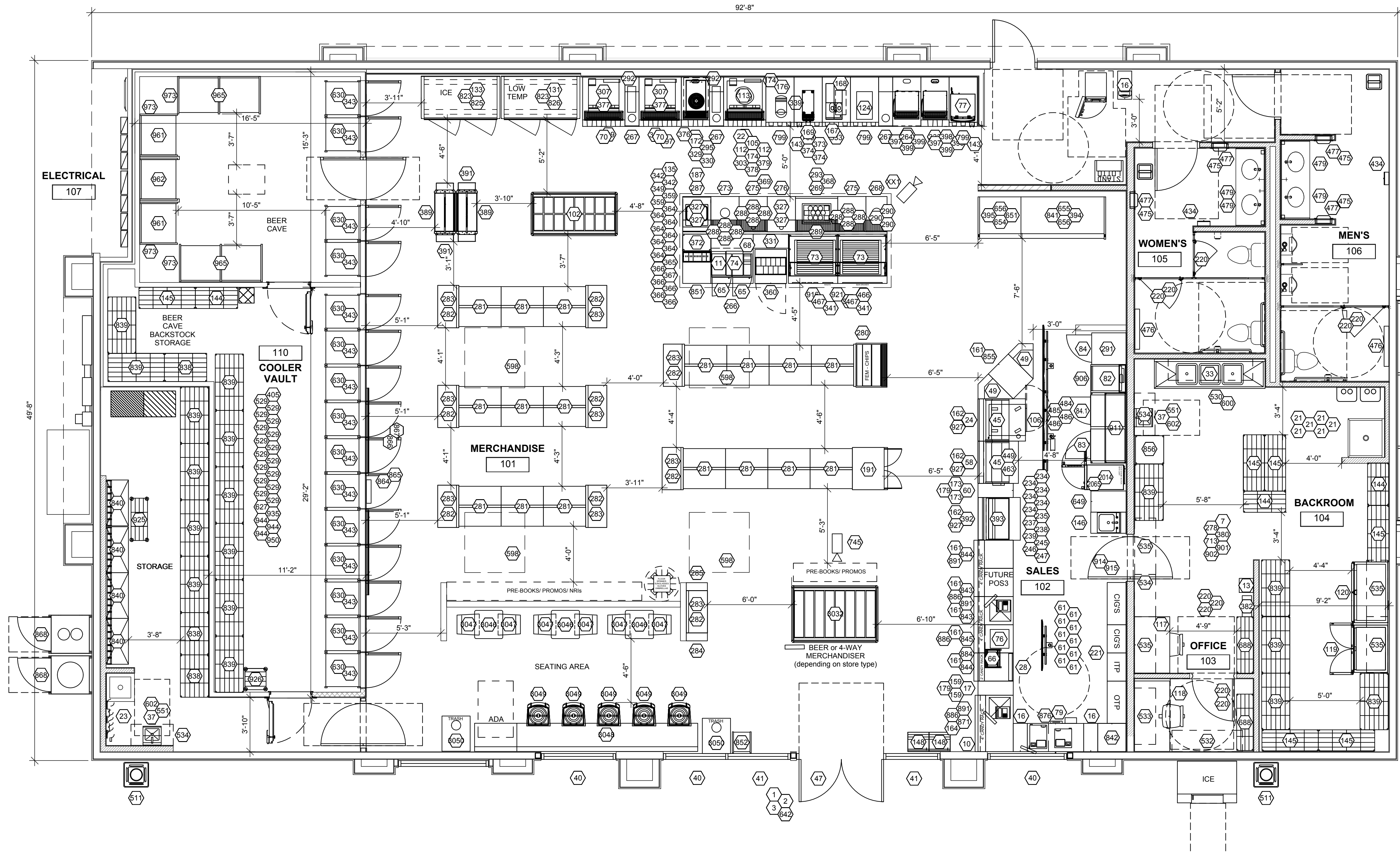


Scale As indicated



| LAYOUT INFORMATION | |
|-----------------------------------|---------------------|
| ROLLER GRILLS | 2 (SELF SERVE) |
| SANDWICH CASE | 9' |
| NON ALC. VAULT DRS | 11 |
| ALC. VAULT DRS | 4 |
| LOW TEMP DOORS | 2 |
| ICE MERCH. DOORS | 2 |
| NOVELTY CASE | 1 |
| BAKERY CASE | 1 (LG) |
| SLURPEE BARRELS | 8 |
| | |
| GONDOLA UNITS (60"H) | 34 |
| END CAPS (60"H) | 10 |
| POWER WINGS | (02) - NOT IN TOTAL |
| LOW WALLS (36"H) | 00 |
| HIGH WALLS (72"H) | 00 |
| TOTAL | 44 |
| | |
| TOTAL SQ FT | = 4,650 SF |
| SALES FLOOR AREA | = 2,683 SF |
| | |
| GAS: YES | LIQUOR: NO |
| BEER: YES | WINE: YES |
| | |
| OCCUPANCY LOAD (>49) = 48 | |
| TRAVEL DISTANCE (<200) = 94' | |
| COMMON PATH OF TRAVEL (<75) = 57' | |
| RESTROOMS REQUIRED = 2 | |
| EXITS REQUIRED = 2 | |

OVERHEAD SHELVES = 34 FT
FLOOR SHELVES = 65 FT

WALL TYPE LEGEND

| | |
|-------------------------|--|
| EXISTING WALL | |
| EXISTING COLUMN | |
| NEW WALL | |
| NEW PARTIAL HEIGHT WALL | |
| NEW COOLER WALL | |

| OCCUPANCY CALCULATION | | | |
|-----------------------|---------|-------|-------------|
| MERCHANDISE | 2363 SF | / 60 | = 40 PEOPLE |
| KITCHEN / SALES | 320 SF | / 200 | = 2 PEOPLE |
| STORAGE/ BACK ROOM | 1483 SF | / 300 | = 5 PEOPLE |
| OFFICE | 57 SF | / 100 | = 1 PERSON |
| RESTROOM | 427 SF | / N/A | = 0 PEOPLE |

TOTAL = 48 PEOPLE

1045395 - LAKE ELSINORE, CA - FP2 LAYOUT 1

RIVERSIDE DR & LINCOLN ST
LAKE ELSINORE, CA

SCALE: 1/4"=1'-0"

APPROVED: YES ☐ NO ☒

00/00/20

03/17/20

7-ELEVEN, INC.
3200 Hackberry Rd., Irving, Texas 75063

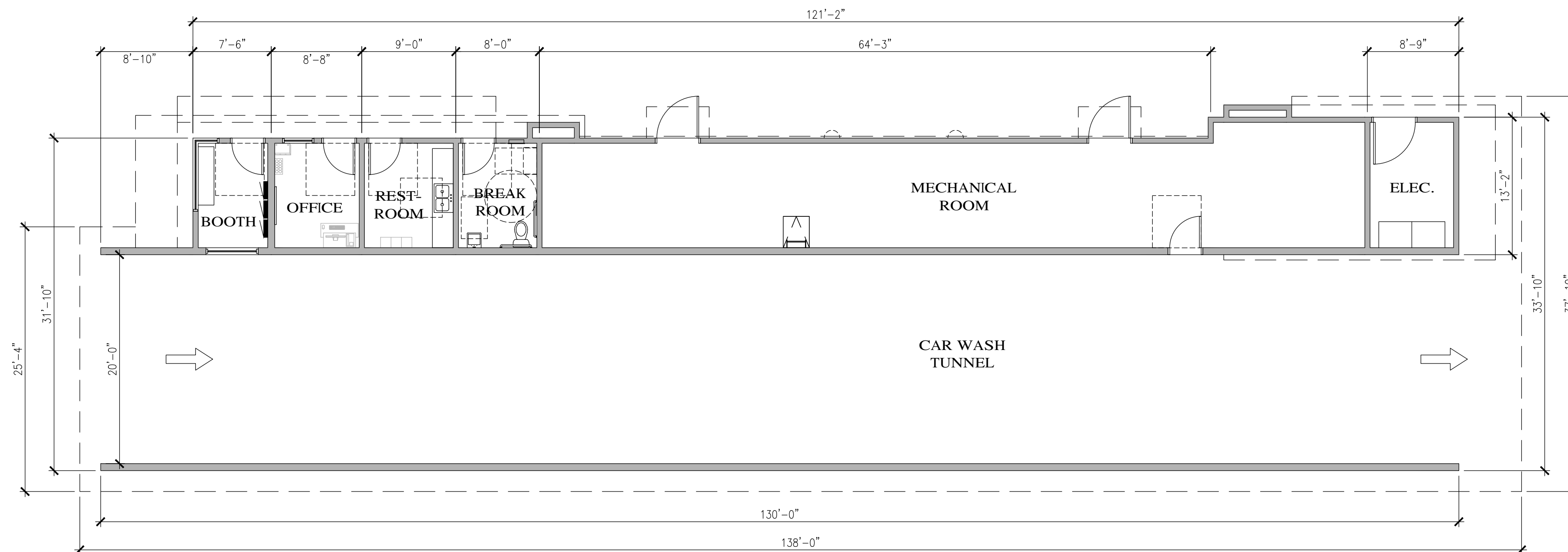
7-11 #1045395
RIVERSIDE DR & LINCOLN ST
LAKE ELSINORE, CA

| | |
|-------------|------------|
| Job#: | 2019111.68 |
| Scale: | AS NOTED |
| Date: | 3/17/20 |
| Drawn By: | |
| Checked By: | |

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SHEET:

A1.00

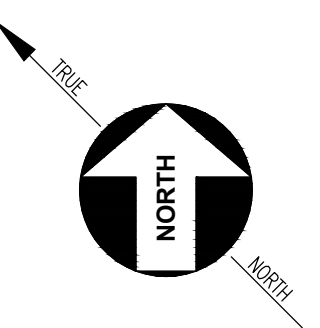


BICKEL GROUP
ARCHITECTURE
BICKEL GROUP INCORPORATED
3600 BIRCH STREET, SUITE 120
NEWPORT BEACH, CA 92660
P: 949.757.0411 F: 949.757.0511
www.bickelgrp.com

GOOGIE CAR WASH

15209 LINCOLN STREET
LAKE ELSINORE, CALIFORNIA

A1.20



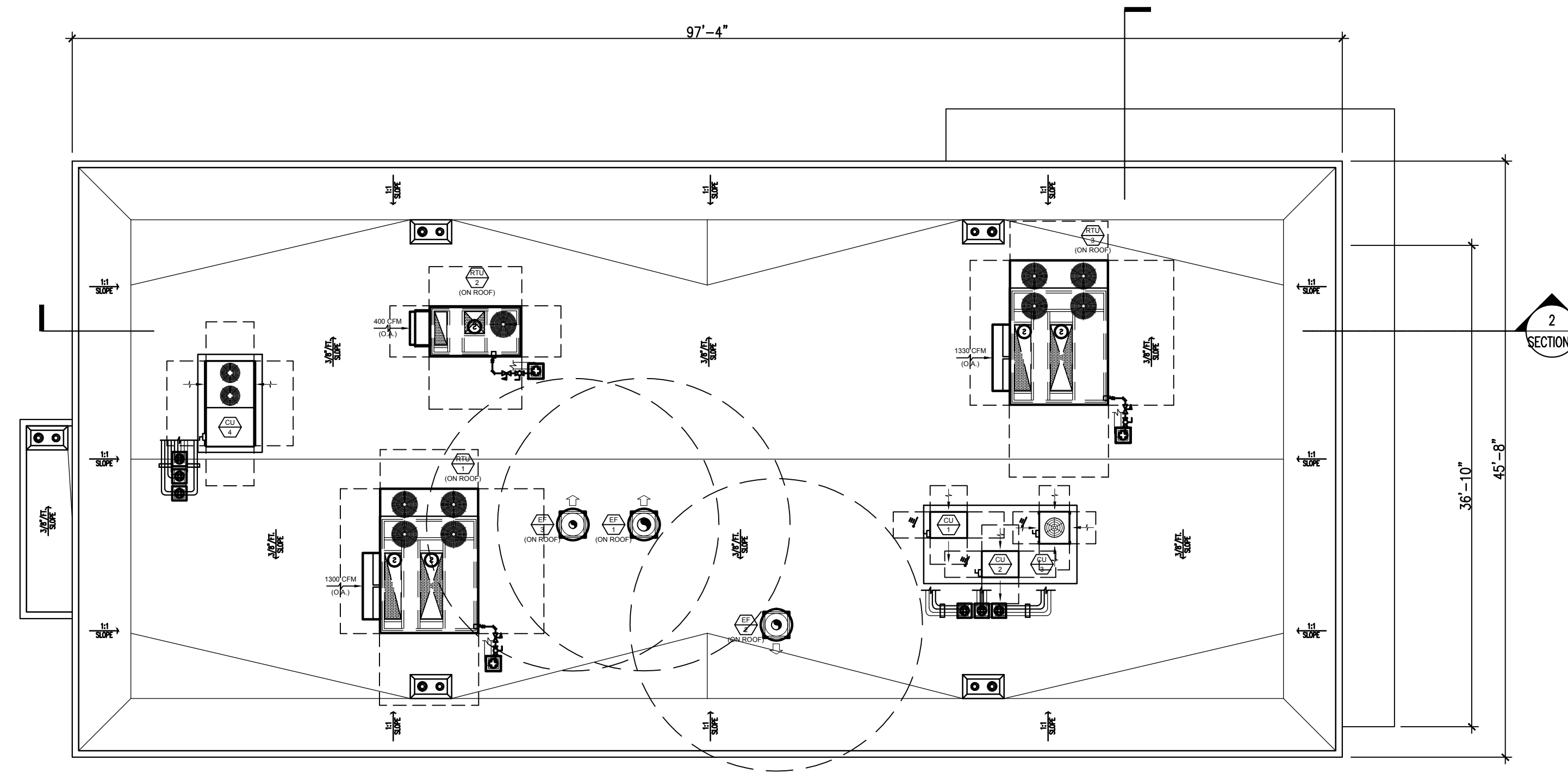
FLOOR PLAN

Scale: 1/8" = 1'-0"

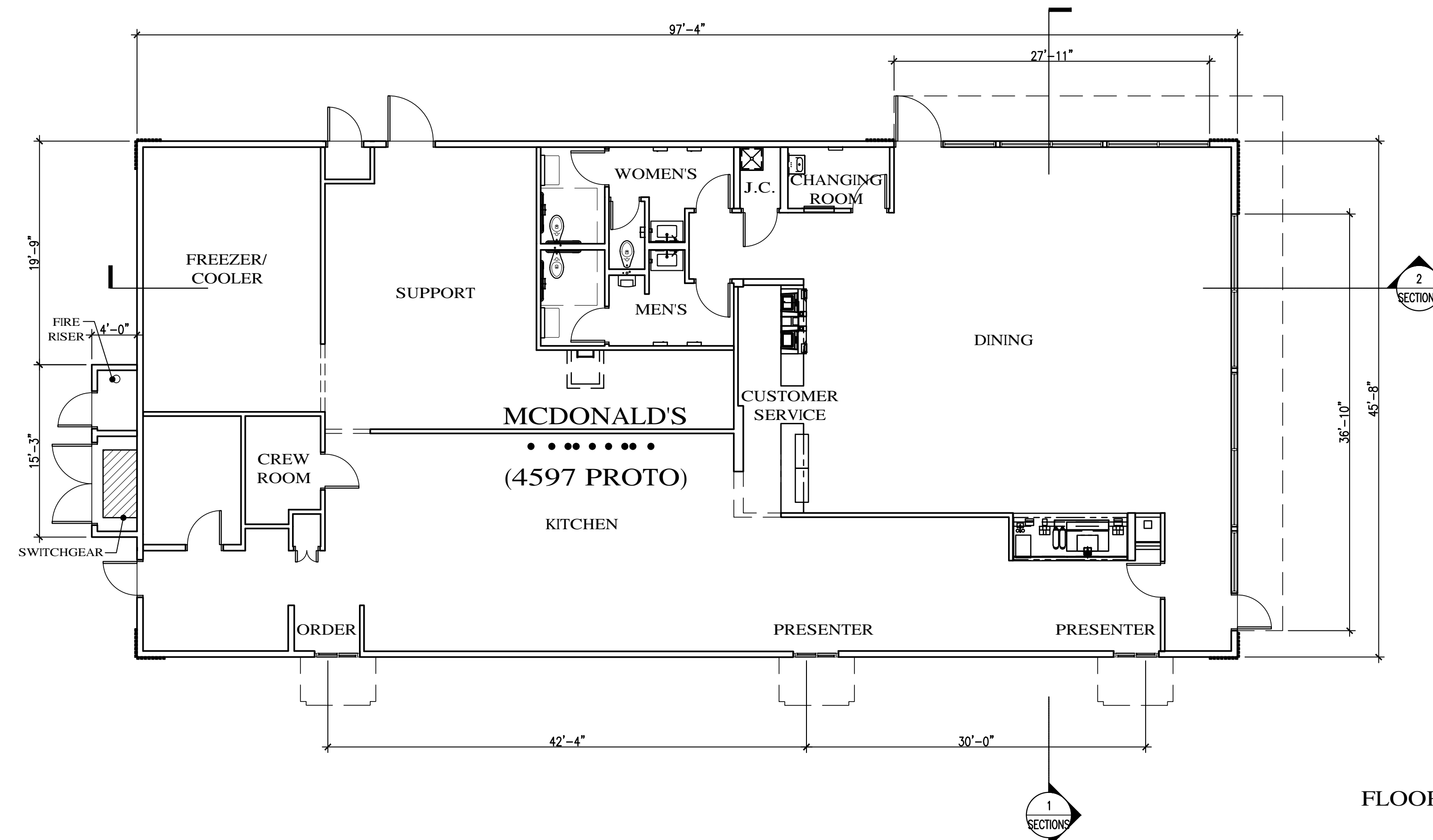
July 13, 2020

F:\20\20160 - Lake Elsinore, Riverside Dr Googie Wash\Design\Floor
Plan\20160 - Floor Plan.dwg

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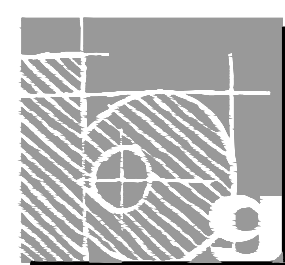
ROOF PLAN



FLOOR PLAN

NOTES:

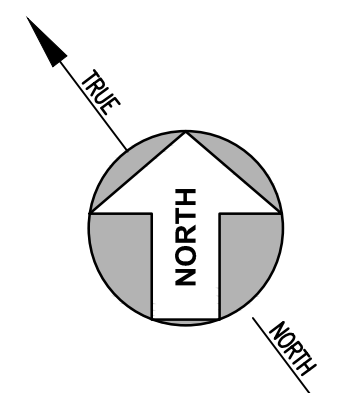
ALL ROOFTOP MOUNTED EQUIPMENT TO BE
SCREENED FROM VIEW, LOCATIONS OF ALL
EQUIPMENT TO BE CONFIRMED DURING CD PHASE



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McDONALD'S 004-5013

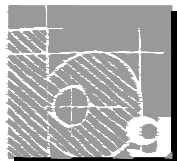
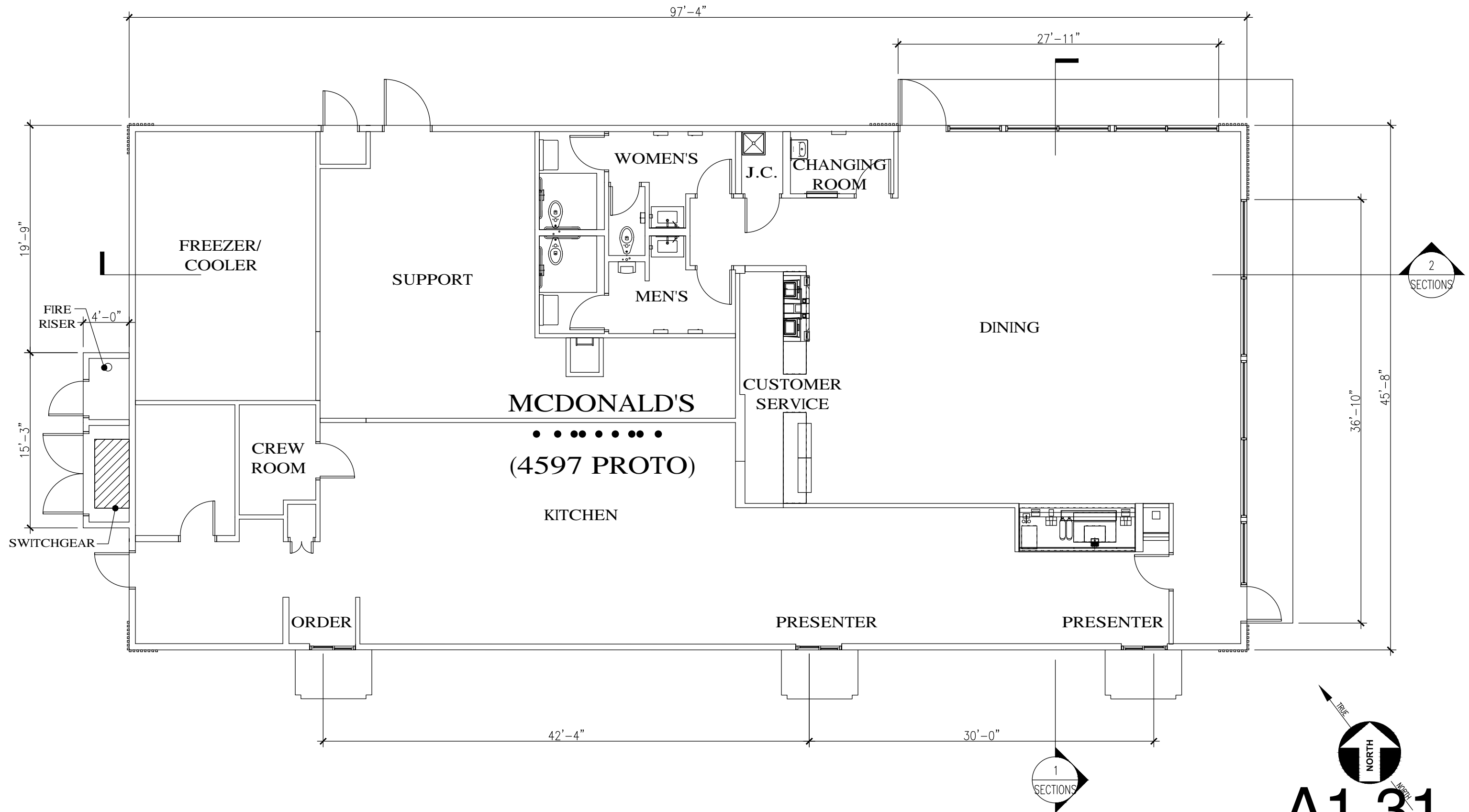
SWC LINCOLN STREET & RIVERSIDE DRIVE
LAKE ELSINORE, CALIFORNIA



A1.30 FLOOR & ROOF PLANS

Scale: 1/8" = 1'-0"
May 20, 2020

FA1919790 - McD Lake Elsinore, SWC Lincoln St & Riverside
Dr\Design\Floor Plan\19790 - Floor Plan.dwg
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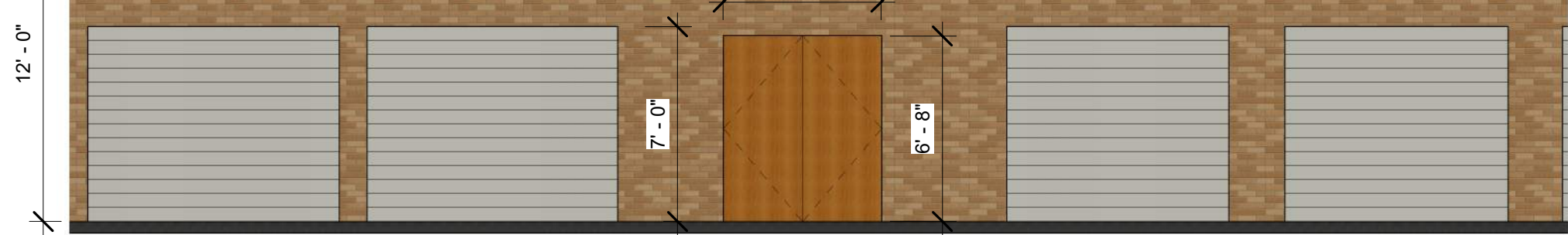
SWC LINCOLN STREET & RIVERSIDE DRIVE
LAKE ELSINORE, CALIFORNIA

A1.31 FLOOR PLAN

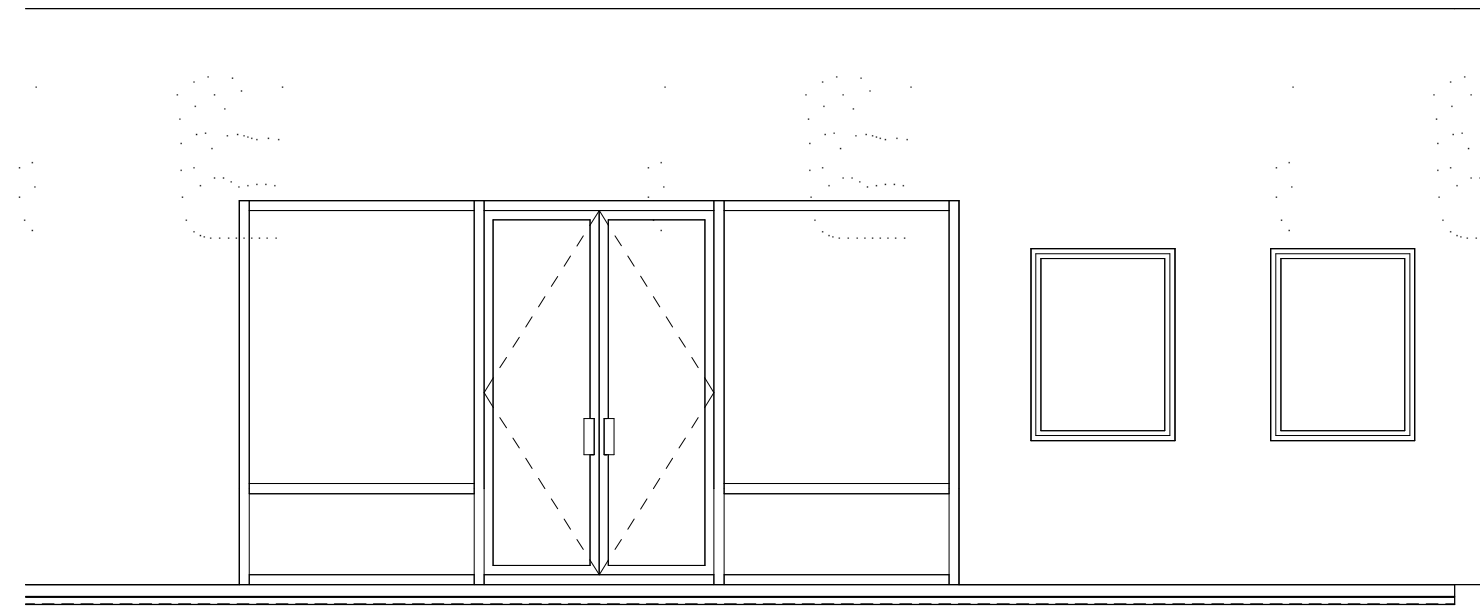
Scale: 1/8" = 1'-0"
May 20, 2020

FA1919790 - McD Lake Elsinore, SWC Lincoln St & Riverside
Dr\Design\Floor Plan\19790 - Floor Plan.dwg

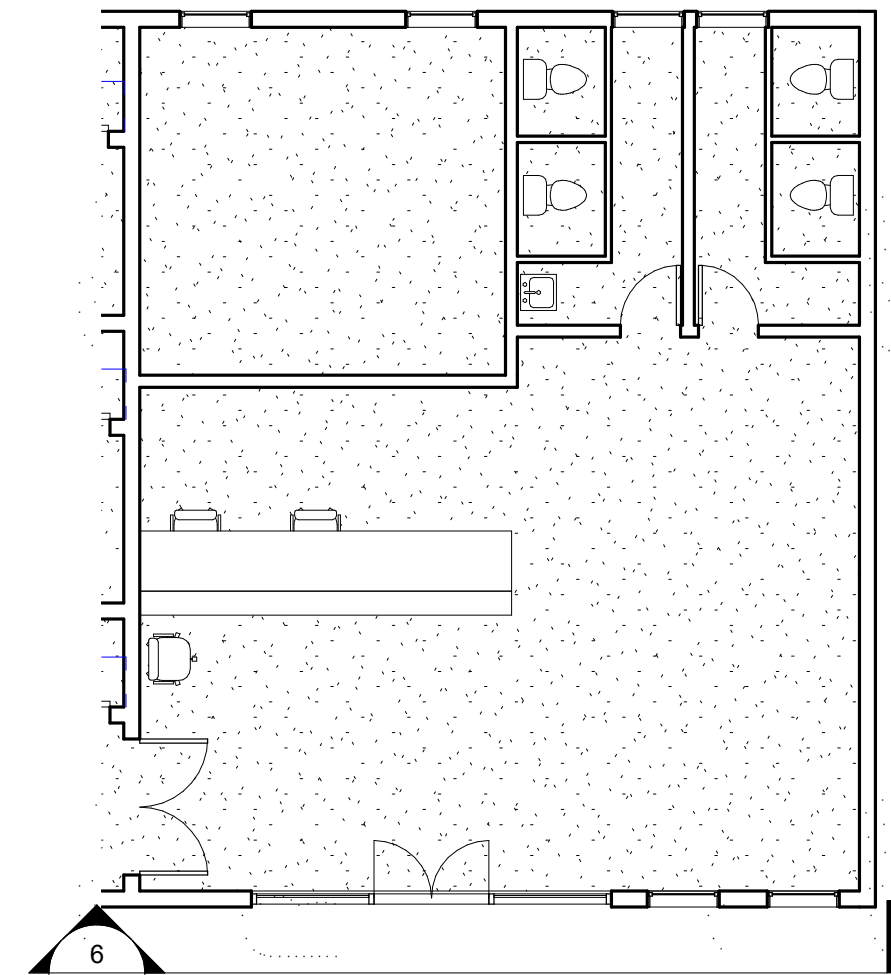
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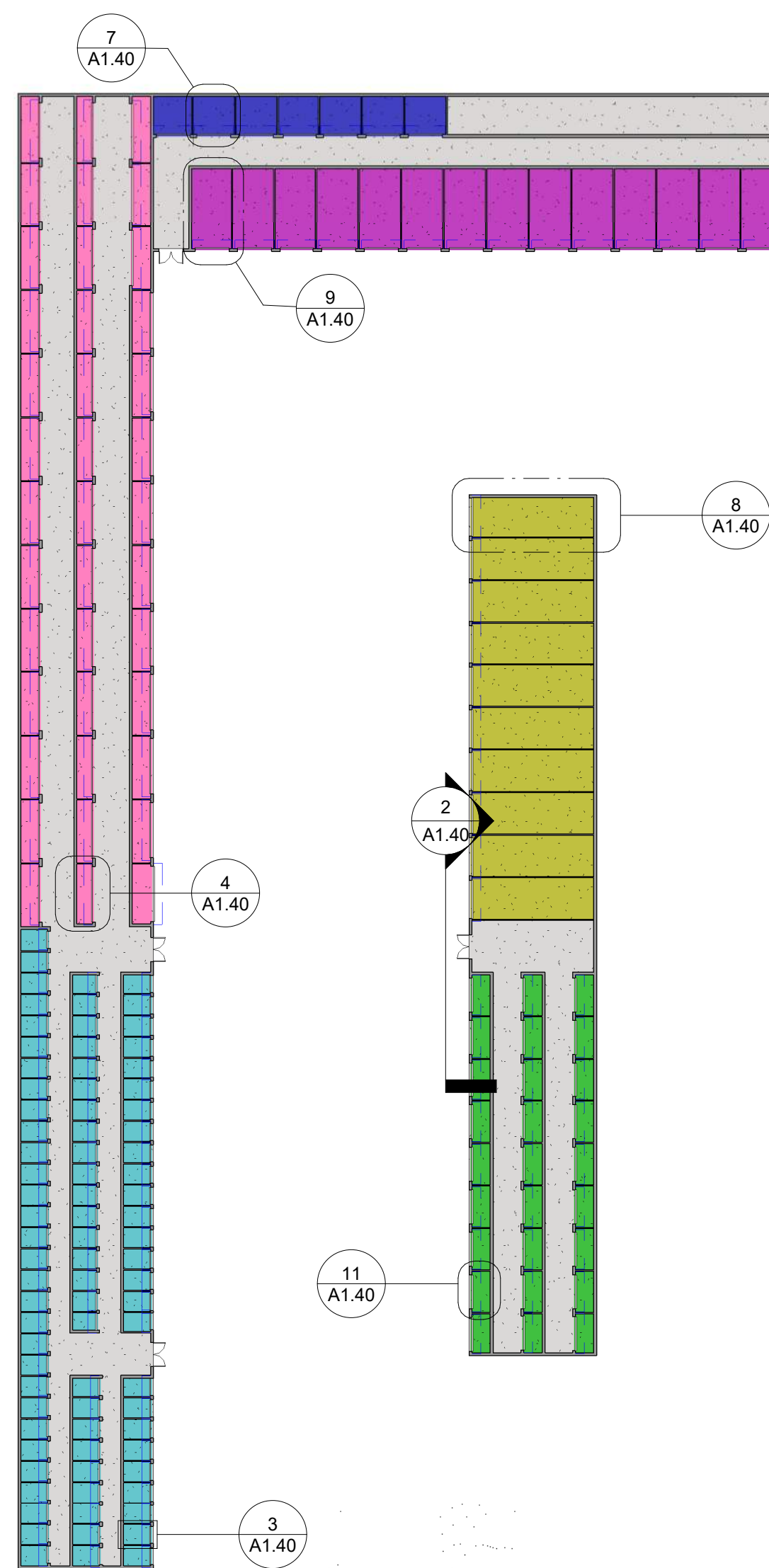
② Typical Elevation View
3/16" = 1'-0"










6 Main Office Elevation
1/4" = 1'-0"



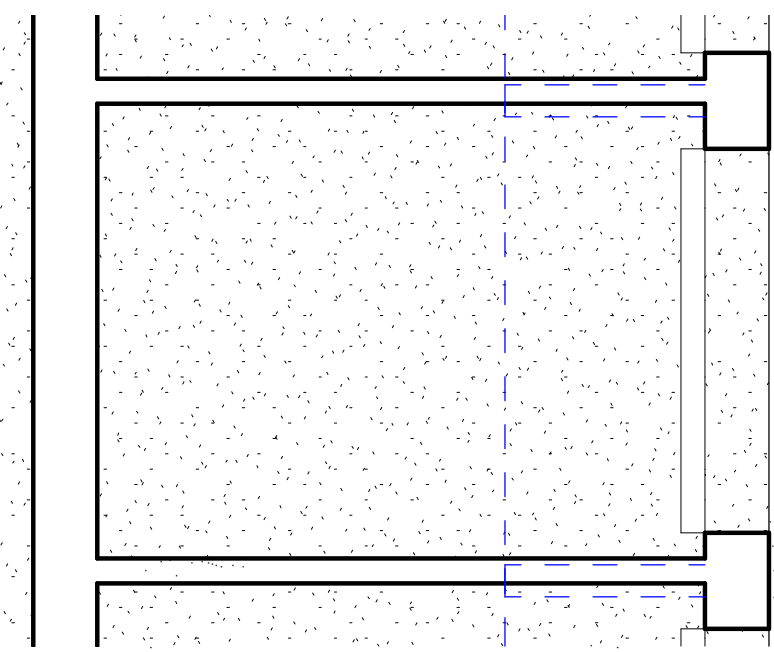
5 Main Office
1/8" = 1'-0"



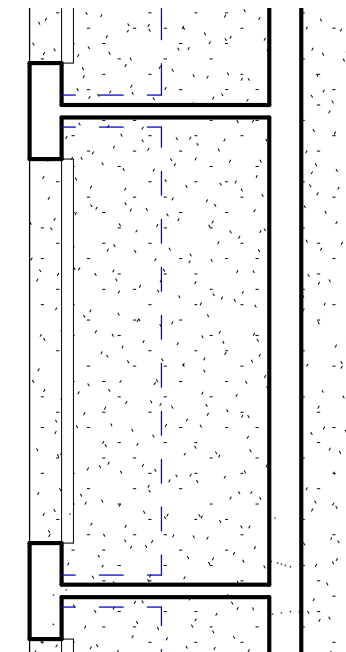
Storage Unit Color Legend

| | |
|---|-------|
|  | 5x5 |
|  | 5x7 |
|  | 5x10 |
|  | 5x15 |
|  | 10x10 |
|  | 10x20 |
|  | 10x30 |

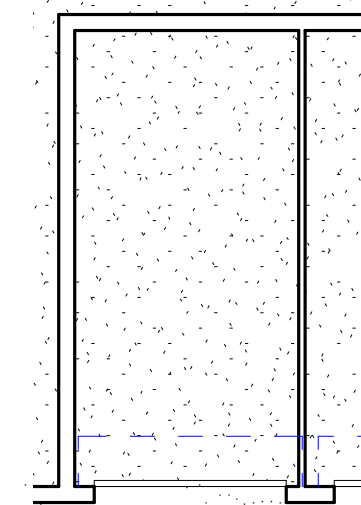
| Unit Totals | |
|------------------|-------|
| Name | Count |
| 5x5 | 31 |
| 5x7 | 82 |
| 5x10 | 27 |
| 5x15 | 39 |
| 10x10 | 43 |
| 10x20 | 54 |
| 10x30 | 10 |
| Grand total: 286 | |



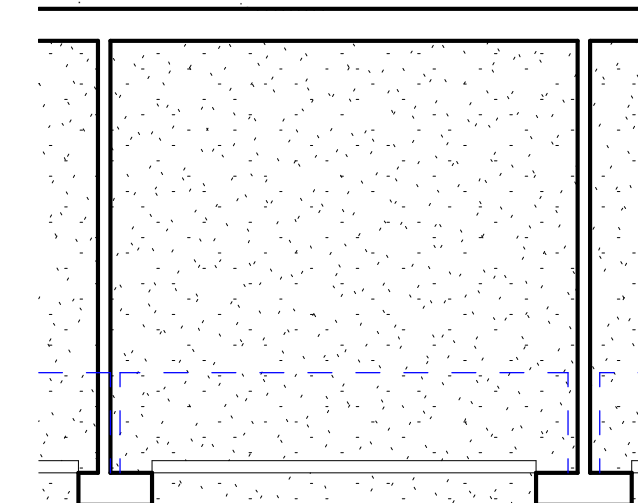
③ $\frac{5 \times 7 \text{ Unit}}{1/2" = 1'-0"}$



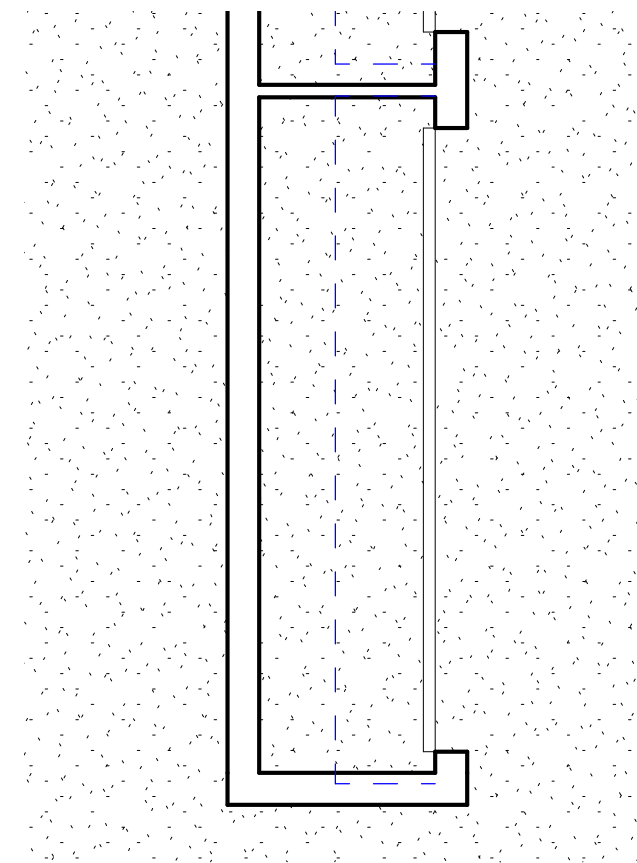
11 $\frac{5 \times 10 \text{ Unit}}{1/4" = 1'-0"}$



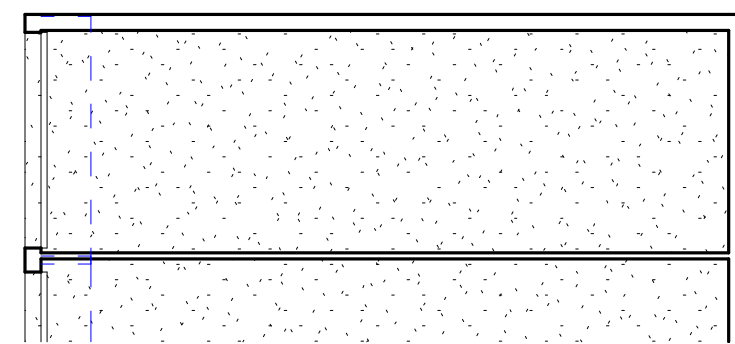
9 10x20 Unit
1/8" = 1'-0"



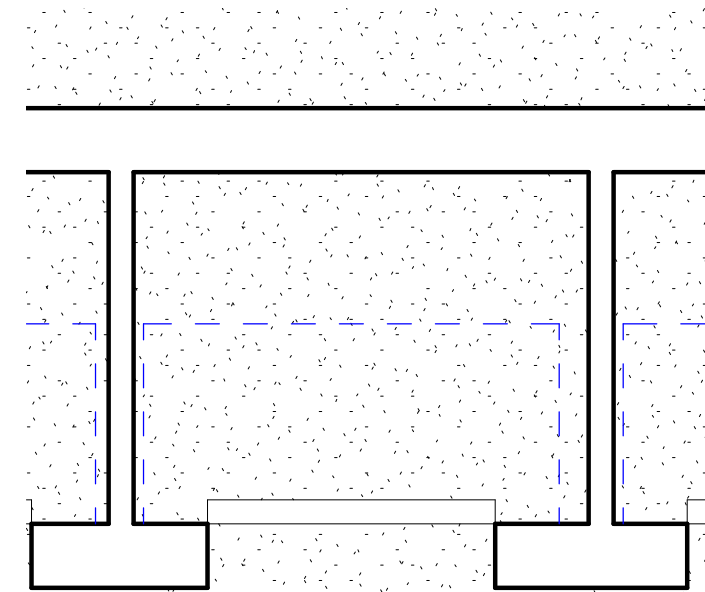
⑦ 10x10 Unit
1/4" = 1'-0"



