Drains to Stream” stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- See SC-74 Stormwater Drainage System Maintenance for additional information.

Field Inspection

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- During routine field program maintenance field staff should look for evidence of illegal discharges or illicit connection:
  - Is there evidence of spills such as paints, discoloring, etc.
  - Are there any odors associated with the drainage system
  - Record locations of apparent illegal discharges/illicit connections and notify appropriate investigating agency.
- If trained, conduct field investigation of non-stormwater discharges to determine whether they pose a threat to water quality.

Recommended Complaint Investigation Equipment

- Field Screening Analysis
  - pH paper or meter
  - Commercial stormwater pollutant screening kit that can detect for reactive phosphorus, nitrate nitrogen, ammonium nitrogen, specific conductance, and turbidity
  - Sample jars
  - Sample collection pole
  - A tool to remove access hole covers
- Laboratory Analysis
  - Sample cooler
  - Ice
  - Sample jars and labels
  - Chain of custody forms.
- Documentation
  - Camera
  - Notebook
  - Pens
  - Notice of Violation forms

- Educational materials

Reporting

- A database is useful for defining and tracking the magnitude and location of the problem.
- Report prohibited non-stormwater discharges observed during the course of normal daily activities so they can be investigated, contained and cleaned up or eliminated.
- Document that non-stormwater discharges have been eliminated by recording tests performed, methods used, dates of testing, and any onsite drainage points observed.
- Maintain documentation of illicit connection and illegal dumping incidents, including significant conditionally exempt discharges that are not properly managed.

Enforcement

- Educate the responsible party if identified on the impacts of their actions, explain the stormwater requirements, and provide information regarding Best Management Practices (BMP), as appropriate. Initiate follow-up and/or enforcement procedures.
- If an illegal discharge is traced to a commercial, residential or industrial source, conduct the following activities or coordinate the following activities with the appropriate agency:
  - Contact the responsible party to discuss methods of eliminating the non-stormwater discharge, including disposal options, recycling, and possible discharge to the sanitary sewer (if within POTW limits).
  - Provide information regarding BMPs to the responsible party, where appropriate.
  - Begin enforcement procedures, if appropriate.
  - Continue inspection and follow-up activities until the illicit discharge activity has ceased.
- If an illegal discharge is traced to a commercial or industrial activity, coordinate information on the discharge with the jurisdiction's commercial and industrial facility inspection program.

Training

- Train technical staff to identify and document illegal dumping incidents.
- Well-trained employees can reduce human errors that lead to accidental releases or spills. The employee should have the tools and knowledge to immediately begin cleaning up a spill if one should occur. Employees should be familiar with the Spill Prevention Control and Countermeasure Plan.
- Train employees to identify non-stormwater discharges and report them to the appropriate departments.
- Train staff who have the authority to conduct surveillance and inspections, and write citations for those caught illegally dumping.

- Train municipal staff responsible for surveillance and inspection in the following:
  - OSHA-required Health and Safety Training (29 CFR 1910.120) plus annual refresher training (as needed).
  - OSHA Confined Space Entry training (Cal-OSHA Confined Space, Title 8 and federal OSHA 29 CFR 1910.146).
  - Procedural training (field screening, sampling, smoke/dye testing, TV inspection).
- Educate the identified responsible party on the impacts of his or her actions.

Spill Response and Prevention

- See SC-11 Spill Prevention Control and Clean Up

Other Considerations

- The elimination of illegal dumping is dependent on the availability, convenience, and cost of alternative means of disposal. The cost of fees for dumping at a proper waste disposal facility are often more than the fine for an illegal dumping offense, thereby discouraging people from complying with the law. The absence of routine or affordable pickup service for trash and recyclables in some communities also encourages illegal dumping. A lack of understanding regarding applicable laws or the inadequacy of existing laws may also contribute to the problem.
- Municipal codes should include sections prohibiting the discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.
- Many facilities do not have accurate, up-to-date schematic drawings.
- Can be difficult to locate illicit connections especially if there is groundwater infiltration.

Requirements

Costs

- Eliminating illicit connections can be expensive especially if structural modifications are required such re-plumbing cross connections under an existing slab.
- Minor cost to train field crews regarding the identification of non-stormwater discharges. The primary cost is for a fully integrated program to identify and eliminate illicit connections and illegal dumping. However, by combining with other municipal programs (i.e. pretreatment program) cost may be lowered.
- Municipal cost for containment and disposal may be borne by the discharger.

Maintenance

Not applicable

Supplemental Information

Further Detail of the BMP

What constitutes a "non-stormwater" discharge?

- Non-stormwater discharges are discharges not made up entirely of stormwater and include water used directly in the manufacturing process (process wastewater), air conditioning condensate and coolant, non-contact cooling water, cooling equipment condensate, outdoor secondary containment water, vehicle and equipment wash water, landscape irrigation, sink and drinking fountain wastewater, sanitary wastes, or other wastewaters.

Permit Requirements

- Current municipal NPDES permits require municipalities to effectively prohibit non-stormwater discharges unless authorized by a separate NPDES permit or allowed in accordance with the current NPDES permit conditions. Typically the current permits allow certain non-stormwater discharges in the storm drain system as long as the discharges are not significant sources of pollutants. In this context the following non-stormwater discharges are typically allowed:
  - Diverted stream flows;
  - Rising found waters;
  - Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20));
  - Uncontaminated pumped ground water;
  - Foundation drains;
  - Springs;
  - Water from crawl space pumps;
  - Footing drains;
  - Air conditioning condensation;
  - Flows from riparian habitats and wetlands;
  - Water line and hydrant flushing ;
  - Landscape irrigation;
  - Planned and unplanned discharges from potable water sources;
  - Irrigation water;
  - Individual residential car washing; and
  - Lawn watering.

Municipal facilities subject to industrial general permit requirements must include a certification that the stormwater collection system has been tested or evaluated for the presence of non-stormwater discharges. The state's General Industrial Stormwater Permit requires that non-stormwater discharges be eliminated prior to implementation of the facility's SWPPP.

Illegal Dumping

- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots
  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)
  - Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
  - Responsible parties

Outreach

One of the keys to success of reducing or eliminating illegal dumping is increasing the number of people on the street who are aware of the problem and who have the tools to at least identify the incident, if not correct it. There we a number of ways of accomplishing this:

- Train municipal staff from all departments (public works, utilities, street cleaning, parks and recreation, industrial waste inspection, hazardous waste inspection, sewer maintenance) to recognize and report the incidents.
- Deputize municipal staff who may come into contact with illegal dumping with the authority to write illegal dumping tickets for offenders caught in the act (see below).
- Educate the public. As many as 3 out of 4 people do not understand that in most communities the storm drain does not go to the wastewater treatment plant. Unfortunately, with the heavy emphasis in recent years on public education about solid waste management, including recycling and household hazardous waste, the sewer system (both storm and sanitary) has been the likely recipient of cross-media transfers of waste.
- Provide the public with a mechanism for reporting incidents such as a hot line and/or door hanger (see below).
- Help areas where incidents occur more frequently set up environmental watch programs (like crime watch programs).
- Train volunteers to notice and report the presence and suspected source of an observed pollutant to the appropriate public agency.

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  - Rising found waters;
  - Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20));
  - Uncontaminated pumped ground water;
  - Foundation drains;
  - Springs;
  - Water from crawl space pumps;
  - Footing drains;
  - Air conditioning condensation;
  - Flows from riparian habitats and wetlands;
  - Water line and hydrant flushing ;
  - Landscape irrigation;
  - Planned and unplanned discharges from potable water sources;
  - Irrigation water;
  - Individual residential car washing; and
  - Lawn watering.

Municipal facilities subject to industrial general permit requirements must include a certification that the stormwater collection system has been tested or evaluated for the presence of non-stormwater discharges. The state's General Industrial Stormwater Permit requires that non-stormwater discharges be eliminated prior to implementation of the facility's SWPPP.

Storm Drain Stenciling

- Stencil storm drain inlets with a message to prohibit illegal dumpings, especially in areas with waste handling facilities.
- Encourage public reporting of improper waste disposal by a HOTLINE number stenciled onto the storm drain inlet.
- See Supplemental Information section of this fact sheet for further detail on stenciling program approach.

Oil Recycling

- Contract collection and hauling of used oil to a private licensed used oil hauler/recycler.
- Comply with all applicable state and federal regulations regarding storage, handling, and transport of petroleum products.
- Create procedures for collection such as; collection locations and schedule, acceptable containers, and maximum amounts accepted.
- The California Integrated Waste Management Board has a Recycling Hotline, (800) 553-2962, that provides information and recycling locations for used oil.

Household Hazardous Waste

- Provide household hazardous waste (HHW) collection facilities. Several types of collection approaches are available including permanent, periodic, or mobile centers, curbside collection, or a combination of these systems.

Training

- Train municipal employees and contractors in proper and consistent methods for waste disposal.
- Train municipal employees to recognize and report illegal dumping.
- Train employees and subcontractors in proper hazardous waste management.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Federal Regulations (RCRA, SARA, CERCLA) and state regulations exist regarding the disposal of hazardous waste.
- Municipalities are required to have a used oil recycling and a HHW element within their integrate waste management plan.
- Significant liability issues are involved with the collection, handling, and disposal of HHW.

Examples

The City of Palo Alto has developed a public participation program for reporting dumping violations. When a concerned citizen or public employee encounters evidence of illegal dumping, a door hanger (similar in format to hotel "Do Not Disturb" signs) is placed on the front doors in the neighborhood. The door hanger notes that a violation has occurred in the neighborhood, informs the reader why illegal dumping is a problem, and notes that illegal dumping carries a significant financial penalty. Information is also provided on what citizens can do as well as contact numbers for more information or to report a violation.

The Port of Long Beach has a state of the art database incorporating storm drain infrastructure, potential pollutant sources, facility management practices, and a pollutant tracking system.

The State Department of Fish and Game has a hotline for reporting violations called CalTIP (1-800-952-5400). The phone number may be used to report any violation of a Fish and Game code (illegal dumping, poaching, etc.).

The California Department of Toxic Substances Control's Waste Alert Hotline, 1-800-69TOXIC, can be used to report hazardous waste violations.