④ $\frac{5 \times 15 \text{ Unit}}{1/4" = 1'-0"$



8 $\frac{10 \times 30 \text{ Unit}}{1/8" = 1'-0"}$



10 $\frac{5 \times 5 \text{ Unit}}{1/2" = 1'-0"}$



COLOR: NEW ENGLAND BRICK-CHARLESTON
MFR: CORONADO STONE
MATERIAL: BRICK

① Level 1
 $1/32" = 1'-0"$

1180 S. BEVERLY DR #
300
LOS ANGELES, CA 90035
424.241.2256

[illegible]

7-ELEVEN
RAPIDS CAR WASH
15209 LINCOLN STREET,
LAKE ELSINORE, CA

STORAGE FLOOR
PLAN/ UNIT PLAN

| | |
|----------------|---------|
| Project number | 0711-10 |
|----------------|---------|

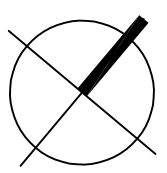
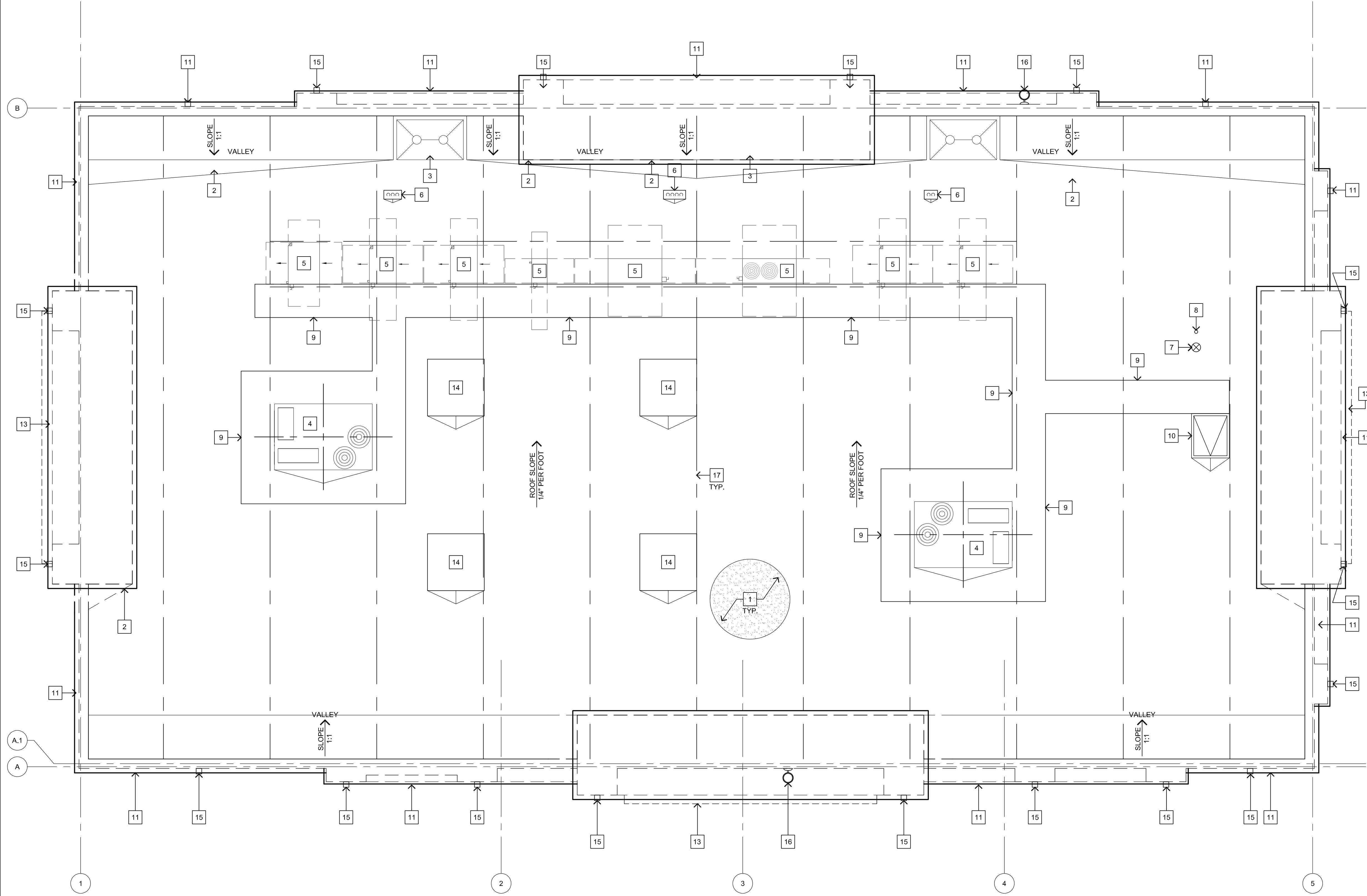
| | |
|------|------------|
| Date | 2020-06-08 |
|------|------------|

Drawn by  CV

| | |
|------------|----|
| Checked by | JU |
|------------|----|

A1.40

| | |
|-------|--------------|
| Scale | As indicated |
|-------|--------------|



ROOF PLAN

SCALE:
1/4" = 1'-0"

1

GENERAL NOTES

1. ROOF MATERIAL IS MINERAL SURFACE ROLL ROOFING. CLASS A FIRE RATING MINIMUM.
2. NEW MECHANICAL CURBS SHALL BE A MINIMUM OF 8" HIGH.
3. MECHANICAL EQUIPMENT SHALL BE SET ON APPROVED CURBS OR PLATFORMS. IN LIEU OF CURBS OR PLATFORMS, EQUIPMENT MAY BE SET ON LEVEL REDWOOD SLEEPERS WHICH SPAN STRUCTURAL ROOF FRAMING MEMBERS. SLEEPERS SHALL BE SET INTO A FULL BED OF ROOFING MASTIC AND SECURED WITH LAG SCREWS INTO STRUCTURAL FRAMING MEMBERS. LAG SCREW HEADS SHALL BE COVERED WITH DOLLOP OF MASTIC.

KEYNOTES

- 1 SINGLE PLY ROOFING OVER ROOF DECK
- 2 ROOF CRICKET WITH TAPERED INSULATION TYP.
- 3 ROOF AND OVERFLOW DRAIN
- 4 FLEXPACK UNIT
- 5 RTU UNIT
- 6 REFRIGERANT PIPE PORTAL
- 7 EXHAUST VENT
- 8 PLUMBING VENT
- 9 WALKING PAD TO BE A MINIMUM 30" AROUND MECHANICAL UNIT.
- 10 ROOF ACCESS HATCH
- 11 PRE-FINISHED METAL COPING
- 12 LOTTO SATELLITE DISH
- 13 INTERNALLY ILLUMINATED SIGNAGE (UNDER SEPARATE PERMIT)
- 14 SKYLIGHT
- 15 WALL SCONCE LIGHT FIXTURE
- 16 EMERGENCY EGRESS LIGHT FIXTURE
- 17 ROOF JOIST

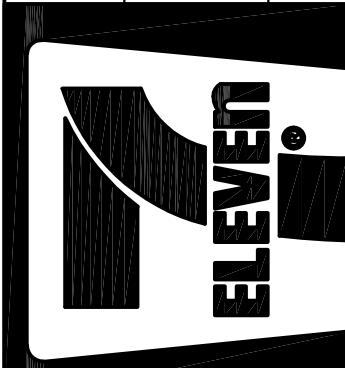
SHEET:

A2.4

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Job#: SE1208
Scale: 1/4" = 1'-0"
Date:
Drawn By: KJ
Checked By: DM

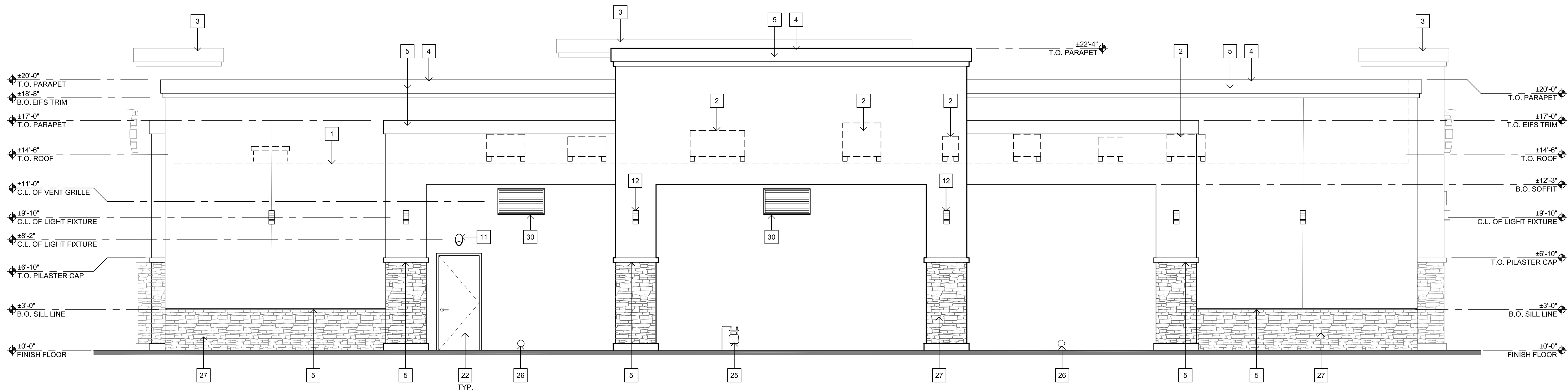
TAIT
Since 1964
701 N. Parkcenter Drive
Santa Ana, CA 92705
P: 714/560/8200
F: 714/560/8211
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Bole
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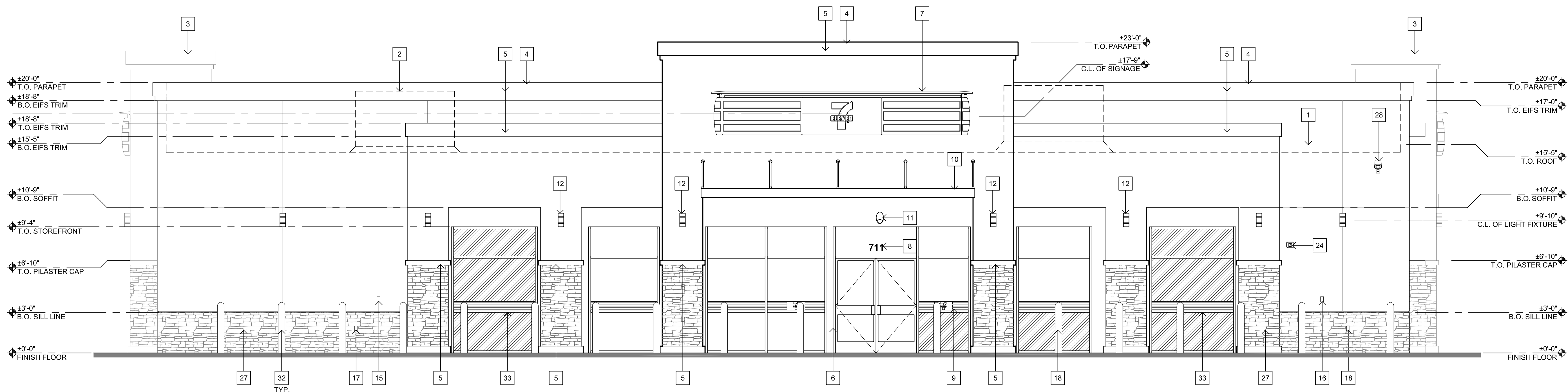
7-ELEVEN, INC.
3200 HACKBERRY, IRVING, DALLAS, TEXAS 75063
7-11 #1038847
RIVERSIDE DR. HWY 74 & LINCOLN
LAKE ELSINORE, CA 92530
ROOF PLAN

| Rev. # | Date | Description |
|--------|----------|------------------|
| 1 | 02/21/20 | CLIENT REVISIONS |
| 1 | 05/27/20 | CITY COMMENTS |
| | | |
| | | |
| | | |

PRINTED BY: KJONES
DRAWING NAME: SE12080 - ALSO EXTERIOR ELEVATIONS.DWG
PRINT DATE: May 28, 2020 - 7:07pm



EXTERIOR ELEVATION - SOUTHWEST
SCALE: 1/4" = 1'-0"
2



EXTERIOR ELEVATION - NORTHEAST (STOREFRONT)
SCALE: 1/4" = 1'-0"
1

| | | |
|--------|----------|------------------|
| Rev. # | Date | Description |
| 1 | 02/21/20 | CLIENT REVISIONS |

7-ELEVEN, INC.
3200 HACKBERRY, IRVING, DALLAS, TEXAS 75063

7-11 #1038847
RIVERSIDE DR. HWY 74 & LINCOLN
LAKE ELSINORE, CA 92530

EXTERIOR ELEVATIONS

7-ELEVEN

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TAIT
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Denver
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Job#: SE1208

Scale: 1/4" = 1'-0"

Date:

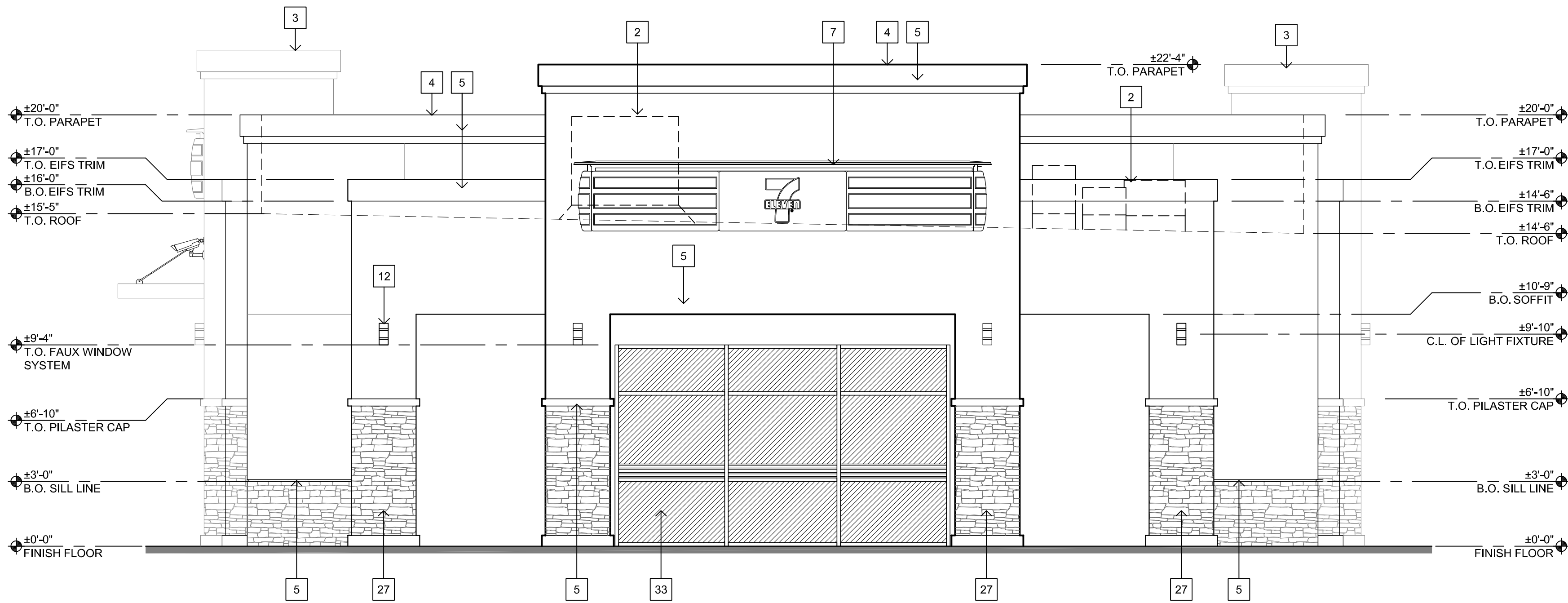
Drawn By: KJ

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SHEET:
A3.0

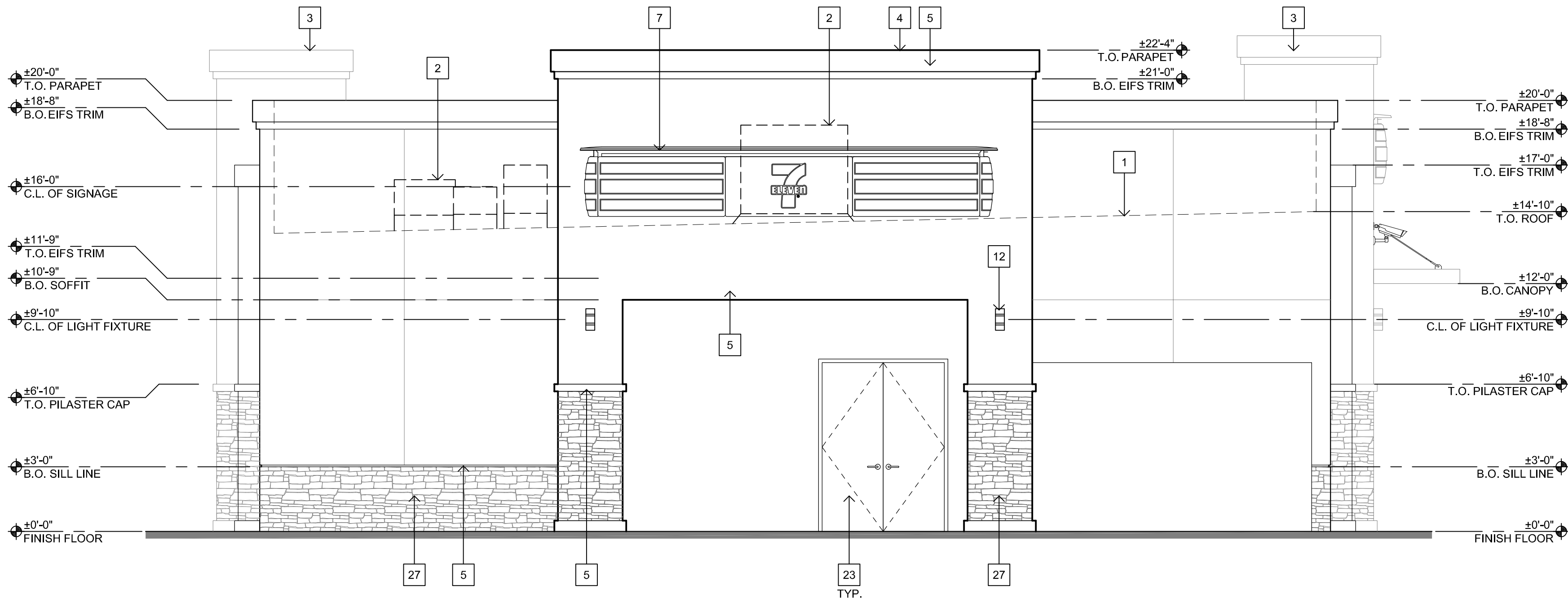
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EXTERIOR ELEVATION - NORTHWEST (FACING LINCOLN STREET)

SCALE:
1/4" = 1'-0"

2



EXTERIOR ELEVATION - SOUTHEAST

SCALE:
1/4" = 1'-0"


1

KEYNOTES

- 1 ROOF LINE
- 2 MECHANICAL UNIT BEYOND
- 3 ELEVATION BEYOND
- 4 20 GA. PREFINISHED METAL PARAPET CAP
- 5 EIFS TRIM WITH FLASHING
- 6 ALUMINUM STOREFRONT SYSTEM
- 7 INTERNALLY ILLUMINATED FASCIA SIGN (UNDER SEPARATE PERMIT) - PROPOSED LOCATION
- 8 6" WHITE VINYL STREET ADDRESS
- 9 7-ELEVEN FILM STRIPING. APPLY PER SIGNAGE DRAWINGS (UNDER SEPARATE PERMIT)
- 10 PREFABRICATED METAL CANOPY
- 11 EMERGENCY EGRESS LIGHT
- 12 WALL SCONCE FIXTURE
- 13 RECESSED LIGHT FIXTURE
- 14 ELECTRICAL SERVICE METER CABINET
- 15 EMERGENCY SHUT OFF FOR FUEL DISPS MTD AT 48-INCHES AFF
- 16 ALTERNATE LOCATION FOR EMERGENCY SHUT OFF FOR FUEL
- 17 EXTERIOR OUTLET MTD AT 24-INCHES AFF
- 18 EXTERIOR OUTLET AT 24-INCHES AFF
- 19 HOSE BIB WITH LOCKABLE BOX
- 20 CO2 TANK CAGE
- 21 N2 TANK CAGE
- 22 EMERGENCY EGRESS DOOR
- 23 ELECTRICAL ROOM DOOR
- 24 KNOX BOX
- 25 GAS METER
- 26 OVERFLOW ROOF DRAIN SPOUT; SET BOTTOM AT 6-INCHES AFS
- 27 STONE VENEER
- 28 SECURITY CAMERA
- 29 PROPANE EXCHANGE
- 30 PREFINISHED DARK BRONZE LOUVER
- 31 WALL HYDRANT
- 32 PARKING BOLLARD
- 33 FAUX WINDOW WITH GLAZING TO MATCH ALUMINUM STOREFRONT SYSTEM

| | | | | |
|---|---|---------------|--|---------------------|
| 7-ELEVEN, INC. | 3200 HACKBERRY, IRVING, DALLAS, TEXAS 75063 | 7-11 #1038847 | RIVERSIDE DR. HWY 74 & LINCOLN LAKE ELSINORE, CA 92530 | EXTERIOR ELEVATIONS |
| Job#: | SE1208 | Scale: | 1/4" = 1'-0" | Date: |
| Drawn By: | SP | Checked By: | DM | |
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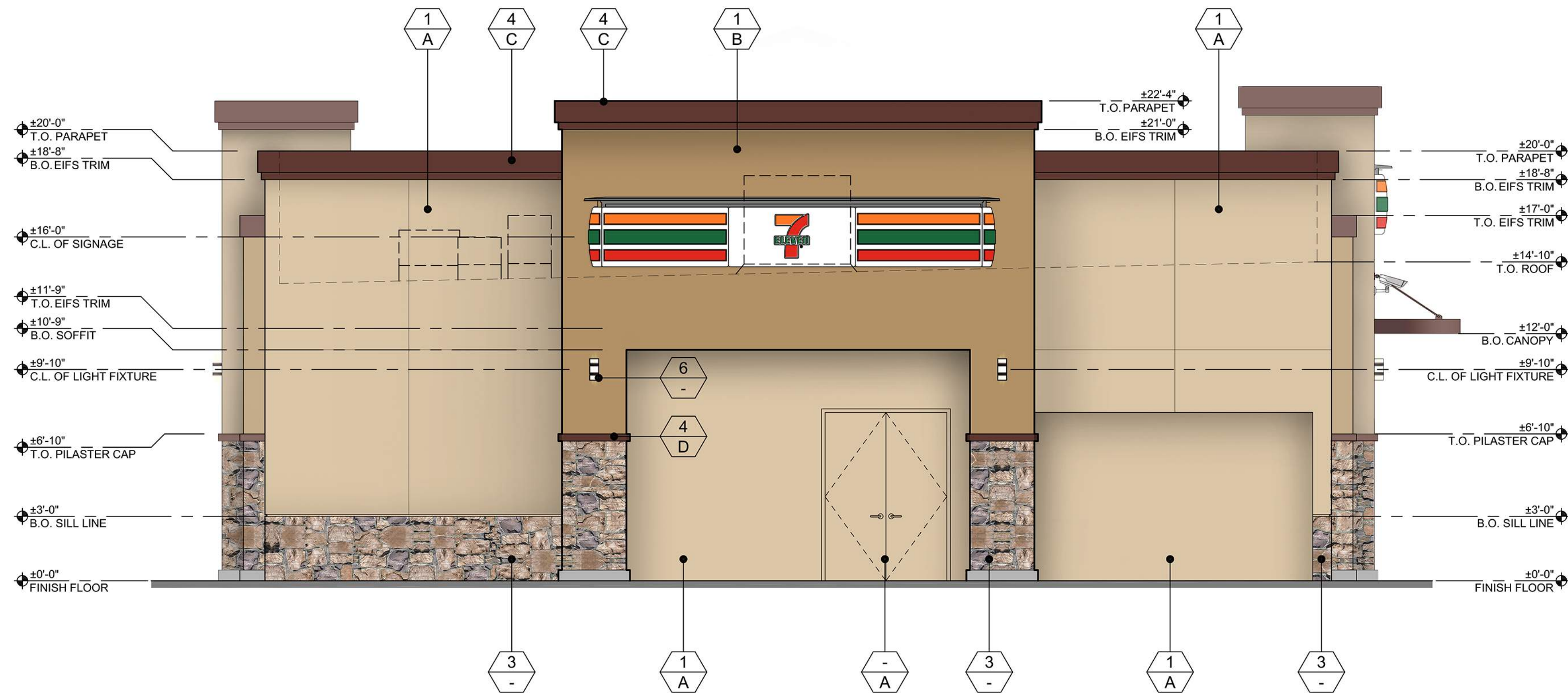
| | |
|--|---|
| SHEET: <div style="font-size: 48pt; font-weight: bold;">A3.0C</div> | <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>THESE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE ARCHITECT AND/OR ENGINEER. THEY ARE TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. THEY ARE NOT TO BE REPRODUCED, COPIED, OR USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT AND/OR ENGINEER, INC.</p> <p style="text-align: right; font-size: 10pt;">Copyright 2020</p> </div> <div style="width: 50%;"> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Job#: SE1208</p> <p>Scale: 1/4" = 1'-0"</p> <p>Date:</p> <p>Drawn By: SP</p> <p>Checked By: DM</p> </div> <div style="width: 5%; text-align: center;">  <p>TAIT</p> <p style="font-size: 8pt;">Since 1984</p> </div> <div style="width: 50%;"> <p style="font-size: 8pt;">701 N. Redwood Drive Santa Ana, CA 92705</p> <p style="font-size: 8pt;">P: 714/560-8200 F: 714/560-8211 www.tait.com</p> <p style="font-size: 8pt;">Los Angeles Boling Chicago Dallas Denver Houston New York Orlando Phoenix Portland San Diego Seattle Tampa Wichita</p> </div> </div> </div> </div> |
|--|---|



EXTERIOR ELEVATION - NORTHWEST (FACING LINCOLN STREET)

SCALE:
1/4" = 1'-0"

2



EXTERIOR ELEVATION - SOUTHEAST

SCALE:
1/4" = 1'-0"

1

MATERIAL SAMPLES



FINISHES

- 7/8" EXTERIOR CEMENT PLASTER OVER 3.4# EXP. DIAMOND MESH OVER "TYVEK" COMMERCIAL WRAP OVER 15# BUILDING PAPERS
MANUFACTURER: LA HABRA STUCCO
A LIGHT DASH. MACHINE APPLY
- ALUMINUM STOREFRONT FRAME SYSTEM 451VTG
BY: KAWNEER
FINISH: DARK BRONZE ANODIZED
- STONE VENEER 'TUSCAN VILLA'
BY: CORONADO STONE
FINISH: FLORENTINE
- CORNICE/ TRIM:
1/8" EXTERIOR STUCCO OVER EIFS CORNICE
A SMOOTH STEEL TROWEL
- ALUMINUM CANOPY
BY: MAPES, INC
FINISH: DARK BRONZE ANODIZED
- EXTERIOR WALL SCONCE 'APOLLO BASIC'
BY: ECLIPSE LIGHTING 'GALILEO'
FINISH: DARK BRONZE ANODIZED
- PARKING BOLLARD PLASTIC COVER
BY: BROWN - PANTONE 'PQ-440C'
MFR: T.B.D.

MATERIAL SAMPLES

- BELIEVEABLE BUFF SW6120 - SHERWIN WILLIAMS
- BAGUETTE SW61231 - SHERWIN WILLIAMS
- FRENCH ROAST SW6069 - SHERWIN WILLIAMS
- FIERY BROWN SW6055 - SHERWIN WILLIAMS

| Rev. # | Date | Description |
|--------|----------|------------------|
| 1 | 02/21/20 | CLIENT REVISIONS |

7-ELEVEN, INC.
3200 HACKBERRY, IRVING, DALLAS, TEXAS 75063
7-11 #1038847
RIVERSIDE DR. HWY 74 & LINCOLN
LAKE ELSINORE, CA 92530
COLORED EXTERIOR ELEVATIONS

7-ELEVEN
Since 1964

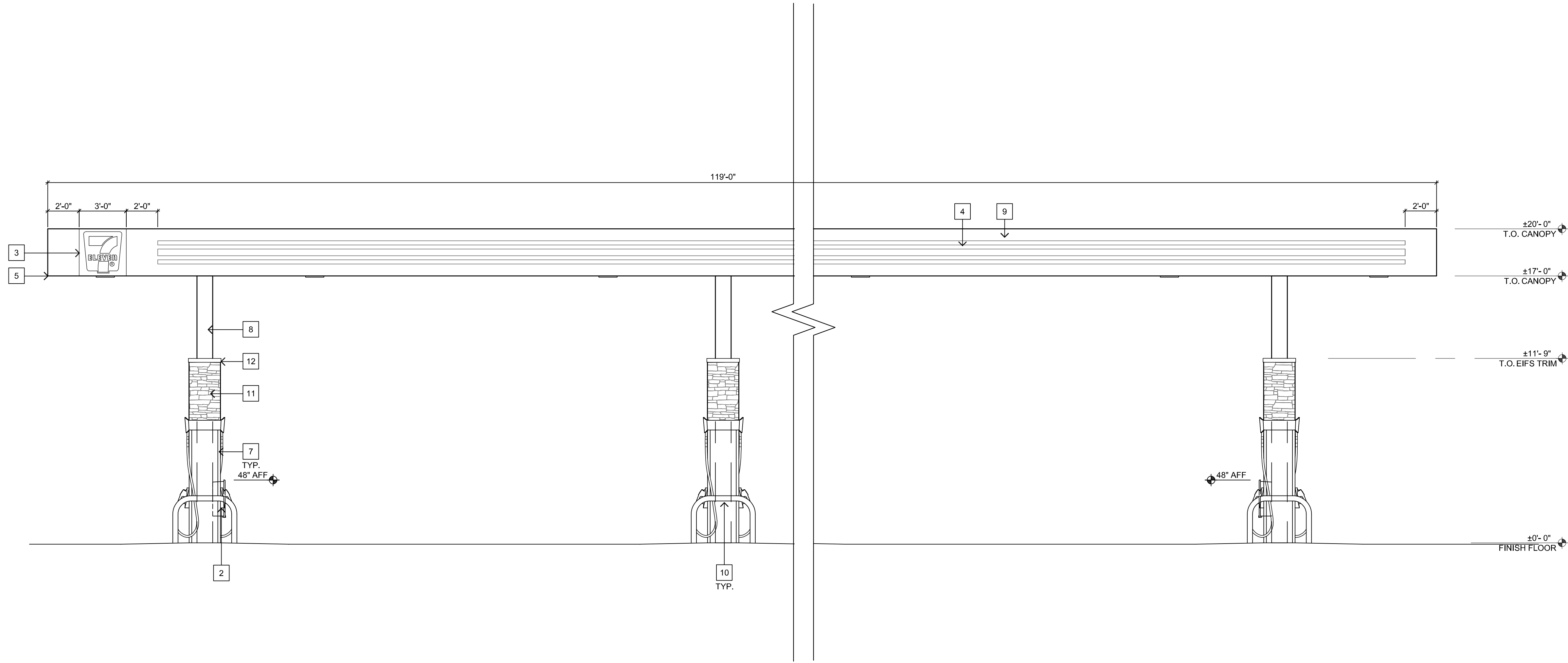
701 N. Parkcenter Drive
Santa Ana, CA 92705
p: 714/560/6200
f: 714/560/6211
www.7-eleven.com

Bole
Denver
Seattle
Los Angeles
Ontario
Sacramento

Job#: SE1208
Scale: 1/4" = 1'-0"
Date:
Drawn By: KJ
Checked By: DM

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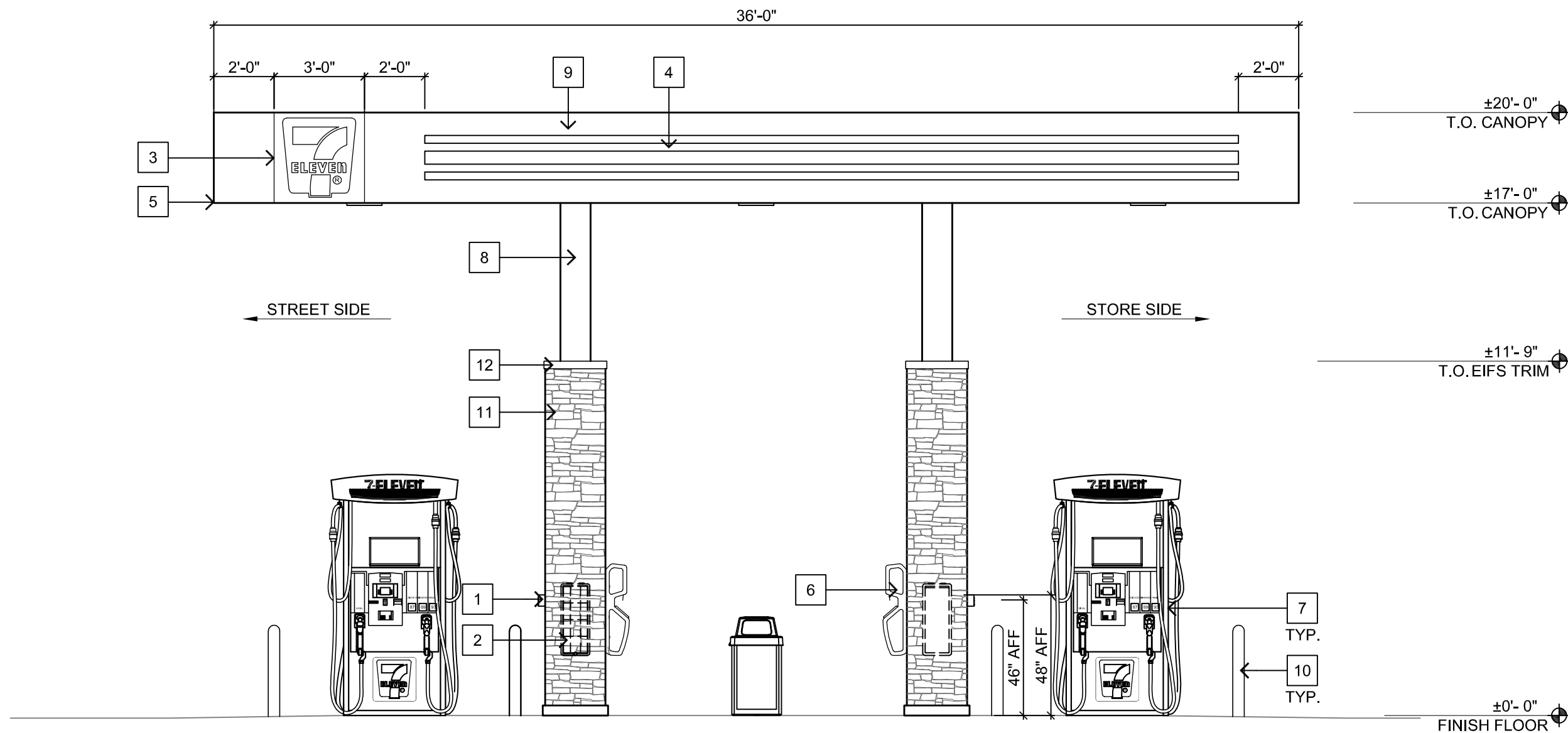
SHEET:
A3.1C



EXTERIOR ELEVATION - NORTHEAST (FACING RIVERSIDE)

SCALE:
1/4" = 1'-0"

2



EXTERIOR ELEVATION - NORTHWEST (FACING LINCOLN ST.)

SCALE:
1/4" = 1'-0"

1

KEYNOTES

- 1 INTERCOM CALL BOX. MECHANICALLY FASTENED TO COLUMN. MOUNT AT 46-INCHES **MAX.** ABOVE SLAB TO BUTTON
- 2 FIRE EXTINGUISHER - ADA MOUNTING HEIGHT TO BE MAX. 48-INCHES FROM GRADE TO PAPER TOWEL OPENING
- 3 3-FEET X 3-FEET ILLUMINATED LOGO SIGN (UNDER SEPARATE PERMIT)
- 4 TATEYAMA IMAGE TRI-STRIPE (NON-ILLUMINATED)
- 5 OVERFLOW PROTECTION AS REQUIRED. SEE **CANOPY DRAWINGS AND** SPECIFICATIONS
- 6 WASH BUCKET - ADA MOUNTING HEIGHT TO BE MAX. 48-INCHES FROM GRADE TO PAPER TOWEL OPENING
- 7 GAS DISPENSER
- 8 CANOPY COLUMN
- 9 ACM CANOPY FASCIA
- 10 ~~BARING CORNER~~
- 11 ~~EIFS OVERLAP TRIM~~
- 12 EIFS DECORATIVE TRIM WITH FLASHING

| Rev. # | Date | Description |
|--------|----------|------------------|
| 1 | 02/21/20 | CLIENT REVISIONS |
| 1 | 05/27/20 | CITY COMMENTS |
| | | |
| | | |
| | | |
| | | |

7-ELEVEN, INC.
3200 HACKBERRY, IRVING, DALLAS, TEXAS 75063
7-11 #1038847
RIVERSIDE DR. HWY 74 & LINCOLN
LAKE ELSINORE, CA 92530
EXTERIOR ELEVATIONS - FUEL



701 N. Parkcenter Drive
Santa Ana, CA 92705
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www.7-eleven.com

Since 1946

Los Angeles
Ontario
Sacramento
Seattle
Spokane
Tulsa

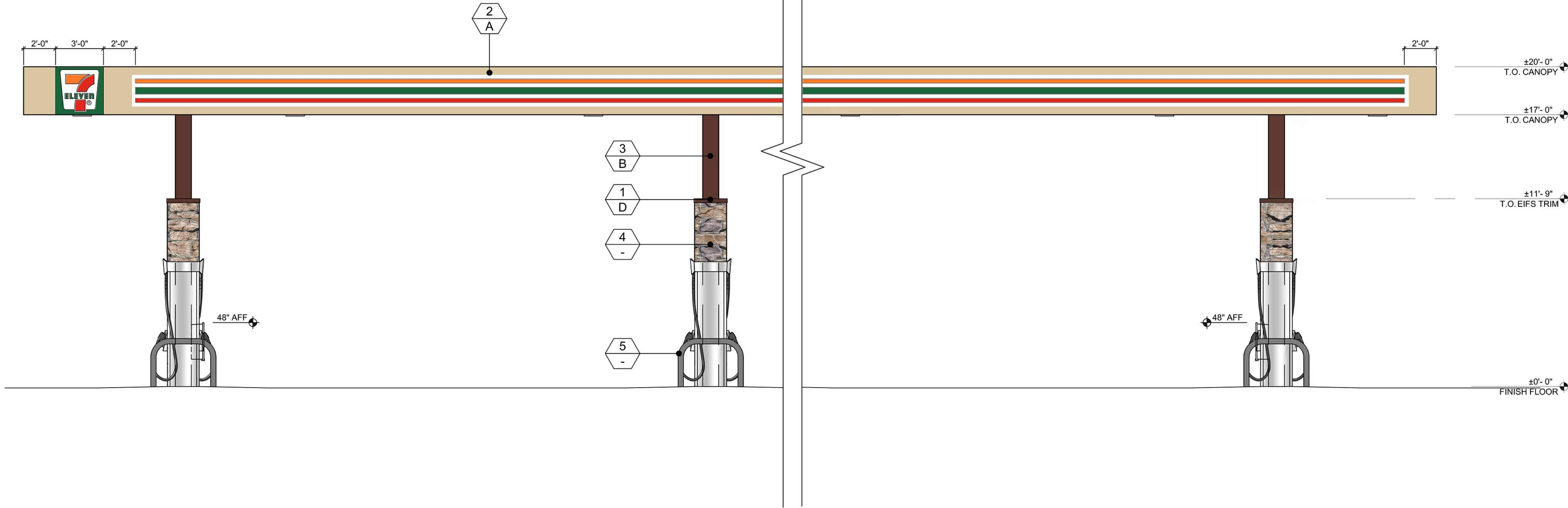
TAIT

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| | |
|-------------|------------|
| Job#: | SE1208 |
| Scale: | AS NOTED |
| Date: | 05/28/2020 |
| Drawn By: | KJ |
| Checked By: | PM |

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SHEET:
A3.2



EXTERIOR ELEVATION - NORTHEAST (FACING RIVERSIDE)

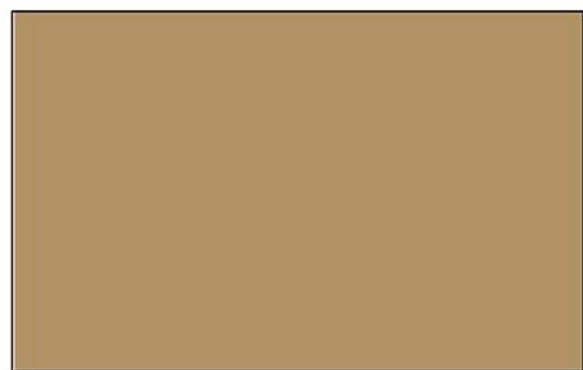
SCALE:
1/4" = 1'-0"

2

MATERIAL SAMPLES



BELIEVABLE BUFF SW6120
SHERWIN WILLIAMS



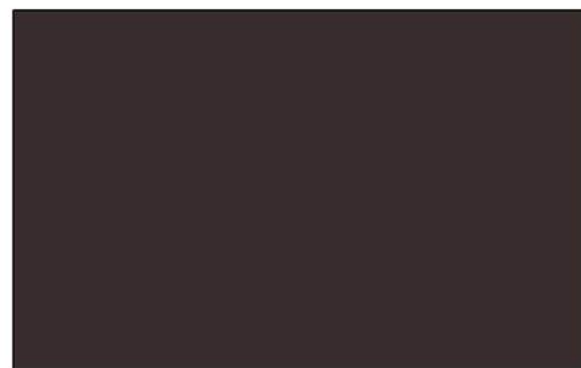
BAGUETTE SW6123
SHERWIN WILLIAMS



'TUSCAN VILLA'
CORONADO STONE
FLORENTINE



FIERY BROWN SW6055
SHERWIN WILLIAMS



PANTONE 'PQ-440C'
BOLLARD COVER, TYP.