References and Resources

http://www.stormwatercenter.net/

California's Nonpoint Source Program Plan http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Stormwater Pollution Control Manual - http://dnr.metrokc.gov/wlr/dss/spcm.htm

Orange County Stormwater Program,
http://www.ocwatersheds.com/stormwater/swp_introduction.asp

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program
(http://www.projectcleanwater.org)

Santa Clara Valley Urban Runoff Pollution Prevention Program
http://www.scvurppp-w2k.com/pdf%20documents/PS_ICID.PDF

Spill Prevention, Control & Cleanup SC-11

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Spills and leaks, if not properly controlled, can adversely impact the storm drain system and receiving waters. Due to the type of work or the materials involved, many activities that occur either at a municipal facility or as a part of municipal field programs have the potential for accidental spills and leaks. Proper spill response planning and preparation can enable municipal employees to effectively respond to problems when they occur and minimize the discharge of pollutants to the environment.

Targeted Constituents

Sediment	
Nutrients	✓
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓
Oxygen Demanding	✓

Approach

- An effective spill response and control plan should include:
  - Spill/leak prevention measures;
  - Spill response procedures;
  - Spill cleanup procedures;
  - Reporting; and
  - Training
- A well thought out and implemented plan can prevent pollutants from entering the storm drainage system and can be used as a tool for training personnel to prevent and control future spills as well.

Pollution Prevention

- Develop and implement a Spill Prevention Control and Response Plan. The plan should include:

- A description of the facility, the address, activities and materials involved
- Identification of key spill response personnel
- Identification of the potential spill areas or operations prone to spills/leaks
- Identification of which areas should be or are bermed to contain spills/leaks
- Facility map identifying the key locations of areas, activities, materials, structural BMPs, etc.
- Material handling procedures
- Spill response procedures including:
    - Assessment of the site and potential impacts
    - Containment of the material
    - Notification of the proper personnel and evacuation procedures
    - Clean up of the site
    - Disposal of the waste material and
    - Proper record keeping

- Product substitution – use less toxic materials (i.e. use water based paints instead of oil based paints)
- Recycle, reclaim, or reuse materials whenever possible. This will reduce the amount of materials that are brought into the facility or into the field.

Suggested Protocols

Spill/Leak Prevention Measures

- If possible, move material handling indoors, under cover, or away from storm drains or sensitive water bodies.
- Properly label all containers so that the contents are easily identifiable.
- Berm storage areas so that if a spill or leak occurs, the material is contained.
- Cover outside storage areas either with a permanent structure or with a seasonal one such as a tarp so that rain can not come into contact with the materials.
- Check containers (and any containment sumps) often for leaks and spills. Replace containers that are leaking, corroded, or otherwise deteriorating with containers in good condition. Collect all spilled liquids and properly dispose of them.

- Store, contain and transfer liquid materials in such a manner that if the container is ruptured or the contents spilled, they will not discharge, flow or be washed into the storm drainage system, surface waters, or groundwater.

- Place drip pans or absorbent materials beneath all mounted taps and at all potential drip and spill locations during the filling and unloading of containers. Any collected liquids or soiled absorbent materials should be reused/recycled or properly disposed of.

- For field programs, only transport the minimum amount of material needed for the daily activities and transfer materials between containers at a municipal yard where leaks and spill are easier to control.

- If paved, sweep and clean storage areas monthly, do not use water to hose down the area unless all of the water will be collected and disposed of properly.

- Install a spill control device (such as a tee section) in any catch basins that collect runoff from any storage areas if the materials stored are oil, gas, or other materials that separate from and float on water. This will allow for easier cleanup if a spill occurs.

- If necessary, protect catch basins while conducting field activities so that if a spill occurs, the material will be contained.

Training

- Educate employees about spill prevention, spill response and cleanup on a routine basis.

- Well-trained employees can reduce human errors that lead to accidental releases or spills:

  - The employees should have the tools and knowledge to immediately begin cleaning up a spill if one should occur.

  - Employees should be familiar with the Spill Prevention Control and Countermeasure Plan if one is available.

- Training of staff from all municipal departments should focus on recognizing and reporting potential or current spills/leaks and who they should contact.

- Employees responsible for aboveground storage tanks and liquid transfers for large bulk containers should be thoroughly familiar with the Spill Prevention Control and Countermeasure Plan and the plan should be readily available.

Spill Response and Prevention

- Identify key spill response personnel and train employees on who they are.

- Store and maintain appropriate spill cleanup materials in a clearly marked location near storage areas; and train employees to ensure familiarity with the site's spill control plan and/or proper spill cleanup procedures.

- Locate spill cleanup materials, such as absorbents, where they will be readily accessible (e.g. near storage and maintenance areas, on field trucks).

SC-11 Spill Prevention, Control & Cleanup

- Follow the Spill Prevention Control and Countermeasure Plan if one is available.
- If a spill occurs, notify the key spill response personnel immediately. If the material is unknown or hazardous, the local fire department may also need to be contacted.
- If safe to do so, attempt to contain the material and block the nearby storm drains so that the area impacted is minimized. If the material is unknown or hazardous wait for properly trained personnel to contain the materials.
- Perform an assessment of the area where the spill occurred and the downstream area that it could impact. Relay this information to the key spill response and clean up personnel.

Spill Cleanup Procedures

- Small non-hazardous spills
  - Use a rag, damp cloth or absorbent materials for general clean up of liquids
  - Use brooms or shovels for the general clean up of dry materials
  - If water is used, it must be collected and properly disposed of. The wash water can not be allowed to enter the storm drain.
  - Dispose of any waste materials properly
  - Clean or dispose of any equipment used to clean up the spill properly
- Large non-hazardous spills
  - Use absorbent materials for general clean up of liquids
  - Use brooms, shovels or street sweepers for the general clean up of dry materials
  - If water is used, it must be collected and properly disposed of. The wash water can not be allowed to enter the storm drain.
  - Dispose of any waste materials properly
  - Clean or dispose of any equipment used to clean up the spill properly
- For hazardous or very large spills, a private cleanup company or Hazmat team may need to be contacted to assess the situation and conduct the cleanup and disposal of the materials.
- Chemical cleanups of material can be achieved with the use of absorbents, gels, and foams. Remove the adsorbent materials promptly and dispose of according to regulations.
- If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste.

Reporting

- Report any spills immediately to the identified key municipal spill response personnel.

- Report spills in accordance with applicable reporting laws. Spills that pose an immediate threat to human health or the environment must be reported immediately to the Office of Emergency Service (OES)
- Spills that pose an immediate threat to human health or the environment may also need to be reported within 24 hours to the Regional Water Quality Control Board.
- Federal regulations require that any oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hour)
- After the spill has been contained and cleaned up, a detailed report about the incident should be generated and kept on file (see the section on Reporting below). The incident may also be used in briefing staff about proper procedures

Other Considerations

- State regulations exist for facilities with a storage capacity of 10,000 gallons or more of petroleum to prepare a Spill Prevention Control and Countermeasure Plan (SPCC) Plan (Health & Safety Code Chapter 6.67).
- State regulations also exist for storage of hazardous materials (Health & Safety Code Chapter 6.95), including the preparation of area and business plans for emergency response to the releases or threatened releases.
- Consider requiring smaller secondary containment areas (less than 200 sq. ft.) to be connected to the sanitary sewer, if permitted to do so, prohibiting any hard connections to the storm drain.

Requirements

Costs

- Will vary depending on the size of the facility and the necessary controls.
- Prevention of leaks and spills is inexpensive. Treatment and/or disposal of wastes, contaminated soil and water is very expensive

Maintenance

- This BMP has no major administrative or staffing requirements. However, extra time is needed to properly handle and dispose of spills, which results in increased labor costs

Supplemental Information

Further Detail of the BMP

Reporting

Record keeping and internal reporting represent good operating practices because they can increase the efficiency of the response and containment of a spill. A good record keeping system helps the municipality minimize incident recurrence, correctly respond with appropriate containment and cleanup activities, and comply with legal requirements.

SC-11 Spill Prevention, Control & Cleanup

A record keeping and reporting system should be set up for documenting spills, leaks, and other discharges, including discharges of hazardous substances in reportable quantities. Incident records describe the quality and quantity of non-stormwater discharges to the storm drain.

These records should contain the following information:

- Date and time of the incident
- Weather conditions
- Duration of the spill/leak/discharge
- Cause of the spill/leak/discharge
- Response procedures implemented
- Persons notified
- Environmental problems associated with the spill/leak/discharge

Separate record keeping systems should be established to document housekeeping and preventive maintenance inspections, and training activities. All housekeeping and preventive maintenance inspections should be documented. Inspection documentation should contain the following information:

- The date and time the inspection was performed
- Name of the inspector
- Items inspected
- Problems noted
- Corrective action required
- Date corrective action was taken

Other means to document and record inspection results are field notes, timed and dated photographs, videotapes, and drawings and maps.

Examples

The City of Palo Alto includes spill prevention and control as a major element of its highly effective program for municipal vehicle maintenance shops.

References and Resources

King County Stormwater Pollution Control Manual - http://dnr.metrokc.gov/wlr/dss/spcm.htm

Orange County Stormwater Program
http://www.ocwatersheds.com/stormwater/swp_introduction.asp

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP)
http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf

Outdoor Loading/Unloading SC-30

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

The loading/unloading of materials usually takes place outside on docks or terminals; therefore, materials spilled, leaked, or lost during loading/unloading may collect in the soil or on other surfaces and have the potential to be carried away by stormwater runoff or when the area is cleaned. Additionally, rainfall may wash pollutants from machinery used to unload or move materials. Loading and unloading of material may include package products, barrels, and bulk products. Implementation of the following protocols will prevent or reduce the discharge of pollutants to stormwater from outdoor loading/unloading of materials.

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓
Oxygen Demanding	✓

Approach

Pollution Prevention

- Keep accurate maintenance logs to evaluate materials removed and improvements made.
- Park tank trucks or delivery vehicles in designated areas so that spills or leaks can be contained.
- Limit exposure of materials with the potential to contaminate stormwater.
- Prevent stormwater runon.
- Regularly check equipment for leaks.

CASQA California Stormwater Quality Association

Suggested Protocols

Loading and Unloading – General Guidelines

- Develop an operations plan that describes procedures for loading and/or unloading.
- Do not conduct loading and unloading during wet weather, whenever possible.
- Cover designated loading/unloading areas to reduce exposure of materials to rain.
- A seal or door skirt between delivery vehicles and building can reduce or prevent exposure to rain.
- Design loading/unloading area to prevent stormwater runon which would include grading or berming the area, and positioning roof downspouts so they direct stormwater away from the loading/unloading areas.
- If feasible, load and unload all materials and equipment in covered areas such as building overhangs at loading docks.
- Load/unload only at designated loading areas.
- Use drip pans underneath hose and pipe connections and other leak-prone spots during liquid transfer operations, and when making and breaking connections. Several drip pans should be stored in a covered location near the liquid transfer area so that they are always available, yet protected from precipitation when not in use. Drip pans can be made specifically for railroad tracks. Drip pans must be cleaned periodically, and drip collected materials must be disposed of properly.
- Pave loading areas with concrete instead of asphalt.
- Avoid placing storm drains in the area.
- Grade and/or berm he loading/ unloading area to a drain that is connected to a dead-end sump.

Inspection

- Check loading and unloading equipment regularly for leaks, including valves, pumps, flanges and connections.
- Look for dust or fumes during loading or unloading operations.

Training

- Train employees (e.g. fork lift operators) and contractors on proper spill containment and cleanup.
- Employees trained in spill containment and cleanup should be present during the loading/unloading.
- Train employees in proper handling techniques during liquid transfers to avoid spills.

- Make sure forklift operators are properly trained on loading and unloading procedures.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup
- Keep your spill prevention Control and countermeasure (SPCC) Plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Space, material characteristics and/or time limitations may preclude all transfers from being performed indoors or under cover.

Requirements

Costs

- Should be low except when covering a large loading/unloading area.

Maintenance

- Conduct regular inspections and make repairs as necessary. The frequency of repairs will depend on the age of the facility.
- Check loading and unloading equipment regularly for leaks.
- Regular broom dry-sweeping of area.
- Conduct major clean-out of loading and unloading area and sump prior to October 1 of each year.

Supplemental Information

Further Detail of the BMP

Special Circumstances for Indoor Loading/Unloading of Materials

As appropriate loading or unloading of liquids should occur indoors so that any spills that are not completely retained can be discharged to the sanitary sewer, treatment plant, or treated in a manner consistent with local sewer authorities and permit requirements.

- For loading and unloading tank trucks to above and below ground storage tanks, the following procedures should be used:
  - The area where the transfer takes place should be paved. If the liquid is reactive with the asphalt, Portland cement should be used to pave the area.
  - Transfer area should be designed to prevent runon of stormwater from adjacent areas. Sloping the pad and using a curb, like a speed bump, around the uphill side of the transfer area should reduce run-on.

- Transfer area should be designed to prevent runoff of spilled liquids from the area. Sloping the area to a drain should prevent runoff. The drain should be connected to a dead-end sump or to the sanitary sewer (if allowed). A positive control valve should be installed on the drain.

- For transfer from rail cars to storage tanks that must occur outside, use the following procedures:

  - Drip pans should be placed at locations where spillage may occur, such as hose connections, hose reels, and filler nozzles, Use drip pans when making and breaking connections.

  - Drip pan systems should be installed between the rails to collect spillage from tank cars.

References and Resources

http://www.stormwatercenter.net/

King County - ftp://dnr.metrokc.gov/wlr/dss/spcm/Chapter%203.PDF

Orange County Stormwater Program
http://www.ocwatersheds.com/StormWater/swp_introduction.asp

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP) -
http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf

Waste Handling & Disposal SC-34

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Improper storage and handling of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff. The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction, re-use, and recycling; and preventing runon and runoff.

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	✓
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓
Oxygen Demanding	✓

Approach

Pollution Prevention

- Reduction in the amount of waste generated can be accomplished using the following source controls such as:
  - Production planning and sequencing
  - Process or equipment modification
  - Raw material substitution or elimination
  - Loss prevention and housekeeping
  - Waste segregation and separation
  - Close loop recycling
- Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.
- Recycle materials whenever possible.

CASQA California Stormwater Quality Association

Suggested Protocols

General

- Cover storage containers with leak proof lids or some other means. If waste is not in containers, cover all waste piles (plastic tarps are acceptable coverage) and prevent stormwater runon and runoff with a berm. The waste containers or piles must be covered except when in use.
- Use drip pans or absorbent materials whenever grease containers are emptied by vacuum trucks or other means. Grease cannot be left on the ground. Collected grease must be properly disposed of as garbage.
- Check storage containers weekly for leaks and to ensure that lids are on tightly. Replace any that are leaking, corroded, or otherwise deteriorating.
- Sweep and clean the storage area regularly. If it is paved, do not hose down the area to a storm drain.
- Dispose of rinse and wash water from cleaning waste containers into a sanitary sewer if allowed by the local sewer authority. Do not discharge wash water to the street or storm drain.
- Transfer waste from damaged containers into safe containers.
- Take special care when loading or unloading wastes to minimize losses. Loading systems can be used to minimize spills and fugitive emission losses such as dust or mist. Vacuum transfer systems can minimize waste loss.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide a sufficient number of litter receptacles for the facility.
- Clean out and cover litter receptacles frequently to prevent spillage.

Waste Collection

- Keep waste collection areas clean.
- Inspect solid waste containers for structural damage or leaks regularly. Repair or replace damaged containers as necessary.
- Secure solid waste containers; containers must be closed tightly when not in use.
- Place waste containers under cover if possible.
- Do not fill waste containers with washout water or any other liquid.
- Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc. may not be

disposed of in solid waste containers (see chemical/ hazardous waste collection section below).

- Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.

Good Housekeeping

- Use all of the product before disposing of the container.
- Keep the waste management area clean at all times by sweeping and cleaning up spills immediately.
- Use dry methods when possible (e.g. sweeping, use of absorbents) when cleaning around restaurant/food handling dumpster areas. If water must be used after sweeping/using absorbents, collect water and discharge through grease interceptor to the sewer.
- Stencil storm drains on the facility's property with prohibitive message regarding waste disposal.

Chemical/Hazardous Wastes

- Select designated hazardous waste collection areas on-site.
- Store hazardous materials and wastes in covered containers protected from vandalism, and in compliance with fire and hazardous waste codes.
- Place hazardous waste containers in secondary containment.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.

Runon/Runoff Prevention

- Prevent stormwater runon from entering the waste management area by enclosing the area or building a berm around the area.
- Prevent the waste materials from directly contacting rain.
- Cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropyleneor hypalon.
- Cover the area with a permanent roof if feasible.
- Cover dumpsters to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.
- Move the activity indoor after ensuring all safety concerns such as fire hazard and ventilation are addressed.

Inspection

- Inspect and replace faulty pumps or hoses regularly to minimize the potential of releases and spills.
- Check waste management areas for leaking containers or spills.
- Repair leaking equipment including valves, lines, seals, or pumps promptly.

Training

- Train staff pollution prevention measures and proper disposal methods.
- Train employees and contractors proper spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill if one should occur.
- Train employees and subcontractors in proper hazardous waste management.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.
- Vehicles transporting waste should have spill prevention equipment that can prevent spills during transport. The spill prevention equipment includes:
  - Vehicles equipped with baffles for liquid waste
  - Trucks with sealed gates and spill guards for solid waste

Other Considerations

- Hazardous waste cannot be re-used or recycled; it must be disposed of by a licensed hazardous waste hauler.

Requirements

Costs

- Capital and operation and maintenance costs will vary substantially depending on the size of the facility and the types of waste handled. Costs should be low if there is an inventory program in place.

Maintenance

- None except for maintaining equipment for material tracking program.

Supplemental Information

Further Detail of the BMP

Land Treatment System

- Minimize the runoff of polluted stormwater from land application of municipal waste on-site by:
  - Choosing a site where slopes are under 6%, the soil is permeable, there is a low water table, it is located away from wetlands or marshes, there is a closed drainage system.
  - Avoiding application of waste to the site when it is raining or when the ground is saturated with water.
  - Growing vegetation on land disposal areas to stabilize soils and reduce the volume of surface water runoff from the site.
  - Maintaining adequate barriers between the land application site and the receiving waters. Planted strips are particularly good.
  - Using erosion control techniques such as mulching and matting, filter fences, straw bales, diversion terracing, and sediment basins.
  - Performing routine maintenance to ensure the erosion control or site stabilization measures are working.

References and Resources

King County Stormwater Pollution Control Manual - http://dnr.metrokc.gov/wlr/dss/spcm.htm

Orange County Stormwater Program
http://www.ocwatersheds.com/StormWater/swp_introduction.asp

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Associations (BASMAA). On-line: http://www.basmaa.org

Building & Grounds Maintenance SC-41

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	✓
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓
Oxygen Demanding	✓

Description

Stormwater runoff from building and grounds maintenance activities can be contaminated with toxic hydrocarbons in solvents, fertilizers and pesticides, suspended solids, heavy metals, and abnormal pH. Utilizing the following protocols will prevent or reduce the discharge of pollutants to stormwater from building and grounds maintenance activities by washing and cleaning up with as little water as possible, following good landscape management practices, preventing and cleaning up spills immediately, keeping debris from entering the storm drains, and maintaining the stormwater collection system.

Approach

Pollution Prevention

- Switch to non-toxic chemicals for maintenance when possible.
- Choose cleaning agents that can be recycled.
- Encourage proper lawn management and landscaping, including use of native vegetation.
- Encourage use of Integrated Pest Management techniques for pest control.
- Encourage proper onsite recycling of yard trimmings.
- Recycle residual paints, solvents, lumber, and other material as much as possible.

CASQA California Stormwater Quality Association

Suggested Protocols

Pressure Washing of Buildings, Rooftops, and Other Large Objects

- In situations where soaps or detergents are used and the surrounding area is paved, pressure washers must use a waste water collection device that enables collection of wash water and associated solids. A sump pump, wet vacuum or similarly effective device must be used to collect the runoff and loose materials. The collected runoff and solids must be disposed of properly.
- If soaps or detergents are not used, and the surrounding area is paved, wash water runoff does not have to be collected but must be screened. Pressure washers must use filter fabric or some other type of screen on the ground and/or in he catch basin to trap the particles in wash water runoff.
- If you are pressure washing on a grassed area (with or without soap), runoff must be dispersed as sheet flow as much as possible, rather than as a concentrated stream. The wash runoff must remain on the grass and not drain to pavement. Ensure that this practice does not kill grass.