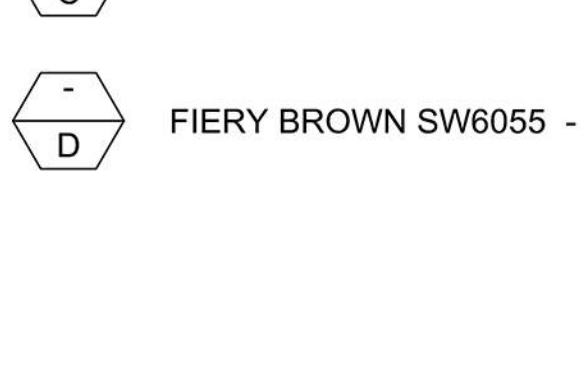
FINISHES

- 1 - 1/8" EXTERIOR STUCCO OVER EIFS CAP TRIM
- 2 - ACM CANOPY FASCIA
- 3 - CANOPY COLUMN
- 4 - STONE VENEER 'TUSCAN VILLA'
BY: CORONADO STONE
FINISH: FLORENTINE
- 5 - PARKING BOLLARD PLASTIC COVER
BY: BROWN - PANTONE 'PQ-440C'
MFR: T.B.D.

MATERIAL SAMPLES



BELIEVEABLE BUFF SW6120 - SHERWIN WILLIAMS

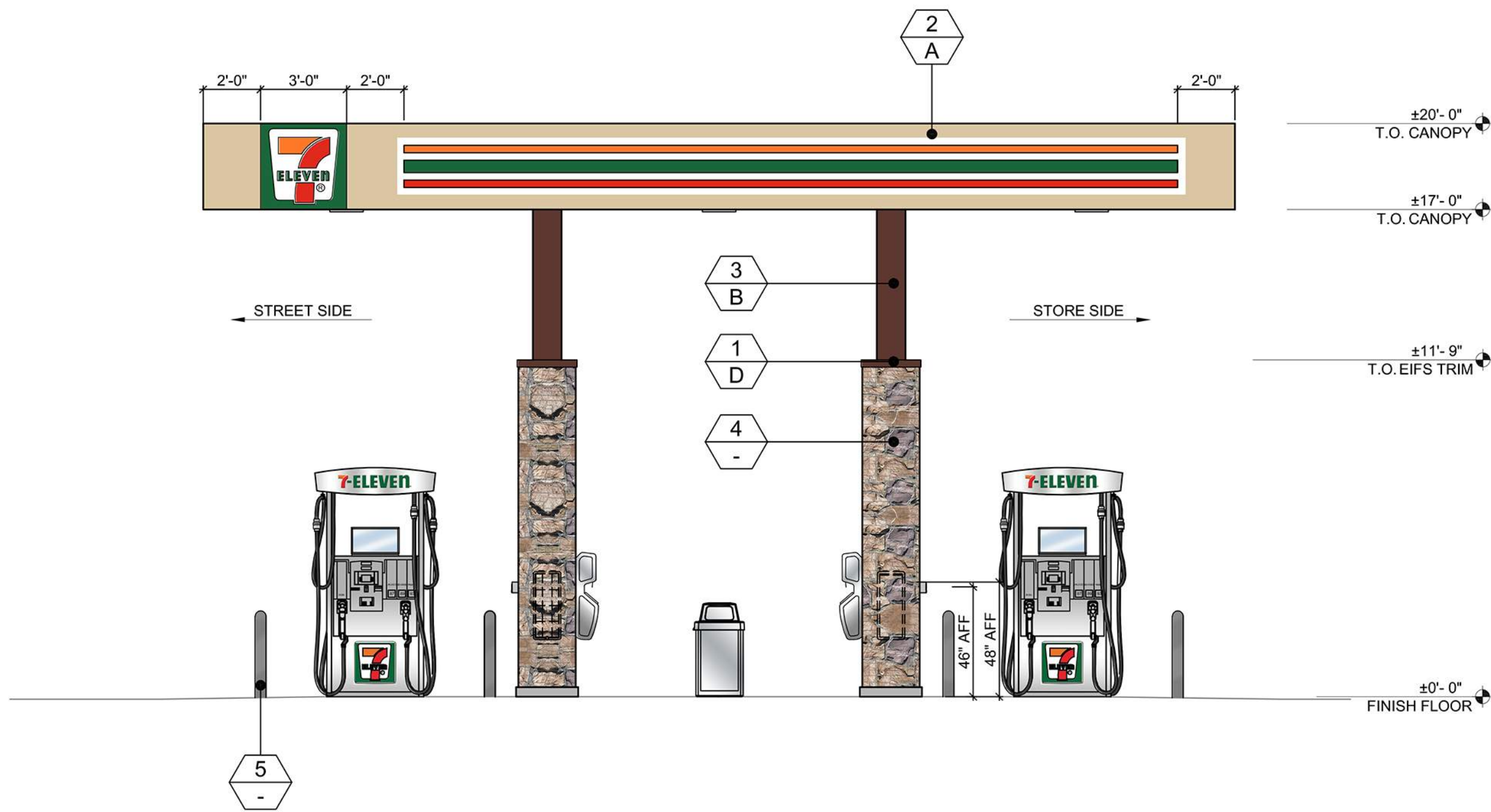


BAGUETTE SW61231 - SHERWIN WILLIAMS



FRENCH ROAST SW6069 - SHERWIN WILLIAMS

FIERY BROWN SW6055 - SHERWIN WILLIAMS

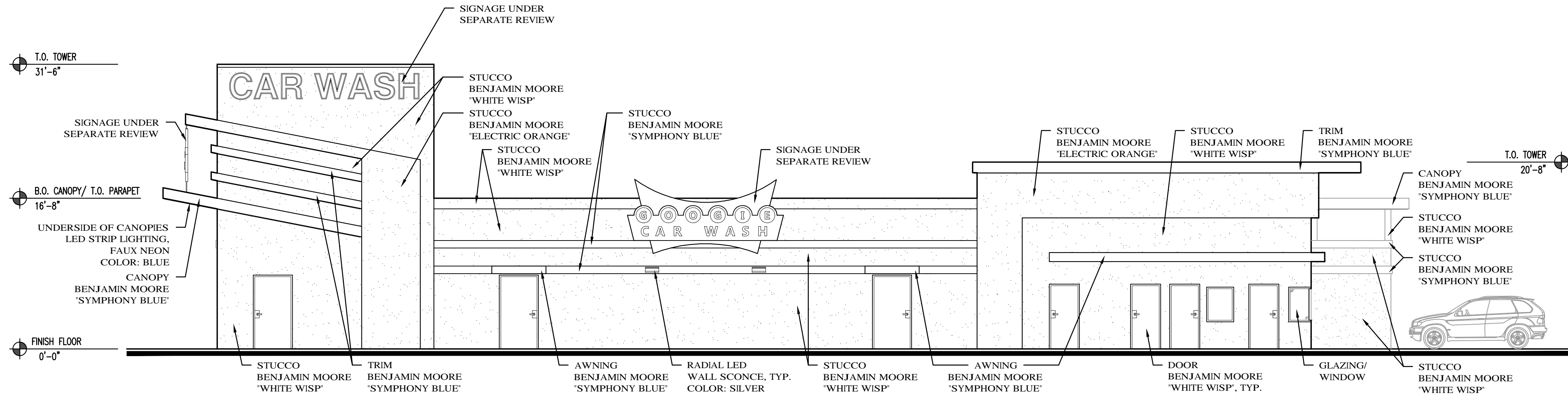


EXTERIOR ELEVATION - NORTHWEST (FACING LINCOLN ST.)

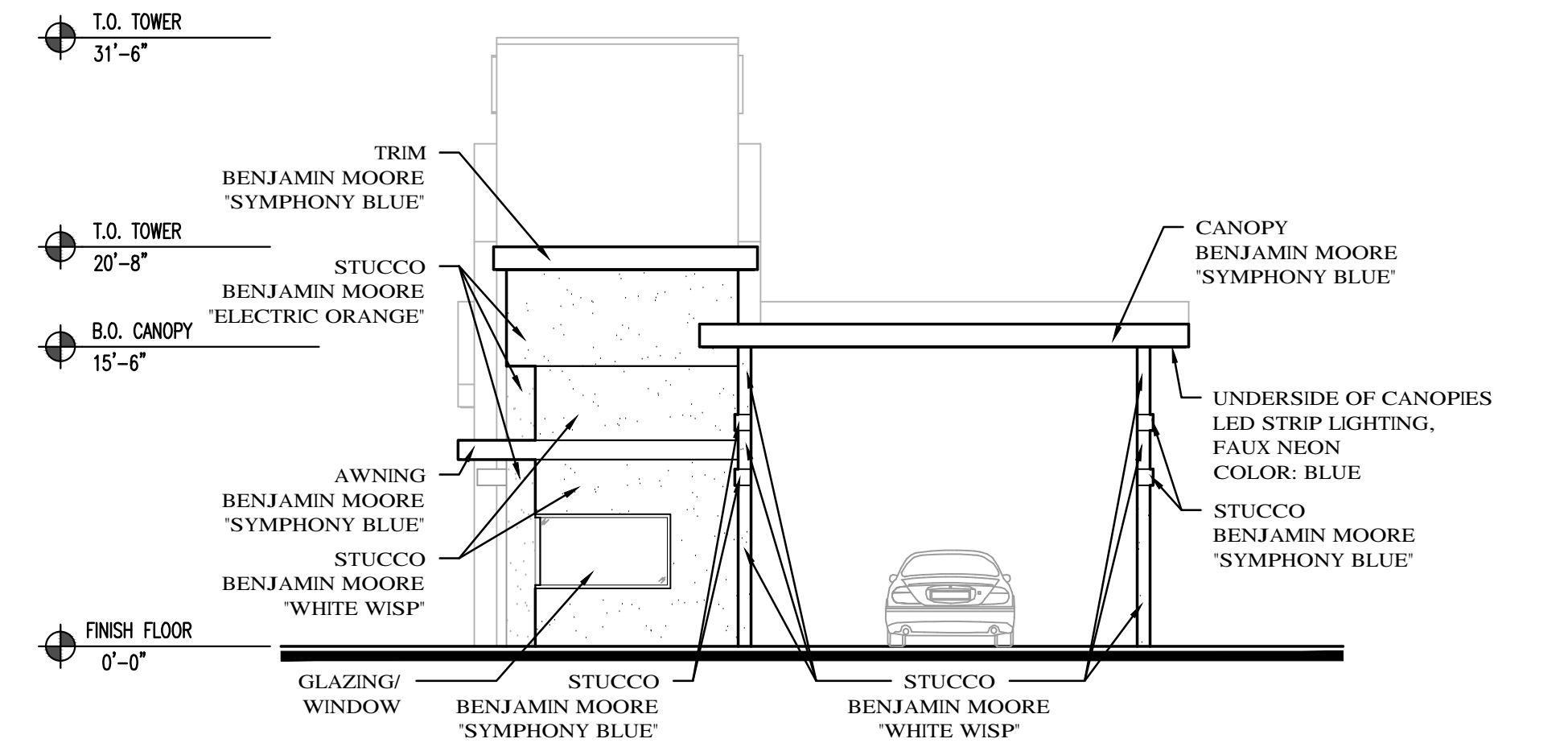
SCALE:
1/4" = 1'-0"

1

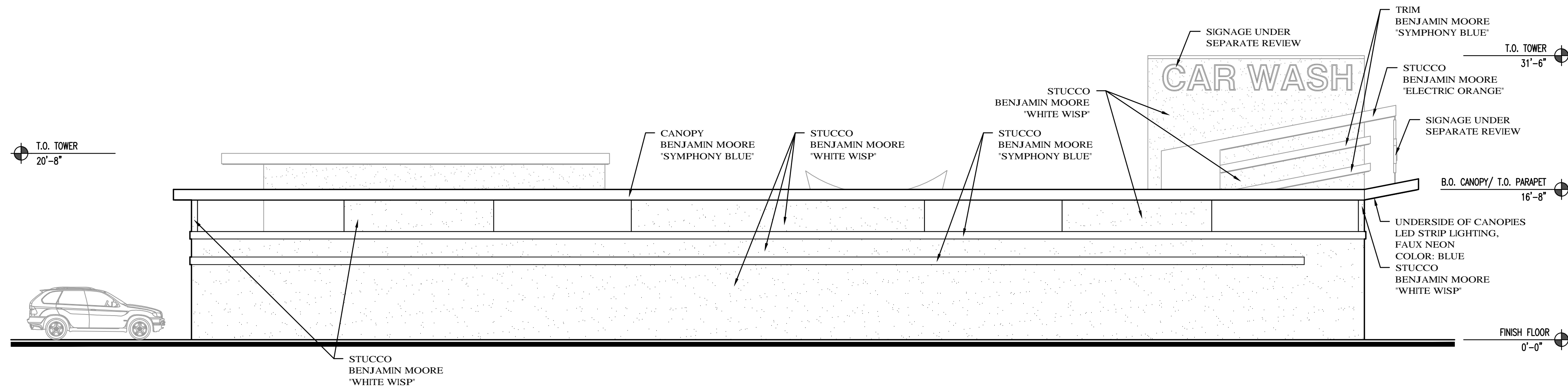
| | | | |
|---|----------|---|----------|
| 7-ELEVEN, INC. 3200 HACKBERRY, IRVING, DALLAS, TEXAS 75063 7-11 #1038847 RIVERSIDE DR. HWY 74 & LINCOLN LAKE ELSINORE, CA 92530 EXTERIOR ELEVATIONS - FUEL | | Description Date Rev. # | |
| 1 02/21/20 CLIENT REVISIONS | | 1 05/27/20 CITY COMMENTS | |
| 701 N. Parkcenter Drive Santa Ana, CA 92705 p: 714/560/6200 f: 714/560/6211 www.7-eleven.com | | Bole Denver Sacramento Seattle Since 1964 | |
| TAIT | | © "TAIT & ASSOCIATES" 2020 ALL RIGHTS RESERVED | |
| Job#: | SE1208 | Scale: | AS NOTED |
| Date: | 05/28/20 | Drawn By: | KJ |
| Checked By: | PM | | |
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| SHEET: A3.2 | | | |



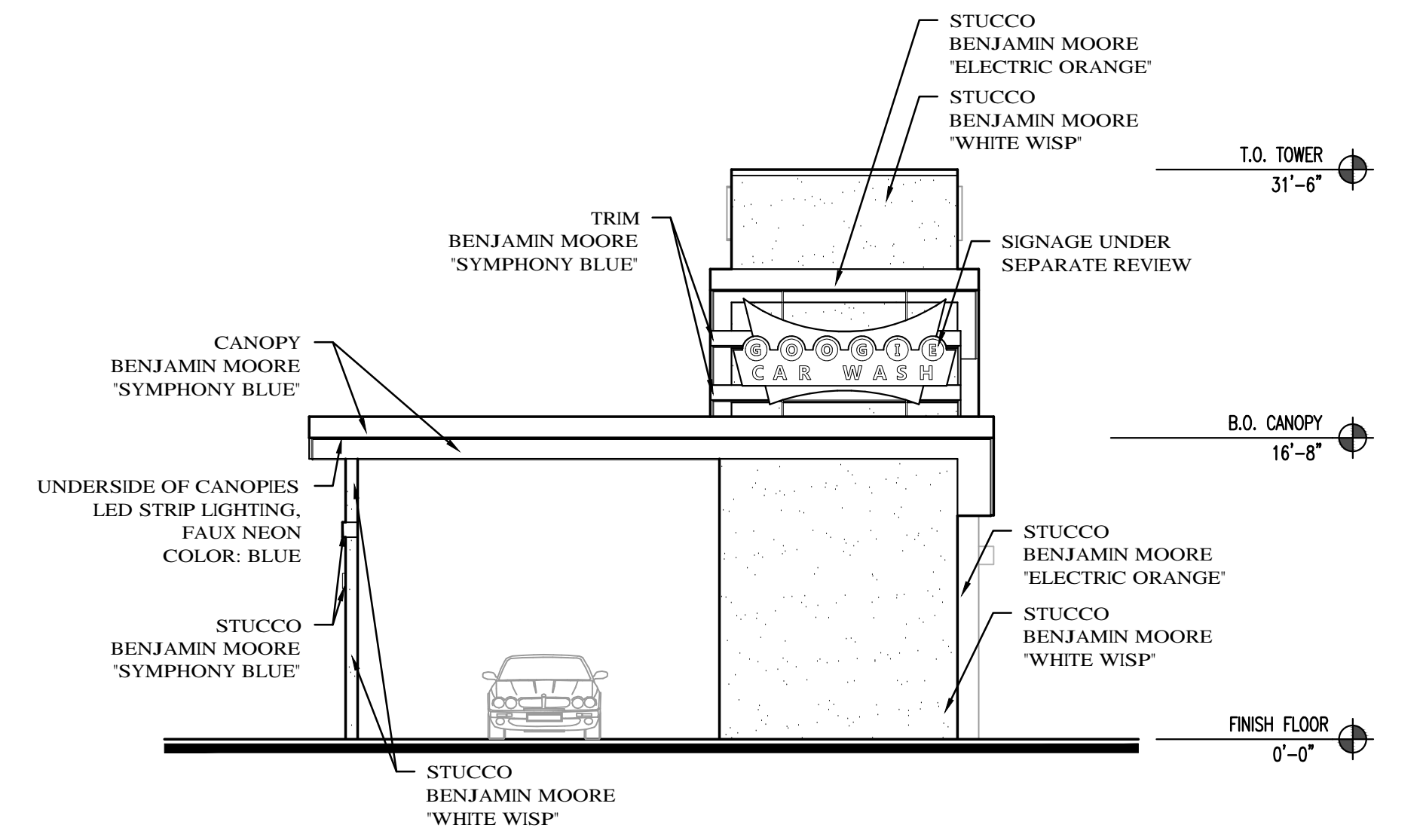
NORTH ELEVATION



EAST ELEVATION



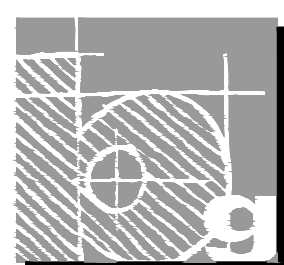
SOUTH ELEVATION



WEST ELEVATION



CAR WASH VACUUM CANOPY



BICKEL GROUP
ARCHITECTURE
BICKEL GROUP INCORPORATED
3600 BIRCH STREET, SUITE 120
NEWPORT BEACH, CA 92660
P: 949.757.0411 F: 949.757.0511
www.bickelgrp.com

GOOGIE CAR WASH

15209 LINCOLN STREET
LAKE ELSINORE, CALIFORNIA

A3.20 ELEVATIONS

Scale: 1/8" = 1'-0"
July 13, 2020

F:\20\20160 - Lake Elsinore, Riverside Dr Googie Wash\Design\Elevations\20160 - Elevation.dwg

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GOOGIE CAR WASH - LAKE ELSINORE , CA - LIGHTING DESIGN



LED STRIP LIGHTING,
FAUX NEON
COLOR: BLUE



RADIAL LED WALL SCONCE
COLOR: SILVER

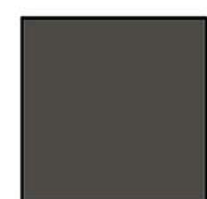


6" RECESSED LED
DOWNLIGHT, OR SIMILAR
COLOR: SILVER

A3.21



2"X2" ALUMINUM BATTEN
B+N INDUSTRIES
FORTINA
TA-647



ALUMINUM COMPOSITE
ALPOLIC
RAL
7022



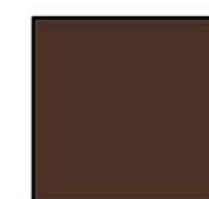
REVEAL PANEL
METAL ERA
WEATHERED ZINC



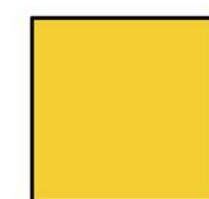
PLASTER/STUCCO
RAL
7022



PLASTER/STUCCO
BENJAMIN MOORE
FAIRVIEW TAUPE
HC-85



STOREFRONT
DARK BRONZE
ALUMINUM



PANTONE 123



BICKEL GROUP
ARCHITECTURE
BICKEL GROUP INCORPORATED
3600 BIRCH STREET, SUITE 120
NEWPORT BEACH, CA 92660
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www.bickelgrp.com

McDONALD'S 004-5013

SWC LINCOLN STREET & RIVERSIDE DRIVE
LAKE ELSINORE, CALIFORNIA

A3.30
ELEVATIONS

Scale: 1/8" = 1'-0"
January 31, 2020

F:\19\19790 - McD Lake Elsinore, SWC Lincoln St & Riverside Drive\Design\Drawings\19790 Elevations.dwg
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BB20 Design Elements – In Depth // **LIGHTING**



**LINEAR LED ACCENT FIXTURE
BY SECURITY LIGHTING
COLOR: RAL 7022**

BATTEN AREAS



**RADIAL LED WALL SCONCE
BY SECURITY LIGHTING
COLOR: WHITE**

WHITE CANOPY



**RADIAL LED WALL SCONCE
BY SECURITY LIGHTING
COLOR: SILVER**

BACK OF HOUSE
DRIVE THRU



**ARCHITECTURAL LED FLOOD LIGHT
BY SECURITY LIGHTING
COLOR: RAL 7022**

WHITE CANOPY (ABOVE)



**6" LED DOWNLIGHT
BY SECURITY LIGHTING
COLOR: WHITE**

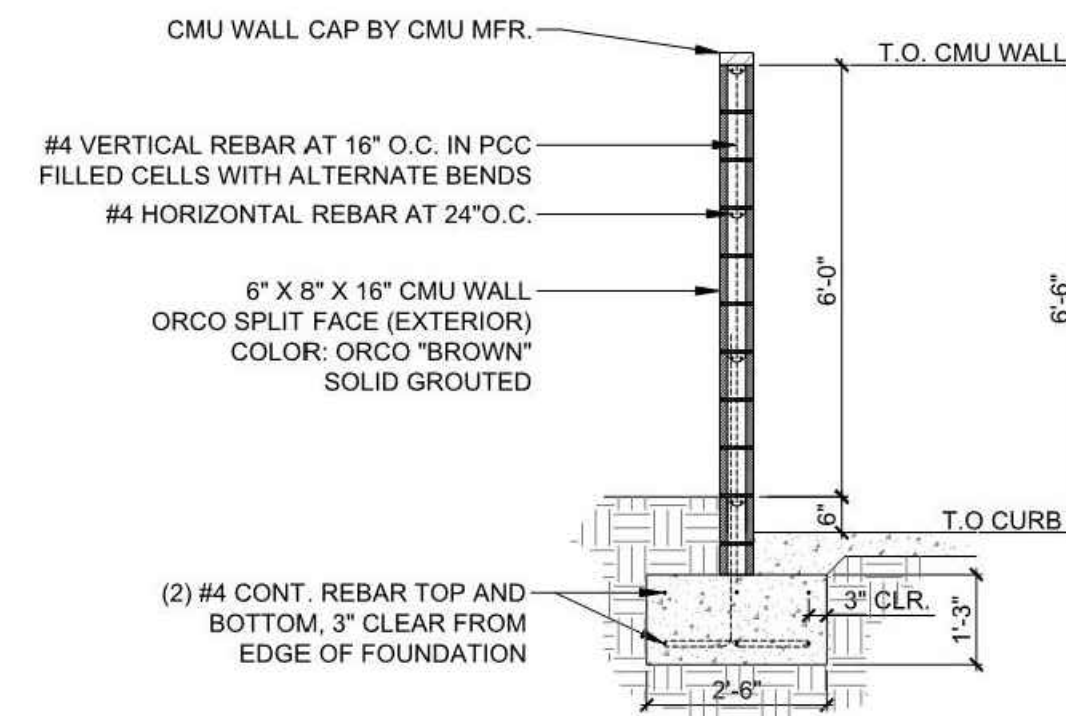
DRIVE THRU CANOPIES
CUSTOMER ENTRIES AT GOLD
UNDERSCORE



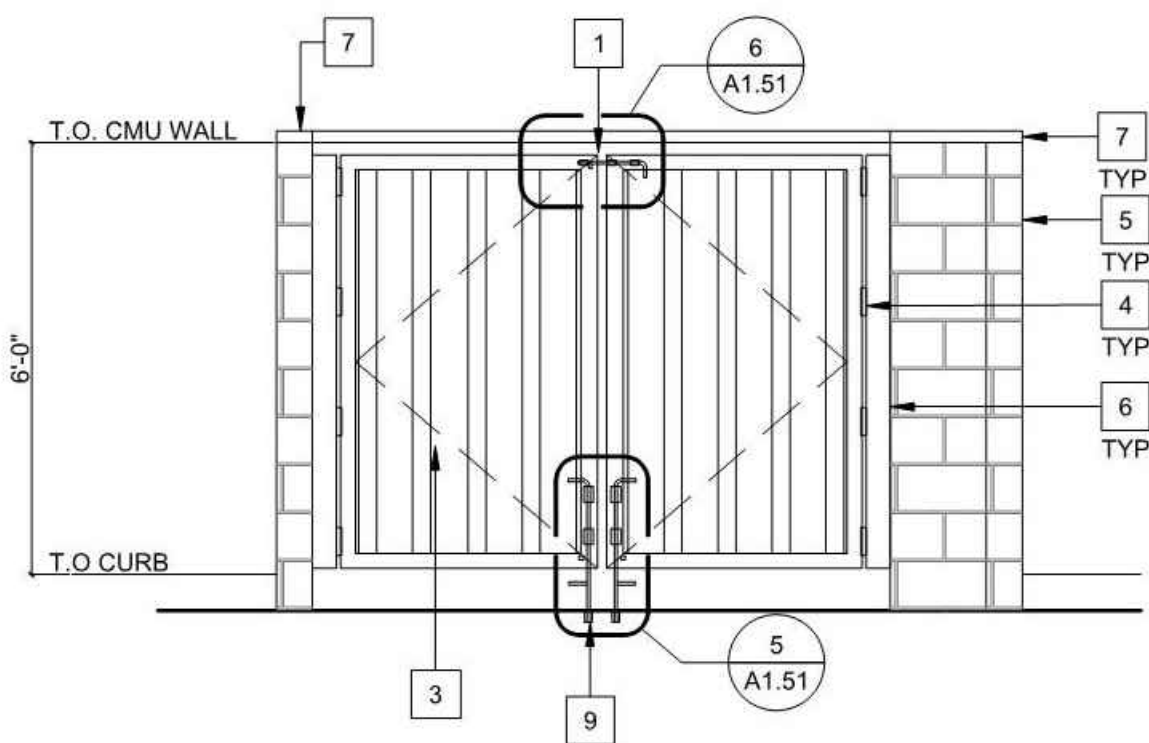
PANTONE 'PQ-440C'
BOLLARD COVER, TYP.

-  DARK BRONZE #40
KAWNFEER

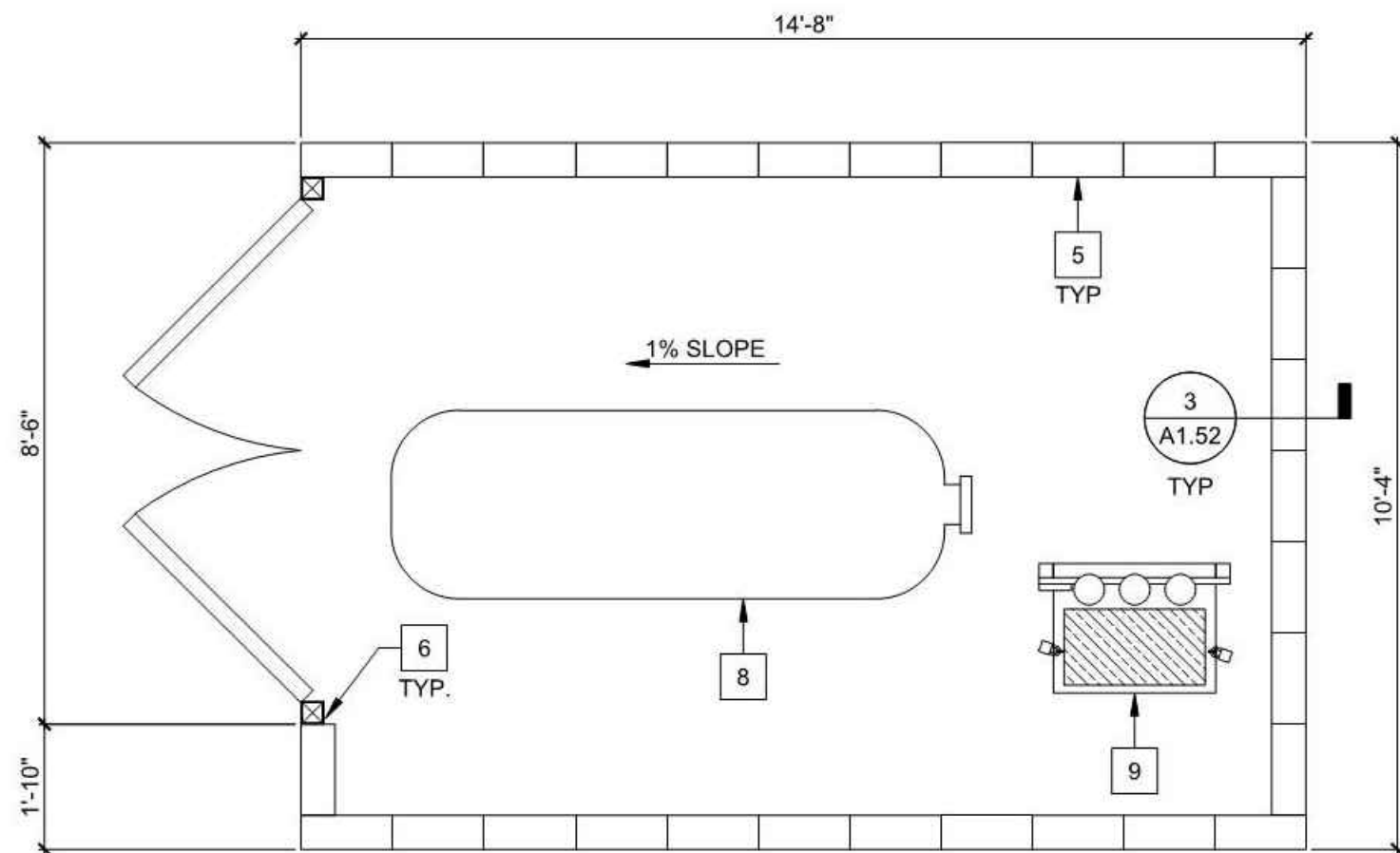
Scale As indicated



HEALY TANK ENCLOSURE



ENCLOSURE SECTION



ENCLOSURE ELEVATION

GENERAL NOTES

1. TRASH ENCLOSURE SHALL COMPLY WITH THE FOLLOWING:
 - A. ROOF WITH A MINIMUM CLEARANCE HEIGHT TO ALLOW THE BIN LID TO COMPLETELY OPEN.
 - B. CONSTRUCTED OF REINFORCED MASONRY WITHOUT WOODEN GATES, AND WALL SHALL BE AT LEAST 6 FEET HIGH.
 - C. THIS DESIGN IS FOR A FREE-STANDING, NON-RETAINING CONDITION.
 - D. 6" CMU WALL SOLID GROUTED - MEDIUM WEIGHT BLOCK, INSTALLED WITHOUT SPECIAL INSPECTION.
 - E. PROVISION OF CONCRETE SLAB FLOOR.
 - F. ALL TRASH BINS IN THE TRASH ENCLOSURE SHALL BE LEAK PROOF WITH LIDS THAT ARE CONTINUOUSLY KEPT CLOSED.
2. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION
3. REFER TO THE FOLLOWING SHEETS FOR ADDITIONAL INFORMATION:
 - A1.3 - ARCHITECTURAL SITE PLAN
 - A6.2 - MATERIALS AND SCHEDULES



1180 S. BEVERLY DR #300
LOS ANGELES, CA 90035
424.241.2256



ATC DESIGN GROUP

ARCHITECTS • ENGINEERS • SURVEYORS
PACIFIC OAKS PL., SUITE 102 ESCONDIDO, CA 92029
PHONE: (760) 738-8800 FAX: (760) 738-8232

APPLICANT: LINCOLN RIVERSIDE GROUP, LLC
ATTN: ILAN GOLCHEH
1180 S. BEVERLY DRIVE, STE #300
LOS ANGELES, CA 90035
ILAN@GOLCHEHGROUP.COM
TEL: 310.923.2594

ARCHITECT: ATC DESIGN GROUP
1277 PACIFIC OAKS PL. STE #102
ESCONDIDO, CA 92029
CPOST@ATCDESIGNGROUP.COM
TEL: 760.738.8809

ASSESSOR'S
PARCEL# 379-111-014
15209 LINCOLN ST.
LAKE ELSINORE, CA

| | |
|---------------------------|------------|
| BLDG INFO: | |
| GROSS ACERAGE: | 6.29 ACRES |
| TOTAL BLDG AREA: | 51,101 SF |
| CANOPY AREA: | 7,697 SF |
| LOT COVERAGE: | |
| LANDSCAPING LOT COVERAGE: | |
| LANDSCAPING PROVIDED: | |

REQUIRED BLDG SETBACKS
FRONT:
REAR:
SIDE 1 INTERIOR:
SIDE 2 INTERIOR:

[illegible]

15209 LINCOLN STREET,
LAKE ELSINORE, CA

DETAILS

Project number 0711-10

Date 2020-07-15

Drawn by

Checked by

A5.01

Scale As indicated



WALL SCONCE
APOLLO 'BASIC'
ECLIPSE LIGHTING



BELIEVABLE BUFF
SW6120
SHERWIN WILLIAMS



BAGUETTE
SW6123
SHERWIN WILLIAMS



FRENCH ROAST
SW6069
SHERWIN WILLIAMS



FIERY BROWN
SW6055
SHERWIN WILLIAMS



TUSCAN VILLA
'FLORENTINE'
CORONADO STONE



NORTHEAST (STOREFRONT) ELEVATION

A7.00

TAIT

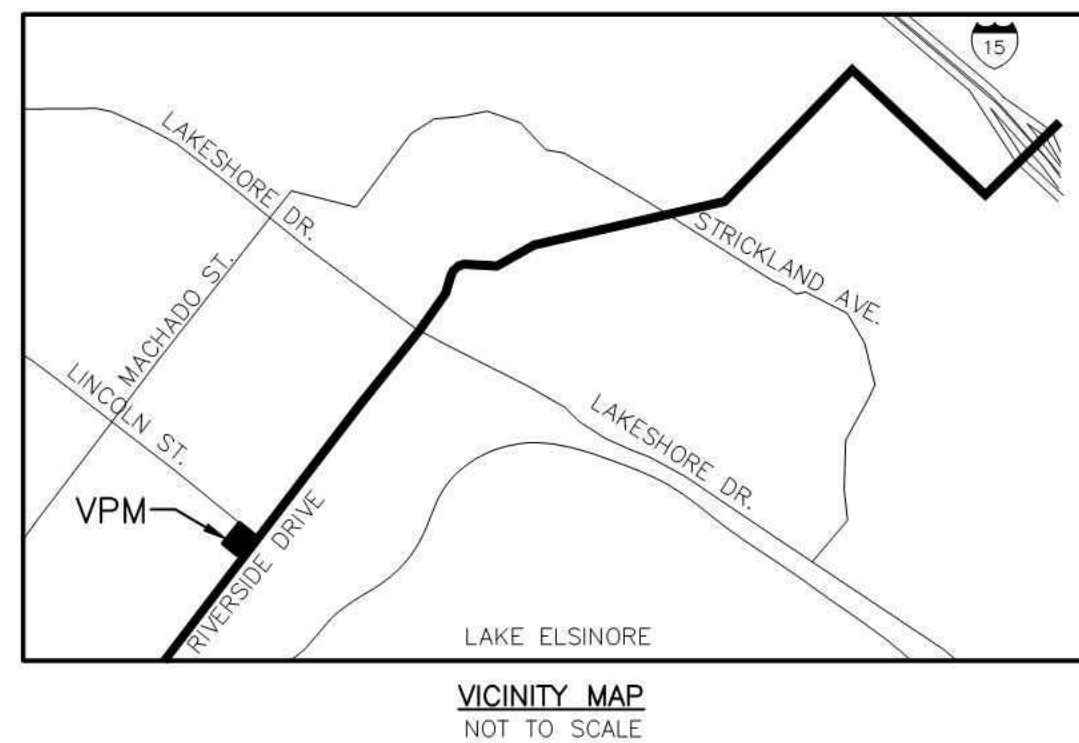
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Since 1964

7-ELEVEN #1038847 MATERIALS BOARD

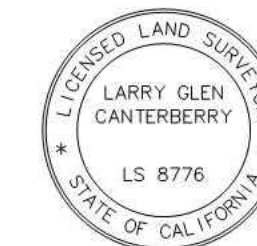
RIVERSIDE DRIVE, HWY 74 & LINCOLN
LAKE ELSINORE, CA 92530



BEING A DIVISION OF A PORTION OF LOT 24 IN BLOCK B OF ELSINORE, IN THE CITY OF LAKE ELSINORE,
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 8, PAGE 377 OF MAPS
AND DOCUMENT NUMBER 2003-218687, O.R.