Landscaping Activities

- Do not apply any chemicals (insecticide, herbicide, or fertilizer) directly to surface waters, unless the application is approved and permitted by the state.
- Dispose of grass clippings, leaves, sticks, or other collected vegetation as garbage, or by composting. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Use mulch or other erosion control measures on exposed soils.
- Check irrigation schedules so pesticides will not be washed away and to minimize non-stormwater discharge.

Building Repair, Remodeling, and Construction

- Do not dump any toxic substance or liquid waste on the pavement, the ground, or toward a storm drain.
- Use ground or drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of collected material daily.
- Use a ground cloth or oversized tub for activities such as paint mixing and tool cleaning.
- Clean paint brushes and tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can be dumped into a sanitary sewer drain. Brushes and tools covered with non-water-based paints, finishes, or other materials must be cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal.

- Use a storm drain cover, filter fabric, or similarly effective runoff control mechanism if dust, grit, wash water, or other pollutants may escape the work area and enter a catch basin. The containment device(s) must be in place at the beginning of the work day, and accumulated dirty runoff and solids must be collected and disposed of before removing the containment device(s) at the end of the work day.
- If you need to de-water an excavation site, you may need to filter the water before discharging to a catch basin or off-site. In which case you should direct the water through hay bales and filter fabric or use other sediment filters or traps.
- Store toxic material under cover with secondary containment during precipitation events and when not in use. A cover would include tarps or other temporary cover material.

Mowing, Trimming, and Planting

- Dispose of leaves, sticks, or other collected vegetation as garbage, by composting or at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Use mulch or other erosion control measures when soils are exposed.
- Place temporarily stockpiled material away from watercourses and drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Consider an alternative approach when bailing out muddy water; do not put it in the storm drain, pour over landscaped areas.
- Use hand or mechanical weeding where practical.

Fertilizer and Pesticide Management

- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.
- Follow manufacturers' recommendations and label directions. Pesticides must never be applied if precipitation is occuring or predicted. Do not apply insecticides within 100 feet of surface waters such as lakes, ponds, wetlands, and streams.
- Use less toxic pesticides that will do the job, whenever possible. Avoid use of copper-based pesticides if possible.
- Do not use pesticides if rain is expected.
- Do not mix or prepare pesticides for application near storm drains.
- Use the minimum amount needed for the job.
- Calibrate fertilizer distributors to avoid excessive application.
- Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.

- Apply pesticides only when wind speeds are low.
- Work fertilizers into the soil rather than dumping or broadcasting them onto the surface.
- Irrigate slowly to prevent runoff and then only as much as is needed.
- Clean pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Dispose of empty pesticide containers according to the instructions on the container label.
- Use up the pesticides. Rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Implement storage requirements for pesticide products with guidance from the local fire department and County Agricultural Commissioner. Provide secondary containment for pesticides.

Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.

Training

- Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution.
- Train employees and contractors in proper techniques for spill containment and cleanup.
- Be sure the frequency of training takes into account the complexity of the operations and the nature of the staff.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Alternative pest/weed controls may not be available, suitable, or effective in many cases.

Requirements

Costs

- Overall costs should be low in comparison to other BMPs.

Maintenance

- Sweep paved areas regularly to collect loose particles, and wipe up spills with rags and other absorbent material immediately, do not hose down the area to a storm drain.

Supplemental Information

Further Detail of the BMP

Fire Sprinkler Line Flushing

Building fire sprinkler line flushing may be a source of non-stormwater runoff pollution. The water entering the system is usually potable water though in some areas it may be non-potable reclaimed wastewater. There are subsequent factors that may drastically reduce the quality of the water in such systems. Black iron pipe is usually used since it is cheaper than potable piping but it is subject to rusting and results in lower quality water. Initially the black iron pipe has an oil coating to protect it from rusting between manufacture and installation; this will contaminate the water from the first flush but not from subsequent flushes. Nitrates, poly-phosphates and other corrosion inhibitors, as well as fire suppressants and antifreeze may be added to the sprinkler water system. Water generally remains in the sprinkler system a long time, typically a year, between flushes and may accumulate iron, manganese, lead, copper, nickel and zinc. The water generally becomes anoxic and contains living and dead bacteria and breakdown products from chlorination. This may result in a significant BOD problem and the water often smells. Consequently dispose fire sprinkler line flush water into the sanitary sewer. Do not allow discharge to storm drain or infiltration due to potential high levels of pollutants in fire sprinkler line water.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

King County - ftp://dnr.metrokc.gov/wlr/dss/spcm/Chapter%203.PDF

Orange County Stormwater Program
http://www.ocwatersheds.com/StormWater/swp_introduction.asp

Mobile Cleaners Pilot Program: Final Report. 1997. Bay Area Stormwater Management Agencies Association (BASSMA) http://www.basmaa.org/

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA) http://www.basmaa.org/

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP) -
http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf

Parking/Storage Area Maintenance SC-43

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	✓
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓
Oxygen Demanding	✓

Description

Parking lots and storage areas can contribute a number of substances, such as trash, suspended solids, hydrocarbons, oil and grease, and heavy metals that can enter receiving waters through stormwater runoff or non-stormwater discharges. The following protocols are intended to prevent or reduce the discharge of pollutants from parking/storage areas and include using good housekeeping practices, following appropriate cleaning BMPs, and training employees.

Approach

Pollution Prevention

- Encourage alternative designs and maintenance strategies for impervious parking lots. (See New Development and Redevelopment BMP Handbook).
- Keep accurate maintenance logs to evaluate BMP implementation.

Suggested Protocols

General

- Keep the parking and storage areas clean and orderly. Remove debris in a timely fashion.
- Allow sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low concentrations.

- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide an adequate number of litter receptacles.
- Clean out and cover litter receptacles frequently to prevent spillage.
- Provide trash receptacles in parking lots to discourage litter.
- Routinely sweep, shovel and dispose of litter in the trash.

Surface cleaning

- Use dry cleaning methods (e.g. sweeping or vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system.
- Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- Sweep all parking lots at least once before the onset of the wet season.
- If water is used follow the procedures below:
  - Block the storm drain or contain runoff.
  - Wash water should be collected and pumped to the sanitary sewer or discharged to a pervious surface, do not allow wash water to enter storm drains.
  - Dispose of parking lot sweeping debris and dirt at a landfill.
- When cleaning heavy oily deposits:
  - Use absorbent materials on oily spots prior to sweeping or washing.
  - Dispose of used absorbents appropriately.

Surface Repair

- Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
- Apply concrete, asphalt, and seal coat during dry weather to prevent contamination form contacting stormwater runoff.
- Cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc., where applicable. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal.

- Use only as much water as necessary for dust control, to avoid runoff.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Inspection

- Have designated personnel conduct inspections of the parking facilities and stormwater conveyance systems associated with them on a regular basis.
- Inspect cleaning equipment/sweepers for leaks on a regular basis.

Training

- Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
- Train employees and contractors in proper techniques for spill containment and cleanup.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, nad implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Limitations related to sweeping activities at large parking facilities may include high equipment costs, the need for sweeper operator training, and the inability of current sweeper technology to remove oil and grease.

Requirements

Costs

Cleaning/sweeping costs can be quite large, construction and maintenance of stormwater structural controls can be quite expensive as well.

Maintenance

- Sweep parking lot to minimize cleaning with water.
- Clean out oil/water/sand separators regularly, especially after heavy storms.
- Clean parking facilities on a regular basis to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions.

SC-43 Parking/Storage Area Maintenance

Supplemental Information

Further Detail of the BMP

Surface Repair

Apply concrete, asphalt, and seal coat during dry weather to prevent contamination form contacting stormwater runoff. Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal. Use only as much water as necessary for dust control, to avoid runoff.

References and Resources

http://www.stormwatercenter.net/

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

Orange County Stormwater Program
http://www.ocwatersheds.com/StormWater/swp_introduction.asp

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA) http://www.basma.org

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP)
http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf

Housekeeping Practices SC-60

Description

Promote efficient and safe housekeeping practices (storage, use, and cleanup) when handling potentially harmful materials such as fertilizers, pesticides, cleaning solutions, paint products, automotive products, and swimming pool chemicals. Related information is provided in BMP fact sheets SC-11 Spill Prevention, Control & Cleanup and SC-34 Waste Handling & Disposal.

Approach

Pollution Prevention

- Purchase only the amount of material that will be needed for foreseeable use. In most cases this will result in cost savings in both purchasing and disposal. See SC-61 Safer Alternative Products for additional information.
- Be aware of new products that may do the same job with less environmental risk and for less or the equivalent cost. Total cost must be used here; this includes purchase price, transportation costs, storage costs, use related costs, clean up costs and disposal costs.

Suggested Protocols

General

- Keep work sites clean and orderly. Remove debris in a timely fashion. Sweep the area.
- Dispose of wash water, sweepings, and sediments, properly.
- Recycle or dispose of fluids properly.
- Establish a daily checklist of office, yard and plant areas to confirm cleanliness and adherence to proper storage and security. Specific employees should be assigned specific inspection responsibilities and given the authority to remedy any problems found.
- Post waste disposal charts in appropriate locations detailing for each waste its hazardous nature (poison, corrosive, flammable), prohibitions on its disposal (dumpster, drain, sewer) and the recommended disposal method (recycle, sewer, burn, storage, landfill).
- Summarize the chosen BMPs applicable to your operation and post them in appropriate conspicuous places.

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

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- Require a signed checklist from every user of any hazardous material detailing amount taken, amount used, amount returned and disposal of spent material.
- Do a before audit of your site to establish baseline conditions and regular subsequent audits to note any changes and whether conditions are improving or deteriorating.
- Keep records of water, air and solid waste quantities and quality tests and their disposition.
- Maintain a mass balance of incoming, outgoing and on hand materials so you know when there are unknown losses that need to be tracked down and accounted for.
- Use and reward employee suggestions related to BMPs, hazards, pollution reduction, work place safety, cost reduction, alternative materials and procedures, recycling and disposal.
- Have, and review regularly, a contingency plan for spills, leaks, weather extremes etc. Make sure all employees know about it and what their role is so that it comes into force automatically.

Training

- Train all employees, management, office, yard, manufacturing, field and clerical in BMPs and pollution prevention and make them accountable.
- Train municipal employees who handle potentially harmful materials in good housekeeping practices.
- Train personnel who use pesticides in the proper use of the pesticides. The California Department of Pesticide Regulation license pesticide dealers, certify pesticide applicators and conduct onsite inspections.
- Train employees and contractors in proper techniques for spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill if one should occur.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and Countermeasure (SPCC) plant up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- There are no major limitations to this best management practice.
- There are no regulatory requirements to this BMP. Existing regulations already require municipalities to properly store, use, and dispose of hazardous materials

Requirements

Costs

- Minimal cost associated with this BMP. Implementation of good housekeeping practices may result in cost savings as these procedures may reduce the need for more costly BMPs.

Maintenance

- Ongoing maintenance required to keep a clean site. Level of effort is a function of site size and type of activities.

Supplemental Information

Further Detail of the BMP

- The California Integrated Waste Management Board's Recycling Hotline, 1-800-553-2962, provides information on household hazardous waste collection programs and facilities.

Examples

There are a number of communities with effective programs. The most pro-active include Santa Clara County and the City of Palo Alto, the City and County of San Francisco, and the Municipality of Metropolitan Seattle (Metro).

References and Resources

British Columbia Lake Stewardship Society. Best Management Practices to Protect Water Quality from Non-Point Source Pollution. March 2000.
http://www.nalms.org/bclss/bmphome.html#bmp

King County Stormwater Pollution Control Manual - http://dnr.metrokc.gov/wlr/dss/spcm.htm

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities, Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July, 1998, Revised by California Coastal Commission, February 2002.

Orange County Stormwater Program
http://www.ocwatersheds.com/stormwater/swp_introduction.asp

San Mateo STOPPP - (http://stoppp.tripod.com/bmp.html)

Plaza and Sidewalk Cleaning SC-71

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Description

Pollutants on sidewalks and other pedestrian traffic areas and plazas are typically due to littering and vehicle use. This fact sheet describes good housekeeping practices that can be incorporated into the municipality's existing cleaning and maintenance program.

Approach

Pollution Prevention

- Use dry cleaning methods whenever practical for surface cleaning activities.
- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal).

Suggested Protocols

Surface Cleaning

- Regularly broom (dry) sweep sidewalk, plaza and parking lot areas to minimize cleaning with water.
- Dry cleanup first (sweep, collect, and dispose of debris and trash) when cleaning sidewalks or plazas, then wash with or without soap.
- Block the storm drain or contain runoff when cleaning with water. Discharge wash water to landscaping or collect water and pump to a tank or discharge to sanitary sewer if allowed. (Permission may be required from local sanitation district.)

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- Block the storm drain or contain runoff when washing parking areas, driveways or drive-throughs. Use absorbents to pick up oil; then dry sweep. Clean with or without soap. Collect water and pump to a tank or discharge to sanitary sewer if allowed. Street Repair and Maintenance.

Graffiti Removal

- Avoid graffiti abatement activities during rain events.
- Implement the procedures under Painting and Paint Removal in SC-70 Roads, Streets, and Highway Operation and Maintenance fact sheet when graffiti is removed by painting over.
- Direct runoff from sand blasting and high pressure washing (with no cleaning agents) into a dirt or landscaped area after treating with an appropriate filtering device.
- Plug nearby storm drain inlets and vacuum/pump wash water to the sanitary sewer if authorized to do so if a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound). Ensure that a non-hazardous cleaning compound is used or dispose as hazardous waste, as appropriate.

Surface Removal and Repair

- Schedule surface removal activities for dry weather if possible.
- Avoid creating excess dust when breaking asphalt or concrete.
- Take measures to protect nearby storm drain inlets prior to breaking up asphalt or concrete (e.g. place hay bales or sand bags around inlets). Clean afterwards by sweeping up as much material as possible.
- Designate an area for clean up and proper disposal of excess materials.
- Remove and recycle as much of the broken pavement as possible to avoid contact with rainfall and stormwater runoff.
- When making saw cuts in pavement, use as little water as possible. Cover each storm drain inlet completely with filter fabric during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site.
- Always dry sweep first to clean up tracked dirt. Use a street sweeper or vacuum truck. Do not dump vacuumed liquid in storm drains. Once dry sweeping is complete, the area may be hosed down if needed. Wash water should be directed to landscaping or collected and pumped to the sanitary sewer if allowed.

Concrete Installation and Repair

- Schedule asphalt and concrete activities for dry weather.

- Take measures to protect any nearby storm drain inlets and adjacent watercourses, prior to breaking up asphalt or concrete (e.g. place san bags around inlets or work areas).
- Limit the amount of fresh concrete or cement mortar mixed, mix only what is needed for the job.
- Store concrete materials under cover, away from drainage areas. Secure bags of cement after they are open. Be sure to keep wind-blown cement powder away from streets, gutters, storm drains, rainfall, and runoff.
- Return leftover materials to the transit mixer. Dispose of small amounts of hardened excess concrete, grout, and mortar in the trash.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
- Protect applications of fresh concrete from rainfall and runoff until the material has dried.
- Do not allow excess concrete to be dumped onsite, except in designated areas.
- Wash concrete trucks off site or in designated areas on site designed to preclude discharge of wash water to drainage system.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide litter receptacles in busy, high pedestrian traffic areas of the community, at recreational facilities, and at community events.
- Cover litter receptacles and clean out frequently to prevent leaking/spillage or overflow.
- Clean parking lots on a regular basis with a street sweeper.

Training

- Provide regular training to field employees and/or contractors regarding surface cleaning and proper operation of equipment.
- Train employee and contractors in proper techniques for spill containment and cleanup.
- Use a training log or similar method to document training.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Limitations related to sweeping activities at large parking facilities may include current sweeper technology to remove oil and grease.
- Surface cleaning activities that require discharges to the local sewering agency will require coordination with the agency.
- Arrangements for disposal of the swept material collected must be made, as well as accurate tracking of the areas swept and the frequency of sweeping.

Requirements

Costs

- The largest expenditures for sweeping and cleaning of sidewalks, plazas, and parking lots are in staffing and equipment. Sweeping of these areas should be incorporated into street sweeping programs to reduce costs.

Maintenance

Not applicable

Supplemental Information

Further Detail of the BMP

Community education, such as informing residents about their options for recycling and waste disposal, as well as the consequences of littering, can instill a sense of citizen responsibility and potentially reduce the amount of maintenance required by the municipality.

Additional BMPs that should be considered for parking lot areas include:

- Allow sheet runoff to flow into biofilters (vegetated strip and swale) and infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low concentrations.
- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.
- Structural BMPs such as storm drain inlet filters can be very effective in reducing the amount of pollutants discharged from parking facilities during periods of rain.

References and Resources

Bay Area Stormwater Management Agencies Association (BASMAA). 1996. Pollution From Surface Cleaning Folder http://www.basmaa.org

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Orange County Stormwater Program
http://www.ocwatersheds.com/stormwater/swp_introduction.asp

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

Santa Clara Valley Urban Runoff Pollution Prevention Program. Maintenance Best Management Practices for the Construction Industry. Brochures: Landscaping, Gardening, and Pool; Roadwork and Paving; and Fresh Concrete and Mortar Application. June 2001.

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Plan. 2001. Municipal Activities Model Program Guidance. November.

Landscape Maintenance SC-73

Objectives

- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	
Bacteria	
Oil and Grease	
Organics	
Oxygen Demanding	☑

Description

Landscape maintenance activities include vegetation removal; herbicide and insecticide application; fertilizer application; watering; and other gardening and lawn care practices. Vegetation control typically involves a combination of chemical (herbicide) application and mechanical methods. All of these maintenance practices have the potential to contribute pollutants to the storm drain system. The major objectives of this BMP are to minimize the discharge of pesticides, herbicides and fertilizers to the storm drain system and receiving waters; prevent the disposal of landscape waste into the storm drain system by collecting and properly disposing of clippings and cuttings, and educating employees and the public.

Approach

Pollution Prevention

- Implement an integrated pest management (IPM) program. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools.
- Choose low water using flowers, trees, shrubs, and groundcover.
- Consider alternative landscaping techniques such as naturescaping and xeriscaping.
- Conduct appropriate maintenance (i.e. properly timed fertilizing, weeding, pest control, and pruning) to help preserve the landscapes water efficiency.

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- Consider grass cycling (grass cycling is the natural recycling of grass by leaving the clippings on the lawn when mowing. Grass clippings decompose quickly and release valuable nutrients back into the lawn).

Suggested Protocols

Mowing, Trimming, and Weeding

- Whenever possible use mechanical methods of vegetation removal (e.g mowing with tractor-type or push mowers, hand cutting with gas or electric powered weed trimmers) rather than applying herbicides. Use hand weeding where practical.
- Avoid loosening the soil when conducting mechanical or manual weed control, this could lead to erosion. Use mulch or other erosion control measures when soils are exposed.
- Performing mowing at optimal times. Mowing should not be performed if significant rain events are predicted.
- Mulching mowers may be recommended for certain flat areas. Other techniques may be employed to minimize mowing such as selective vegetative planting using low maintenance grasses and shrubs.
- Collect lawn and garden clippings, pruning waste, tree trimmings, and weeds. Chip if necessary, and compost or dispose of at a landfill (see waste management section of this fact sheet).
- Place temporarily stockpiled material away from watercourses, and berm or cover stockpiles to prevent material releases to storm drains.

Planting

- Determine existing native vegetation features (location, species, size, function, importance) and consider the feasibility of protecting them. Consider elements such as their effect on drainage and erosion, hardiness, maintenance requirements, and possible conflicts between preserving vegetation and the resulting maintenance needs.
- Retain and/or plant selected native vegetation whose features are determined to be beneficial, where feasible. Native vegetation usually requires less maintenance (e.g., irrigation, fertilizer) than planting new vegetation.
- Consider using low water use groundcovers when planting or replanting.