 6/30/2020
LARRY Z. CANTERBERRY, LS/8776 DATE



SHEET NO. 1 OF 1 SHEETS



FOR REFERENCE ONLY - NOT TO SCALE



| No. | Description | Date |
|-----|-------------|------|
| | | |
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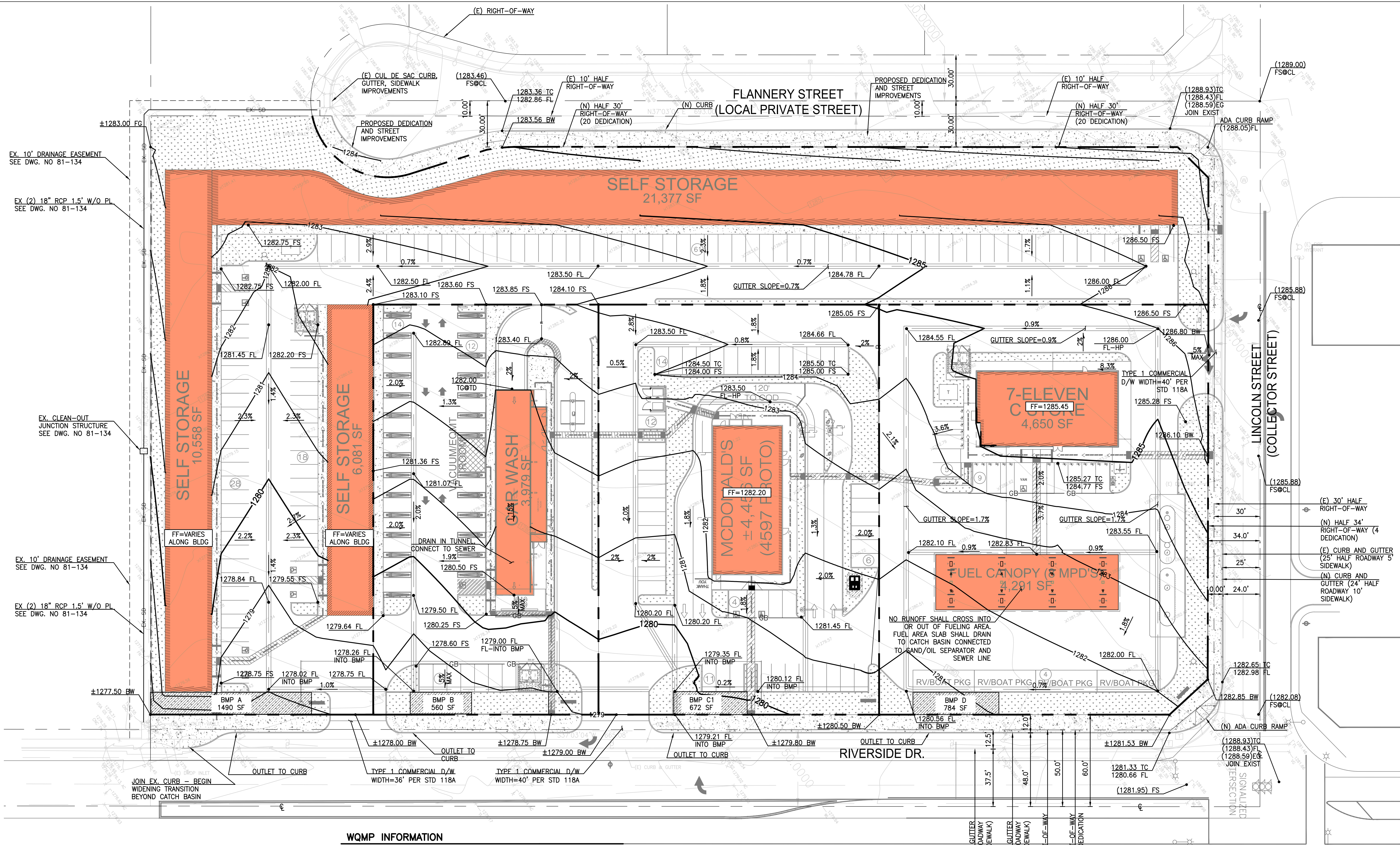
15209 LINCOLN STREET,
LAKE ELSINORE, CA

PRELIMINARY GRADING AND DRAINAGE PLAN

| | |
|----------------|------------|
| Project number | 0711-10 |
| Date | 2020-07-15 |
| Drawn by | JU |
| Checked by | RR |

C1.30

Scale As indicated



WQMP INFORMATION

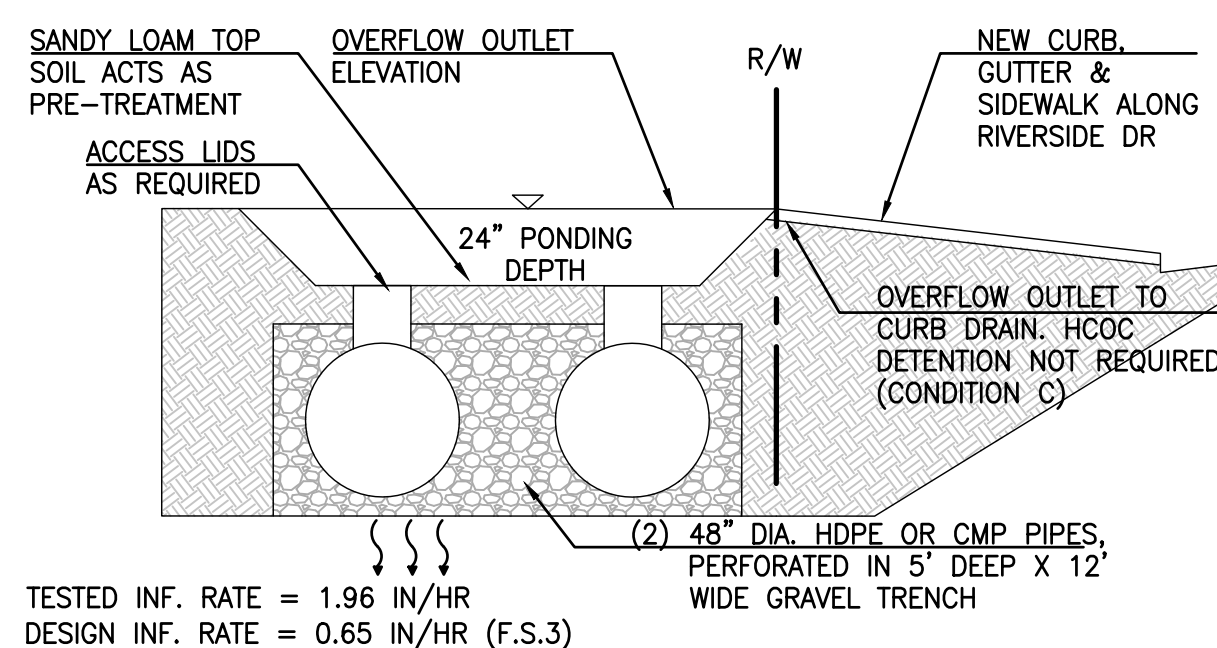
85TH % ISOHYET = 0.85" HCOC - NOT APPLICABLE (CONDITION C)
INFILTRATION RATE = 1.96 IN/HR

AREA SUMMARY

| LABEL | AREA | %IMP | WQMP VOLUME (85TH% ISO = 0.85") |
|--------|----------------------|------|---------------------------------|
| AREA A | 108,000 SF (2.48 AC) | 95% | 6,579 CF |
| AREA B | 39,350 SF (0.90 AC) | 95% | 2,379 CF |
| AREA C | 48,960 SF (1.12 AC) | 95% | 2,982 CF |
| AREA D | 57,050 SF (1.31 AC) | 95% | 3,475 CF |

BMP SUMMARY

| LABEL | FOOTPRINT | AREA | VOLUME | REQ. VOL | Q10 OVERFLOW |
|-------|-----------|----------|----------|----------|--------------|
| BMP A | 105'X14' | 1,490 SF | 6,615 CF | 6,579 CF | X.X CFS |
| BMP B | 40'X14' | 590 SF | 2,520 CF | 2,379 CF | X.X CFS |
| BMP C | 48'X14' | 672 SF | 3,024 CF | 2,982 CF | X.X CFS |
| BMP D | 56'X14' | 784 SF | 3,528 CF | 3,475 CF | X.X CFS |



TESTED INF. RATE = 1.96 IN/HR
DESIGN INF. RATE = 0.65 IN/HR (F.S.3)

WQMP & DETENTION BASIN TYPICAL SECTION

SCALE: 1"=5'

SITE GRADING & EARTHWORK

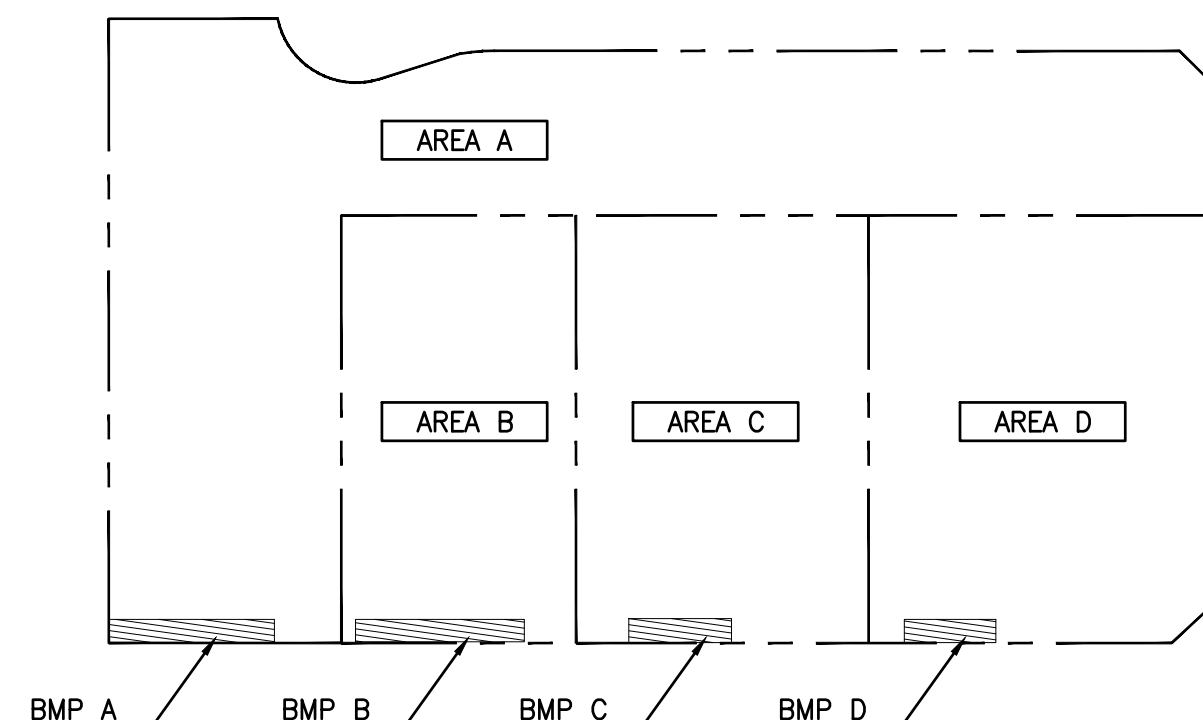
- SOILS IN NEW STRUCTURE AREAS PLUS FIVE FEET IN EACH DIRECTION, SHOULD BE REMOVED TO A MINIMUM OF 3 FEET, OR TO THE DEPTH NECESSARY TO EXPOSE COMPETENT SOIL. PER GEOTECH RECOMMENDATIONS.
- ASPHALT: PARKING AREAS SHALL BE PAVED WITH 4" AC OVER 4" BASE. DRIVE LANES SHALL BE 5" AC OVER 4" BASE. SECTION SHOULD BE PLACED MIN. 2" COMPACTED SOIL. PER GEOTECH RECOMMENDATIONS.
- BUILDING PADS ASSUMED 10" BELOW FF ELEVATION. (4" SLAB OVER 6" SAND) PER GEOTECH RECOMMENDATIONS.

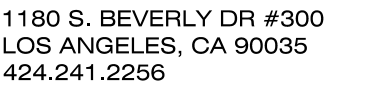
EARTHWORK VOLUMES

| | |
|---------------------|-----------|
| CUT (TO R&R LIMITS) | 20,000 CY |
| FILL (TO RG PAD) | 20,000 CY |
| NET (IMPORT/EXPORT) | ±0 CY |



0 15' 30'
SCALE: 1"=30'





RUSSELL CONSULTING & ENGINEERING

310.614.4116 | rob@russellce.com
50 N. HARVARD BLVD #109, LOS ANGELES CA 90027
ILAN@GOLCHEHGROUP.COM
TEL: 310.923.2594

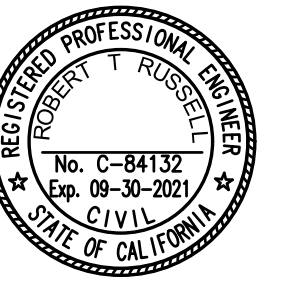
ARCHITECT: ATC DESIGN GROUP
1277 PACIFIC OAKS PL. STE #102
ESCONDIDO, CA 92029
CPOST@ATCDESIGNGROUP.COM
TEL: 760.738.8809

ASSESSOR'S
PARCEL# 379-111-014
15209 LINCOLN ST.
LAKE ELSINORE, CA

| | |
|---------------------------|------------|
| BLDG INFO: | |
| GROSS ACERAGE: | 6.29 ACRES |
| TOTAL BLDG AREA: | 51,101 SF |
| CANOPY AREA: | 7,697 SF |
| LOT COVERAGE: | |
| LANDSCAPING LOT COVERAGE: | |
| LANDSCAPING PROVIDED: | |

REQUIRED BLDG SETBACKS:

FRONT:
REAR:
SIDE 1 INTERIOR:
SIDE 2 INTERIOR:

[illegible]

15209 LINCOLN STREET,
LAKE ELSINORE, CA

PRELIMINARY UTILITY PLAN

| | |
|----------------|---------|
| Project number | 0711-10 |
|----------------|---------|

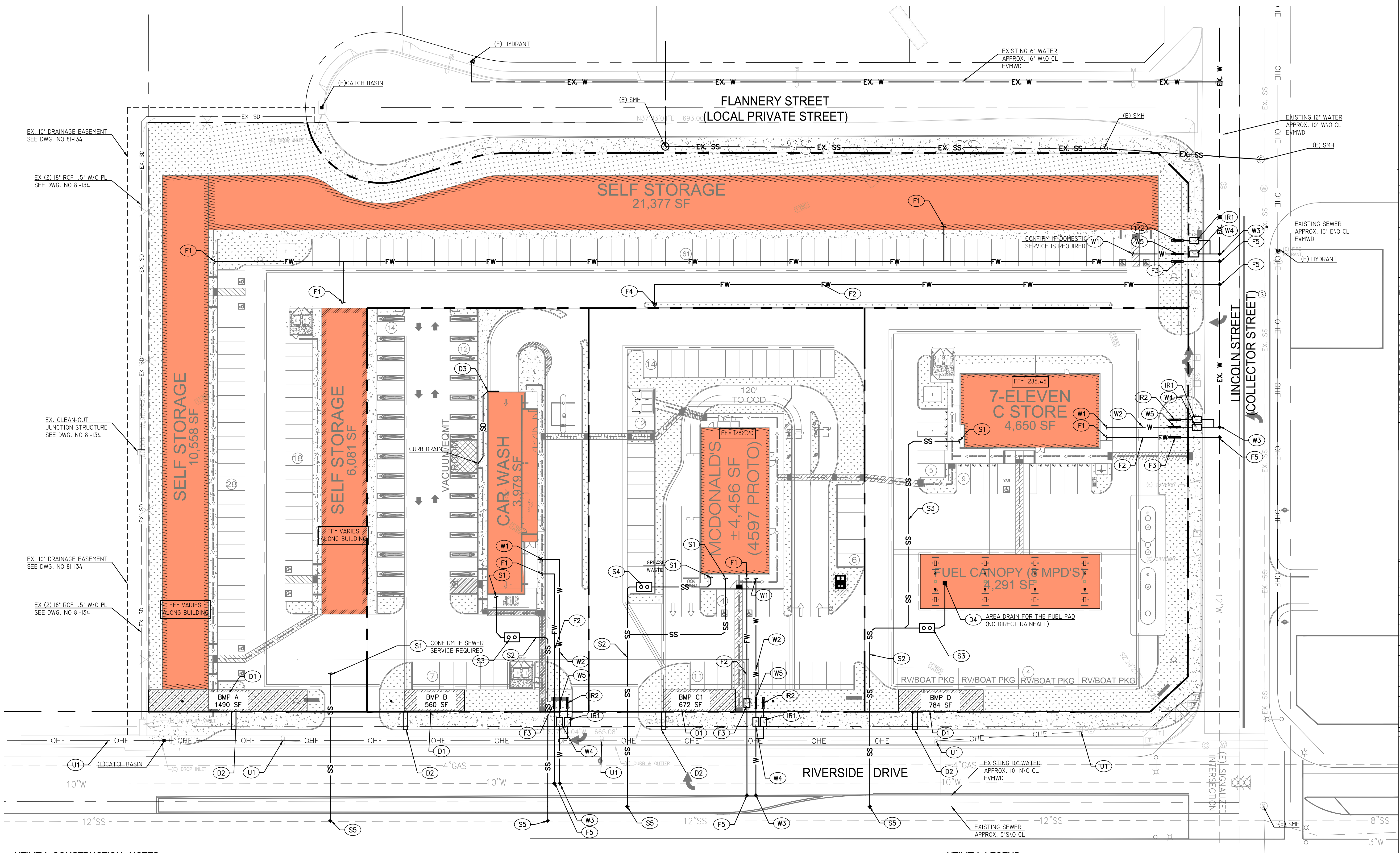
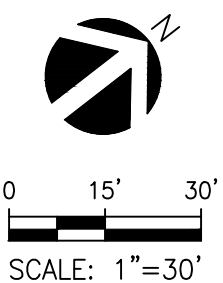
Date 2020-07-15

Drawn by JU

Checked by RR

C1.50

| | |
|-------|--------------|
| Scale | As indicated |
|-------|--------------|



SANITARY SEWER

- | | |
|----|--|
| S1 | BUILDING SEWER POINT OF CONNECTION. |
| S2 | PVC SEWER PIPE. CLEANOUTS REQUIRED PER CODE. 2% MIN. SLOPE UNLESS APPROVED BY ENGINEERING. |
| S3 | SAND/OIL SEPARATOR. EVMWD STD. DWG. NO. S-16A |
| S4 | GREASE INTERCEPTOR. EVMWD STD. DWG. NO. S-17A |
| S5 | SEWER LATERAL CONNECTION. EVMWD STD. DWG. NO. S-15 |

STORM DRAIN

- | | |
|----|---|
| D1 | INFILTRATION BMP FOR WQMP. SEE SECTION ON CI. DCV STORED AND INFILTRATED. OVERFLOW TO CURB DRAIN. NO HYDROMOD REQUIRED. |
| D2 | BMP OVERFLOW TO CURB / PARKWAY DRAIN |
| D3 | TRAFFIC RATED TRENCH DRAIN. DISCHARGE THRU ADJACENT CURB DRAIN AS ELEVATION ALLOWS. |
| D4 | TRAFFIC RATED AREA DRAIN |

FIRE WATER

- | | |
|----|---|
| F1 | BUILDING FIRE SPRINKLER WATER POINT OF CONNECTION |
| F2 | SITE FIRE WATER PIPE. SIZE AND MATERIAL TBD |
| F3 | FIRE DOUBLE DETECTOR CHECK METER INSTALLATION. EVMWD STD. DWG. NO. W-23 |
| F4 | FIRE HYDRANT ASSEMBLY. EVMWD STD. DWG. NO. W-7. CONFIRM REQUIRED HYDRANT(S) AND LOCATION(S) WITH FIRE DEPARTMENT. |
| F5 | CONNECT TO EXISTING MAIN. EVMWD STD. DWG. NO. W-29. |

DOMESTIC WATER

- | | |
|----|--|
| W1 | BUILDING DOMESTIC WATER POINT OF CONNECTION |
| W2 | SITE WATER PIPE. SIZE AND MATERIAL TBD |
| W3 | DOMESTIC WATER SERVICE CONNECTION. SIZE TBD. EVMWD STD. DWG. NO. W-10. |
| W4 | WATER METER BOX. EVMWD STD. DWG. NO. W-12. |
| W5 | BACKFLOW ASSEMBLY EVMWD STD. DWG. NO. W-21A & W-21B |

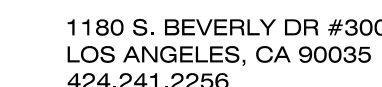
IRRIGATION

- IR1 IRRIGATION METER BOX. EVMWD STD. DWG. NO. W-12.
- IR2 BACKFLOW ASSEMBLY EVMWD STD. DWG. NO. W-21A & W-21B.

MISC. UTILITIES

- UI OVERHEAD POWER LINES SHALL BE UNDERGROUNDED, POLES REMOVED.

| | |
|---|----------------------|
| _____ EX. G _____ | EXISTING GAS |
| _____ SS _____ SS _____ | PROPOSED SEWER |
| _____ EX. SS _____ | EXISTING SEWER |
| _____ SD _____ SD _____ SD _____ SD _____ | PROPOSED STORM DRAIN |
| _____ EX. SD _____ | EXISTING STORM DRAIN |
| _____ W _____ W _____ | PROPOSED WATER |
| _____ EX. W _____ | EXISTING WATER |
| _____ FW _____ FW _____ | PROPOSED FIRE WATER |
| _____ IRR _____ IRR _____ | PROPOSED IRRIGATION |



 **ATC DESIGN GROUP**
ARCHITECTS • ENGINEERS • SURVEYORS
1277 PACIFIC OAKS PL., SUITE 102 ESCONDIDO, CA 92025
PHONE: (760) 738-8800 FAX: (760) 738-8232

APPLICANT: LINCOLN RIVERSIDE GROUP, LLC
ATTN: ILAN GOLCHEH
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TEL: 310.923.2594

ARCHITECT: ATC DESIGN GROUP
1277 PACIFIC OAKS PL. STE #102
ESCONDIDO, CA 92029
CPOST@ATCDESIGNGROUP.COM
TEL: 760.738.8809

ASSESSOR'S
PARCEL# 379-111-014
15209 LINCOLN ST.
LAKE ELSINORE, CA

| | |
|---------------------------|------------|
| BLDG INFO: | |
| GROSS ACERAGE: | 6.29 ACRES |
| TOTAL BLDG AREA: | 51,101 SF |
| CANOPY AREA: | 7,697 SF |
| LOT COVERAGE: | |
| LANDSCAPING LOT COVERAGE: | |
| LANDSCAPING PROVIDED: | |

REQUIRED BLDG SETBACKS:
FRONT:
REAR:
SIDE 1 INTERIOR:
SIDE 2 INTERIOR:

[illegible]

15209 LINCOLN STREET,
LAKE ELSINORE, CA

PRELIMINARY LIGHTING PLAN

| | |
|----------------|---------|
| Project number | 0711-10 |
|----------------|---------|

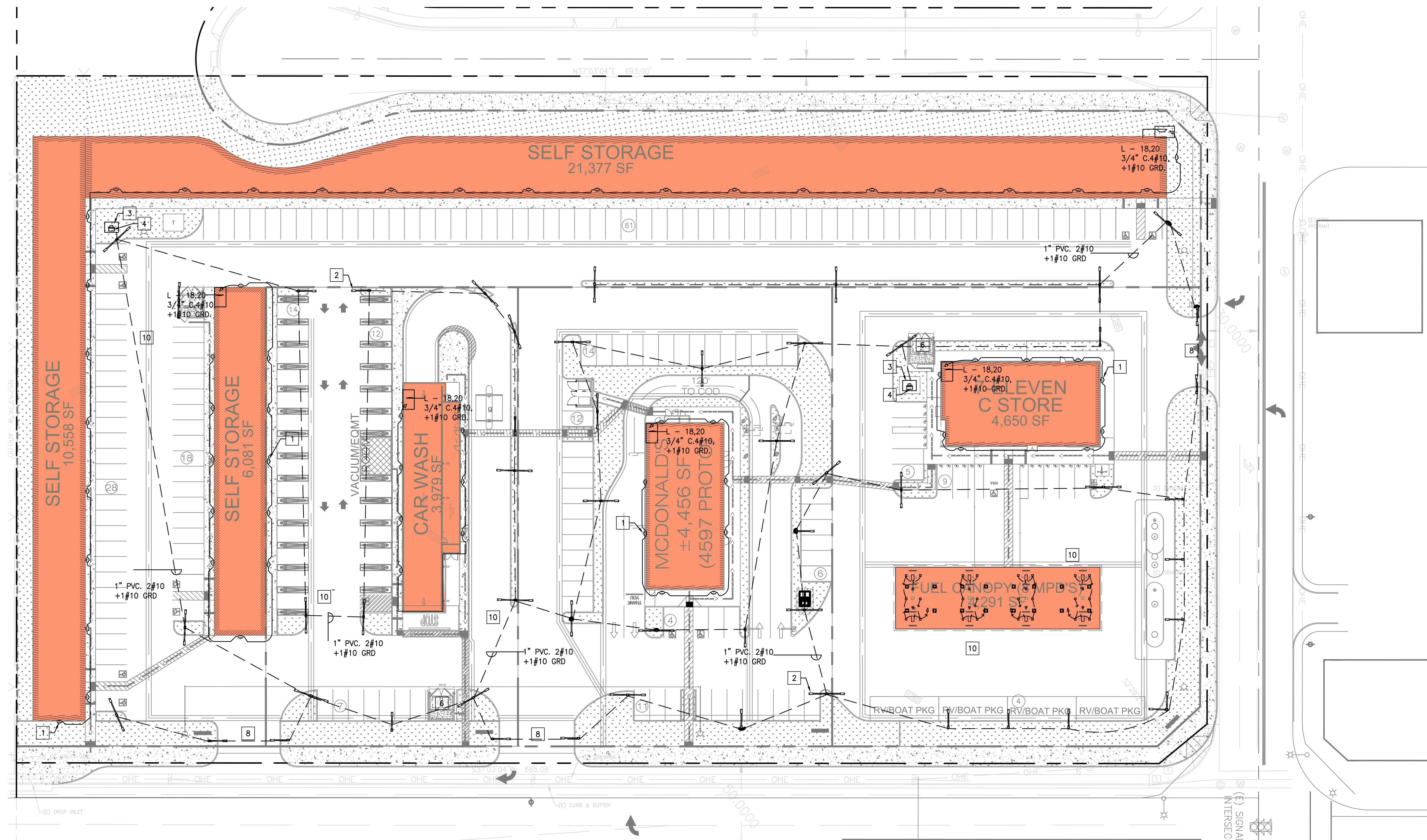
Date 2020-07-15

Drawn by

Checked by _____




E1.00

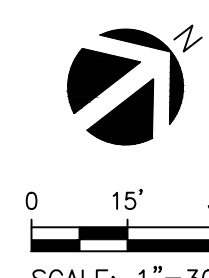
| | |
|-------|--------------|
| Scale | As indicated |
|-------|--------------|



| | | |
|---------------|--|--|
| GENERAL NOTES | | ALL EQUIPMENTS SHALL BE U.L. LISTED, OR CERTIFIED BY A NATIONAL RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION |
| 1. | ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ALL NEW ELECTRICAL EQUIPMENTS AS SHOWN ON THIS SITE PLAN AND ASSOCIATED CONDUITS WITH CONDUCTORS AS SHOWN | <p>CONDUCTORS ALL CONDUCTORS SHALL BE COPPER AS FOLLOWS:</p> <ul style="list-style-type: none"> • #12 AWG AND SMALLER – SOLID, THHN/THWN-2 • #10 AWG AND LARGER – STRANDED, THWN-2, THHN OR XHHW <p>ALL TERMINATIONS AND CONDUCTOR SIZES ARE BASED ON 75C TEMPERATURE RATING</p> |
| 2. | ELECTRICAL CONTRACTOR SHALL DIG ALERT AT 800.227.2600 TWO (2) WORKING DAYS BEFORE DIGGING. | |
| 3. | ALL ROOF/WALL PENETRATION SHALL BE PROPERLY SEALED. | |
| 4. | THIS SITE PLAN IS FOR REFERENCE ONLY. | |
| 5. | CONTRACTOR TO CONTACT SCE BEFORE COMMENCING ROUGH-IN | |

ALL ELECTRICAL WORK SHALL BE DESIGNED PER 2014 LOS ANGELES COUNTY ELECTRICAL CODE, 2016 CALIFORNIA ENERGY CODE AND 2014 NATIONAL ELECTRICAL CODE AND 2016 BUILDING ENERGY EFFICIENCY STANDARDS.

| SYMBOLS LEGEND | |
|---|---|
|  | SITE LIGHT |
|  | EXTERIOR WALL LIGHT FIXTURE |
|  | LED CANOPY LIGHT |
| KEY NOTES | |
| 1 | WALL SCONCE WITH BUILT-IN OCCUPANCY SENSOR AND DIMMING |
| 2 | SIGHT LIGHT REFER TO LIGHTING FIXTURE SCHEDULE |
| 3 | 72" X 96" CONCRETE PAD PER SCE SPECIFICATION |
| 4 | TRANSFORMER PER SCE |
| 5 | 400A 120/208V. 3 -4W PULL/METER SECTION |
| 6 | TRASH ENCLOSURE |
| 7 | MONUMENT SIGN. PROVIDE WP JBOX WITH 20A/1P DISCONNECT SWITCH AND MAKE CONNECTION TO SIGN AS REQUIRED. |
| 8 | DRIVE-WAY APPROACH |
| 9 | NOT USED |
| 10 | BURY CONDUIT AT MINIMUM OF 24" BELOW GRADE |



Underground Service Alert

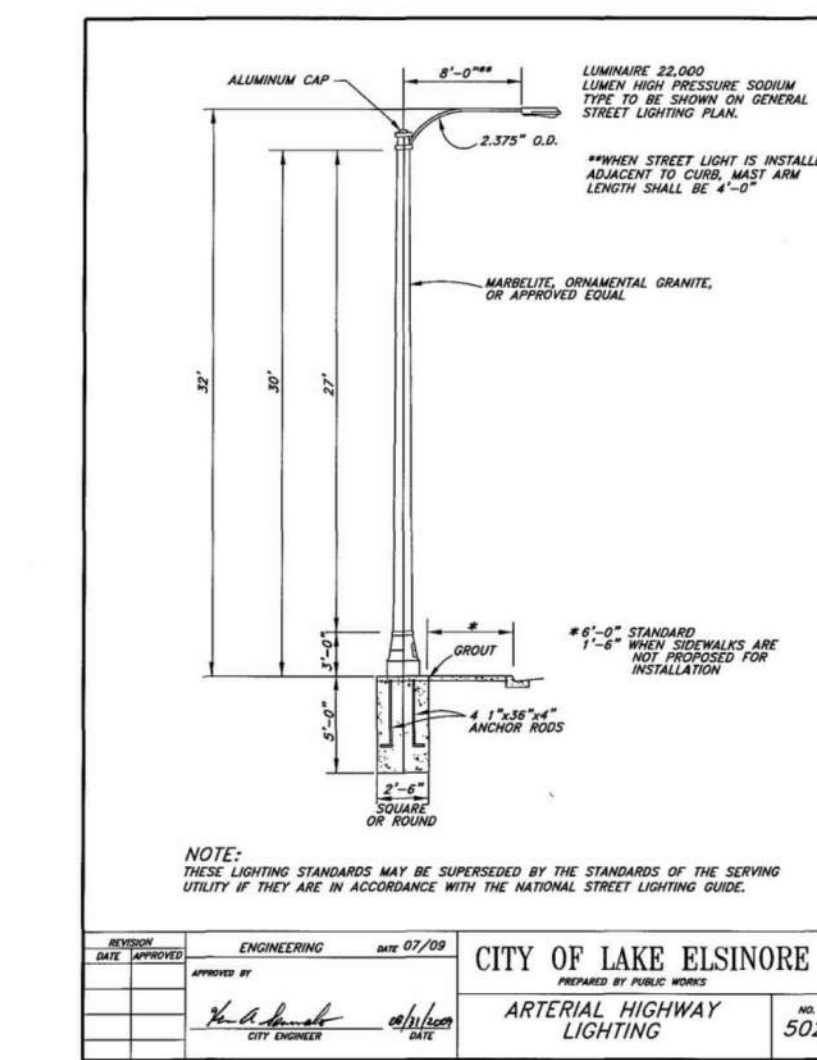


Call TOLL FREE
1-800
422-4133
(Southern California)

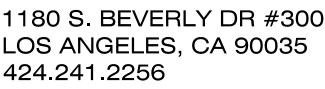
Call TOLL FREE
1-800
227-2600
(Northern California)

Call TOLL FREE
1-800
227-2600
(Nevada)

TWO WORKING DAYS BEFORE YOU DIG
Section 426/A217 of the Government Code requires a Dig Alert Identification Number be issued before a permit to Excavate will be valid. For your Dig Alert Identification Number call:



LIGHT POLE FOUNDATION DETAIL



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ASSESSOR'S
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| LOT COVERAGE: | |
| LANDSCAPING LOT COVERAGE: | |
| LANDSCAPING PROVIDED: | |

REQUIRED BLDG SETBACKS:
FRONT:
REAR:
SIDE 1 INTERIOR:
SIDE 2 INTERIOR:

[illegible]

15209 LINCOLN STREET,
LAKE ELSINORE, CA

PRELIMINARY LANDSCAPE PLAN

Project number 0711-10

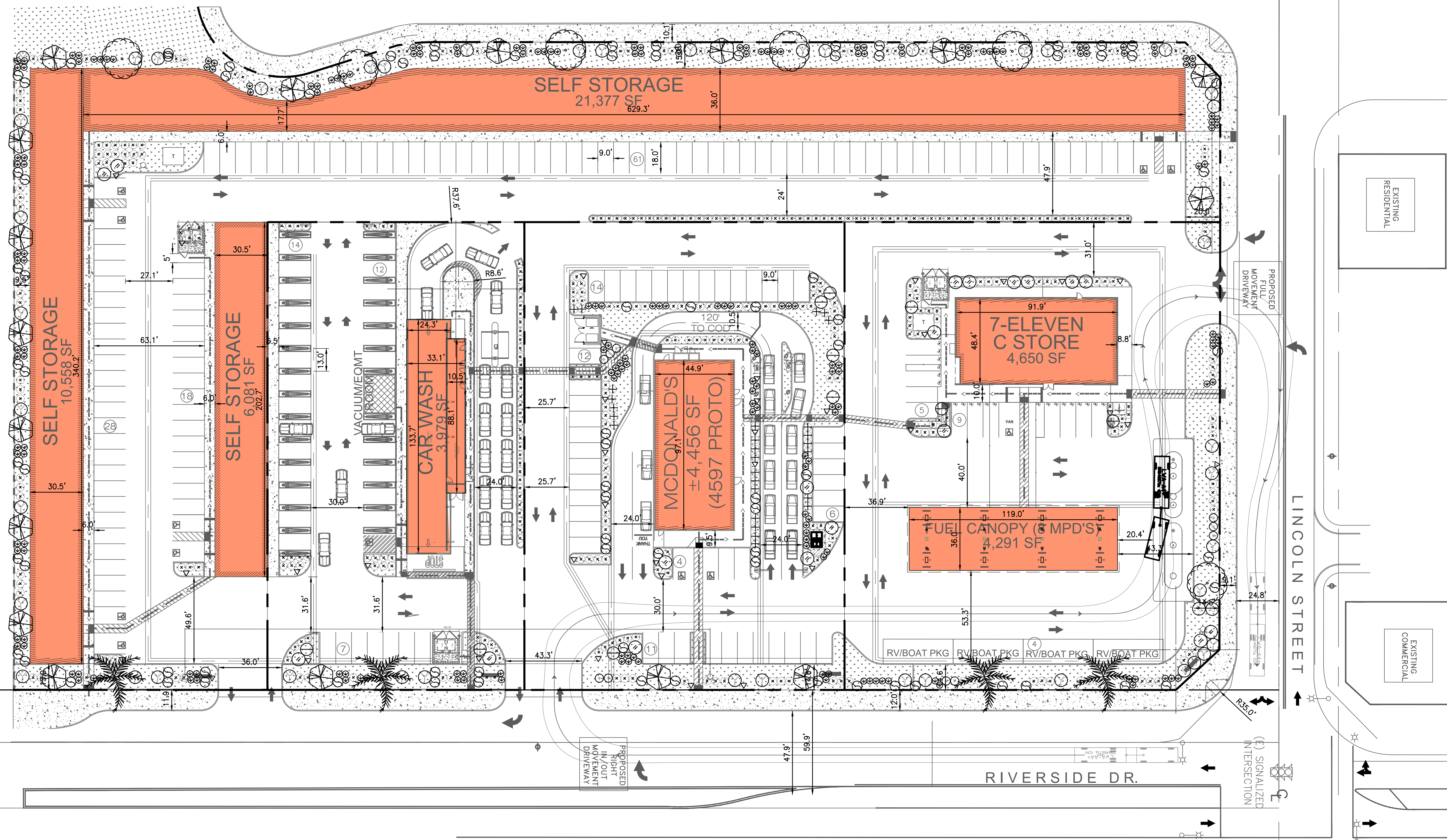
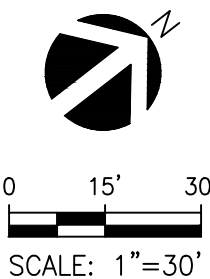
Date 2020-07-15

Drawn by

Checked by _____

L1.00

Scale As indicated

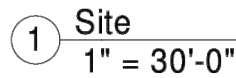
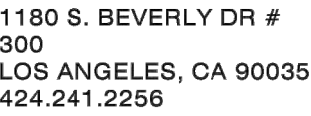


PROPOSED PLANT LEGEND

| SYMBOL | BOTANICAL NAME | QTY. | CONTAINER SIZE | WATER USE | SYMBOL | QTY. | CONTAINER SIZE | WATER USE |
|--------|---|------|------------------------|---|--------|------|------------------------|-----------|
| | COMMON NAME | | MATURE H X W | COMMENTS | | | MATURE H X W | COMMENTS |
| | TREES: LAGERSTROEMIA 'TUSCARORA' RED CRAPE MYRTLE | 18 | 24" BOX 20" X 15" | MODERATE | | 10 | 15 GALLON 30" X 30" | MODERATE |
| | PHOENIX CANARIENSIS CANARY ISLAND DATE PALM | | 20" BITH 25" X 20" | LOW (CITY STREET TREE OR OTHER SPECIES APPROVED BY THE COMMUNITY DEVELOPMENT DIRECTOR) | | | 15 GALLON 3' X 3' | LOW |
| | RHUS LANCIA AFRICAN SUMAC | 6 | 24" BOX 25" X 25" | LOW | | 19 | 15 GALLON 4' X 4' | LOW |
| | SHRUBS: CALLISTEMON 'LITTLE JOHN' COMPACT BOTTLEBRUSH | | 15 GALLON 36" X 30" | LOW | | | | 10 |
| | ELAEGNUS P. 'FRUITLANDII' SILVERBERRY | 10 | 15 GALLON 6' X 4' | LOW | | 208 | | |
| | HEMEROCALLIS 'STELLA D'ORO' YELLOW DAYLILY | 208 | 5 GALLON 24" X 24" | MODERATE | | | | 5 |
| | LEPTOSPERMUM S. 'SNOW WHITE' NEW ZEALAND TEA TREE | 5 | 15 GALLON 4' X 4' | LOW | | 27 | | |
| | MUHLENBERGIA RIGENS DEER GRASS | 27 | 5 GALLON 30" X 30" | LOW | | | | 41 |
| | PHORIUM T. 'AMAZING RED' NEW ZEALAND FLAX | 41 | 15 GALLON 3' X 3' | LOW | | 35 | | |
| | ROSA F. 'ICEBERG' WHITE FLORIBUNDA ROSE | 10 | 15 GALLON 30" X 30" | MODERATE | | | | 87 |
| | SALVIA LEUCANTHA MEXICAN BUSH SAGE | 87 | 15 GALLON 3' X 3' | LOW | | 19 | | |
| | WESTRINGIA F. 'SMOKEY' COAST ROSEMARY | 19 | 15 GALLON 4' X 4' | LOW | | | | 35 |
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| | ROSA F. 'ICEBER | | | | | | | |

PROPOSED LANDSCAPE AREA CALCULATIONS

| | |
|-----------------------|--------------|
| TOTAL AREA: | 255,497 S.F. |
| TOTAL LANDSCAPE AREA: | 41,200 S.F. |
| REQUIRED LANDSCAPE %: | 15.0% |
| TOTAL LANDSCAPE %: | 16.1% |



1. THAT IF ECONOMICALLY FEASIBLE, THE APPLICANTS SHALL PROVIDE AT LEAST 75% OF ALL ROOF SURFACE WITH A MINIMUM SOLAR REFLECTIVE INDEX (SRI) OF AT LEAST 78 SO AS TO REDUCE POTENTIAL FOR UNNECESSARY BUILDING HEAT ABSORPTION TO THE SATISFACTION OF THE COMMUNITY DEVELOPMENT DIRECTOR
2. LUMENS OF LIGHTING SHOWN ON PLANS NOT TO EXCEED 0.5 FOOTCANDLES

Scale 1" = 30'-0"

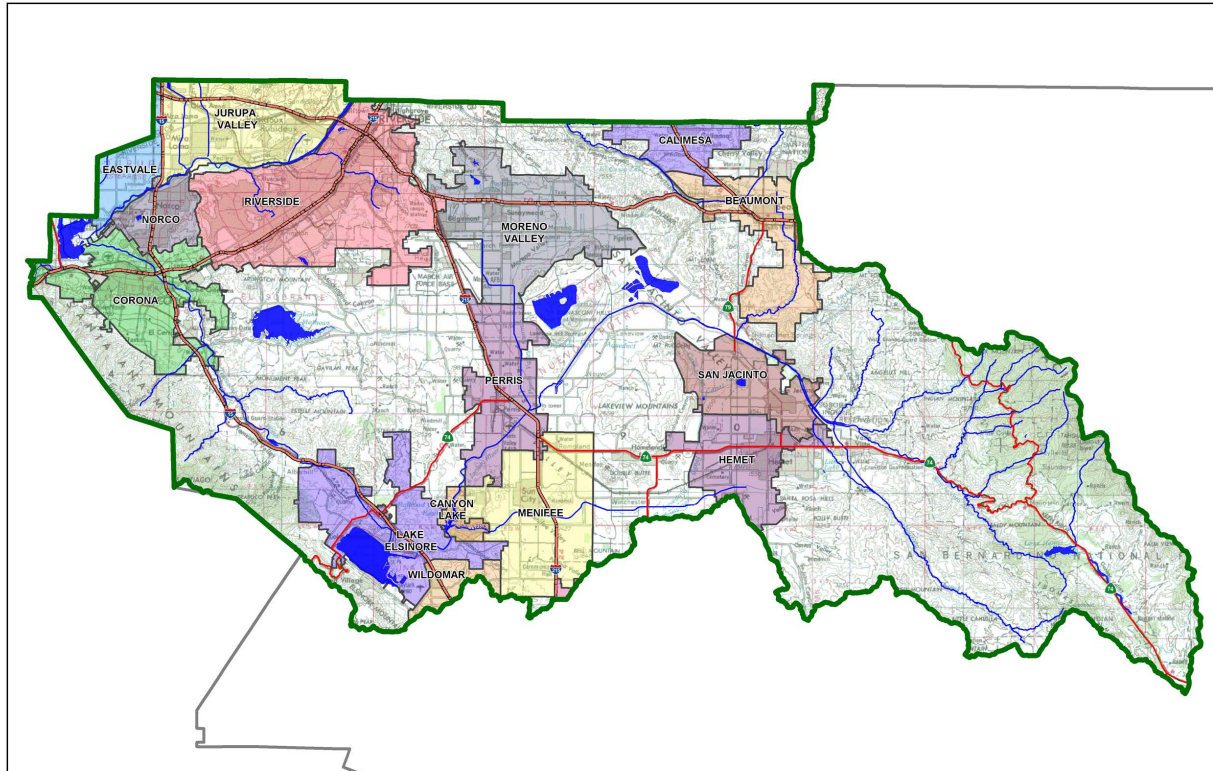
Project Specific Water Quality Management Plan

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

Project Title: 15209 LINCOLN STREET COMMERCIAL MIXED USE

Development No: PA 2020-92

Design Review/Case No: 2020-092, FWQMP-2021-0008



- ☐ Preliminary
☒ Final

Original Date Prepared: 3/30/2020

Revision Date(s): 11/20/20, 12/03/21, 12/08/21

*Prepared for Compliance with
Regional Board Order No. **R8-2010-0033***

Template revised June 30, 2016

Contact Information:

Prepared for:

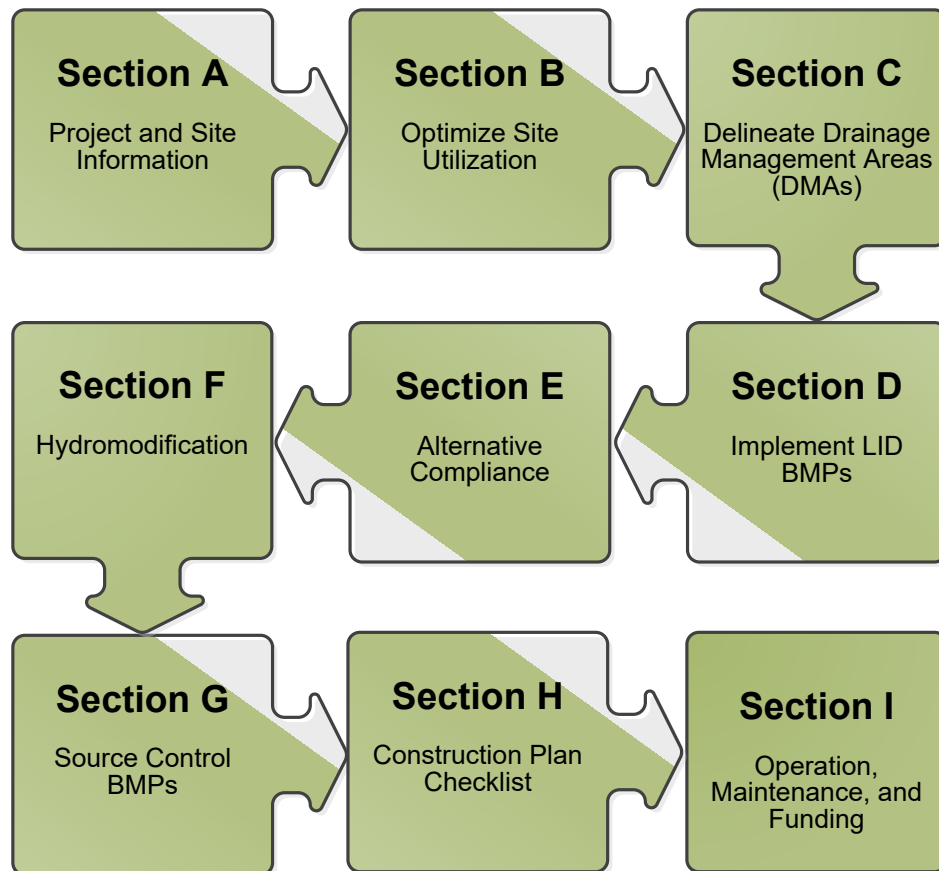
Golcheh Group
1180 S. Beverly Drive #300
Los Angeles, CA 90035
Phone: (310) 923-2594
Contact: Ilan Golcheh

Prepared by:

ATC Design Group
1277 Pacific Oaks Place, Suite 102
Escondido, CA 92029
Phone: (760) 738-8800
Contact: Jim Turpin, P.E.

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 Golchek Group by ATC Design Group for the 15209 Lincoln Street Mixed Use Commercial project.

This WQMP is intended to comply with the requirements of The City of Lake Elsinore for Ord. 1296 § 1, 2012 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 The City of Lake Elsinore Water Quality Ordinance (Municipal Code Section 14.08).

"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."

Ilan Golchek
Owner's Signature

Ilan Golchek
Owner's Printed Name

12/23/21
Date

President
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."

James A. Turpin
Preparer's Signature

James A. Turpin
Preparer's Printed Name

12/23/2021
Date

Principal Civil Engineer
Preparer's Title/Position

Preparer's Licensure:



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Section A: Project and Site Information

| PROJECT INFORMATION | |
|--|--|
| Type of Project: | Mixed use Commercial |
| Planning Area: | Insert text here |
| Community Name: | Insert text here |
| Development Name: | 15209 Lincoln Street Commercial Mixed Use |
| PROJECT LOCATION | |
| Latitude & Longitude (DMS): 33°40'33.50"N, 117°22'30.89"W | |
| Project Watershed and Sub-Watershed: Santa Ana River, San Jacinto Valley, Elsinore | |
| Gross Acres: 6.29 Acres | |
| APN(s): 379-111-014 | |
| Map Book and Page No.: Book 8, Page 377 of Maps | |
| PROJECT CHARACTERISTICS | |
| Proposed or Potential Land Use(s) | Mixed Use Commercial |
| Proposed or Potential SIC Code(s) | 4226, 5411, 5812, 7542, 7999 |
| Area of Impervious Project Footprint (SF) | 212,214 |
| Total Area of <u>proposed</u> Impervious Surfaces within the Project Footprint (SF)/or Replacement | 212,214 |
| Does the project consist of offsite road improvements? | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N |
| Does the project propose to construct unpaved roads? | <input type="checkbox"/> Y <input checked="" type="checkbox"/> N |
| Is the project part of a larger common plan of development (phased project)? | <input type="checkbox"/> Y <input checked="" type="checkbox"/> N |
| EXISTING SITE CHARACTERISTICS | |
| Total area of <u>existing</u> Impervious Surfaces within the Project limits Footprint (SF) | 0 SF |
| Is the project located within any MSHCP Criteria Cell? | <input type="checkbox"/> Y <input checked="" type="checkbox"/> N |
| If so, identify the Cell number: | N/A |
| Are there any natural hydrologic features on the project site? | <input type="checkbox"/> Y <input checked="" type="checkbox"/> N |
| Is a Geotechnical Report attached? | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N |
| If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D) | A & B |
| What is the Water Quality Design Storm Depth for the project? | 0.85 inches |

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 |
|---------------------------|---|----------------------------|----------------------------------|
| Lake Elsinore / HU#802.31 | DDT, Nutrients, Organic Enrichment/Low Dissolved Oxygen, PCBs, Toxicity | REC1, REC2, WARM, WILD | |

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 | <input type="checkbox"/> Y | <input checked="" type="checkbox"/> N |
| State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert. | <input type="checkbox"/> Y | <input checked="" type="checkbox"/> N |
| US Army Corps of Engineers, CWA Section 404 Permit | <input type="checkbox"/> Y | <input checked="" type="checkbox"/> N |
| US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion | <input type="checkbox"/> Y | <input checked="" type="checkbox"/> N |
| Statewide Construction General Permit Coverage | <input checked="" type="checkbox"/> Y | <input type="checkbox"/> N |
| Statewide Industrial General Permit Coverage | <input type="checkbox"/> Y | <input checked="" type="checkbox"/> N |
| Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP) | <input type="checkbox"/> Y | <input checked="" type="checkbox"/> N |
| Other (please list in the space below as required) City of Lake Elsinore Grading and Encroachment Permits, Caltrans Encroachment Permit | <input checked="" type="checkbox"/> Y | <input type="checkbox"/> N |

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.

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?

Yes – The existing topography of the undeveloped lot sheet flows south, spilling onto Riverside Drive. Final discharge is to the City's MS4 system. The proposed design will convey roof and site improvement runoff via non-erosive storm drain improvements to WQMP Biofiltration Basins and/or underground storage facilities that include biofiltration treatment prior to discharging from the project site directly to the City's MS4.

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

No – site will be cleared and grubbed for grading activities.

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

Infiltration is not allowed due to the City's Highest and Best Use Principle.

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

15% minimum landscape area per Planning Conditions. Landscape was incorporated throughout the site to meet this requirement while maintaining the required parking and other site hardscape features.

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

Yes, all impervious surfaces will be directed to landscaped and biofiltration facilities.

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) ¹² | Area (Sq. Ft.) | DMA Type |
|----------------|-------------------------------|----------------|----------|
| DMA A | <i>Roof</i> | <i>37,837</i> | <i>D</i> |
| | <i>Concrete</i> | <i>7,261</i> | <i>D</i> |
| | <i>Asphalt Paving</i> | <i>43,481</i> | <i>D</i> |
| | <i>Landscape</i> | <i>4,031</i> | <i>D</i> |
| | | | |
| DMA B | <i>Roof</i> | <i>4,475</i> | <i>D</i> |
| | <i>Concrete</i> | <i>6,208</i> | <i>D</i> |
| | <i>Asphalt Paving</i> | <i>24,732</i> | <i>D</i> |
| | <i>Landscape</i> | <i>3,821</i> | <i>D</i> |
| | | | |
| DMA C1 | <i>Roof</i> | <i>2,313</i> | <i>D</i> |
| | <i>Concrete</i> | <i>2,397</i> | <i>D</i> |
| | <i>AC Pavement</i> | <i>20,370</i> | <i>D</i> |
| | <i>Landscape</i> | <i>4,436</i> | <i>D</i> |
| | | | |
| DMA C2 | <i>Roof</i> | <i>2,276</i> | <i>D</i> |
| | <i>Concrete</i> | <i>2,428</i> | <i>D</i> |
| | <i>Asphalt Paving</i> | <i>8,724</i> | <i>D</i> |
| | <i>Landscape</i> | <i>4,967</i> | <i>D</i> |
| | | | |
| DMA D | <i>Roof</i> | <i>9,245</i> | <i>D</i> |
| | <i>Concrete</i> | <i>7,067</i> | <i>D</i> |
| | <i>Asphalt Paving</i> | <i>33,400</i> | <i>D</i> |
| | <i>Landscape</i> | <i>8,256</i> | <i>D</i> |
| | | | |

¹Reference Table 2-1 in the WQMP Guidance Document to populate this column

²If 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) |
|----------------|----------------|---------------------------------|--------------------------|
| DMA-A-ST | <i>17,642</i> | <i>Landscape, slope < 5%</i> | <i>Low Flow</i> |
| | | | |
| | | | |
| | | | |

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] |
| | | | | | | |
| | | | | | | |
| | | | | | | |

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

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

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

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

| DMA Name or ID | BMP Name or ID |
|----------------|----------------|
| DMA A | BMP A |
| DMA B | BMP B |
| DMA C1 | BMP C1 |
| DMA C2 | BMP C1 |
| DMA D | BMP D |

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? | | |
| If Yes, list affected DMAs: | | |
| ...have any DMAs located within 100 feet of a water supply well? | | |
| 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? | | |
| If Yes, list affected DMAs: | | |
| ...have measured in-situ infiltration rates of less than 1.6 inches / hour? | | |
| If Yes, list affected DMAs: | | |
| ...have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface? | | |
| If Yes, list affected DMAs: | | |
| ...geotechnical report identify other site-specific factors that would preclude effective and safe infiltration? | | |
| 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 Copermittee).
- ☐ 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: 0.991

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: 4.872

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: 1.85

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: 9.013

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) |
|--|--|
| 9.013 | 0.991 |

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 shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: 600

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: 4.872

- 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 of toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 167

- 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: 814

- 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) |
|--|---|
| 814 | 600 |

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 shut downs or other lapses in occupancy or operation.

Average Daily Demand: Projected Average Daily Use (gpd)

- 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: Insert Area (Acres)

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: Enter Value

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: Minimum use required (gpd)

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) |
|---|--------------------------------------|
| Minimum use required (gpd) | Projected Average Daily Use (gpd) |

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 Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

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 | |
| AREA A | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| AREA B | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| AREA C1 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| AREA C2 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| AREA D | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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.

Infiltration BMPs are not allowed due to Highest and Best use principles. Harvest and use has been shown to be infeasible. DMA A will incorporate an underground retention system that will either gravity flow or be pumped through a biofiltration cell (or “wetland mod”) connected to the City’s storm drain system. The remaining DMAs will incorporate bioretention and biotreatment. Each bioretention facility will include surface ponding, “engineered” soil mix and a gravel underlayer. Each will also include a 6” perforated underdrain pipe connected to overflow risers connected to the City’s storm drain system. All retention systems and areas will be lined to prevent infiltration.

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 Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee 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.

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 \times Runoff Factor | DMA A | | |
|---------------------------|------------------------|---------------------------|--------------------------------------|-------------------|----------------------------------|-------------------------|---|---------------------------------------|
| | [A] | | [B] | [C] | [A] \times [C] | | | |
| DMA-A-R | 37,837 | Roof | 1.00 | 0.892 | 33,750 | Design Storm Depth (in) | Design Capture Volume, V_{BMP} (cubic feet) | Proposed Volume on Plans (cubic feet) |
| DMA-A-PCC | 7,261 | Concrete | 1.00 | 0.892 | 6,476 | | | |
| DMA-A-AC | 43,481 | Asphalt | 1.00 | 0.892 | 38,785 | | | |
| DMA-A-LS | 4,031 | Landscaping | 0.10 | 0.110 | 445 | | | |
| $A_T =$ | 92,610 | | | | $\Sigma = 79,457$ | 0.85 | 5,628 | 5,999 >; OK |

| DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type | Effective Impervious Fraction, I_f | DMA Runoff Factor | DMA Areas \times Runoff Factor | DMA B | | |
|---------------------------|------------------------|---------------------------|--------------------------------------|-------------------|----------------------------------|-------------------------|---|---------------------------------------|
| | [A] | | [B] | [C] | [A] \times [C] | | | |
| DMA-B-R | 4475 | Roof | 1.00 | 0.892 | 3,992 | Design Storm Depth (in) | Design Capture Volume, V_{BMP} (cubic feet) | Proposed Volume on Plans (cubic feet) |
| DMA-B-PCC | 6208 | Concrete | 1.00 | 0.892 | 5,537 | | | |
| DMA-B-AC | 24732 | Asphalt | 1.00 | 0.892 | 22,061 | | | |
| DMA-B-LS | 3821 | Landscaping | 0.10 | 0.110 | 422 | | | |
| $A_T =$ | 39,237 | | | | $\Sigma = 32,013$ | 0.85 | 2,268 | 2,323 >; OK |

| DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type | Effective Impervious Fraction, I_f | DMA Runoff Factor | DMA Areas x Runoff Factor | DMA C1 | | |
|------------------------|------------------------|---------------------------|--------------------------------------|-------------------|---------------------------|-------------------------|---|---------------------------------------|
| | [A] | | [B] | [C] | [A] x [C] | | | |
| DMA-C1-R | 2313 | Roof | 1.00 | 0.892 | 2,063 | Design Storm Depth (in) | Design Capture Volume, V_{BMP} (cubic feet) | Proposed Volume on Plans (cubic feet) |
| DMA-C1-PCC | 2397 | Concrete | 1.00 | 0.892 | 2,139 | | | |
| DMA-C1-AC | 20370 | Asphalt | 1.00 | 0.892 | 18,170 | | | |
| DMA-C1-LS | 4436 | Landscaping | 0.10 | 0.110 | 490 | | | |
| A_T = | 29,516 | | | | $\Sigma = 22,862$ | 0.85 | 1,619 | 1,768 >; OK |

| DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type | Effective Impervious Fraction, I_f | DMA Runoff Factor | DMA Areas x Runoff Factor | DMA C2 | | |
|------------------------|------------------------|---------------------------|--------------------------------------|-------------------|---------------------------|-------------------------|---|---------------------------------------|
| | [A] | | [B] | [C] | [A] x [C] | | | |
| DMA-C2-R | 2276 | Roof | 1.00 | 0.892 | 2,031 | Design Storm Depth (in) | Design Capture Volume, V_{BMP} (cubic feet) | Proposed Volume on Plans (cubic feet) |
| DMA-C2-PCC | 2428 | Concrete | 1.00 | 0.892 | 2,166 | | | |
| DMA-C2-AC | 8724 | Asphalt | 1.00 | 0.892 | 7,782 | | | |
| DMA-C2-LS | 4967 | Landscaping | 0.10 | 0.110 | 549 | | | |
| A_T = | 18,396 | | | | $\Sigma = 12,527$ | 0.85 | 887 | 1,259 >; OK |

| DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type | Effective Impervious Fraction, I_f | DMA Runoff Factor | DMA Areas x Runoff Factor | DMA D | | |
|------------------------|------------------------|---------------------------|--------------------------------------|-------------------|---------------------------|-------------------------|---|---------------------------------------|
| | [A] | | [B] | [C] | [A] x [C] | | | |
| DMA-D-R | 9245 | Impervious | 1.00 | 0.892 | 8,247 | Design Storm Depth (in) | Design Capture Volume, V_{BMP} (cubic feet) | Proposed Volume on Plans (cubic feet) |
| DMA-D-PCC | 7067 | Impervious | 1.00 | 0.892 | 6,304 | | | |
| DMA-D-AC | 33400 | Impervious | 1.00 | 0.892 | 29,793 | | | |
| DMA-D-LS | 8256 | Pervious | 0.10 | 0.110 | 912 | | | |
| A_T = | 57,968 | | | | $\Sigma = 45,255$ | 0.85 | 3,206 | 3,458 >; OK |

Section E: 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 Copermittee). 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.

List DMAs here.

E.1 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 E.1 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 |
| <input type="checkbox"/> Detached Residential Development | P | N | P | P | N | P | P | P |
| <input type="checkbox"/> Attached Residential Development | P | N | P | P | N | P | P | P ⁽²⁾ |
| <input checked="" type="checkbox"/> Commercial/Industrial Development | P ⁽³⁾ | P | P ⁽¹⁾ | P ⁽¹⁾ | P ⁽⁵⁾ | P ⁽¹⁾ | P | P |
| <input type="checkbox"/> Automotive Repair Shops | N | P | N | N | P ^(4, 5) | N | P | P |
| <input checked="" type="checkbox"/> Restaurants (>5,000 ft ²) | P | N | N | N | N | N | P | P |
| <input type="checkbox"/> Hillside Development (>5,000 ft ²) | P | N | P | P | N | P | P | P |
| <input checked="" type="checkbox"/> Parking Lots (>5,000 ft ²) | P ⁽⁶⁾ | P | P ⁽¹⁾ | P ⁽¹⁾ | P ⁽⁴⁾ | P ⁽¹⁾ | P | P |
| <input checked="" type="checkbox"/> Retail Gasoline Outlets | N | P | N | N | P | N | P | P |
| Project Priority Pollutant(s) of Concern | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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

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.

| Qualifying Project Categories | Credit Percentage ² |
|--|--------------------------------|
| | |
| | |
| | |
| <i>Total Credit Percentage¹</i> | |

¹Cannot Exceed 50%

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.

| DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type | Effective Impervious Fraction, I _f | DMA Runoff Factor | DMA Area x Runoff Factor | Enter BMP Name / Identifier Here | | | |
|-------------|------------------------|---------------------------|---|-------------------|--------------------------|----------------------------------|---|--------------------------------------|--|
| | [A] | | [B] | [C] | [A] x [C] | | | | |
| | | | | | | 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[A] | | | | Σ= [D] | [E] | [F] = $\frac{[D] \times [E]}{[G]}$ | [F] X (1-[H]) | [I] |

[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

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E.4 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 E.4 Treatment Control BMP Selection

| Selected Treatment Control BMP Name or ID ¹ | Priority Pollutant(s) of Concern to Mitigate ² | Removal Efficiency Percentage ³ |
|--|---|--|
| | | |
| | | |
| | | |
| | | |

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 F: Hydromodification

F.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 Copermittee 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 concentration¹ 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 F.1 Hydrologic Conditions of Concern Summary

| | 2 year – 24 hour | | |
|------------------------------|------------------|----------------|--------------|
| | Pre-condition | Post-condition | % Difference |
| Time of Concentration | INSERT VALUE | INSERT VALUE | INSERT VALUE |
| Volume (Cubic Feet) | INSERT VALUE | INSERT VALUE | INSERT VALUE |

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:

Lake Elsinore

F.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.

Section G: 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. Copermittee 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 G.1 Permanent and Operational Source Control Measures

| Potential Sources of Runoff pollutants | Permanent Structural Source Control BMPs | Operational Source Control BMPs |
|--|---|---|
| On-site Storm Drain Inlets | Catch Basin Markers | Marking maintenance, SWPP info to site owners, SC-44 Fact Sheet |
| Landscape/Outdoor Pesticide Use | Minimize irrigation & runoff, soil saturation tolerant plants, pest resistant plants, proper plant selection. | Minimize use of pesticides, provide IPM info to site owner |
| Food Service | All indoor cleaning areas to drain to a grease interceptor connected to the sanitary sewer | 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. |
| Refuse Area | All refuse areas will include walls, and cover. Dumpsters will equipped with lids, signage. | Commercial size dumpster equipped with lids, provide "No Hazardous Materials" signage, spill control materials will be kept on site, SC-34 Fact Sheet provided, regular inspection & maintenance, repair as necessary. |
| Vehicle and Equipment Cleaning | Project includes a carwash | 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/ |
| Fuel Dispensing Areas | | 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 |
| Plazas, sidewalks & 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. |

Section H: Construction Plan Checklist

Populate Table H.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 H.1 Construction Plan Cross-reference

| BMP No. or ID | BMP Identifier and Description | Corresponding Plan Sheet(s) | BMP Location (Lat/Long) |
|---------------|-------------------------------------|-----------------------------|---------------------------------|
| BMP A | Biofiltration for Self- Storage lot | Grading Plan Sheet 2, 3 | 33°40'30.17"N 117°22'31.49"W |
| BMP B | Bioretention for Car Wash lot | Grading Plan Sheet 2, 3 | 33°40'31.36"N 117°22'30.27"W |
| BMP C1 | Bioretention for McDonalds lot | Grading Plan Sheet 2, 3 | 33°40'32.25"N 117°22'29.64"W |
| BMP C2 | Bioretention for McDonalds lot | Grading Plan Sheet 2, 3 | 33°40'32.78"N 117°22'28.99"W |
| BMP D | Bioretention for 7-11 lot | Grading Plan Sheet 2, 3 | 33°40'33.82"N 117°22'28.02"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.

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee 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: ***Stormwater Management Facilities Operations and Maintenance Agreement and Right of Entry. All BMPs to be maintained by POA.***

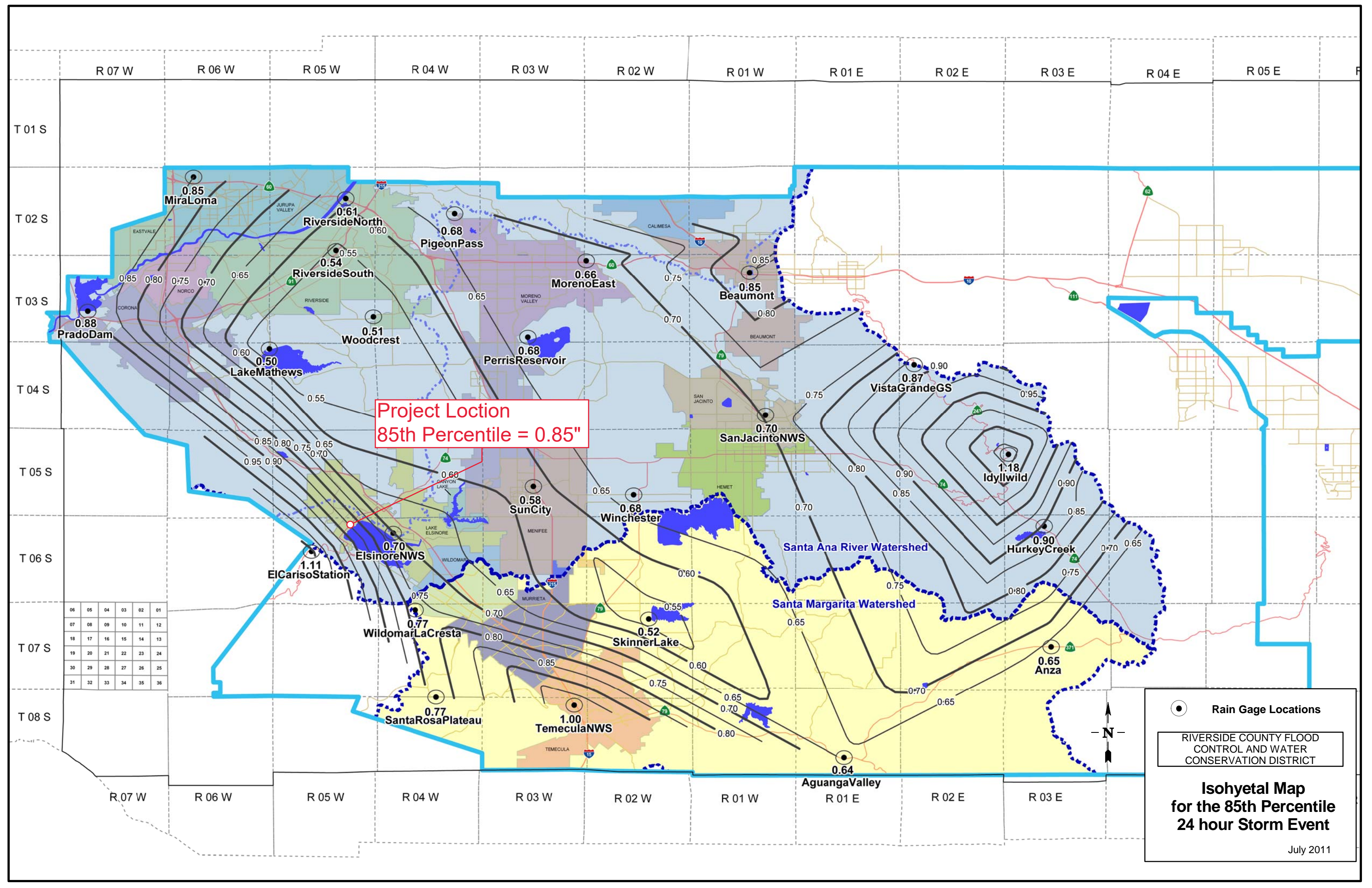
Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

☒ 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



| | | | | | |
|----|----|----|----|----|----|
| 06 | 05 | 04 | 03 | 02 | 01 |
| 07 | 08 | 09 | 10 | 11 | 12 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 |

Lincoln St.

Leach Canyon Channel
(RCFCWCD)

Project Location

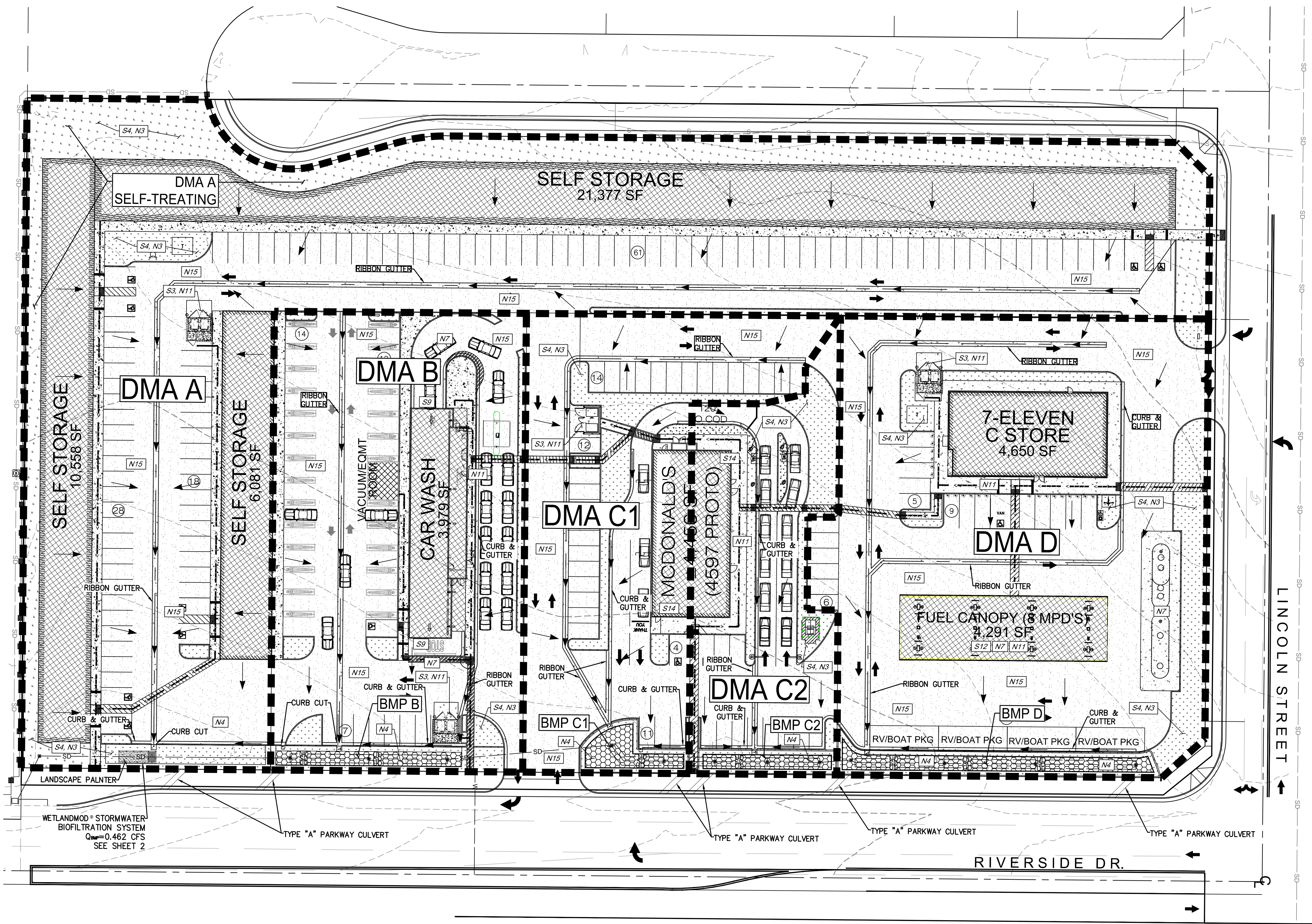
Riverside Dr.

Lake Elsinore
(Receiving Water)

I-15



DATE: 12/22/2021 ~ FILE NAME: D:\ATC\9-Draw\920-4081 Lincoln St., Lake Elsinore\Civil\Storm Water\WQMP\920-4081 WQMP Site Plan.dwg



LEGEND

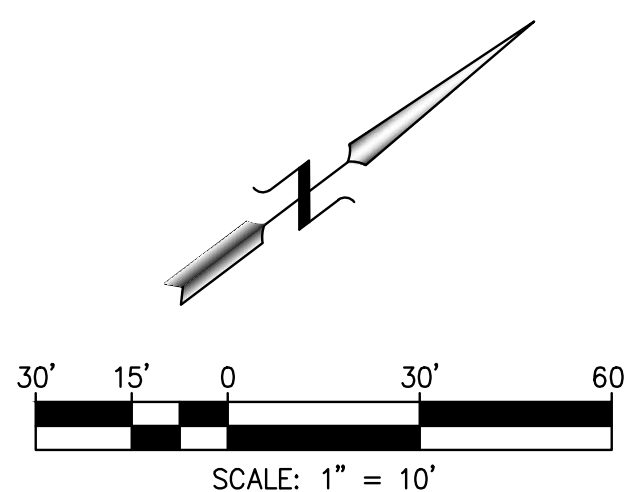
| DESCRIPTION | SYMBOL |
|---|-----------|
| SITE BOUNDARY | --- |
| DMA BOUNDARY | ---- |
| BIORETENTION BASINS (STRUCTURAL LID BMP) | [Pattern] |
| AC PAVING | [Pattern] |
| PCC PAVING | [Pattern] |
| LANDSCAPE AREA | [Pattern] |
| ROOF | [Pattern] |
| FLOW DIRECTION | → |
| STORM DRAIN INLET (CATCH BASIN) - S1, N14 | [Symbol] |
| STORM DRAIN | SD |
| RIPRAP | [Symbol] |

NON-STRUCTURAL SOURCE CONTROL BMP's

- N3 - LANDSCAPE MANAGEMENT BMP's
- N4 - BMP MAINTENANCE
- N7 - SPILL CONTINGENCY PLAN
- N11 - LITTER/DEBRIS CONTROL PROGRAM
- N14 - CATCH BASIN INSPECTION PROGRAM
- N15 - VACUUM SWEEPING OF PRIVATE STREETS AND PARKING LOTS

STRUCTURAL SOURCE CONTROL BMP's

- S1 - PROVIDE STORM DRAIN STENCILING OR SIGNAGE
- S3 - DESIGN AND CONSTRUCT TRASH AND WASTE STORAGE AREAS TO REDUCE POLLUTION INTRODUCTION
- S4 - USE EFFICIENT IRRIGATION SYSTEMS & LANDSCAPE DESIGN, WATER CONSERVATION, SMART CONTROLLERS, AND SOURCE CONTROL
- S9 - VEHICLE WASH AREAS
- S12 - FUELING AREAS
- S14 - WASH WATER CONTROL FOR FOOD PREPARATION AREAS



STRUCTURAL BMP DESIGN CRITERIA (BIORETENTION)

| ITEM | SYMBOL | VOLUME (CF) | SURFACE AREA (SF) | POND DEPTH | MEDIA DEPTH | GRAVEL DEPTH |
|--------|----------|-------------|-------------------|------------|-------------|--------------|
| BMP B | [Symbol] | 2,140 | 1,432 | 8" | 30" | 18" |
| BMP C1 | [Symbol] | 1,768 | 1,360 | 8" | 30" | 18" |
| BMP C2 | [Symbol] | 1,001 | 1,184 | 8" | 30" | 18" |
| BMP D | [Symbol] | 3,458 | 2,852 | 8" | 30" | 18" |

GENERAL INFORMATION

RECEIVING WATERS - LAKE ELSNORE
PRIORITY PROJECT POLLUTANTS OF CONCERN - PESTICIDES, TOXIC ORGANIC COMPOUNDS

HYDROLOGIC SOIL GROUP

100% OF SOIL TYPE A & B

APPROXIMATE DEPTH TO GROUNDWATER

>80 INCHES PER SOILS REPORT

INFILTRATION

INFILTRATION IS NOT ALLOWED DUE TO THE CITY OF LAKE ELSNORE HIGHEST AND BEST USE PRINCIPLES

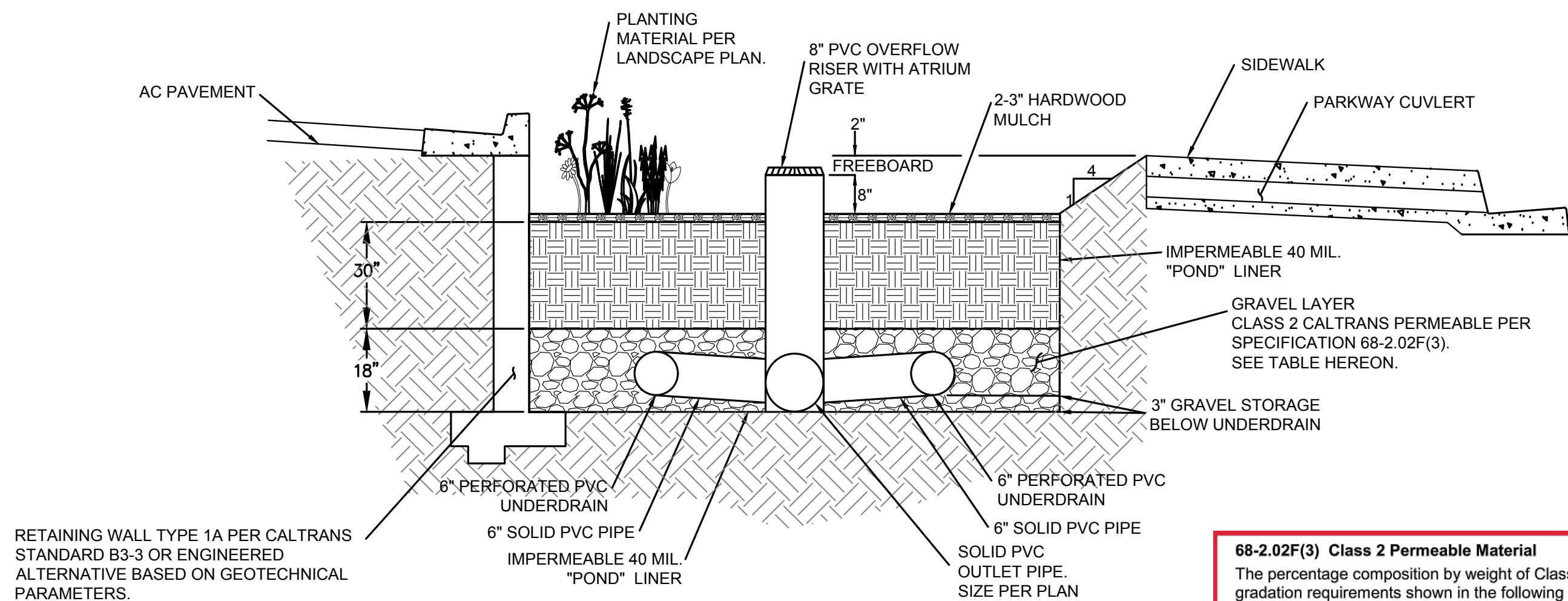
STRUCTURAL BMP'S

1) INFILTRATION BASIN WILL BE UTILIZED TO LIMIT POST-CONSTRUCTION PEAK RUNOFF RATES TO RATES NO GREATER THAN THOSE GENERATED BY THE PROJECT IN THE EXISTING CONDITION.

BMP A NOTE

BMP A IS A FLOW-BASED BIOFILTRATION SYSTEM. TREATMENT WILL BE VIA A PROPRIETARY "WETLANDMOD" STORMWATER BIOFILTRATION SYSTEM.

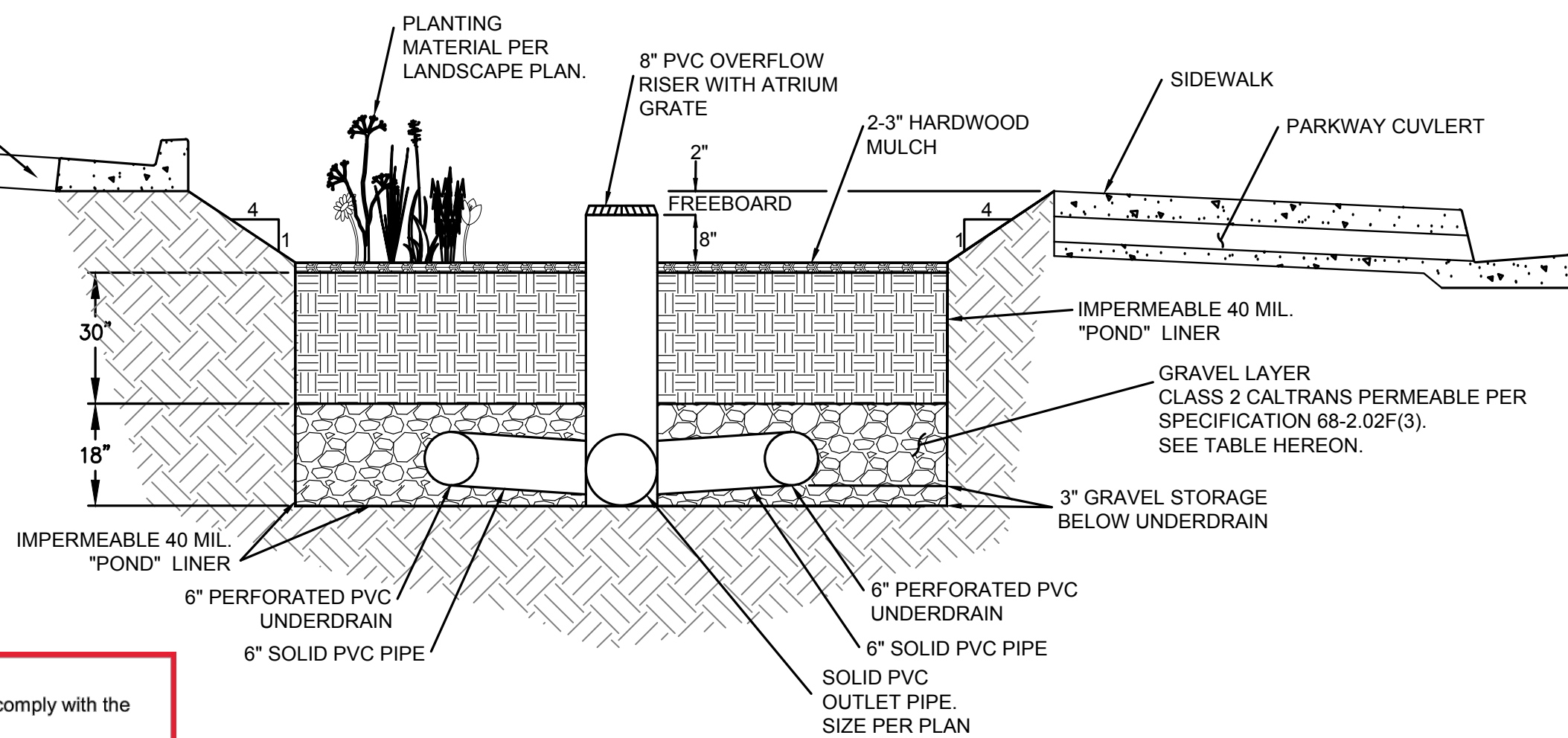
| DRAINAGE MANAGEMENT AREA SUMMARY | | | |
|----------------------------------|-----------|---------------|----------|
| ID | AREA (SF) | RUNOFF FACTOR | DCV (CF) |
| DMA A | 110,251 | 0.72 | 5,297 |
| DMA B | 39,237 | 0.82 | 2,134 |
| DMA C1 | 29,516 | 0.77 | 1,524 |
| DMA C2 | 18,396 | 0.42 | 520 |
| DMA D | 57,968 | 0.78 | 3,017 |



BMP B ~ TYPICAL SECTION
NO SCALE

| 68-2.02F(3) Class 2 Permeable Material | |
|---|--------------------|
| The percentage composition by weight of Class 2 permeable material in place must comply with the gradation requirements shown in the following table: | |
| Sieve size | Percentage passing |
| 1" | 100 |
| 3/4" | 90-100 |
| 3/8" | 40-100 |
| No. 4 | 25-40 |
| No. 8 | 18-33 |
| No. 30 | 5-15 |
| No. 50 | 0-7 |
| No. 200 | 0-3 |

Class 2 permeable material must have a sand equivalent value of not less than 75.