Waste Management

- Compost leaves, sticks, or other collected vegetation or dispose of at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.

- Avoid landscape wastes in and around storm drain inlets by either using bagging equipment or by manually picking up the material.

Irrigation

- Where practical, use automatic timers to minimize runoff.
- Use popup sprinkler heads in areas with a lot of activity or where there is a chance the pipes may be broken. Consider the use of mechanisms that reduce water flow to sprinkler heads if broken.
- Ensure that there is no runoff from the landscaped area(s) if re-claimed water is used for irrigation.
- If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.
- Irrigate slowly or pulse irrigate to prevent runoff and then only irrigate as much as is needed.
- Apply water at rates that do not exceed the infiltration rate of the soil.

Fertilizer and Pesticide Management

- Utilize a comprehensive management system that incorporates integrated pest management (IPM) techniques. There are many methods and types of IPM, including the following:
  - Mulching can be used to prevent weeds where turf is absent, fencing installed to keep rodents out, and netting used to keep birds and insects away from leaves and fruit.
  - Visible insects can be removed by hand (with gloves or tweezers) and placed in soapy water or vegetable oil. Alternatively, insects can be sprayed off the plant with water or in some cases vacuumed off of larger plants.
  - Store-bought traps, such as species-specific, pheromone-based traps or colored sticky cards, can be used.
  - Slugs can be trapped in small cups filled with beer that are set in the ground so the slugs can get in easily.
  - In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of (pruning equipment should be disinfected with bleach to prevent spreading the disease organism).
  - Small mammals and birds can be excluded using fences, netting, tree trunk guards.
  - Beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seed head weevils, and spiders that prey on detrimental pest species can be promoted.
- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.

- Use pesticides only if there is an actual pest problem (not on a regular preventative schedule).
- Do not use pesticides if rain is expected. Apply pesticides only when wind speeds are low (less than 5 mph).
- Do not mix or prepare pesticides for application near storm drains.
- Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
- Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
- Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- Periodically test soils for determining proper fertilizer use.
- Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Purchase only the amount of pesticide that you can reasonably use in a given time period (month or year depending on the product).
- Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Dispose of empty pesticide containers according to the instructions on the container label.

Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.
- Inspect pesticide/fertilizer equipment and transportation vehicles daily.

Training

- Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution. Pesticide application must be under the supervision of a California qualified pesticide applicator.
- Train/encourage municipal maintenance crews to use IPM techniques for managing public green areas.
- Annually train employees within departments responsible for pesticide application on the appropriate portions of the agency's IPM Policy, SOPs, and BMPs, and the latest IPM techniques.

- Employees who are not authorized and trained to apply pesticides should be periodically (at least annually) informed that they cannot use over-the-counter pesticides in or around the workplace.
- Use a training log or similar method to document training.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a know in location
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- The Federal Pesticide, Fungicide, and Rodenticide Act and California Title 3, Division 6, Pesticides and Pest Control Operations place strict controls over pesticide application and handling and specify training, annual refresher, and testing requirements. The regulations generally cover: a list of approved pesticides and selected uses, updated regularly; general application information; equipment use and maintenance procedures; and record keeping. The California Department of Pesticide Regulations and the County Agricultural Commission coordinate and maintain the licensing and certification programs. All public agency employees who apply pesticides and herbicides in "agricultural use" areas such as parks, golf courses, rights-of-way and recreation areas should be properly certified in accordance with state regulations. Contracts for landscape maintenance should include similar requirements.
- All employees who handle pesticides should be familiar with the most recent material safety data sheet (MSDS) files.
- Municipalities do not have the authority to regulate the use of pesticides by school districts, however the California Healthy Schools Act of 2000 (AB 2260) has imposed requirements on California school districts regarding pesticide use in schools. Posting of notification prior to the application of pesticides is now required, and IPM is stated as the preferred approach to pest management in schools.

Requirements

Costs

Additional training of municipal employees will be required to address IPM techniques and BMPs. IPM methods will likely increase labor cost for pest control which may be offset by lower chemical costs.

Maintenance

Not applicable

Supplemental Information

Further Detail of the BMP

Waste Management

Composting is one of the better disposal alternatives if locally available. Most municipalities either have or are planning yard waste composting facilities as a means of reducing the amount of waste going to the landfill. Lawn clippings from municipal maintenance programs as well as private sources would probably be compatible with most composting facilities

Contractors and Other Pesticide Users

Municipal agencies should develop and implement a process to ensure that any contractor employed to conduct pest control and pesticide application on municipal property engages in pest control methods consistent with the IPM Policy adopted by the agency. Specifically, municipalities should require contractors to follow the agency's IPM policy, SOPs, and BMPs; provide evidence to the agency of having received training on current IPM techniques when feasible; provide documentation of pesticide use on agency property to the agency in a timely manner.

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Drainage System Maintenance SC-74

Photo Credit: Geoff Brosseau

Objectives

- Contain
- Educate
- Reduce/Minimize

Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff that may contain certain pollutants. Maintaining catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis will remove pollutants, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Approach

Suggested Protocols

Catch Basins/Inlet Structures

- Municipal staff should regularly inspect facilities to ensure the following:
  - Immediate repair of any deterioration threatening structural integrity.
  - Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.
  - Stenciling of catch basins and inlets (see SC-75 Waste Handling and Disposal).
- Clean catch basins, storm drain inlets, and other conveyance structures in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.

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- Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed.
- Keep accurate logs of the number of catch basins cleaned.
- Record the amount of waste collected.
- Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be pumped or vacuumed to a tank and properly disposed of. Do not dewater near a storm drain or stream.
- Except for small communities with relatively few catch basins that may be cleaned manually, most municipalities will require mechanical cleaners such as eductors, vacuums, or bucket loaders.

Storm Drain Conveyance System

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect flushed effluent and pump to the sanitary sewer for treatment.

Pump Stations

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do not allow discharge from cleaning a storm drain pump station or other facility to reach the storm drain system.
- Conduct quarterly routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.
- Sample collected sediments to determine if landfill disposal is possible, or illegal discharges in the watershed are occurring.

Open Channel

- Consider modification of storm channel characteristics to improve channel hydraulics, to increase pollutant removals, and to enhance channel/creek aesthetic and habitat value.
- Conduct channel modification/improvement in accordance with existing laws. Any person, government agency, or public utility proposing an activity that will change the natural (emphasis added) state of any river, stream, or lake in California, must enter into a steam or Lake Alteration Agreement with the Department of Fish and Game. The developer-applicant should also contact local governments (city, county, special districts), other state agencies

(SWRCB, RWQCB, Department of Forestry, Department of Water Resources), and Federal Corps of Engineers and USFWS

Illicit Connections and Discharges

- During routine maintenance of conveyance system and drainage structures field staff should look for evidence of illegal discharges or illicit connections:
  - Is there evidence of spills such as paints, discoloring, etc.
  - Are there any odors associated with the drainage system
  - Record locations of apparent illegal discharges/illicit connections
  - Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of up gradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
  - Once the origin of flow is established, require illicit discharger to eliminate the discharge.
- Stencil storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Illegal Dumping

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots
  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)
  - Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
  - Responsible parties
- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

- The State Department of Fish and Game has a hotline for reporting violations called Cal TIP (1-800-952-5400). The phone number may be used to report any violation of a Fish and Game code (illegal dumping, poaching, etc.).
- The California Department of Toxic Substances Control's Waste Alert Hotline, 1-800-69TOXIC, can be used to report hazardous waste violations.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Only properly trained individuals are allowed to handle hazardous materials/wastes.
- Train municipal employees from all departments (public works, utilities, street cleaning, parks and recreation, industrial waste inspection, hazardous waste inspection, sewer maintenance) to recognize and report illegal dumping.
- Train municipal employees and educate businesses, contractors, and the general public in proper and consistent methods for disposal.
- Train municipal staff regarding non-stormwater discharges (See SC-10 Non-Stormwater Discharges).

Spill Response and Prevention

- Refer to SC-11, Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Cleanup activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.
- Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, liquid/sediment disposal, and disposal of flushed effluent to sanitary sewer may be prohibited in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Municipal codes should include sections prohibiting the discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.
- Private property access rights may be needed to track illegal discharges up gradient.

- Requirements of municipal ordinance authority for suspected source verification testing for illicit connections necessary for guaranteed rights of entry.

Requirements

Costs

- An aggressive catch basin cleaning program could require a significant capital and O&M budget. A careful study of cleaning effectiveness should be undertaken before increased cleaning is implemented. Catch basin cleaning costs are less expensive if vacuum street sweepers are available; cleaning catch basins manually can cost approximately twice as much as cleaning the basins with a vacuum attached to a sweeper.

- Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary. Encouraging reporting of illicit discharges by employees can offset costs by saving expense on inspectors and directing resources more efficiently. Some programs have used funds available from "environmental fees" or special assessment districts to fund their illicit connection elimination programs.

Maintenance

- Two-person teams may be required to clean catch basins with vactor trucks.

- Identifying illicit discharges requires teams of at least two people (volunteers can be used), plus administrative personnel, depending on the complexity of the storm sewer system.

- Arrangements must be made for proper disposal of collected wastes.

- Requires technical staff to detect and investigate illegal dumping violations, and to coordinate public education.

Supplemental Information

Further Detail of the BMP

Storm Drain flushing

Sanitary sewer flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in sanitary sewer systems. The same principles that make sanitary sewer flushing effective can be used to flush storm drains. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as to an open channel, to another point where flushing will be initiated, or over to the sanitary sewer and on to the treatment facilities, thus preventing re-suspension and overflow of a portion of the solids during storm events. Flushing prevents "plug flow" discharges of concentrated pollutant loadings and sediments. The deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to

cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce the impacts of stormwater pollution, a second inflatable device, placed well downstream, may be used to re-collect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to re-collect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75 percent for organics and 55-65 percent for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used or that fire hydrant line flushing coincide with storm drain flushing.

Flow Management

Flow management has been one of the principal motivations for designing urban stream corridors in the past. Such needs may or may not be compatible with the stormwater quality goals in the stream corridor.