BMP C1, C2, & D ~ TYPICAL SECTION
NO SCALE

REVISIONS

| REV | REVISION | DATE |
|-----|----------|------|
| | | |
| | | |
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| | | |
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| | | |
| | | |
| | | |
| | | |

STAMP

ATC DESIGN GROUP
ARCHITECTS • ENGINEERS • SURVEYORS
1277 PACIFIC COAST HIGHWAY, SUITE 102, COSTA MESA, CA 92629
PHONE (714) 736-8800 FAX (714) 736-6624

WQMP SITE PLAN
COMMERCIAL MIXED USE CENTER
15209 LINCOLN STREET
LAKE ELSNORE, CA 92503

PROJECT NO: 20-4081
SUBMITTED DATE:
DESCRIPTION OF ISSUANCE:
PREPARED BY: JAT
SHEET DESCRIPTION:
WQMP SITE PLAN
SHEET NUMBER:
1

2

MWS-L-8-16-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

Appendix 2: Construction Plans

Grading and Drainage Plans

CITY OF LAKE ELSINORE

GRADING NOTES:

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF LAKE ELSINORE MUNICIPAL CODE, CHAPTER 15.72 AND APPLICABLE STANDARDS AND SPECIFICATIONS AND THE LATEST EDITION OF THE UNIFORM BUILDING CODE (U.B.C.), CHAPTER 33.
- A PERMIT SHALL BE OBTAINED FROM THE ENGINEERING DEPARTMENT, CITY OF LAKE ELSINORE, PRIOR TO ANY OPERATIONS.
- THE DEVELOPER AND/OR THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AND U.S.A. ALERT (1- 800-422-4133) FORTY-EIGHT (48) HOURS PRIOR TO GRADING.
- THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEERING DEPARTMENT AT LEAST TWENTY-FOUR (24) HOURS IN ADVANCE OF BEGINNING GRADING OPERATIONS.
- DUST SHALL BE CONTROLLED BY WATERING OR OTHER METHODS APPROVED BY THE CITY ENGINEER.
- CUT SLOPES SHALL BE NO STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL, UNLESS OTHERWISE APPROVED, AND SHALL BE SHOWN ON THE PLAN.
- FILL SLOPES SHALL BE NO STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL, UNLESS OTHERWISE APPROVED, SHALL BE SHOWN ON PLAN, AND SHALL NOT HAVE LESS THAN 90% RELATIVE COMPACTION OUT TO THE FINISHED SURFACE.
- FILLS SHALL BE COMPACTED THROUGHOUT TO 90% DENSITY AS DETERMINED BY THE MODIFIED THREE (3) LAYER A.S.T.M. D-1557-70 TEST METHOD.
- FILL AREAS SHALL BE CLEANED OF ALL VEGETATION AND DEBRIS, SCARIFIED, AND INSPECTED BY THE GRADING INSPECTOR AND APPROVED SOILS TESTING AGENCY PRIOR TO THE PLACING OF FILL.
- ALL FILL MATERIAL SHALL BE CLEAN EARTH. NO FILL SHALL BE PLACED UNTIL PREPARATION OF GROUND IS APPROVED BY THE SOILS ENGINEER.
- FINISH GRADE SHALL BE SLOPED AWAY FROM ALL EXTERIOR WALLS AT NOT LESS THAN 1/2" PER FOOT FOR A MINIMUM OF THREE (3) FEET, THEN 1% (MINIMUM) TO FLOW LINE OF EARTH SWALE.
- MINIMUM BUILDING PAD AND DRAINAGE SWALE SLOPE SHALL BE 1% IF CUT OR FILL SLOPE IS LESS THAN TEN FEET (10'), AND 2% IF CUT OR FILL IS GREATER THAN TEN FEET (10'). DRAINAGE SWALES SHALL BE A MINIMUM OF 0.5' DEEP AND CONSTRUCTED A MINIMUM OF TWO FEET (2') FROM THE TOP OF CUT OR FILL SLOPES.
- PROVIDE 5' WIDE BY 1' HIGH BERM OR EQUIVALENT ALONG THE TOP OF ALL FILL SLOPES OVER 5' HIGH
- PROVIDE A BROW DITCH, DESIGNED TO HANDLE ONE HUNDRED (100) YEAR STORM FLOWS ALONG THE TOP OF CUT SLOPES.
- NO OBSTRUCTION OF FLOOD PLAINS OR NATURAL WATER COURSES SHALL BE PERMITTED.
- A SOILS ENGINEER SHALL BE RETAINED BY THE DEVELOPER, TO SUPERVISE GRADING AND PROVIDE A FINAL SOILS REPORT WHICH INCLUDES FOUNDATION REQUIREMENTS (SUBDIVISIONS) AND EXPANSIVE CHARACTERISTICS OF THE SOIL.
- GRADING CERTIFICATION BY THE DEVELOPER'S CIVIL ENGINEER AND A FINAL COMPACTION REPORT BY A SOILS ENGINEER SHALL BE SUBMITTED TO THE BUILDING AND ENGINEERING DEPARTMENTS PRIOR TO ISSUANCE OF BUILDING PERMITS.
- THE SOILS ENGINEERING INVESTIGATION DATED MARCH 30, 2020 PREPARED BY HARRINGTON GEOTECHNICAL ENGINEERING, INC. SHALL BE CONSIDERED A PART OF THIS GRADING PLAN AND SHALL BE IN COMPLIANCE.
- A REGISTERED CIVIL ENGINEER OR LICENSED LAND SURVEYOR SHALL SUBMIT CERTIFICATION OF BUILDING PAD ELEVATION. WHERE SPECIFIC ELEVATIONS ARE REQUIRED, 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.
- ALL PROPERTY CORNERS SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION/GRADING.
- STABILITY CALCULATIONS WITH A SAFETY FACTOR OF AT LEAST 1.5 SHALL BE SUBMITTED BY A SOILS ENGINEER TO THE BUILDING AND ENGINEERING DEPARTMENTS FOR CUT AND FILL SLOPES OVER THIRTY FEET (30') IN VERTICAL HEIGHT.
- A FINAL COMPACTION REPORT WILL BE REQUIRED FOR ALL FILLS GREATER THAN ONE (1) FOOT.
- 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 BE APPROVED BY A REGISTERED SOILS ENGINEER PRIOR TO PLACEMENT OF FILL MATERIAL. SLOPES GREATER THAN 5:1 ARE REQUIRED TO BE KEYED AND BENCHED.
- THE SOILS ENGINEER SHOULD INSPECT THE CONSTRUCTION IN THE FOLLOWING STAGES:
 - UPON COMPLETION OF CLEARING AND DURING EXCAVATION AND BEFORE BACKFILL OF ALLUVIAL, COLLUVIAL AND TERRACED AREAS AND ANY SUBSTRUCTURES.
 - DURING ALL ROUGH GRADING AND OPERATIONS INCLUDING PRE-COMPACTION, BENCHING AND FILLING OPERATIONS.
 - DURING INSTALLATION OF BUTTRESS AND CANYON SUB-DRAINS AND FILTER MATERIAL.
 - WHEN ANY UNUSUAL GRADING CONDITIONS ARE ENCOUNTERED DURING CONSTRUCTION.
- EROSION CONTROL: ALL GRADED SLOPES SHALL BE PLANTED WITH ROSEA ICE PLANT OR ANOTHER APPROVED GROUND COVER, AT TWELVE INCHES (12") ON CENTER. SLOPES OVER FIFTEEN FEET (15') IN VERTICAL HEIGHT, IN ADDITION TO GROUND COVER, SHALL BE PLANTED WITH APPROVED TREES, SHRUBS OR COMBINATION THEREOF. SHRUBS SHALL BE PLANTED AT TEN FEET (10') ON CENTER; TREES AT TWENTY FEET (20') ON CENTER; COMBINATIONS FIFTEEN FEET (15') ON CENTER. SLOPES OVER THREE FEET (3') IN VERTICAL HEIGHT SHALL HAVE PERMANENT IRRIGATION SYSTEMS WITH BACKFLOW PREVENTION DEVICES PER U.B.C.

- APPROVED PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS MUST BE USED TO PROTECT ADJOINING PROPERTIES DURING THE GRADING PROJECT.
- APPROVED EROSION PREVENTIVE DEVICES SHALL BE PROVIDED AND MAINTAINED DURING THE RAINY SEASON AND SHALL BE IN PLACE AT THE END OF EACH DAY'S WORK.
- ALL WORK SHALL CONFORM TO THE CITY AND STATE CONSTRUCTION SAFETY ORDERS.
- THE LOCATION AND PROTECTION OF ALL UTILITIES IS THE RESPONSIBILITY OF THE PERMITTEE.
- AN APPROVED SET OF GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIME.
- SANITARY FACILITIES SHALL BE MAINTAINED ON THE SITE FROM BEGINNING TO COMPLETION OF GRADING OPERATION.
- ALL SLOPES SHALL BE PLANTED AND IRRIGATION FACILITIES SHALL BE PROVIDED FOR ALL SLOPES IN EXCESS OF THREE (3) FEET VERTICAL HEIGHT WITHIN NINETY (90) DAYS AFTER COMPLETION OF ROUGH GRADING AND SHALL BE IN ACCORDANCE WITH CITY OF LAKE ELSINORE GRADING ORDINANCE NO. 882 PRIOR TO THE APPROVAL OF FINAL INSPECTION.
- ANY CONTRACTOR PERFORMING WORK ON THIS PROJECT SHALL FAMILIARIZE HIMSELF WITH THE SITE AND BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FROM HIS OPERATIONS, WHETHER OR NOT SUCH FACILITIES ARE SHOWN ON THESE PLANS.
- THE DESIGN ENGINEER SHALL PROVIDE A MINIMUM OF ONE (1) BLUE TOP PER FINISHED PAD, PRIOR TO ROUGH GRADE APPROVAL.
- APPROXIMATE DATE OF:
BEGINNING OPERATION:
COMPLETION:
- NO ROCK OR OTHER IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN THREE INCHES (3') WILL BE PLACED IN FILLS WITHIN ROADBED AREAS OR THREE FEET (3') OF FINISH GRADES, UNLESS THE LOCATION, MATERIALS, AND DISPOSAL METHODS ARE SPECIFICALLY APPROVED BY THE SOILS ENGINEER.
- THE ENGINEER MUST SET GRADE STAKES FOR ALL DRAINAGE DEVICES AND OBTAIN INSPECTION BEFORE APPROVAL.
- GRADING PLANS WILL NOT BE APPROVED UNTIL ALL RETAINING WALLS ARE APPROVED BY THE BUILDING DEPARTMENT.
- THIS SITE HAS OBTAINED A NATIONAL POLLUTION PREVENTION ELIMINATION SYSTEM (NPDES) PERMIT TO REGULATE MUNICIPAL AND INDUSTRIAL STORM WATER DISCHARGES.

NPDES WQID # _____ DATE PERMIT ISSUED: _____
- DRAINAGE EASEMENTS WILL BE KEPT CLEAR OF ALL OBSTRUCTIONS. NO BUILDINGS OR WALLS SHALL BE PLACED WITHIN EASEMENT LIMITS. TEMPORARY IMPROVEMENTS ARE SUBJECT TO REMOVAL AT OWNER'S EXPENSE

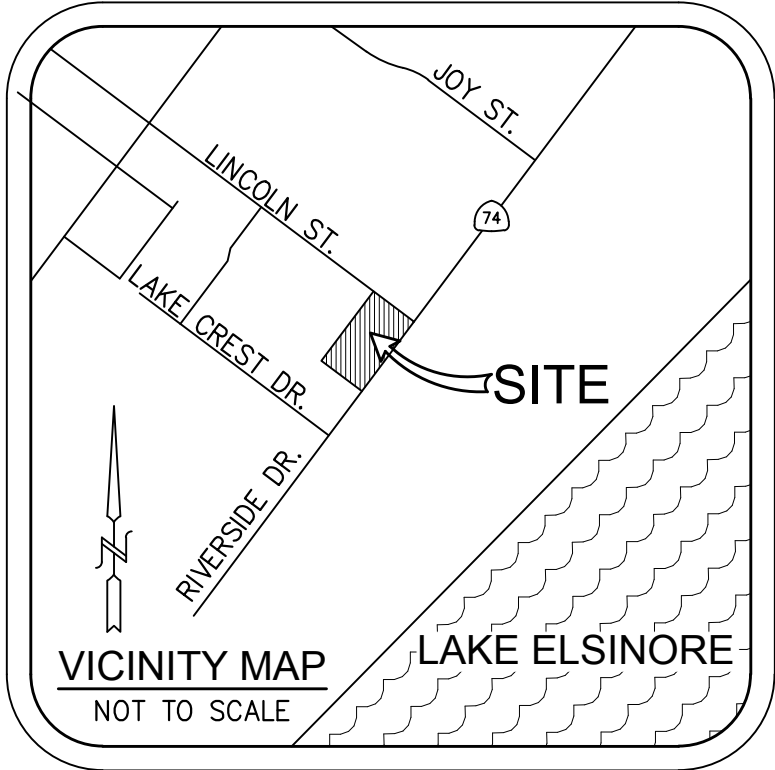
ENGINEER'S NOTICE

- CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND AL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
- ALL UNDERGROUND UTILITIES OR STRUCTURES, REPORTED OR FOUND ON PUBLIC RECORDS, ARE INDICATED WITH THEIR APPROXIMATE LOCATION AND EXTENT. THE OWNER, BY ACCEPTING THESE PLANS OR PROCEEDING WITH THE IMPROVEMENTS HEREON, AGREES TO ASSUME LIABILITY AND HOLD THE ENGINEERE HARMLESS FOR ANY DAMAGES RESULTING FROM THE EXISTNECE OF UNDERGROUND UTILITIES OR STRUCTURES NOT REPORTED OR INDICATED ON PUBLIC RECORDS, OR THOSE CONSTRUCTED AT VARIANCE WITH REPORTED OR RECORD LOCATIONS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES SHOWN AND ANY OTHER FOUND AT THE STIE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF ALL UTILITIES OR STRUCTURES CONCERNED BEFORE STARTING WORK.
- THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.
- QUANTITIES SHOWN HEREON ARE PROVIDED FOR BONDING PURPOSES ONLY. CONTRACTORS SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES PRIOR TO BIDDING FOR CONSTRUCTION.

SOILS ENGINEER'S CERTIFICATE

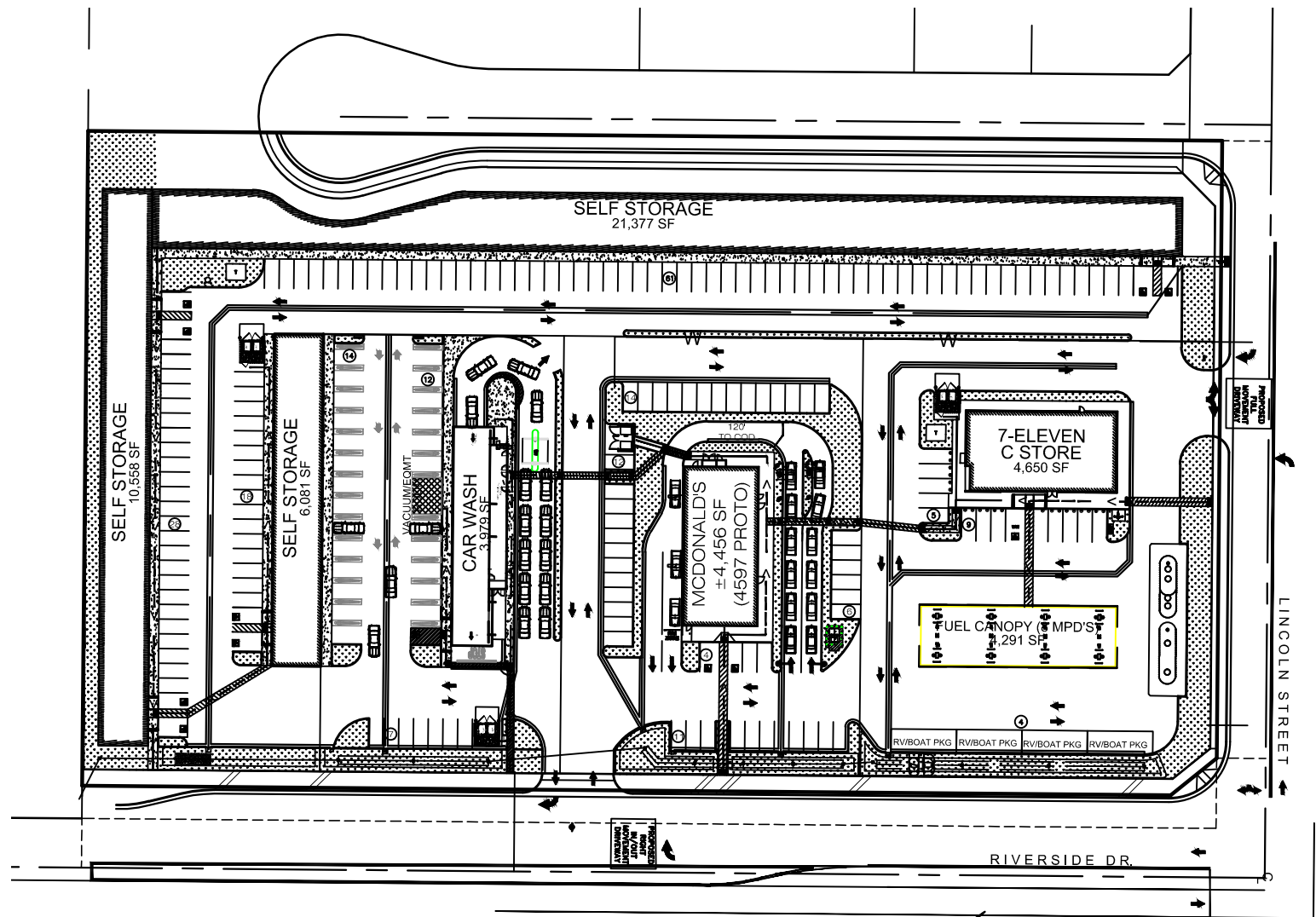
THESE GRADING PLANS HAVE BEEN REVIEWED BY THE UNDERSIGNED AND FOUND TO BE IN CONFORMANCE WITH THE RECOMMENDATIONS AND SPECIFICATIONS OUTLINED IN THE SOILS AND GEOLOGICAL RECONNAISSANCE REPORT PREPARED FOR THIS DEVELOPMENT.

(Signature) 40236 (RCE NO.) (Date)



SHEET INDEX

TITLE SHEET 1
PRECISE GRADING PLAN SHEET 2
DRAINAGE PLAN SHEET 3
EROSION CONTROL PLAN SHEET 4
SECTIONS SHEET 5
DETAILS SHEET 6



SITE ADDRESS

15209 LINCOLN STREET
LAKE ELSINORE, CA 92530

ASSESSOR'S PARCEL NUMBER

APN: 379-111-014

OWNER INFORMATION

EZ REAL ESTATE HOLDINGS, LLC
36353 PASEO DEL SOL
CATHEDRAL CITY, CA 92234

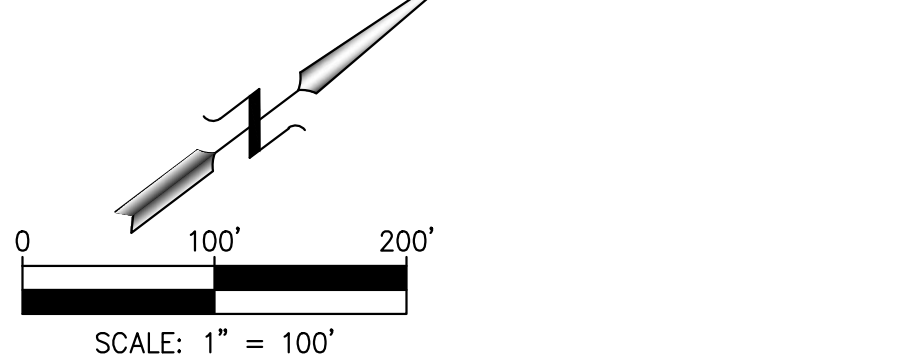
CIVIL ENGINEER
ATC DESIGN GROUP
1277 PACIFIC OAKS PLACE, SUITE 102
ESCONDIDO, CA 92029
CONTACT: JAMES A. TURPIN
PHONE: 760-738-8800
EMAIL: jturpin@atcdesigngroup.com

SOILS ENGINEER

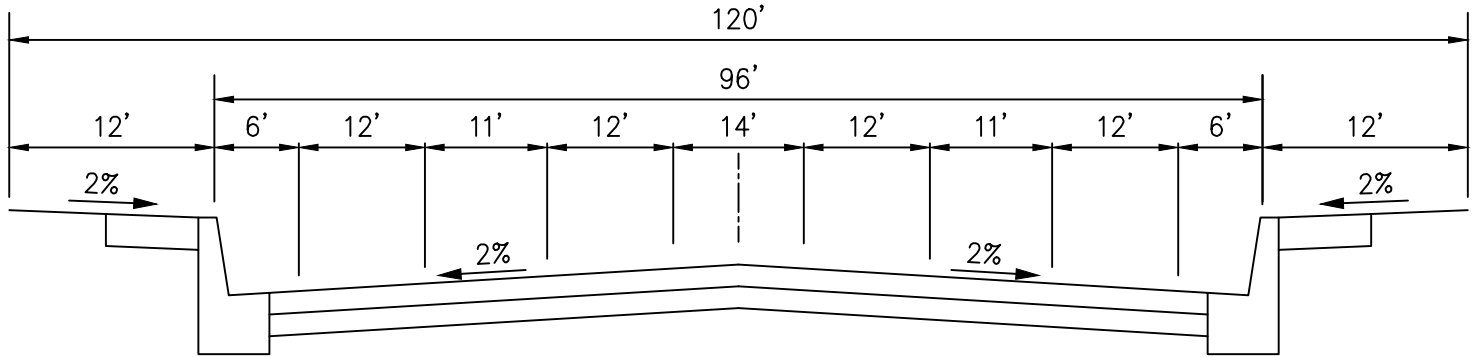
HARRINGTON GEOTECHNICAL ENGINEERING, INC.
1590 N. BRIAN STREET
ORANGE, CA 92667
CONTACT: JOSEPH L. WELCH
PHONE: 714-637-3093

EARTHWORK

CUT: 00000 CU. YDS
FILL: 00000 CU. YDS
EXPORT: 00000 CU. YDS



TYPICAL SECTION - LINCOLN STREET



TYPICAL SECTION - RIVERSIDE DRIVE

WORK TO BE DONE

ALL WORK PERFORMED SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH:

- COUNTY OF SAN BERNARDINO STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION.
- COUNTY OF SAN BERNARDINO SPECIAL DISTRICTS DEPARTMENT STANDARD DRAWINGS FOR SANITARY SEWER AND WATER.
- STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, (SPPWC) 2021 EDITION.
- STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION "GREENBOOK", 2018 EDITION.

LEGEND

EXISTING FEATURES

—+— CENTER LINE
—+— PROPERTY LINE
—+— RIGHT-OF-WAY
--- EASEMENT
Ⓢ SEWER MANHOLE
opp W (E) WATER LINE
S (E) SEWER LINE
SD (E) STORM DRAIN LINE
-(604)- EXISTING CONTOUR ELEVATION

PROPOSED FEATURES

6" PCC CURB
6" PCC CURB & GUTTER
GRADE BREAK
PRIVATE STORM DRAIN PIPE
6" SEWER LATERAL PER COSBSD NO. 305
PROPOSED SPOT ELEVATIONS
PROPOSED CONTOUR ELEVATION
BIORETENTION BASIN
PCC SIDEWALK
AC PAVING
PCC RIBBON GUTTER
RAISED TRUNCATED DOMES
BROOKS TYPE CATCH BASIN
CURB RAMP PER SPPWC 111-5

ABBREVIATIONS

| | | | |
|--------|-------------------------------------|--------|--|
| AC | ASPHALTIC CONCRETE | FS | FINISHED SURFACE |
| AVFD | APPLE VALLEY FIRE DISTRICT | GB | GRADE BREAK |
| BCR | BEGIN CURB RETURN | IE | INVERT ELEVATION |
| B.O.P. | BOTTOM OF PIPE | LIP | LIP OF GUTTER |
| CB | CATCH BASIN | LP | LOW POINT |
| CO | CLEANOUT | (N) | NEW / PROPOSED |
| C/L | CENTERLINE | PL | PROPERTY LINE |
| SBCSP | SAN BERNARDINO COUNTY STANDARD PLAT | PCR | POINT OF CURVE RETURN |
| CONC | CONCRETE | PCC | PORTLAND CEMENT CONCRETE |
| CF | CURB FACE | P.I.P. | PROTECT IN PLACE |
| CY | CUBIC YARD | R/W | RIGHT-OF-WAY |
| DIA | DIAMETER | SCH. | SCHEDULE |
| ECR | END CURB RETURN | SDMH | STORM DRAIN MAN HOLE |
| (E) | EXISTING | SMH | SEWER MAN HOLE |
| FF | FINISHED FLOOR | SPPWC | STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION ("GREENBOOK") |
| FH | FIRE HYDRANT | TC | TOP OF CURB |
| FL | FLOW LINE | TG | TOP OF GRATE |

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, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

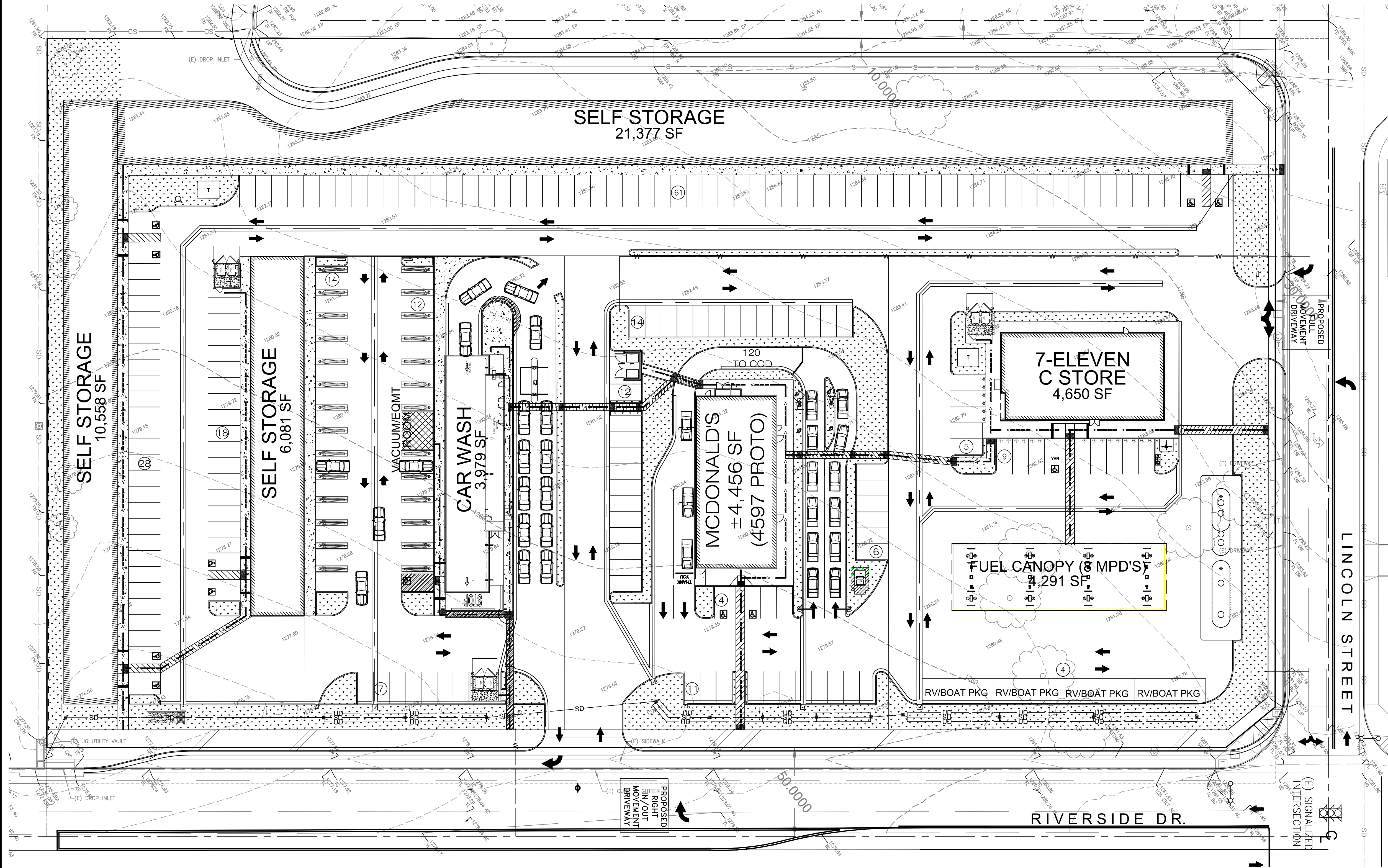
JAMES A. TURPIN No. C57695 XX/XX/XX
EXP 12-31-23



WDID NO. _____

SWPPP REF. _____


| MARK | REVISIONS | APPR. | DATE | THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND HAVE BEEN FOUND ACCEPTABLE. | PREPARED BY: | SCALE: | CITY OF LAKE ELSINORE | SHEET 1 |
|------|-----------|-------|------|---|--------------|----------|--|-----------|
| | | | | | | AS NOTED | TITLE SHEET | OF SHEETS |
| | | | | | | DATE: | BENCH MARK: TOP OF SPINDLE & WASHER @ CL INTERSECTION OF LINCOLN ST. & FLANNERY ST. | FILE No. |




CONSTRUCTION NOTES

- 1 NEW ALLEY-TYPE DRIVEWAY PER COESD NO. G-5-E
- 2 6" CURB PER SDRSD NO. G-01
- 3 TYPE "G" CURB & GUTTER PER SDRSD NO. G-02
- 4 CONCRETE RIBBON GUTTER. SEE DETAIL 6, SHEET 5
- 5 ACCESSIBLE CONCRETE GUTTER CROSSING. SEE DETAIL 7, SHEET 5
- 6 CASE "C" CURB RAMP PER DETAIL 3, SHEET 5
- 7 AC PAVING. 3" AC OVER 4" CLASS II AGGREGATE BASE. SEE DETAIL 2, SHEET 5
- 8 AC PAVING. 4" AC OVER 6" CLASS II AGGREGATE BASE. SEE DETAIL 2, SHEET 5
- 9 EXTERIOR CONCRETE FLAT WORK. SEE DETAIL 1, SHEET 5
- 10 5" THICK CONCRETE PAVING. SEE DETAIL 4, SHEET 5
- 11 6" THICK CONCRETE PAVING. SEE DETAIL 4, SHEET 5
- 12 7" THICK CONCRETE PAVING. SEE DETAIL 4, SHEET 5
- 13 HEALY TANK AND TRASH ENCLOSURE PER ARCHITECTURAL DRAWINGS
- 14 PRIVATE PVC STORM DRAIN PIPE. SIZE PER PLAN.
- 15 PRIVATE 6" PVC PERFORATED UNDERDRAIN PIPE PLACED AT 0.5% MINIMUM SLOPE
- 16 BIOFILTRATION FACILITY WITH PERFORAETD UNDERDRAIN PER DETAIL "A" HEREON
- 17 2' CURB OPENING
- 18 GROUTED RIPRAP DOWNDRAIN PER DETAIL 10, SHEET 5
- 19 1" WATER SERVICE W/ 1" METER PER COESD NO. W-1-E
- 20 1-1/4" C900 PVC WATER LINE
- 21 4" SEWER LATERAL PER COESD NO. S-2-E
- 22 4" SEWER CLEANOUT PER SDRSD NO. SC-01
- 23 4" SDR-35 PVC SEWER LINE
- 24 LANDSCAPE SWALE
- 25 FUEL TANKS UNDER SEPARATE PERMIT
- 26 GAS CANOPY AND PUMPS UNDER SEPARATE PERMIT. SEE GENERAL NOTE 5 HEREON
- 27 AIR, VAC., AND WATER STATION
- 28 MONUMENT SIGN
- 29 LANDSCAPE PER SEPARATE PLAN
- 30 ACCESSIBLE PATH OF TRAVEL STRIPING PER DETAIL 8, SHEET 5
- 31 ACCESSIBLE PARKING STALL PER DETAIL 5, SHEET 5
- 32 (N) 6" STEEL BOLLARD. SEE DETAIL 9, SHEET 5
- 33 LOCATION OF UNDERGROUND ELECTRICAL AND DATA CONDUIT. SEE GENERAL NOTE 4 HEREON
- 34 PRIVATE SD CLEANOUT. SIZE PER PLAN

| MARK | REVISIONS | APPR. | DATE | THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND HAVE BEEN FOUND ACCEPTABLE. | PREPARED BY: | DATE | SCALE: | BENCH MARK: TOP OF SPINDLE & WASHER @ CL INTERSECTION OF LINCOLN ST. & FLANNERY ST. | CITY OF LAKE ELSINORE | SHEET |
|------|-----------|-------|------|---|-----------------------------------|------|----------|--|-----------------------|-----------|
| | | | | | | | | | | |
| | | | | REMON HABIB, RCE No. 83156 CITY ENGINEER CITY OF LAKE ELSINORE | JAMES A. TURPIN, R.C.E. NO. 57695 | | AS NOTED | | DRAINAGE PLAN | OF SHEETS |
| | | | | DATE | DATE | | DATE: | | | FILE No. |

| | | | | | | | | | | | |
|------|-----------|-------|------|--|--|---|-----------------------------------|----------|---|----------|-----------|
| MARK | REVISIONS | APPR. | DATE | THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND HAVE BEEN FOUND ACCEPTABLE | PREPARED BY: |  | | | CITY OF LAKE ELSINORE | SHEET | |
| | | | | | | | | | | SECTIONS | OF SHEETS |
| | | | | | | | | SCALE: | BENCH MARK: | | FILE No. |
| | | | | | | | | AS NOTED | TOP OF SPINDLE & WASHER @ CL INTERSECTION OF LINCOLN ST. & FLANNERY ST. | | |
| | | | | | REMON HABIB, RCE No. 83156 CITY ENGINEER CITY OF LAKE ELSINORE | | JAMES A. TURPIN, R.C.E. NO. 57695 | | DATE: | | |

| MARK | REVISIONS | APPR. | DATE | THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND HAVE BEEN FOUND ACCEPTABLE | PREPARED BY: JAMES A. TURPIN, R.C.E. NO. 57695 DATE _____ |  | | | CITY OF LAKE ELSINORE | SHEET |
|------|-----------|-------|------|--|---|---|----------|---|-----------------------|-----------|
| | | | | | | | | | DETAILS | OF SHEETS |
| | | | | | | | SCALE: | BENCH MARK: | | |
| | | | | | | | AS NOTED | TOP OF SPINDLE & WASHER @ CL INTERSECTION OF LINCOLN ST. & FLANNERY ST. | | |
| | | | | | | | DATE: | | | FILE No. |

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

March 13, 2020

Mr. Ilan Golcheh, President
GOLCHEH GROUP
1180 South Beverly Drive, Suite 300
Los Angeles, CA

RE: Geotechnical Investigation for Design and Construction of Proposed Convenience Store, Fuel Canopy and Fast Food, Car Wash and Self-Storage Buildings at 15209 Lincoln Street, Lake Elsinore, CA

HGEI Project No. 20-01-3952

Dear Mr. Golcheh:

This report presents the results of a geotechnical investigation performed at your request to establish information on the materials underlying the proposed development area and, based thereon, to provide recommendations for design and construction of the proposed convenience store, fuel canopy and fast food, car wash and self-storage buildings. Two percolation tests to establish an infiltration rate were performed as part of the investigation.

Preliminary design information was used in outlining the scope of the investigation and preparing this report in accordance with generally accepted geotechnical engineering practice in this area.

Based on analysis and evaluation of the data obtained it has been concluded that construction of the proposed buildings and associated parking lot as proposed is feasible from a geotechnical engineering standpoint provided the recommendations presented herein are incorporated into design and construction of the project.

Thank you for this opportunity to be of service. If you have any questions concerning this report or if we can be of further assistance, please call at your convenience.

Very truly yours,
HARRINGTON GEOTECHNICAL ENGINEERING, INC.



Joseph L. Welch, P.E., G.E.
Senior Geotechnical Engineer

Distribution: file
Addressee via E-mail



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INTRODUCTION

This report presents the results of a geotechnical investigation of the subject building site. The purposes of the investigation were to: 1) determine the type and condition of the soil materials at the site; 2) establish static physical and limited chemical properties of the materials; 3) determine groundwater conditions; and 4) provide recommendations for design and construction of the building foundations and floor slabs for the proposed convenience store, fuel canopy and fast food, car wash and self-storage buildings and pavement design for the associated parking lot.

SCOPE OF WORK

The scope of work for this geotechnical investigation consisted of the following:

Review of published regional geologic maps and reports (See References).

A field exploration was conducted on February 25, 2020 and consisted of drilling, logging, and sampling seven exploratory borings (B-1 to B-7) to depths of up to 21.5 feet. The field exploration is described in detail in Appendix A. Two percolation tests to establish an infiltration rate were performed as part of the investigation. The tests were conducted in borings I-1 and I-2. The results are discussed in Appendix D.

Selected samples were tested in HGEI's AMRL Accredited Geotechnical Laboratory to develop data necessary for analysis of subsurface conditions and used in preparation of this report. A description of the geotechnical laboratory testing conducted for the samples collected from the site and presentation of the results are found in the Laboratory Procedures & Test Results in Appendix B.

HGEI conducted engineering analysis, constructed figures, and prepared this report depicting the findings and conclusions of the investigation.

SITE LOCATION AND DESCRIPTION

The site is located at 15209 Lincoln Street, Lake Elsinore, CA as shown on the Vicinity Map, Figure 1, which follows. As shown on the Air Photo, Figure 2, the relatively flat pad is bordered on the southeast by Riverside Drive, to the northeast by Lincoln Street, to the northwest by

A map of the Lake Elmore area. A red pin marks the location at 15209 Lincoln Street. The map shows Lake Elmore, several roads including Lincoln St, and nearby landmarks like Walmart and The Links at Suttermere.

[illegible]

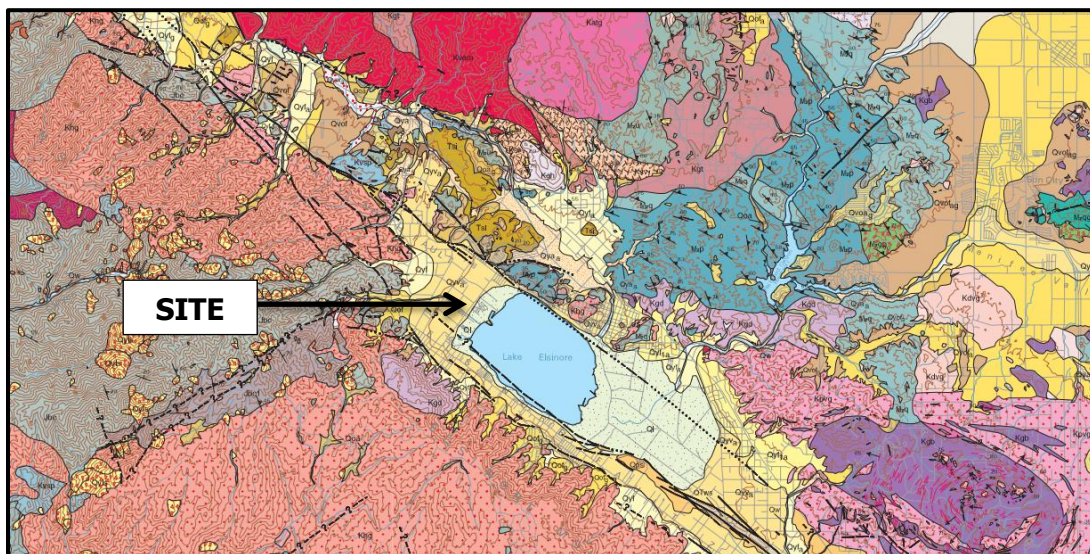
PROJECT DESCRIPTION

As shown on Plate A, the new development will be comprised of several single-story buildings that will be a convenience store, fast food, car wash and self-storage facility, a fuel canopy and associated parking lot. Minimal grade changes are anticipated. The building foundations will comprise continuous perimeter foundation with slab on grade floors. Typical single-story foundation loads, about 1,500 pounds per lineal foot have been considered in preparation of this report. The fuel canopy will be supported on reinforced concrete piers, supporting maximum vertical loads in the order of 10 kips.

REGIONAL GEOLOGIC SETTING

The subject site is situated along the central portion of the Peninsular Ranges Geomorphic Province of Southern California within the Elsinore extensional structural basin created by movements along the Elsinore fault zone. The Peninsular Ranges Geomorphic Province is characterized by elongated northwest to southeast trending ridges and valleys subparallel to faults branching from the San Andreas Fault. Published maps (Reference 4) have been used to identify the geologic unit underlying the property. As shown on Figure 3, these maps indicate that the property is underlain at depth by young alluvial valley deposits of Holocene to late Pleistocene geologic age.

Regional Geologic Map - Figure 3



Qyva – Young Alluvial Valley Deposits (Holocene and late Pleistocene) — Silty to sandy alluvium on valley floors; gray, unconsolidated

SUBSURFACE CONDITIONS

Earth Materials

Subsurface conditions encountered during this investigation are described in more detail in Appendix A. Logs of the borings are presented on Plates A-1 and A-7 and show the site to be immediately underlain by alluvial material comprised of silty sand to sandy silt that is damp to moist and moderately dense.

Groundwater

Groundwater was not encountered at the time of drilling. A groundwater monitoring well located approximately .75 miles northeast of the site and identified as State Well Number 6S05W02A001S indicates a groundwater depth of 298 feet below the ground surface recorded on 11/12/19 (Reference 3). Groundwater levels can fluctuate but groundwater is not expected to adversely affect the proposed development under normal conditions in the future.

Caving

Caving of the exploratory borings did not occur due to the types of soil encountered and is not expected to be a major concern during construction. The regulations of Cal/OSHA should be complied with during performance of all underground construction.

Expansion Potential

Based on the results of laboratory testing (Table 1, Appendix B) the Expansion Index for the typical near-surface material is 10. The 2019 California Building Code (Section 1803.5.3) categorizes this material as being non-expansive and special design is not required per Section 1808.6.

Water-Soluble Sulfate

A soil sample was delivered to a state approved analytical laboratory for testing to evaluate water-soluble sulfate content. Based on the results of laboratory testing (Table 2, Appendix B) a negligible (S0) exposure category is indicated (ACI 318, Table 4.2.1).

GEOLOGIC HAZARDS

Faulting/Fault Rupture

The site is in a portion of California that is seismically active and anticipated to be subjected to strong ground motions by earthquakes generated by active faults in the area. The site is not

within a presently designated earthquake fault zone as established by the Alquist-Priolo Fault Zoning Act (Reference 1).

The site is situated approximately 1.1 km from the nearest fault (Elsinore Glen Ivy) and 5.5 km from the next nearest fault (Elsinore-Temecula). The likelihood of surface rupture occurring at the site is considered low.

Liquefaction/Seismically Induced Settlement

The site has not been evaluated by California Geological Survey (CGS) for liquefaction hazard potential (Reference 1). The City of Lake Elsinore General Plan (Reference 3) indicates that the site is underlain by sediments that are moderately susceptible to liquefaction. Based on this classification and the depth to groundwater, a liquefaction/dry sand settlement assessment was not considered necessary.

CONCLUSIONS AND RECOMMENDATIONS

Based on conditions encountered/established during this investigation, it is our conclusion that construction of the currently planned convenience store, fuel canopy and fast food, car wash and self-storage buildings and associated parking lot is feasible from a geotechnical engineering standpoint provided the recommendations which follow are implemented during design and construction of the project.

Following our evaluation of conditions encountered in the field exploration and the analyses of laboratory test data, the following recommendations for grading the site and designing the footings, at-grade floor slabs and pavement section are being provided. Anticipated conditions and these recommendations are subject to confirmation during construction.

Additional recommendations may be provided during the course of work if warranted by conditions encountered. The foundation plan should be reviewed by the geotechnical engineer and any necessary recommendations provided in a review letter.

Site Clearing and Grading

It is recommended that grading be carried out in accordance with applicable sections of the Grading Specifications in Appendix E and the following site specific recommendations. Prior to grading, any existing vegetation should be stripped and disposed of offsite according to the city's requirements.

In order to develop adequate uniform support and alleviate the potential for differential settlement, the soil in the new structure areas plus five feet in each direction, should be removed to a minimum depth of 3 feet, or to the depth necessary to expose competent soil, the exposed soil scarified 12 inches deep, moisture conditioned to optimum moisture content, and compacted to a minimum relative compaction of 90% based on the results of compaction tests performed in accordance with ASTM Test Method D1557-12^{e1}.

New hardscape areas should be scarified 12 inches deep, and moisture conditioned and compacted as indicated above. New parking and drive areas should be over-excavated one foot deep, scarified 12 inches deep, and moisture conditioned and compacted as indicated above.

Replacement fill material should be spread in thin, loose lifts, and moisture conditioned and compacted as indicated above.

Imported soil shall be approved by the geotechnical engineer for expansion, sulfate, and strength qualities prior to being transported to the project site. Final acceptance of any imported soil will be based on observation and/or testing of soil actually delivered to the site.

It is recommended that grading operations be monitored by a representative of this office in order to confirm compliance with these recommendations and, in turn, the foundation design recommendations which follow.

Seismic Design

The provisions of Chapter 16, Section 1613, of the 2019 California Building Code and the Structural Engineer Associates of California guidelines are considered appropriate for design of the project.

Earthquake factors determined using the SEAOC/OSHPD data base website and Chapter 16 requirements are presented in Appendix C.

Fuel Canopy Foundation Design

An allowable, net, vertical bearing pressure of 3,000 pounds per square foot is recommended for design of 18-inch-diameter, or larger, piers at least 6 feet deep. This pressure may be increased by 600 pounds per square foot for each additional foot of embedment up to 5000 pounds per square foot.

An allowable lateral bearing pressure of 300 pounds per square foot per foot of depth limited to 2,000 pounds per square foot is recommended.

Minor caving/raveling may occur. Concrete should be placed as soon as possible to minimize this occurrence.

Building Foundation Design

New conventional footings embedded into approved fill material may be used. Footings with a minimum width of 12 inches and plan dimension depth of 18 inches (measured from the lowest adjacent finish grade) may be designed using an allowable, net, dead load plus live load soil bearing pressure up to 2,000 pounds per square foot (psf). The allowable soil bearing pressure can be increased by 250 psf for each additional foot of width or depth to a maximum allowable bearing capacity of 3,000 psf if deemed necessary by the structural engineer. A one-third increase in bearing may be assumed for short duration wind or seismic loading in combination with vertical loads. Minimum reinforcement recommended for any continuous footings is one No. 4 bar, top and bottom. Pad footing reinforcement, if any, will be governed by structural design.

For the purposes of resisting lateral forces, an allowable passive soil pressure of 300 pounds per square foot per foot of depth may be used in design. A coefficient of friction of 0.35 may be used for concrete placed on approved compacted fill. These values may be combined without reduction.

It is recommended that the foundation excavations be examined and, if necessary, tested by a representative of the geotechnical engineer to confirm anticipated conditions and/or provide additional recommendations should they be necessary.

Floor Slab Design/Construction

It is recommended that the floor slab be a nominal 4 inches thick, reinforced with No. 4 bars at 24 inches on center, each way.

A moisture vapor retarder installed in accordance with the manufacturer's instructions should be provided. We would recommend that 2 inches of clean sand be placed over a minimum 10 mil visqueen vapor barrier underlain by 4 inches of coarse sand or gravel to comply with the requirements of CALGREEN.

HGEI does not practice in the field of moisture vapor transmission evaluation/mitigation. Therefore, we recommend that a qualified consultant be engaged with to evaluate the general and specific moisture vapor transmission paths and any impact on the proposed construction.

This consultant should provide recommendations for mitigation of potential adverse impact of moisture vapor transmission on various components of the structure as deemed appropriate.

Settlement

Foundation settlement (total and differential) should not exceed ½-inch and ¼-inch, respectively. The horizontal distance over which differential settlement could occur is 20 feet.

Concrete Flatwork/Driveway

Miscellaneous flatwork should be a nominal 4 inches thick, reinforced at mid-depth with No 4 bars at 24 inches on center each way and provided with adequate control joints. Low slump concrete should be used for all flatwork to further minimize cracking. The driveway thickness should be 5 inches if constructed of concrete.

It should be noted that due to normal concrete shrinkage some minor cracking of the concrete flatwork may occur. Additional reinforcement beyond that recommended herein and careful control of concrete slump would be beneficial in reducing such cracking. Also, it is very important that all control joints be caulked and properly maintained to inhibit infiltration of surface water into the soil and thereby minimize expansion.

Pavement

Based on an estimated R-value of 40 and assumed Traffic Index of 4.5 for parking areas, it is recommended that automobile traffic areas be paved with 4 inches of asphalt concrete over 4 inches of Class II Base and automobile drive lanes with an assumed Traffic Index of 5 should be paved with 5 inches of asphalt concrete over 4 inches of Class II base. The sections should be placed on a minimum of two feet of soil compacted to at least 90 percent of the maximum dry density determined in accordance with ASTM Test Method D1557. (Ref. Caltrans Highway Design Manual Chapter 630).

As an alternative, based on an estimated R-value of 40 and assumed Traffic Index of 5, asphalt parking and drive lanes could be paved with a full depth section with 0.60 foot of asphalt concrete placed on a minimum of two foot of compacted soil. The foot immediately beneath the asphalt should be compacted to at least 95 percent of the maximum dry density determined in accordance with ASTM Test Method D1557. The other lower foot should be compacted to at least 90 percent of the maximum dry density determined in accordance with ASTM Test Method D1557. (Reference Caltrans Highway Design Manual Chapter 630).

Concrete Quality

A negligible amount of water-soluble sulfate is indicated for the prevalent surface material and special sulfate-resistant concrete will not be required on this project. The exposure class (ACI 318-11, Table 4.2.1) is S0. Based on this test result concrete may contain Type II cement (Section 1904.2 of the 2019 CBC and ACI 318, Section 4.3, Table 4.3.1).

Site Drainage

The 2019 CBC Section 1804.4 requires that the minimum drainage for the ground around the perimeter of a building should be 5% away from the foundation for a distance of 10 feet. Impervious surfaces within 10 feet of the building foundation shall be sloped a minimum of 2%. In no case should the surface waters be allowed to flow over the slope surfaces in an uncontrolled manner.

Utility Trench Backfills

Backfill for any trenches associated with this project should consist of site and/or similar material (the use of imported sand is not recommended) that must be adequately compacted to preclude detrimental settlement. It is recommended, therefore, that backfills placed below the building foundation and to a distance of five feet outside thereof, and below concrete flatwork, be placed in appropriate lifts, moisture conditioned and mechanically compacted to at least 90 percent of maximum dry density.

Plan Review

It is recommended that final project plans, details and specifications be submitted to this office for geotechnical review for compliance with the findings and recommendations of this report. Additional recommendations can then be provided if necessary.

Grading Observations and Testing

Grading and foundation construction should be observed and tested by members of our staff so that anticipated soil conditions can be confirmed and the recommendations contained herein validated. If deemed necessary, as a result of changed conditions, supplemental recommendations may then be provided. Results of those observations and tests should be provided in the final report which should include a statement by the geotechnical engineer concerning the adequacy of the completed work.

Pre-Construction Meeting

A pre-grade/construction meeting should be attended by the owner's representative, members of the design team, grading contractor, city/county inspector, and a representative from HGEI

at the site to review the findings and recommendations of this report and project plans and specifications prior to starting work on the project.

GENERAL COMMENTS

The services provided under the purview of this report have been performed in accordance with generally accepted geotechnical engineering principals and standards of practice in this area. The comments and recommendations presented are professional opinions based on observations and our best estimation of project conditions and requirements as indicated by presently available information and data. No further warranty, express or implied, is intended by issuance of this report.

The investigation did not include: 1) detailed study of geologic and seismic conditions; 2) assessment of the liquefaction potential; or 3) sampling, field measurements or laboratory tests for the presence of any toxic/hazardous substances in the earth materials at the site. However, this does not imply that the site is subject to any unusual geologic, seismic or environmental hazard.

Any unanticipated condition encountered in the course of grading and/or construction should be brought to the attention of the geotechnical engineer for evaluation prior to proceeding with the work.

This report has been developed for the sole use of the client and/or clients authorized representative. These conclusions and recommendations should be verified by a qualified geotechnical engineer based in part upon additional subsurface information obtained during grading and/or foundation construction. No part of the report should be taken out of context, nor utilized without full knowledge and awareness of its intent.

This report is issued on condition that HGEI will be retained to observe the grading and foundation construction operations. If another firm provides this service then that firm must review and accept this report, or provide alternate recommendations, and assume responsibility for the project. This report will be valid for a period of one year form date of issue and will then require updating.

0-0-0

REFERENCES

1. California Department of Conservation, California Geological Survey, Earthquake Zone App, <https://maps.conservation.ca.gov/cgs/EQZApp/>
2. Department of Water Resources (DWR), March 12, 2020.
<http://wdl.water.ca.gov/waterdatalibrary/>
3. City of Lake Elsinore, General Plan, Chapter 3.0 Public Safety & Welfare, Section 3.6 - Seismic Activity, Adopted December 13, 2011.
4. USGS, 2004, Morton, D.M., Bovard, Kelly R., and Alvarez, Rachel M., 2004, Preliminary Digital Geologic Map of the Santa Ana 30'x 60' Quadrangle, Southern California, version 2.0: U.S. Geological Survey Open-File Report 99-0172.
5. OSHPD Seismic Design Maps, <https://seismicmaps.org>, March 12, 2020.
6. Blake, Thomas F., 2000, FRISKSP (Version 4.00), EQFAULT and EQSEARCH (Version 3.00), Computer Programs for calculating the site to fault distances, Deterministic peak horizontal ground accelerations for a Maximum Magnitude Earthquake, and historic seismicity for an area from selected known faults in the southern California region (Rev. 2000).

APPENDIX A

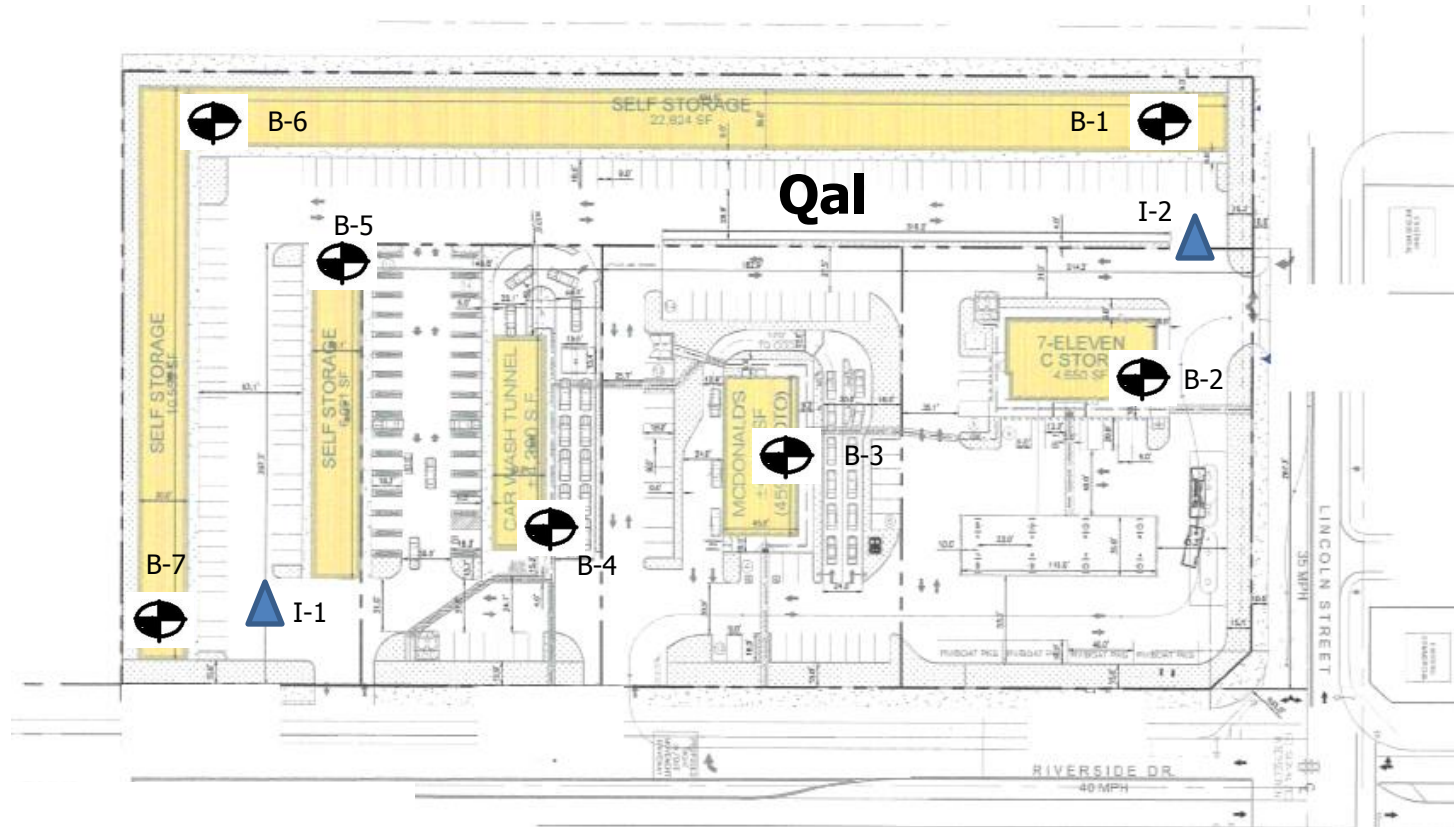
FIELD INVESTIGATION

The field investigation was conducted on February 25, 2020 and consisted of logging and sampling seven exploratory borings drilled with a truck mounted hollow stem 8-inch-diameter auger to depths of up to 21.5 feet. The subsurface exploration locations are indicated on Plate A and the logs of the borings are presented on Plates A-1 to A-7. Two additional borings (I-1 and I-2) were drilled for percolation testing to establish an infiltration rate. The results are discussed in Appendix D. The descriptions represent the prevalent soil types and slightly different material types may be present within the major groupings. Also, the transition from one soil type or condition to another may be gradual rather than abrupt as implied, and differing conditions may exist in unexplored areas.

Unified Soil Classification System Classification Criteria/Symbols are presented on Plate A-8.

A representative of the geotechnical engineer observed the field work, collected samples for transportation to our geotechnical laboratory, and prepared field logs by visual/tactile examination of the materials. Core samples were obtained at discreet intervals using a modified California split-spoon sampler loaded with 2.42" I.D. x 1"-long, thin-wall, brass rings. Bulk samples of the materials were also collected. Samples were placed in plastic bags immediately upon removal from the sampler to conserve moisture and labeled for identification.

The borings were backfilled with excavated soils immediately upon completion of sampling. Groundwater was not encountered at the time of drilling the borings.



LEGEND:

Qal



Alluvium

Approximate Boring Location



Infiltration Test Location

HGEI Project No. 20-01-3952
Plate A

1590 N. Brian Street, Orange, CA 92867-3406 FAX (714) 637-3096 PHONE (714) 637-3093
Please visit our website at www.harringtongeotechnical.com

LOG OF BORING B-1

Project:
Job No.: 20-01-3952
Location: 15209 Lincoln Street, Lake Elsinore
Coordinates:

Surface Elev.: Grade
Top of Casing Elev.: N.A.
Drilling Method: HSA
Sampling Method: Core Barrel

| Elevation, feet | Depth, feet | Sample No. | Sampler Graphics Symbol / USCS | Recovery % | MATERIAL DESCRIPTION | Blow Counts | Dry Unit Weight, lb/cu ft. | Water Content % |
|-----------------|-------------|------------|-----------------------------------|------------|--|-------------|-------------------------------|--------------------|
| | 0 | | | | GRASS ALLUVIUM (Qal): SILTY SAND (SM), light olive brown, damp to moist, medium dense, fine to coarse grained | 23 | 113 | 4 |
| | 5 | | | | SILTY SAND (SM), light olive brown, damp to moist, medium dense, fine to medium grained | 36 | 99 | 7 |
| | | | | | | 52 | 105 | 7 |
| | 10 | | | | | 30 | 107 | 6 |
| | | | | | | 21 | 104 | 14 |
| | 15 | | | | SANDY SILT (ML), dark olive brown, moist, stiff, fine medium grained | 28 | 105 | 20 |
| | | | | | | 25 | 108 | 18 |
| | 20 | | | | | 33 | 115 | 15 |

Completion Depth: 20.0
Date Boring Started: 2/25/20
Date Boring Completed: 2/25/20
Logged By: SM
Drilling Contractor: OWD

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BORING B-2

Project:
 Job No.: 20-01-3952
 Location: 15209 Lincoln Street, Lake Elsinore
 Coordinates:

Surface Elev.: Grade
 Top of Casing Elev.: N.A.
 Drilling Method: HSA
 Sampling Method: Core Barrel

| Elevation, feet | Depth, feet | Sample No. | Sampler Graphics Symbol / USCS | Recovery % | MATERIAL DESCRIPTION | Blow Counts | Dry Unit Weight, lb/cu ft. | Water Content % |
|-----------------|-------------|------------|-----------------------------------|------------|---|-------------|-------------------------------|--------------------|
| | 0 | | | | GRASS | | | |
| | | | | | ALLUVIUM (Qal): | | | |
| | | | | | SILTY SAND (SM), light, olive gray, damp to moist, medium dense, fine to coarse grained | 16 | 111 | 6 |
| | 5 | | | | | 21 | 117 | 1 |
| | | | | | SILTY SAND (SM), light olive brown, moist, medium dense, fine to medium grained | 30 | 102 | 11 |
| | 10 | | | | | 40 | 114 | 6 |
| | | | | | | 32 | 104 | 11 |
| | 15 | | | | SILTY SAND (SM), olive brown, moist, medium dense to dense, fine to medium grained | 45 | 105 | 10 |
| | | | | | | 48 | 110 | 7 |
| | 20 | | | | | 56 | 115 | 7 |

Completion Depth: 20.0
 Date Boring Started: 2/25/20
 Date Boring Completed: 2/25/20
 Logged By: SM
 Drilling Contractor: OWD

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BORING B-3

Project:
Job No.: 20-01-3952
Location: 15209 Lincoln Street, Lake Elsinore
Coordinates:

Surface Elev.:
Top of Casing Elev.:
Drilling Method:
Sampling Method:

Grade
N.A.
HSA
Core Barrel

| Elevation, feet | Depth, feet | Sample No. | Sampler Graphics Symbol / USCS | Recovery % | MATERIAL DESCRIPTION | Blow Counts | Dry Unit Weight, lb/cu ft. | Water Content % |
|-----------------|-------------|------------|-----------------------------------|------------|---|-------------|-------------------------------|--------------------|
| | 0 | | | | GRASS ALLUVIUM (Qal): SILTY SAND (SM), light olive brown, damp, medium dense, fine to coarse grained | | | |
| | 5 | | | | | 24 | 111 | 3 |
| | | | | | | 34 | 110 | 2 |
| | | | | | SILTY SAND (SM), olive brown, moist, medium dense, fine to medium grained | 18 | 99 | 8 |
| | 10 | | | | | 28 | 97 | 9 |
| | | | | | | 36 | 103 | 10 |
| | 15 | | | | | 36 | 79 | 9 |
| | | | | | | 28 | 103 | 16 |
| | 20 | | | | | 30 | 109 | 17 |

Completion Depth: 20.0
Date Boring Started: 2/25/20
Date Boring Completed: 2/25/20
Logged By: SM
Drilling Contractor: OWD

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BORING B-4

Project:
Job No.: 20-01-3952
Location: 15209 Lincoln Street, Lake Elsinore
Coordinates:

Surface Elev.:
Top of Casing Elev.:
Drilling Method:
Sampling Method:

Grade
N.A.
HSA
Core Barrel

| Elevation, feet | Depth, feet | Sample No. | Sampler Graphics Symbol / USCS | Recovery % | MATERIAL DESCRIPTION | Blow Counts | Dry Unit Weight, lb/cu ft. | Water Content % |
|-----------------|-------------|------------|-----------------------------------|------------|---|-------------|-------------------------------|--------------------|
| | 0 | | | | GRASS | | | |
| | | | | | ALLUVIUM (Qal): | | | |
| | | | | | SILTY SAND (SM), olive brown, damp to moist, medium dense, fine to coarse grained | 12 | 98 | 7 |
| | 5 | | | | | 28 | 111 | 2 |
| | | | | | SILTY SAND (SM), olive brown, moist, medium dense, fine to medium grained | 33 | 95 | 11 |
| | 10 | | | | | 40 | 99 | 11 |
| | | | | | | 45 | 110 | 9 |
| | 15 | | | | | 24 | 105 | 8 |
| | | | | | | 50/6" | 114 | 8 |
| | 20 | | | | | 43 | 106 | 14 |

Completion Depth: 20.0
Date Boring Started: 2/25/20
Date Boring Completed: 2/25/20
Logged By: SM
Drilling Contractor: OWD

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BORING B-5

Project:
Job No.: 20-01-3952
Location: 15209 Lincoln Street, Lake Elsinore
Coordinates:

Surface Elev.:
Top of Casing Elev.:
Drilling Method:
Sampling Method:

Grade
N.A.
HSA
Core Barrel

| Elevation, feet | Depth, feet | Sample No. | Sampler Graphics Symbol / USCS | Recovery % | MATERIAL DESCRIPTION | Blow Counts | Dry Unit Weight, lb/cu ft. | Water Content % |
|-----------------|-------------|------------|-----------------------------------|------------|--|-------------|-------------------------------|--------------------|
| | 0 | | | | GRASS ALLUVIUM (Qal): SILTY SAND (SM), olive brown, moist, medium dense, fine to medium grained | | | |
| | | | | | | 14 | 100 | 11 |
| | 5 | | | | | 23 | 108 | 7 |
| | | | | | | 18 | 108 | 12 |
| | 10 | | | | | 26 | 98 | 16 |
| | | | | | | 34 | 106 | 14 |
| | 15 | | | | | 46 | 110 | 14 |
| | | | | | | 50 | 110 | 14 |
| | 20 | | | | | 47 | 107 | 14 |

Completion Depth: 20.0
Date Boring Started: 2/25/20
Date Boring Completed: 2/25/20
Logged By: SM
Drilling Contractor: OWD

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BORING B-6

Project:
Job No.: 20-01-3952
Location: 15209 Lincoln Street, Lake Elsinore
Coordinates:

Surface Elev.:
Top of Casing Elev.:
Drilling Method:
Sampling Method:

Grade
N.A.
HSA
Core Barrel

| Elevation, feet | Depth, feet | Sample No. | Sampler Graphics Symbol / USCS | Recovery % | MATERIAL DESCRIPTION | Blow Counts | Dry Unit Weight, lb/cu ft. | Water Content % |
|-----------------|-------------|------------|-----------------------------------|------------|--|-------------|-------------------------------|--------------------|
| | 0 | | | | GRASS ALLUVIUM (Qal): SILTY SAND (SM), olive brown, moist, medium dense, fine to medium grained | | | |
| | 5 | | | | | 18 | 99 | 11 |
| | | | | | | 16 | 104 | 7 |
| | | | | | | 18 | 98 | 12 |
| | 10 | | | | | 29 | 105 | 16 |
| | | | | | | 24 | 103 | 14 |
| | 15 | | | | | 34 | 108 | 14 |
| | | | | | | 33 | 109 | 14 |
| | 20 | | | | | 50 | 109 | 14 |

Completion Depth: 20.0
Date Boring Started: 2/25/20
Date Boring Completed: 2/25/20
Logged By: SM
Drilling Contractor: OWD

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BORING B-7

Project:
Job No.: 20-01-3952
Location: 15209 Lincoln Street, Lake Elsinore
Coordinates:

Surface Elev.: Grade
Top of Casing Elev.: N.A.
Drilling Method: HSA
Sampling Method: Core Barrel

| Elevation, feet | Depth, feet | Sample No. | Sampler Graphics Symbol / USCS | Recovery % | MATERIAL DESCRIPTION | Blow Counts | Dry Unit Weight, lb/cu ft. | Water Content % |
|-----------------|-------------|------------|-----------------------------------|------------|--|-------------|-------------------------------|--------------------|
| | 0 | | | | GRASS | | | |
| | | | | | ALLUVIUM (Qal): | | | |
| | | | | | SILTY SAND (SM), light olive brown, moist, medium dense, fine to medium grained | 16 | 100 | 11 |
| | 5 | | | | | 19 | 91 | 10 |
| | | | | | | 16 | 93 | 11 |
| | 10 | | | | SILTY SAND (SM), olive brown, moist, medium dense to dense, fine to medium grained | 22 | 106 | 13 |
| | | | | | | 25 | 104 | 23 |
| | 15 | | | | | 29 | 104 | 21 |
| | | | | | | 53 | 107 | 19 |
| | 20 | | | | | 75 | 112 | 17 |

Completion Depth: 20.0
Date Boring Started: 2/25/20
Date Boring Completed: 2/25/20
Logged By: SM
Drilling Contractor: OWD

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.

| MAJOR DIVISIONS | | | SYMBOLS | | TYPICAL DESCRIPTIONS |
|----------------------|---------------------------|---|---------|--------|--|
| | | | GRAPH | LETTER | |
| COARSE GRAINED SOILS | GRAVEL AND GRAVELLY SOILS | CLEAN GRAVELS (LITTLE OR NO FINES) | | GW | WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES |
| | | | | GP | POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES |
| | | GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES) | | GM | SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES |
| | | | | GC | CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES |
| | SAND AND SANDY SOILS | CLEAN SANDS (LITTLE OR NO FINES) | | SW | WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES |
| | | | | SP | POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES |
| | | SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES) | | SM | SILTY SAND, SAND - SILT MIXTURES |
| | | | | SC | CLAYEY SANDS, SAND - CLAY MIXTURES |
| FINE GRAINED SOILS | SILTS AND CLAYS | LIQUID LIMIT LESS THAN 50 | | ML | INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY |
| | | | | CL | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS |
| | | | | OL | ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY |
| | SILTS AND CLAYS | LIQUID LIMIT GREATER THAN 50 | | MH | INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS |
| | | | | CH | INORGANIC CLAYS OF HIGH PLASTICITY |
| | | | | OH | ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS |
| HIGHLY ORGANIC SOILS | | | | PT | PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS |



1590 NORTH BRIAN STREET, ORANGE, CA. 92867 T: (714) 637-3093 F: (714) 637-3096

DRAWN BY: BBC

USCS

CHECKED BY: MVD

SOIL CLASSIFICATION CHART

HGEI Project No. 20-01-3952

PLATE A-8

APPENDIX B

LABORATORY PROCEDURES & TEST RESULTS

The samples collected during the field investigation were examined and classified by the geotechnical engineer/geologist in the laboratory using the visual/tactile method and selected samples were assigned laboratory testing. Tests were performed in general accordance with latest ASTM standards. The following is a description of the laboratory testing and presents the results which are incorporated in the previous sections of the report.

Moisture and Density Determination (ASTM D2216-10 & D7263-09)

Field Moisture contents were determined for all samples. The core samples were trimmed and weighed and the dry densities of the material calculated. Moisture and dry density data are presented on the logs in Appendix A.

Expansion Index Test (ASTM D4829-11)

An Expansion Index Test was conducted on a sample considered representative of the site material to establish data on which to base recommendations for foundation design. The test result is presented in Table 1.

Water-Soluble Sulfate Tests (EPA 300.0)

In order to determine the proper cement type for the site, the amount of water-soluble sulfate present in a selected sample of the surface material was determined. The test result is presented in Table 2.

Compaction Test (ASTM D1557-12^{e1})

Compaction tests were performed on samples of surface soil to develop values for initial use during grading and backfilling work. The results are presented in Table 3.

Direct Shear

Direct Shear tests were performed on undisturbed specimens to determine the static strength of the soils. The tests were performed at increased moisture contents and at various confining pressures using a displacement rate of 0.0012 in./min. to establish peak and ultimate strength parameters under adverse conditions of moisture. Results are presented on Plates B-1 to B-4.

Consolidation

Consolidation tests were performed on undisturbed samples to determine the magnitude and rate of consolidation of the soil when subjected to incrementally applied controlled-stress loading. Graphs of the test results are presented on Plates B-5 to B-7.

| TABLE 1 | | | | | | |
|--|----------------------|-------|-----------------------|-------|----------------------------|---------------------|
| Expansion Index Test Results (ASTM D4829) | | | | | | |
| Sample Id. | Moisture Content (%) | | Dry Unit Weight (pcf) | | Calculated Expansion Index | Expansion Potential |
| | Initial | Final | Initial | Final | | |
| B-7 @ 1'-4' | 11.2 | 20.9 | 103.7 | 102.7 | 10 | Very Low |

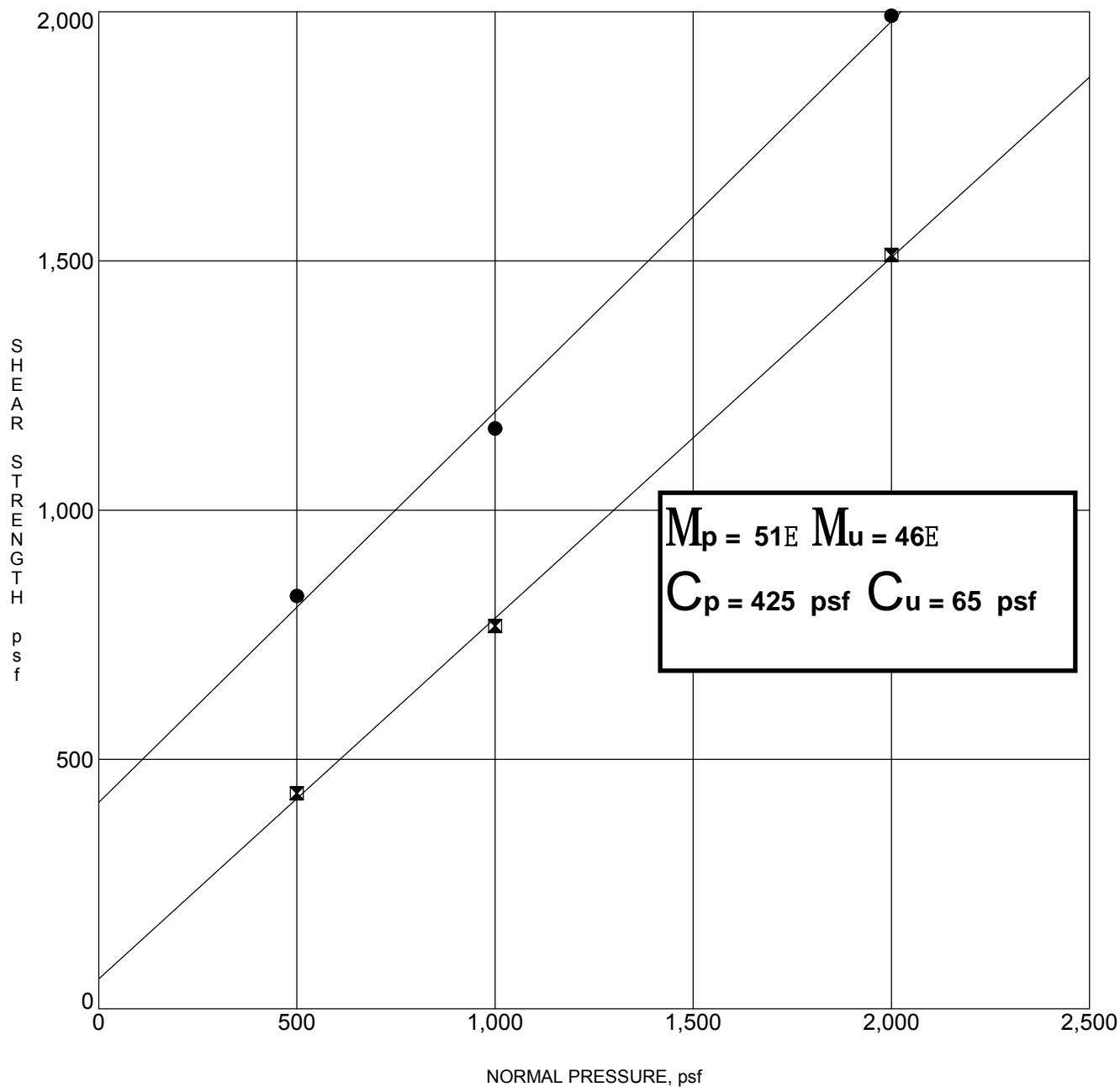
| TABLE 2 | |
|--|----------------------------------|
| Water-Soluble Sulfate (EPA 300.0) | |
| Sample ID | Water-Soluble Sulfate (%) |
| B-2 @ 1'-4' | 0.036 |
| B-7 @ 1'-4' | ND |

| TABLE 3 | | |
|--|---------------------------------|------------------------------------|
| Compaction Test Results (ASTM D1557-12ε1) | | |
| Sample ID | Maximum Dry Density, pcf | Optimum Moisture Content, % |
| B-2 @ 1'-4' | 131.0 | 8.0 |
| B-7 @ 1'-4' | 116.5 | 14.5 |

SAMPLE STORAGE

Soil samples presently stored in our laboratory will be discarded 30 days after the date of this report unless this office receives a written request to retain the samples for a longer period. Note that prolonged storage will result in sample degradation and may render them unsuitable for testing.

0-0-0



| Specimen Identification | | | Classification | DD | MC% |
|-------------------------|-----|-----|------------------------|-----|-----|
| ● | B-2 | 1.0 | SILTY SAND (SM) (Peak) | 126 | 12 |
| ⊠ | B-2 | 1.0 | (Ultimate) | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

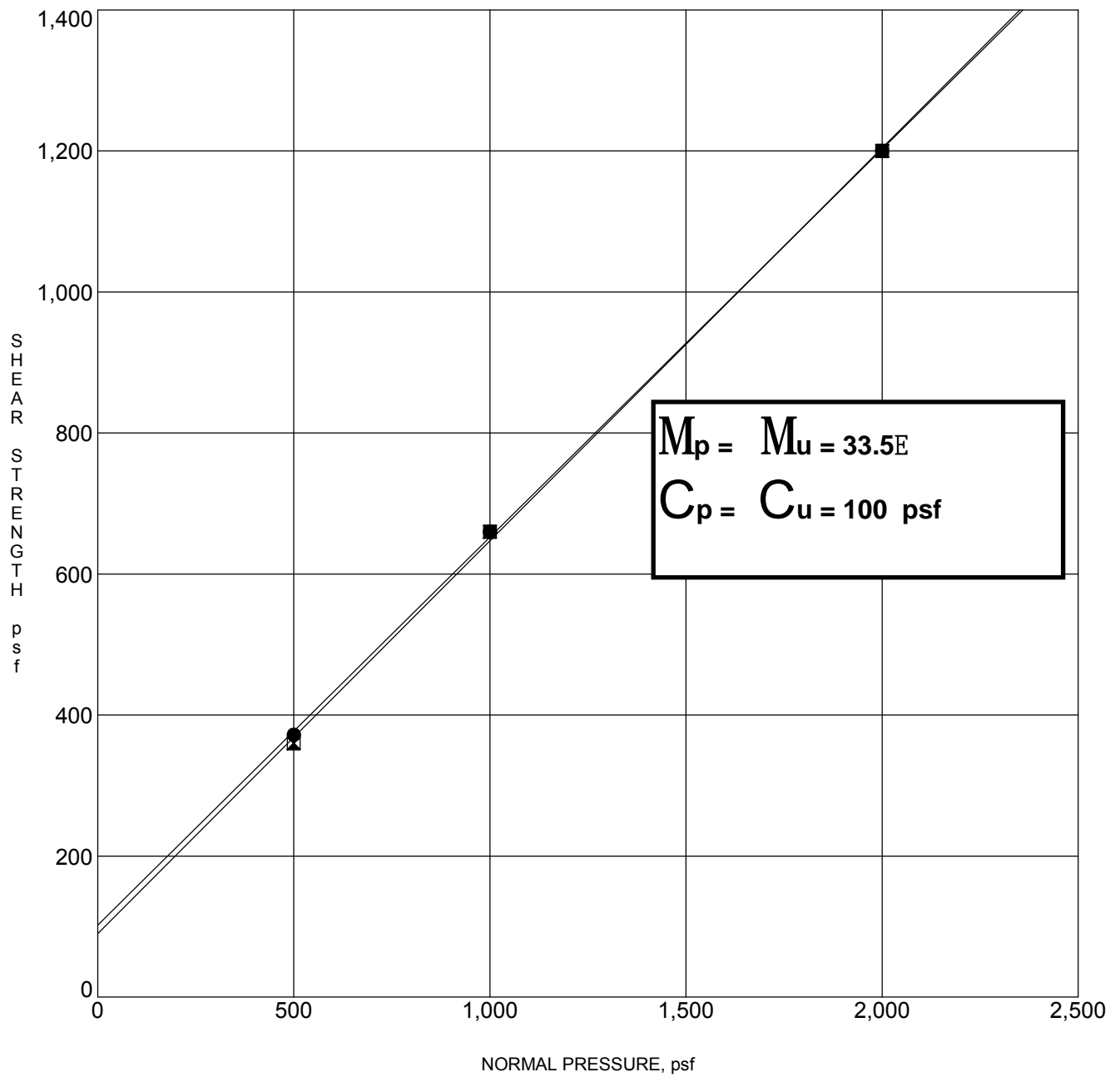
PROJECT - Lake Elsinore

JOB NO. 20-01-3952
DATE 3/13/20

SHEAR TEST DIAGRAM

Harrington
Geotechnical
Engineering, Inc. _____

PLATE B-1



| Specimen Identification | | | Classification | DD | MC% |
|-------------------------|-----|-----|------------------------|----|-----|
| ● | B-2 | 5.0 | SILTY SAND (SM) (Peak) | 94 | 27 |
| ■ | B-2 | 5.0 | (Ultimate) | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

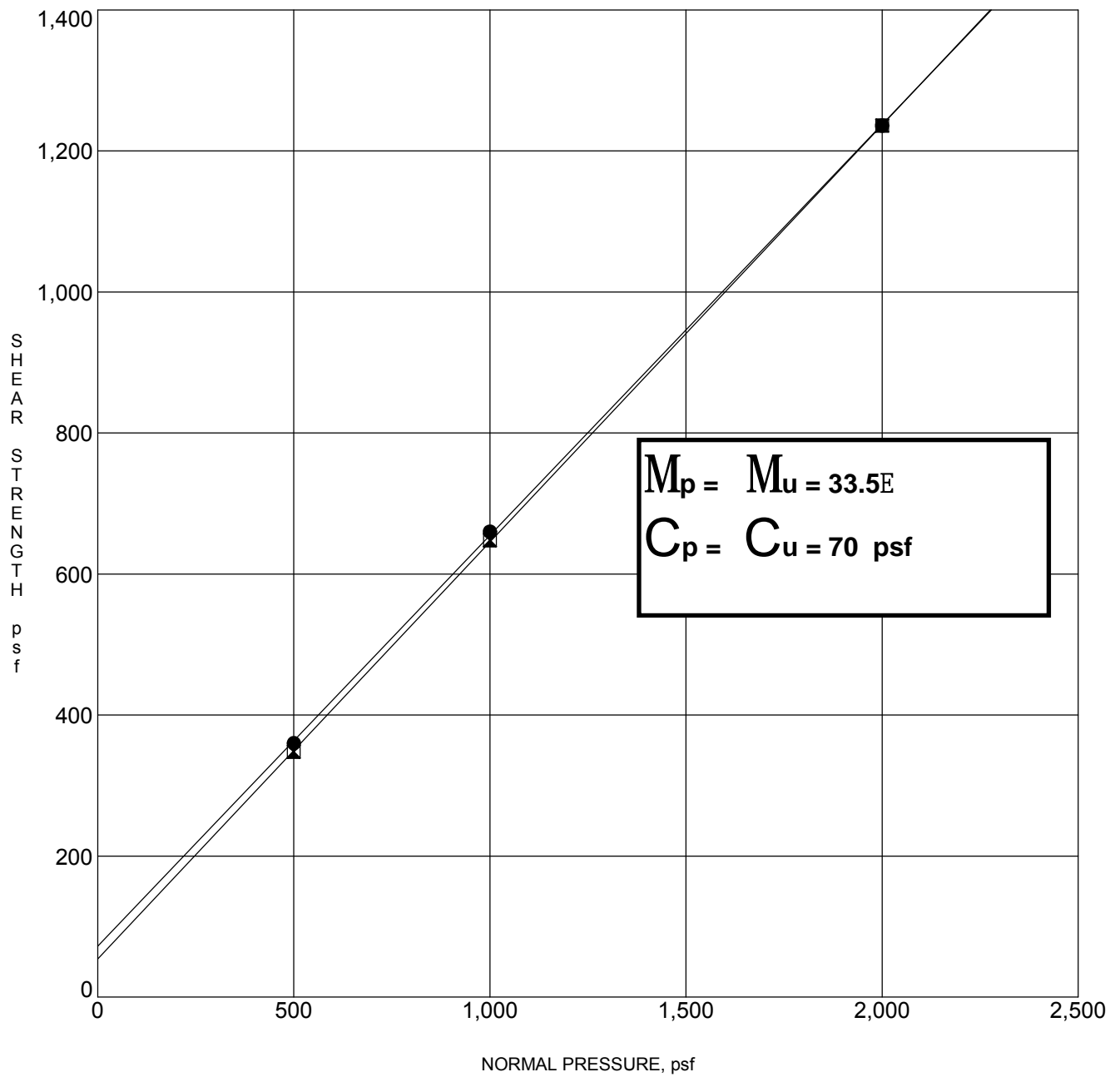
PROJECT - Lake Elsinore

JOB NO. 20-01-3952
DATE 3/13/20

SHEAR TEST DIAGRAM

Harrington
Geotechnical
Engineering, Inc. _____

PLATE B-2



| Specimen Identification | | | Classification | DD | MC% |
|-------------------------|-----|------|------------------------|----|-----|
| ● | B-3 | 10.0 | SILTY SAND (SM) (Peak) | 92 | 26 |
| ⊗ | B-3 | 10.0 | (Ultimate) | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

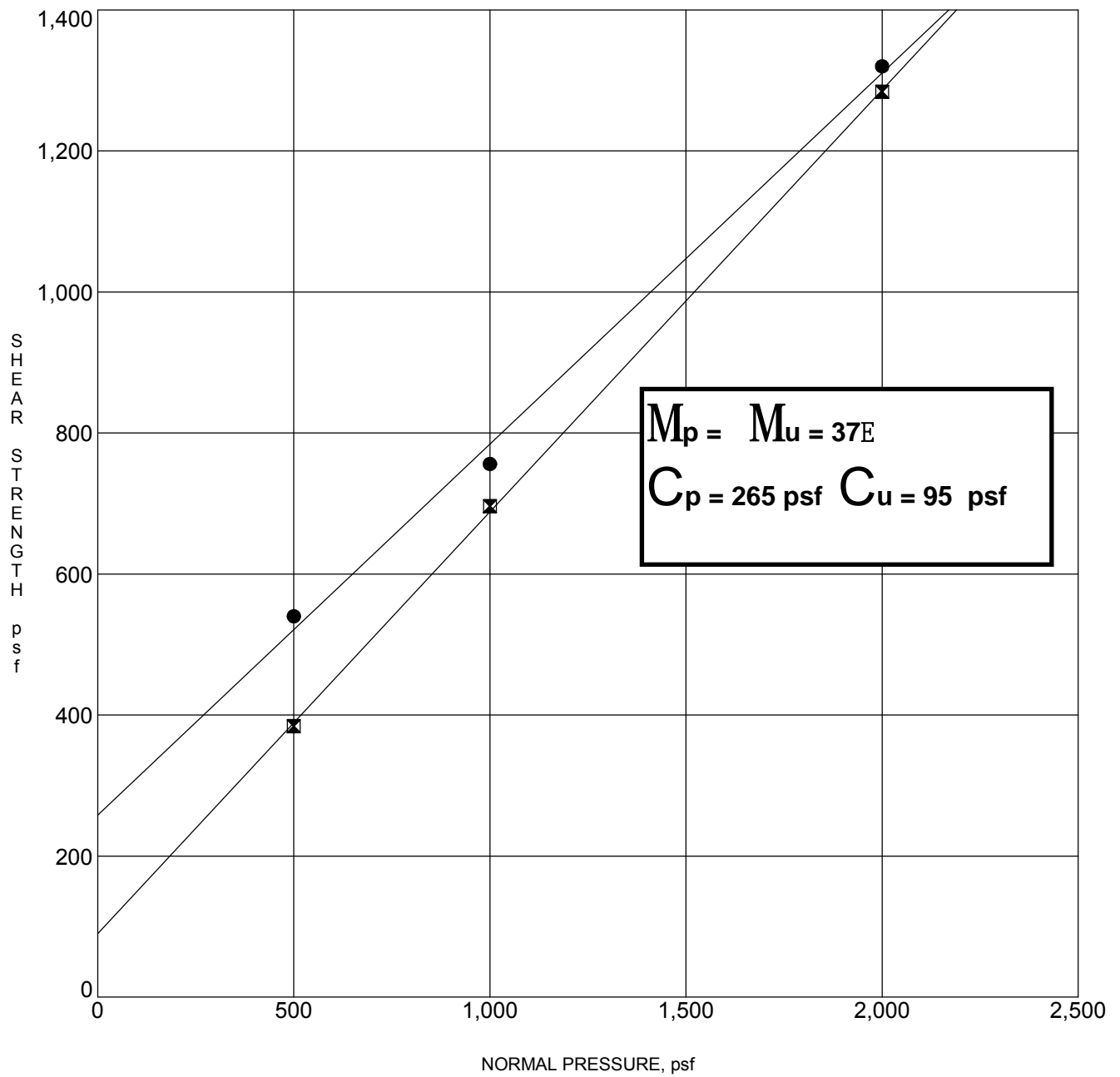
PROJECT - Lake Elsinore

JOB NO. 20-01-3952
DATE 3/13/20

SHEAR TEST DIAGRAM

Harrington
Geotechnical
Engineering, Inc.