Downstream flood peaks can be suppressed by reducing through flow velocity. This can be accomplished by reducing gradient with grade control structures or increasing roughness with boulders, dense vegetation, or complex banks forms. Reducing velocity correspondingly increases flood height, so all such measures have a natural association with floodplain open space. Flood elevations laterally adjacent to the stream can be lowered by increasing through flow velocity.

However, increasing velocity increases flooding downstream and inherently conflicts with channel stability and human safety. Where topography permits, another way to lower flood elevation is to lower the level of the floodway with drop structures into a large but subtly excavated bowl where flood flows we allowed to spread out.

Stream Corridor Planning

Urban streams receive and convey stormwater flows from developed or developing watersheds. Planning of stream corridors thus interacts with urban stormwater management programs. If local programs are intended to control or protect downstream environments by managing flows delivered to the channels, then it is logical that such programs should be supplemented by management of the materials, forms, and uses of the downstream riparian corridor. Any proposal for steam alteration or management should be investigated for its potential flow and stability effects on upstream, downstream, and laterally adjacent areas. The timing and rate of flow from various tributaries can combine in complex ways to alter flood hazards. Each section of channel is unique, influenced by its own distribution of roughness elements, management activities, and stream responses.

Flexibility to adapt to stream features and behaviors as they evolve must be included in stream reclamation planning. The amenity and ecology of streams may be enhanced through the landscape design options of 1) corridor reservation, 2) bank treatment, 3) geomorphic restoration, and 4) grade control.

Corridor reservation - Reserving stream corridors and valleys to accommodate natural stream meandering, aggradation, degradation, and over bank flows allows streams to find their own form and generate less ongoing erosion. In California, open stream corridors in recent urban developments have produced recreational open space, irrigation of streamside plantings, and the aesthetic amenity of flowing water.

Bank treatment - The use of armoring, vegetative cover, and flow deflection may be used to influence a channel's form, stability, and biotic habitat. To prevent bank erosion, armoring can be done with rigid construction materials, such as concrete, masonry, wood planks and logs, riprap, and gabions. Concrete linings have been criticized because of their lack of provision of biotic habitat. In contrast, riprap and gabions make relatively porous and flexible linings. Boulders, placed in the bed reduce velocity and erosive power.

Riparian vegetation can stabilize the banks of streams that are at or near a condition of equilibrium. Binding networks of roots increase bank shear strength. During flood flows, resilient vegetation is forced into erosion-inhibiting mats. The roughness of vegetation leads to lower velocity, further reducing erosive effects. Structural flow deflection can protect banks from erosion or alter fish habitat. By concentrating flow, a deflector causes a pool to be scoured in the bed.

Geomorphic restoration – Restoration refers to alteration of disturbed streams so their form and behavior emulate those of undisturbed streams. Natural meanders are retained, with grading to gentle slopes on the inside of curves to allow point bars and riffle-pool sequences to develop. Trees are retained to provide scenic quality, biotic productivity, and roots for bank stabilization, supplemented by plantings where necessary.

A restorative approach can be successful where the stream is already approaching equilibrium. However, if upstream urbanization continues new flow regimes will be generated that could disrupt the equilibrium of the treated system.

Grade Control - A grade control structure is a level shelf of a permanent material, such as stone, masonry, or concrete, over which stream water flows. A grade control structure is called a sill, weir, or drop structure, depending on the relation of its invert elevation to upstream and downstream channels.

A sill is installed at the preexisting channel bed elevation to prevent upstream migration of nick points. It establishes a firm base level below which the upstream channel can not erode.

A weir or check dam is installed with invert above the preexisting bed elevation. A weir raises the local base level of the stream and causes aggradation upstream. The gradient, velocity, and erosive potential of the stream channel are reduced. A drop structure lowers the downstream invert below its preexisting elevation, reducing downstream gradient and velocity. Weirs and drop structure control erosion by dissipating energy and reducing slope velocity.

When carefully applied, grade control structures can be highly versatile in establishing human and environmental benefits in stabilized channels. To be successful, application of grade control structures should be guided by analysis of the stream system both upstream and downstream from the area to he reclaimed.

Examples

The California Department of Water Resources began the Urban Stream Restoration Program in 1985. The program provides grant funds to municipalities and community groups to implement stream restoration projects. The projects reduce damages from streambank aid watershed instability arid floods while restoring streams' aesthetic, recreational, and fish and wildlife values.

In Buena Vista Park, upper floodway slopes are gentle and grassed to achieve continuity of usable park land across the channel of small boulders at the base of the slopes.

The San Diego River is a large, vegetative lined channel, which was planted in a variety of species to support riparian wildlife while stabilizing the steep banks of the floodway.

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Waste Handling and Disposal SC-75

Objectives

- Cover
- Contain
- Educate
- Reduce/Reuse

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Description

It is important to control litter to eliminate trash and other materials in stormwater runoff. Waste reduction is a major component of waste management and should be encouraged through training and public outreach. Management of waste once it is collected may involve reuse, recycling, or proper disposal.

Approach

Pollution Prevention

- Reuse products when possible.
- Encourage recycling programs with recycling bins, used oil collection, etc.

Suggested Protocols

Solid Waste Collection

- Implement procedures, where applicable, to collect, transport, and dispose of solid waste at appropriate disposal facilities in accordance with applicable federal, state, and local laws and regulations.
- Include properly designed trash storage areas. If feasible provide cover over trash storage areas.
- Regularly inspect solid waste containers for structural damage. Repair or replace damaged containers as necessary.

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- Secure solid waste containers; containers must be closed tightly when not in use.
- Do not fill waste containers with washout water or any other liquid.
- Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc. may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).
- Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.
- Refer to SC-34 Waste Handling and Disposal for more information regarding solid waste facilities.

Waste Reduction and Recycling

- Recycle wastes whenever possible. Many types of waste can be recycled, recycling options for each waste type are limited. All gasoline, antifreeze, waste oil, and lead-acid batteries can be recycled. Latex and oil-based paint can be reused, as well as recycled. Materials that cannot be reused or recycled should either be incinerated or disposed of at a properly permitted landfill.
- Recycling is always preferable to disposal of unwanted materials.
- Recycling bins for glass, metal, newspaper, plastic bottles and other recyclable household solid wastes should be provided at public facilities and/or for residential curbside collection.

Controlling Litter

- Post “No Littering” signs and enforce anti-litter laws.
- Provide litter receptacles in busy, high pedestrian traffic areas of the community, at recreational facilities, and at community events.
- Clean out and cover litter receptacles frequently to prevent spillage.

Illegal Dumping

Substances illegally dumped on streets and into the storm drain system and creeks include paints, used oil and other automotive fluids, construction debris, chemicals, fresh concrete, leaves, grass clipping, and pet wastes.

- Post “No Dumping” signs with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Landscaping and beautification efforts of hot spots might also discourage future dumping.
- See SC-74 Drainage System Maintenance, and SC-10 Non-Stormwater Discharges.

Requirements

Costs

- The costs for a solid waste source control program vary depending on the type of method. The cost of a community education program or a plan to increase the number of trash receptacles can be very minimal. Costs for structural controls such as trash racks, bar screens, and silt traps can be quite costly ranging from $250,000 to $900,000.

- A collection facility or curbside collection for used oil may result in significant costs. Commercial locations (automobile service stations, quick oil change centers, etc.) as collection points eliminate hauling and recycling costs.

- Collection and disposal of hazardous waste can be very expensive and requires trained operators; laboratory and detection equipment; and extensive record keeping including dates, types, and quantities.

- Use of volunteer work forces can lower storm drain stenciling program costs. Stenciling kits require procurement of durable/disposable items. The stenciling program can aid in the cataloging of the storm drain system. One municipality from the state of Washington has estimated that stenciling kits cost approximately $50 each. Stencils may cost about $8 each including the die cost on an order of 1,000. Re-orders cost about $1/stencil. Stencil designs may be available from other communities. Stencil kits should be provided on a loan basis to volunteer groups free of charge with the understanding that kit remnants are to be returned.

Maintenance

- The primary staff demand for stenciling programs is for program setup to provide marketing and training. Ongoing/follow-up staff time is minimal because of volunteer services.

- Staffing requirements are minimal for oil recycling programs if collection/recycling is contracted out to a used oil hauler/recycler or required at commercial locations.

- Staff requirements for maintaining good housekeeping BMPs at waste handling sites is minimal.

Supplemental Information

Further Detail of the BMP

Waste Reduction

An approach to reduce stormwater pollution from waste handling and disposal is to assess activities and reduce waste generation. The assessment is designed to find situations where waste can be eliminated or reduced and emissions and environmental damage can be minimized. The assessment involves collecting process specific information, setting pollution prevention targets, and developing, screening and selecting waste reduction options for further study. Starting a waste reduction program is economically beneficial because of reduced raw material purchases and lower waste disposal fees.

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Water & Sewer Utility Maintenance SC-76

Objectives

- Contain
- Educate
- Reduce/Minimize

Description

Although the operation and maintenance of public utilities are not considered chronic sources of stormwater pollution, some activities and accidents can result in the discharge of pollutants that can pose a threat to both human health and the quality of receiving waters if they enter the storm drain system. Sewage incident response and investigation may involve a coordinated effort between staff from a number of different departments/agencies. Cities that do not provide maintenance of water and sewer utilities must coordinate with the contracting agency responsible for these activities and ensure that these model procedures are followed.

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	
Metals	
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Approach

Pollution Prevention

Inspect potential non-stormwater discharge flow paths and clear/cleanup any debris or pollutants found (i.e. remove trash, leaves, sediment, and wipe up liquids, including oil spills).

Suggested Protocols

Water Line Maintenance and Cleaning

Procedures can be employed to reduce pollutants from discharges associated with water utility operation and maintenance activities. Planned discharges may include fire hydrant testing, flushing water supply mains after new construction, flushing lines due to complaints of taste and odor, dewatering mains for maintenance work. Unplanned discharges from treated, recycled water, raw water, and groundwater systems operation and maintenance activities can occur from water main

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breaks, sheared fire hydrants, equipment malfunction, and operator error.

Planned discharges

- Identify a suitable discharge option in the following order of preference:
  - Apply to the land.
  - Reuse water for dust suppression, irrigation, or construction compaction.
  - Discharge to a sanitary sewer system with approval.
  - Discharge to the storm drain system using applicable pollution control measures. (Only available to clean water discharges such as water main/ water storage tank/water hydrant flushing).
- If water is discharged to a storm drain, control measures must be put in place to control potential pollutants (i.e. sediment, chlorine, etc.). Examples of some storm drain protection options include:
  - Silt fence – appropriate where the inlet drains a relatively flat area.
  - Gravel and wire mesh sediment filter – Appropriate where concentrated flows are expected.
  - Wooden weir and fabric – use at curb inlets where a compact installation is desired.
- Prior to discharge, inspect discharge flow path and clear/cleanup any debris or pollutants found (i.e. remove trash, leaves, sediment, and wipe up liquids, including oil spills).
- General Design considerations for inlet protection devices include the following:
  - The device should be constructed such that cleaning and disposal of trapped sediment is made easy, while minimizing interference with discharge activities.
  - Devices should be constructed so that any standing water resulting from the discharge will not cause excessive inconvenience or flooding/damage to adjacent land or structures.
- The effectiveness of control devices must be monitored during the discharge period and any necessary repairs or modifications made.

Unplanned Discharges

- Stop the discharge as quickly as possible.
- Inspect flow path of the discharged water:
  - Identify erodible areas which may need to be repaired or protected during subsequent repairs or corrective actions

- Identify the potential for pollutants to be washed into the waterway

- If repairs or corrective action will cause additional discharges of water, select the appropriate procedures for erosion control, chlorine residual, turbidity, and chemical additives. Prevent potential pollutants from entering the flow path.

Sanitary Sewer Maintenance

Applicable to municipalities who own and operated a sewage collection system. Facilities that are covered under this program include sanitary sewer pipes and pump stations owned and operated by a municipality. The owner of the sanitary sewer facilities is the entity responsible for carrying out this prevention and response program.

- Clean sewer lines on a regular basis to remove grease, grit, and other debris that may lead to sewer backups.

- Establish routine maintenance program. Cleaning should be conducted at an established minimum frequency and more frequently for problem areas such as restaurants that are identified

- Cleaning activities may require removal of tree roots and other identified obstructions.

- During routine maintenance and inspection note the condition of sanitary sewer structures and identify areas that need repair or maintenance. Items to note may include the following:

  - Cracked/deteriorating pipes

  - Leaking joints/seals at manhole

  - Frequent line plugs

  - Line generally flows at or near capacity

  - Suspected infiltration or exfiltration.

- Prioritize repairs based on the nature and severity of the problem. Immediate clearing of blockage or repair is required where an overflow is currently occurring or for urgent problems that may cause an imminent overflow (e.g. pump station failures, sewer line ruptures, sewer line blockages). These repairs may be temporary until scheduled or capital improvements can be completed.

- Review previous sewer maintenance records to help identify “hot spots” or areas with frequent maintenance problems and locations of potential system failure.

Spills and Overflows

- Identify and track sanitary sewer discharges. Identify dry weather infiltration and inflow first. Wet weather overflow connections are very difficult to locate.

- Locate wet weather overflows and leaking sanitary sewers using conventional source identification techniques such as monitoring and field screening. Techniques used to identify other illicit connection sources can also be used for sewer system evaluation surveys (see SC74 Drainage System Operation and Maintenance).

- Implement community awareness programs for monitoring sanitary sewer wet weather overflows. A citizen's hotline for reporting observed overflow conditions should be established to supplement field screening efforts.

- Establish lead department/agency responsible for spill response and containment. Provide coordination within departments.

- When a spill, leak, and/or overflow occurs and when disinfecting a sewage contaminated area, take every effort to ensure that the sewage, disinfectant and/or sewage treated with the disinfectant is not discharged to the storm drain system or receiving waters. Methods may include:

  - Blocking storm drain inlets and catch basins

  - Containing and diverting sewage and disinfectant away from open channels and other storm drain fixtures (using sandbags, inflatable dams, etc.)

  - Removing the material with vacuum equipment

- Record required information at the spill site.

- Perform field tests as necessary to determine the source of the spill.

- Develop notification procedures regarding spill reporting.

Septic Systems

- Ensure that homeowners, installers, and inspectors are educated in proper maintenance of septic systems. This may require coordination with staff from other departments. Outreach to homeowners should include inspection reminders informing then that inspection and perhaps maintenance is due for their systems. Recommend that the system be inspected annually and pumped-out regularly.

- Programs which seek to address failing septic systems should consider using field screening to pinpoint areas where more detailed onsite inspection surveys are warranted.

Training

- Conduct annual training of water utility personnel and service contractors. (field screening, sampling, smoke/dye testing, TV inspection).

- OSHA-required Health and Safety Training 29 CFR 1910.120 plus annual Refresher Training (as needed).

- OSHA Confined Space Entry training (Cal-OSHA Confined Space, Title 8 and federal OSHA 29 CFR 1910.146).

Spill Response and Prevention

- See previous section regarding spills and overflows.
- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Enact ordinance granting "right-of-entry" to locate potentially responsible parties for sewer overflows.
- Reliance on individual onsite inspection to detect failed septic systems can be a major limitation. The individual onsite inspection is very labor-intensive and requires access to private property to pinpoint the exact location of the failing system.
- A significant limitation to correcting failing septic systems is the lack of techniques available for detecting individual failed septic systems.

Requirements

Costs

- Departmental cooperation recommended for sharing or borrowing staff resources and equipment from municipal wastewater department.
- Infiltration, inflow, and wet weather overflows from sanitary sewers are very labor and equipment intensive to locate.
- The costs associated with detecting and correcting septic system failures are subject to a number of factors, including availability of trained personnel, cost of materials, and the level of follow-up required to fix the system problems.

Maintenance

- Minimum 2-person teams to perform field screening and associated sampling.
- Larger teams required for implementing other techniques (i.e. zinc chloride smoke testing, fluorometric dye testing, television camera inspection and physical inspection with confined space entry) to identify sewer system leaks.
- Program coordination required for handling emergencies, record keeping, etc.
- Many of the problems associated with improper use of septic systems may be attributed to lack of user knowledge on operation and maintenance. Educational materials for homeowners and training courses for installers and inspectors can reduce the incidence of pollution from these widespread and commonly used pollution control devices.

Supplemental Information

Further Detail of the BMP

Onsite Sewage Disposal Systems

New onsite sewage disposal systems should be designed, located, and installed away from open waterbodies and sensitive resources such as wetlands and floodplains. A protective separation between the OSDS and groundwater should also be established. OSDSs should be operated and maintained to prevent surface water discharges and reduce pollutant loadings to groundwater. Inspection of OSDSs should occur regularly and repairs made immediately. New or replacement plumbing fixtures should be of the high efficiency type.

Typical Sanitary Sewer Problems

- Old and deteriorated main and lateral pipes - Sewers range in age from 30 to 100 years with an average age of 50 years.
- Cracked sewer pipes - Existing sewers are mostly clay pipes which can crack as they deteriorate with age and also by earth movement.
- Misaligned and open pipe joints - Most of the mortar used to seal the joints between sections of clay pipe has deteriorated.
- Undersized sewer pipe - The existing sewer system is overloaded due to new sewer hook-ups, underground water infiltration, and illegal roof and/or yard drain connections.
- Defective manholes - Old manholes are made of bricks. Typical problems associated with brick manholes are loose bricks, missing bricks, and misaligned manholes.
- Missing and/or unrecorded sewer pipes and manholes - This problem is typical in the easement/backline sewer. Sewer pipe locations shown on the sewer record map are different from the actual sewer location.
- Sewer main under houses and other improvements - Complaints of sewer main alignment crossing the house and other improvements. A solution to this problem requires an agreement with the property owner for a new sewer easement at a relocated line.

Causes of Sanitary Sewer Backups

- Root infiltration - Tree roots are a major cause of backups.
- Water inflow/infiltration - Rain water entering the sewer pipe causes overflows.
- Solids - Typical solids that buildup in the pipe and cause backups are grease, dirt, bones, tampons, paper towels, diapers, broken dishware, garbage, concrete, and debris.
- Structural defects in pipes and manholes - Sags in the line, cracks, holes, protruding laterals, misaligned pipe, offset joints are all possible causes of backups.

Design Considerations

Sanitary sewer overflows can often be reduced or eliminated by a number of practices, in addition to sewer system cleaning and maintenance, including the following:

- Reducing infiltration and inflow through rehabilitation and repair of broken or leaking sewer lines.
- Enlarging or upgrading the capacity of sewer lines, pump stations, or sewage treatment plants.
- Constructing wet weather storage and treatment facilities to treat excess flows.
- Addressing SSOs during sewer system master planning and facilities planning.

Septic Systems

Two field screening techniques that have been used with success at identifying possible locations of failing septic systems are the brightener test and color infrared (CIR) aerial photography. The first involves the use of specific phosphorus-based elements found in many laundry products, often called brighteners, as an indicator of the presence of failing onsite wastewater systems. The second technique uses color infrared (CIR) aerial photography to characterize the performance of septic systems. This method has been found to be a quick and cost-effective method for assessing the potential impacts of failing systems and uses variations in vegetative growth or stress patterns over septic system field lines to identify those systems that may potentially be malfunctioning. Then a more detailed onsite visual and physical inspection will confirm whether the system has truly failed and the extent of the repairs needed. These inspections may be carried out by county health departments or other authorized personnel.

References and Resources

Alameda Countywide Clean Water Program on-line
http://www.ci.berkeley.ca.us/pw/Storm/stormala.html

Los Angeles County Stormwater Quality. Public Agency Activities Model Program. On-line:
http://ladpw.org/wmd/npdes/public_TC.cfm

Orange County Stormwater Program
http://www.ocwatersheds.com/StormWater/swp_introduction.asp

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1998. Water Utility Operation and Maintenance Discharge Pollution Prevention Plan. June

United States Environmental Protection Agency (USEPA). 2001. Illicit Discharge Detection and Elimination. On-line: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/illi_1.cfm

United States Environmental Protection Agency (USEPA). 2001. Pollution Prevention/Good Housekeeping for Municipal Operators Septic System Controls. On-line: http://www.epa.gov/npdes/menuofbmps/poll_14.htm