PLATE B-3



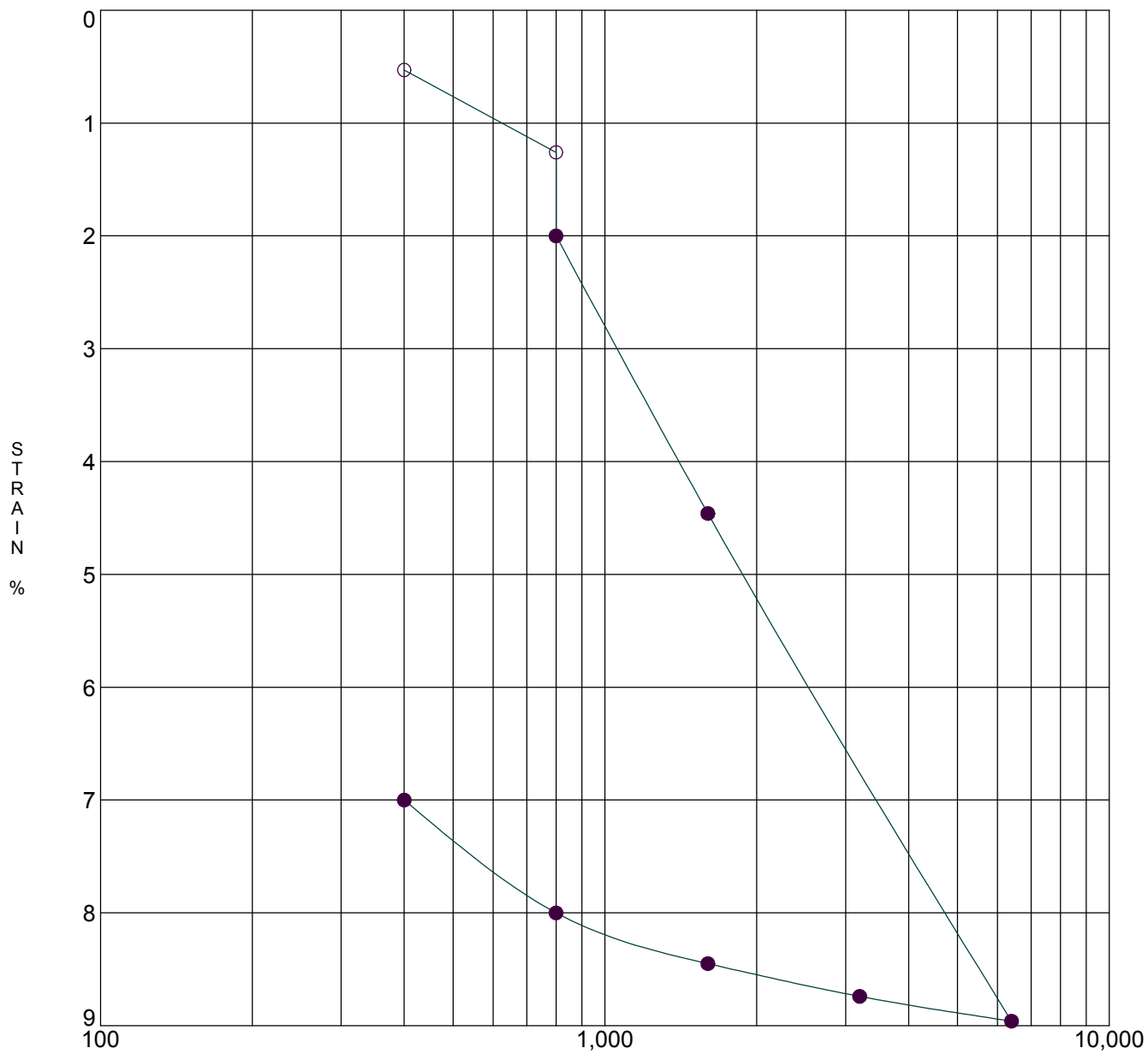
| Specimen Identification | | | Classification | DD | MC% |
|-------------------------|-----|-----|------------------------|----|-----|
| ● | B-6 | 7.5 | SILTY SAND (SM) (Peak) | 91 | 31 |
| ⊠ | B-6 | 7.5 | (Ultimate) | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

PROJECT - Lake Elsinore JOB NO. 20-01-3952
DATE 3/13/20

SHEAR TEST DIAGRAM

Harrington
Geotechnical
Engineering, Inc. _____

PLATE B-4



Legend

- Before water
- After water

| Specimen Identification | | | Classification | DD | MC% |
|-------------------------|-----|-----|-----------------|----|-----|
| ● | B-2 | 7.5 | SILTY SAND (SM) | 96 | 23 |
| ☒ | | | | | |
| ▲ | | | | | |
| ★ | | | | | |
| ○ | | | | | |
| ⊕ | | | | | |

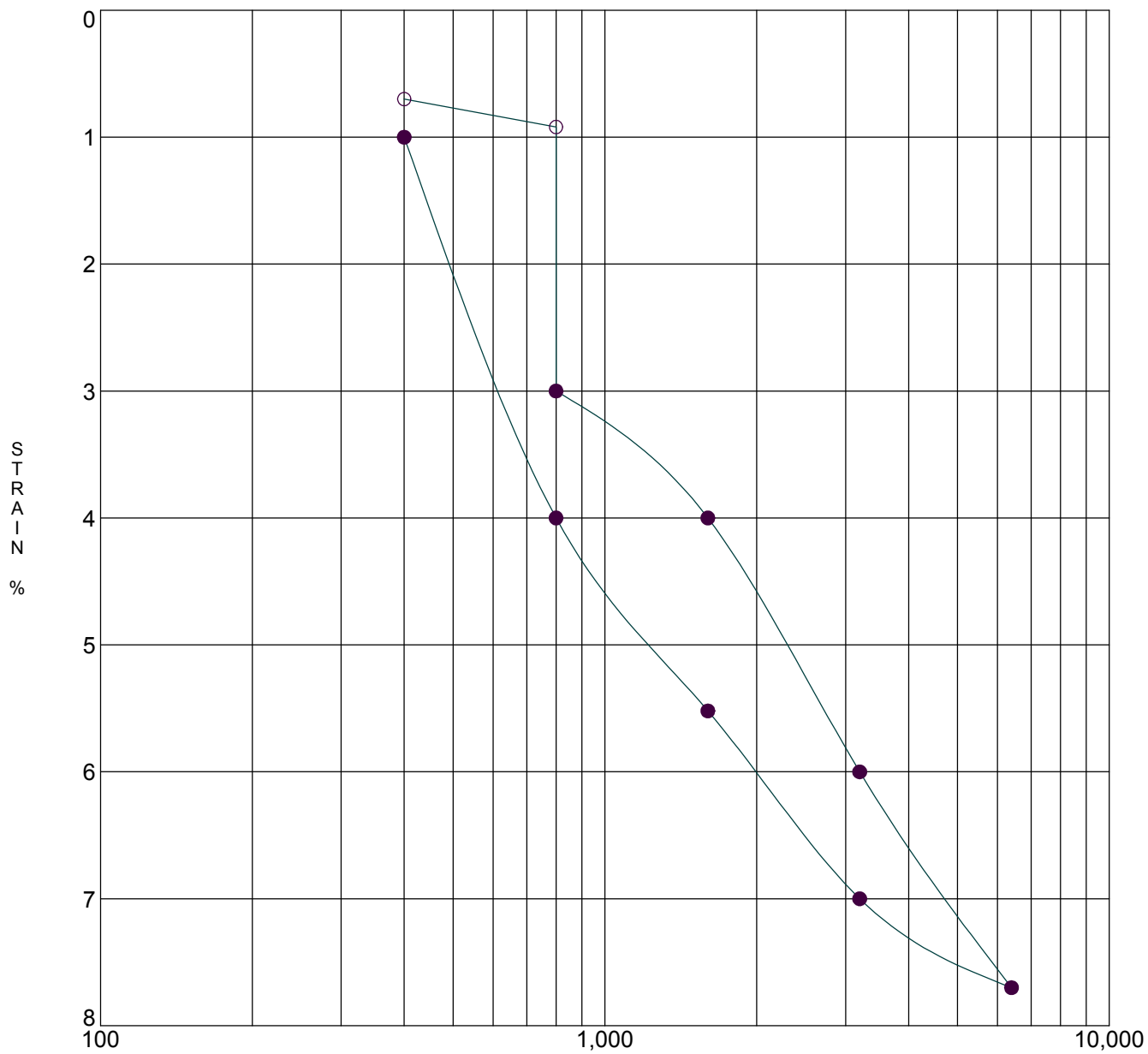
PROJECT - Lake Elsinore

JOB NO. 20-01-3952
DATE 3/13/20

CONSOLIDATION TEST

Harrington
Geotechnical
Engineering, Inc. _____

PLATE B-5



Legend

- Before water
- After water

| Specimen Identification | | Classification | DD | MC% |
|-------------------------|--------------|-----------------|-----|-----|
| ● | B-3 5.0 | SILTY SAND (SM) | 106 | 16 |
| ☒ | | | | |
| ▲ | | | | |
| ★ | | | | |
| ○ | | | | |
| ⊕ | | | | |

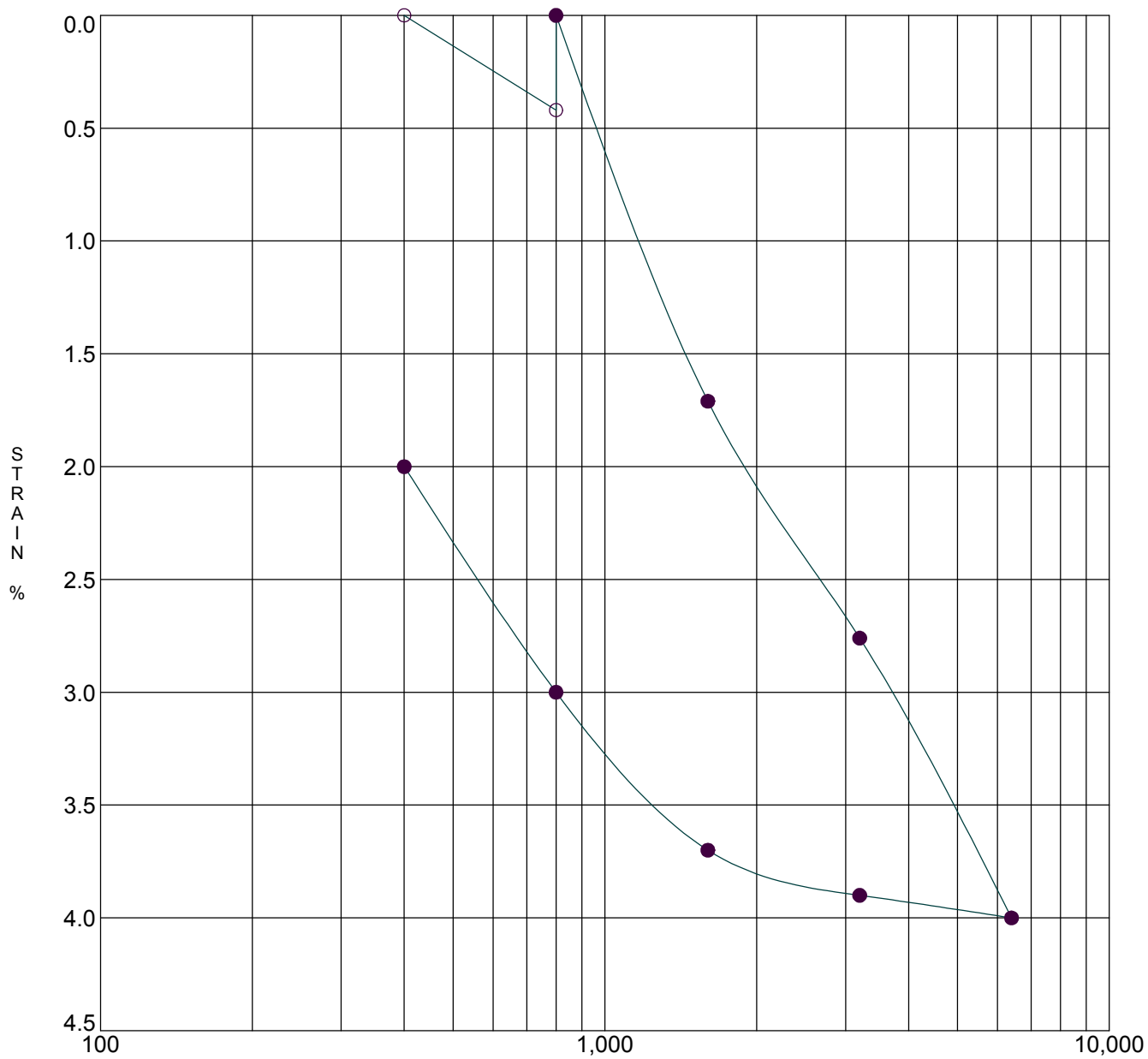
PROJECT **- Lake Elsinore**

JOB NO. **20-01-3952**
DATE **3/13/20**

CONSOLIDATION TEST

Harrington
Geotechnical
Engineering, Inc. _____

PLATE B-6



Legend

- Before water
- After water

| Specimen Identification | | Classification | DD | MC% |
|-------------------------|---------|-----------------|----|-----|
| ● | B-6 5.0 | SILTY SAND (SM) | 95 | 24 |
| ☒ | | | | |
| ▲ | | | | |
| ★ | | | | |
| ○ | | | | |
| ⊕ | | | | |

PROJECT - Lake Elsinore

JOB NO. 20-01-3952
DATE 3/13/20

CONSOLIDATION TEST

Harrington
Geotechnical
Engineering, Inc. _____

PLATE B-7

APPENDIX C

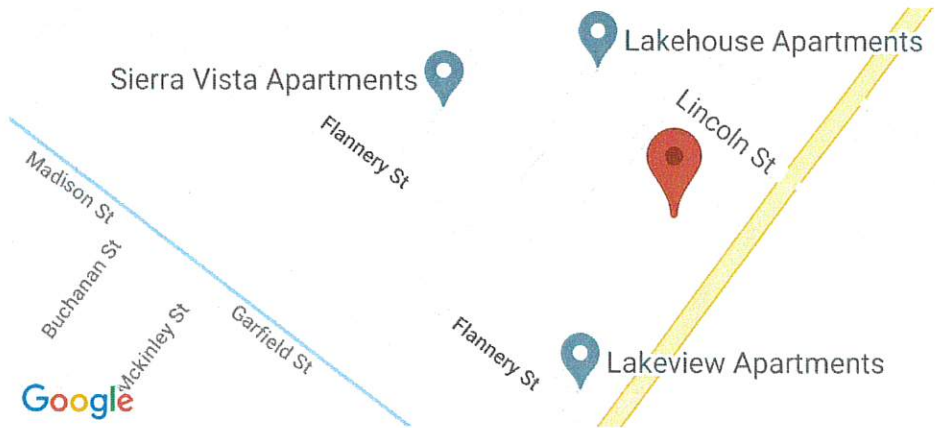
SEISMIC DATA AND RESPONSE SPECTRUM



Golcheh

15209 Lincoln St, Lake Elsinore, CA 92530, USA

Latitude, Longitude: 33.6759709, -117.375248



Map data ©2020

| | |
|--------------------------------|-----------------------|
| Date | 3/12/2020, 2:11:55 PM |
| Design Code Reference Document | ASCE7-16 |
| Risk Category | II |
| Site Class | D - Stiff Soil |

| Type | Value | Description |
|-----------|--------------------------|---|
| S_s | 2.244 | MCE_R ground motion. (for 0.2 second period) |
| S_1 | 0.8 | MCE_R ground motion. (for 1.0s period) |
| S_{MS} | 2.244 | Site-modified spectral acceleration value |
| S_{M1} | null -See Section 11.4.8 | Site-modified spectral acceleration value |
| S_{DS} | 1.496 | Numeric seismic design value at 0.2 second SA |
| S_{D1} | null -See Section 11.4.8 | Numeric seismic design value at 1.0 second SA |
| Type | Value | Description |
| SDC | null -See Section 11.4.8 | Seismic design category |
| F_a | 1 | Site amplification factor at 0.2 second |
| F_v | null -See Section 11.4.8 | Site amplification factor at 1.0 second |
| PGA | 0.96 | MCE_G peak ground acceleration |
| F_{PGA} | 1.1 | Site amplification factor at PGA |
| PGA_M | 1.056 | Site modified peak ground acceleration |
| T_L | 8 | Long-period transition period in seconds |
| S_sRT | 2.244 | Probabilistic risk-targeted ground motion. (0.2 second) |
| S_sUH | 2.5 | Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration |
| S_sD | 2.463 | Factored deterministic acceleration value. (0.2 second) |
| S_1RT | 0.8 | Probabilistic risk-targeted ground motion. (1.0 second) |
| S_1UH | 0.893 | Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration. |

| Type | Value | Description |
|------|-------|---|
| S1D | 0.98 | Factored deterministic acceleration value. (1.0 second) |
| PGAd | 1.037 | Factored deterministic acceleration value. (Peak Ground Acceleration) |
| CRs | 0.898 | Mapped value of the risk coefficient at short periods |
| CR1 | 0.895 | Mapped value of the risk coefficient at a period of 1 s |

APPENDIX D

INFILTRATION TESTING

Scope of Services

In order to establish infiltration rates, the following was conducted:

- Equipment and personnel were provided to conduct two borehole infiltrometer tests at the locations shown on Plate A in accordance with Appendix A of the Riverside County Low Impact Development BMP Design Manual.
- The tests were conducted at depth of approximately 5 feet below ground surface on February 26, 2020. The data is attached on Percolation Data Sheets I-1 & I-2.
- Upon completion of the testing, the data was analyzed, appropriate engineering calculations were performed, and this report was prepared.

Infiltration Rate

Our interpretation of the results indicate a tested infiltration rate of 2.06 in/hr. for I-1 at a depth of 51 inches and a tested infiltration rate of 1.85 in/hr. for I-2 at a depth of 48 inches. The measured infiltration rate needs to exceed 0.3 in/hr. for the area to be considered potentially feasible. Table 1 of Appendix A also has a factor of safety based on Suitability Assessment and Design. We have listed our interpretation of how those values should be applied.

The factor of safety would be 3. The design infiltration rate would be 0.69 in/hr for I-1 and 0.62 in/hr for I-2

Soil Types

The site materials are mainly silty sand (SM).

Groundwater

Groundwater was not encountered in the deepest borings at 21.5 feet for the geotechnical investigation conducted in February 25, 2020. The recorded nearby groundwater depth is 298 feet (Reference 3).

| | | | | | | | | |
|---|-------------------|------------------|----------------------------------|---|---|---------------------------------------|--|--|
| Project: | Elsinore | | Project No. | 20-06-3952 | | Date: | 2/26/20 | |
| Test Hole No. | | I-1 | Tested by: | BM | | | | |
| Depth of Test Hole, D_T: | | 51 inches | USCS Soil Classification: | | SM | | | |
| Test Hole Dimensions (inches) | | | | | Length | Width | | |
| Diameter(if round)= | | 8 | Sides (if rectangular) | | | | | |
| Sandy Soil Criteria Test* | | | | | | | | |
| Trial No. | Start Time | Stop Time | Time Interval, (min.) | Initial Depth to Water (in) | Final depth to Water (in) | Change in Water Level (in.) | Greater than or Equal to 6" (y/n) | |
| 1 | 11:35 | 12:00 | 25 | 19.0 | 40.0 | 21.0 | Y | |
| 2 | 12:15 | 12:40 | 25 | 13.0 | 26.0 | 13.0 | Y | |
| | | | | | | | | |
| Trial No. | Start Time | Stop Time | Δt Time Interval (min.) | D_o Initial Depth to Water (in.) | D_f Final Depth to Water (in.) | ΔD Change in Water Level (in.) | Percolation Rate (in./hr.) | |
| 1 | 1:15 | 1:25 | 10 | 16.5 | 26.5 | 10 | 60 | |
| 2 | 1:25 | 1:35 | 10 | 26.5 | 32.0 | 5.5 | 33 | |
| 3 | 1:35 | 1:45 | 10 | 32.0 | 37.0 | 5.0 | 30 | |
| 4 | 1:45 | 1:55 | 10 | 37.0 | 39.5 | 2.5 | 15.0 | |
| 5 | 1:55 | 2:05 | 10 | 39.5 | 43.5 | 4.0 | 24.0 | |
| 6 | 2:05 | 2:15 | 10 | 43.5 | 45.0 | 1.5 | 9.0 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| <div>H_o = D_T -D_o = 51.0-43.5 = 7.5 H_f = D_T -D_F = 51.0-45.0= 6.0 ΔH= 7.5-6.0 = 1.5 H_{AVG} = (H_O +H_F)/2 = (7.5+6.0)/2 = 6.75 I_T = $\frac{\Delta H(60r)}{\Delta t(r + 2H_{AVG})}$ = $\frac{1.5(60)4}{10(4.+2(6.75))}$ = 2.06 in/hr</div> | | | | | | | | |

Plate I-1

| | | | | | | | | |
|--|-------------------|------------------|----------------------------------|---|---|---------------------------------------|--|--|
| Project: | Elsinore | | Project No. | 20-06-3952 | | Date: | 2/26/20 | |
| Test Hole No. | | I-2 | Tested by: | BM | | | | |
| Depth of Test Hole, D_T: | | 48 inches | USCS Soil Classification: | | SM | | | |
| Test Hole Dimensions (inches) | | | | | Length | Width | | |
| Diameter(if round)= | | 8 | Sides (if rectangular) | | | | | |
| Sandy Soil Criteria Test* | | | | | | | | |
| Trial No. | Start Time | Stop Time | Time Interval, (min.) | Initial Depth to Water (in) | Final depth to Water (in) | Change in Water Level (in.) | Greater than or Equal to 6" (y/n) | |
| 1 | 11:45 | 12:10 | 25 | 15.5 | 31.0 | 15.5 | Y | |
| 2 | 12:45 | 1:10 | 25 | 15.0 | 28.0 | 15.0 | Y | |
| | | | | | | | | |
| Trial No. | Start Time | Stop Time | Δt Time Interval (min.) | D₀ Initial Depth to Water (in.) | D_f Final Depth to Water (in.) | ΔD Change in Water Level (in.) | Percolation Rate (in./hr.) | |
| 1 | 1:20 | 1:30 | 10 | 21.5 | 27.5 | 6.0 | 36.0 | |
| 2 | 1:30 | 1:40 | 10 | 27.5 | 31.5 | 4.0 | 24.0 | |
| 3 | 1:40 | 1:50 | 10 | 31.5 | 34.0 | 2.5 | 15.0 | |
| 4 | 1:50 | 2:00 | 10 | 34.0 | 36.5 | 2.5 | 15.0 | |
| 5 | 2:00 | 2:10 | 10 | 36.5 | 39.5 | 3.0 | 18.0 | |
| 6 | 2:10 | 2:20 | 10 | 39.5 | 41.0 | 1.5 | 9.0 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| $H_o = D_T - D_o = 48.0 - 39.5 = 8.5$ $H_f = D_T - D_F = 48.0 - 41.0 = 7.0$ $\Delta H = 8.5 - 7.0 = 1.5$ $H_{AVG} = (H_o + H_f)/2 = (8.5 + 7.0)/2 = 7.75$ $I_T = \frac{\Delta H(60r)}{\Delta t(r + 2H_{AVG})} = \frac{1.5(60)4}{10(4 + 2(7.75))} = 1.85 \text{ in/hr}$ | | | | | | | | |

Plate I-2

APPENDIX E

GRADING SPECIFICATIONS

GRADING SPECIFICATIONS

These specifications present generally accepted standards and minimum grading (earthwork) requirements for the development of the subject project. These specifications shall be the project guidelines for earthwork except where specifically superseded in the geotechnical report(s) for the subject project; including the approved grading plan; and/or approved grading permit.

The Project Geotechnical Engineer and Project Engineering Geologist should be properly notified for an opportunity to review the following recommendations in order to comment on the suitability of the recommendations for the proposed development.

1. General

- 1.1. The Contractor shall be responsible for the satisfactory completion of all earthwork (including grading of constructed fills and cuts) in accordance with the project plans and specifications.
- 1.2. The Project Geotechnical Engineer and Project Engineering Geologist or their authorized representatives shall perform observations, testing services and geotechnical consultation throughout the duration of the project.
- 1.3. It is the Contractor's responsibility to prepare the ground surface to receive the fill to the satisfaction of the Project Geotechnical Engineer and to place, spread, mix and compact the fill materials in accordance with the project specifications and as required by the Project Geotechnical Engineer. The Contractor shall also remove all material considered by the Project Geotechnical Engineer to be unsuitable for use in the construction of compacted fills.
- 1.4. The Contractor shall have suitable and sufficient equipment in operation to handle the volume of fill material being placed and provide support equipment to properly compact the material in accordance with project specifications. When necessary, equipment will be shut down temporarily in order to permit proper compaction of fills by support equipment.

2. Site Preparation

- 2.1. Excessive vegetation and all deleterious material shall be removed from the fill areas and disposed of offsite of the grading operation. Existing earth materials determined by the Project Geotechnical Engineer as being unsuitable (incompatible) for placement in compacted fill areas shall be removed and disposed of offsite of the grading

operation. When applicable, the Contractor may obtain the approval of the Project Geotechnical Engineer and the controlling authorities for the project to dispose of the above-described materials, or a portion thereof, in designated areas onsite.

- 2.2. The exposed surfaces in areas to receive fill shall be scarified to a depth specified by the geotechnical report or a nominal 6 inches as determined by the Project Geotechnical Engineer; moisture conditioned as necessary; and compacted. In areas where it is necessary to obtain the approval of the controlling agency prior to placing fill, it will be the Contractor's responsibility to arrange the required inspections.
- 2.3. Any underground structures, e.g. cesspools, cisterns, septic tanks, wells, pipelines, etc., encountered during the grading operation are to be removed or relocated and the ground prepared for fill (cut) in a proper manner as recommended by the Project Geotechnical Engineer and/or the controlling agency for the project.

3. Subdrains

- 3.1. All subdrains should be constructed below the fill areas. Horizontal subdrains should be constructed below sloping fill areas at approximate 30 feet vertical intervals. Typical subdrains (less than 300 linear feet in length) should be constructed of 4-inch-diameter, perforated, Schedule 40 PVC pipe surrounded by one cubic foot per linear foot of gravel and filter fabric. Canyon subdrains should consist of 8-inch-diameter, perforated, Schedule 40 PVC pipe surrounded by nine cubic feet per linear foot of approved gravel wrapped with filter fabric.

4. Compacted Fills/Fill Slopes

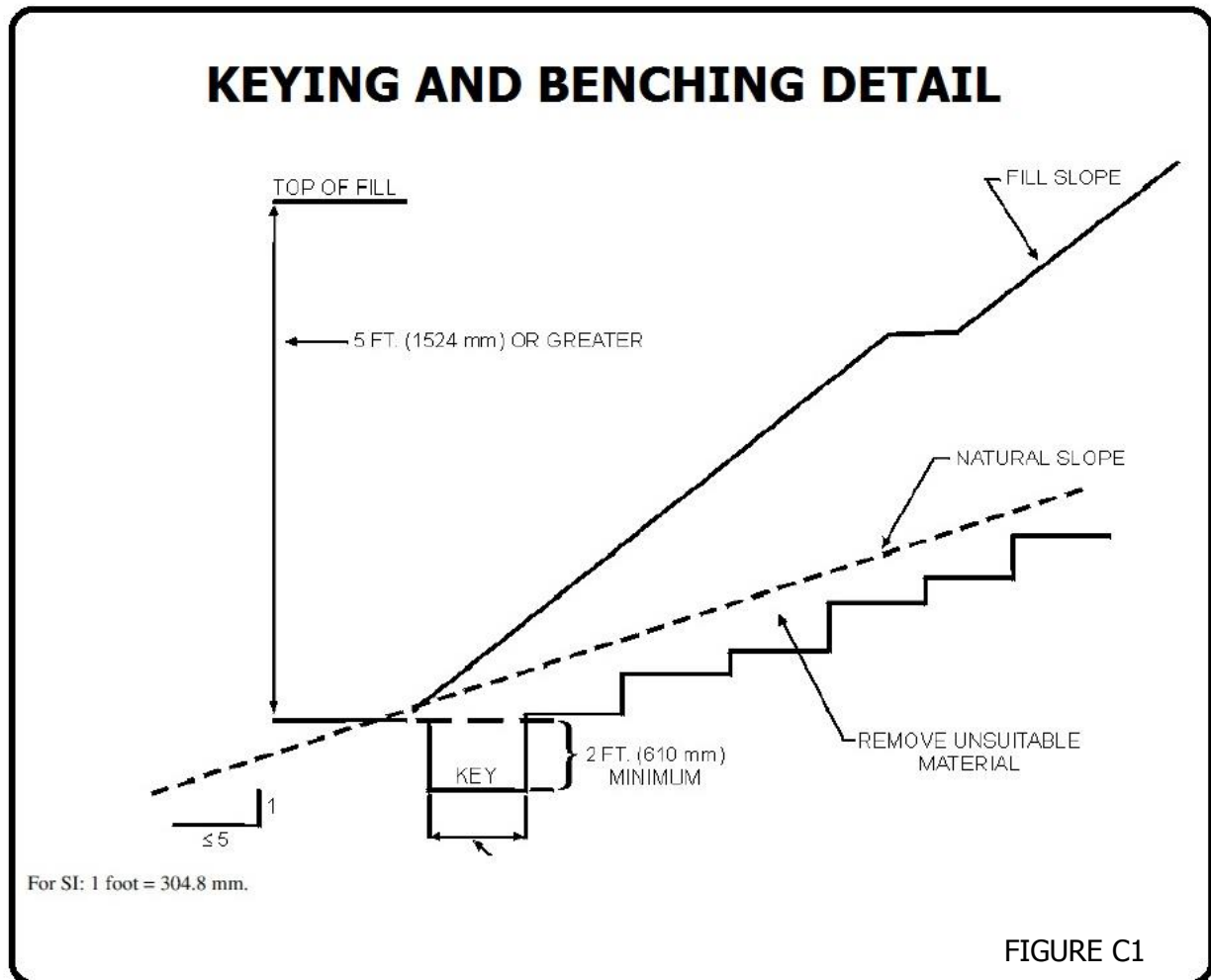
- 4.1. All material imported to the grading operation should be reviewed by the Project Geotechnical Engineer for compatibility prior to placement as fill. Laboratory testing of import materials may be required as recommended by the Project Geotechnical Engineer. Import materials deemed unacceptable for placement of fill should be removed from the fill areas and disposed of offsite of the grading operation.
- 4.2. All rock or rock fragments less than 8 inches in size should be incorporated into fill in a manner which will prevent nesting and the rock/rock fragments are completely surrounded with compacted fill.
- 4.3. All rocks greater than 8 inches in size shall be removed from the project site or placed in accordance with the recommendations of the Project Geotechnical Engineer and controlling agency code in areas designated as suitable for rock disposal.
- 4.4. All fill materials shall be placed in thin loose lifts, moisture conditioned as necessary and compacted in accordance with project specifications. Each layer shall be spread evenly

and shall be thoroughly mixed during the spreading to obtain a nearly uniform moisture condition and a nearly uniform blend of materials.

- 4.5. All wet materials proposed for placement in fill areas should be moisture conditioned as necessary (either air dried or mechanically mixed). The Project Geotechnical Engineer may recommend removal of materials deemed too wet for placement of fill.
- 4.6. All fills shall be compacted to minimum project standards in compliance with the testing methods specified in the geotechnical report and in accordance with recommendations of the Project Geotechnical Engineer. Unless otherwise specified, the compaction standard shall be ASTM D1557 (latest approved standard).
- 4.7. All proposed slopes receiving fill (or ground sloping in excess of a ratio of five horizontal to one vertical), the fill shall be keyed and benched through all unsuitable topsoil, colluvium, alluvium, or creep-prone material into competent bedrock in accordance with the recommendations and approval of the Project Geotechnical Engineer or Project Engineering Geologist.
- 4.8. All drainage terraces for proposed fill slopes shall be constructed in compliance with the approved Grading Plan and/or the recommendations of the Project Civil Engineer. The preparation of the ground for construction of the drainage terraces should be reviewed for suitability by the Project Geotechnical Engineer.
- 4.9. All fill slopes (including buttresses and stabilization fills) shall be graded to a ratio not to exceed two horizontal to one vertical. The Contractor shall be required to obtain the specified minimum relative compaction out to the proposed finish slope face of slope. This may be achieved by both overbuilding the slope and cutting back to expose the compacted core, or by direct compaction of the slope face with suitable equipment, or by any other procedure which produces the designated result.

5. Keying and Benching

- 5.1. All fill-over-cut slopes shall be properly keyed through topsoil, colluvium or creep-prone material into bedrock or other firm material, and the transition shall be stripped of all unsuitable materials prior to placing fill. See the Keying and Benching Detail, Figure 1. The cut portion should be completed and then evaluated by the Project Engineering Geologist prior to placement of fill. The minimum dimensions of the key should be determined by the Project Engineering Geologist. All keys should include a subdrain as specified in Section 3.



6. Cut Slopes

- 6.1. All cut slopes shall be inspected by the Project Engineering Geologist. The Contractor should notify the Project Engineering Geologist when cut slopes are started. If, during the course of grading, previously unforeseen and/or unanticipated adverse or potentially adverse geologic conditions are encountered, the Engineering Geologist and Geotechnical Engineer shall investigate, analyze and make recommendations for mitigation of these conditions.
- 6.2. All cut slopes shall be graded to a ratio not to exceed two horizontal to one vertical.

- 6.3. All drainage terraces for proposed cut slopes and shall be constructed in compliance with the approved Grading Plan and/or the recommendations of the Project Civil Engineer. The preparation of the ground for construction of the drainage terraces should be reviewed for suitability by the Project Geotechnical Engineer.

7. Retaining Wall Backfill

- 7.1. Retaining wall backfill should include a 12" wide blanket of granular soil (with a sand equivalent of at least 30) above a constructed subdrain and extend to within 3 feet of finished grade. The top 3 feet of backfill should consist of site material compacted to at least 90 percent relative compaction to impede surface water infiltration. Benches at least 2 feet wide should be cut into the excavation slope (backcut) at 2-foot vertical intervals during backfill placement.
- 7.2. The subdrain should consist of a 3-inch-diameter, perforated, Schedule 40 PVC or ABS SDR-35 pipe surrounded by one cubic foot/foot of 3/4-inch gravel wrapped in Mirafi 140 N geofabric or similar product. An adequate outlet for the subdrain should be provided and the location of the subdrain outlet should be reviewed by the project geotechnical engineer (engineering geologist) for suitability.

8. Utility Trench Backfills

- 8.1. Backfill for utility trenches should consist of site material that must be adequately compacted to preclude detrimental settlement. It is recommended, therefore, that backfills placed below the building foundation and to a distance of five feet outside thereof, and/or below concrete flatwork, be placed in appropriate lifts, moisture conditioned as necessary and mechanically compacted as to at least 90 percent of maximum dry density. Import materials (including sand) should be reviewed by the Project Geotechnical Engineer for suitability.

9. Grading Observations

- 9.1. Grading operations shall be observed by the Project Geotechnical Engineer (Geotechnical Technician) and where required, the Project Engineering Geologist.
- 9.2. All field density tests shall be made by the Geotechnical Technician to establish the relative compaction and moisture content of the fill in accordance with project specifications. Density tests shall generally be performed at (minimum) intervals not to exceed of 2 vertical feet or 1,000 cubic yards of material placed.
- 9.3. All field density testing of fill placed during the grading operation shall conform to the minimum project specifications. When test results indicate that the density of any layer of fill, or portion thereof, is below the required relative compaction (or outside the acceptable moisture range); the fill shall be reworked until the required density and/or

moisture content has been attained; or the material shall be removed. No additional fill shall be placed over an area until the last placed lift of fill has been tested and found to meet the density and moisture requirements and that lift has been approved by the Project Geotechnical Engineer.

Appendix 4: Historical Site Conditions

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



<https://www.mygemgroup.com>

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

**15209 Lincoln Street
Lake Elsinore, CA 92530**

Report Date: August 1, 2019



Prepared for
Golcheh Group

Prepared by
GEM Group, Inc.
An Environmental Consulting Firm



August 1, 2019

Mr. Ilan Golcheh, President
Golcheh Group
1180 S Beverly Dr.
Los Angeles CA 90035 Suite 300

RE: Phase I Environmental Site Assessment Report
Subject Site Location: 15209 Lincoln Street, Lake Elsinore, CA 92530
Proj. No. 19-9351

Dear Mr. Golcheh,

Attached is an electronic copy of the Phase I Environmental Site Assessment (ESA) report completed by **GEM Group, Inc. (GEM)** for the subject property referenced above. As you will note in the report, our conclusions regarding the environmental condition of the site are summarized both in the ***Executive Summary***, and ***Section 4.0, Findings and Recommendations***.

Please don't hesitate to contact us should you have any questions regarding the results presented in the Phase I ESA report, or if we can be of additional assistance. We look forward to working with you again in the future.

Respectfully yours,

Michael Erving
Junior Geologist

Jen Moser, P.G.
Environmental Professional

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR Part 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property.

Jen Moser, P.G.
Environmental Professional

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

**15209 Lincoln Street
Lake Elsinore, CA 92530**

Project No. 19-9351

Prepared by
GEM Group, Inc.
<https://www.mygemgroup.com>

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EXECUTIVE SUMMARY

This report presents results of the Phase I Environmental Site Assessment (ESA) conducted by GEM Group, Inc (GEM) at 15209 Lincoln Street, Lake Elsinore, CA 92530 (see **Figures 1 and 2**). The Phase I ESA, Project No. 19-9351, was conducted in accordance with GEM's Standard Terms and Conditions. The findings and conclusions of this Phase I ESA are based on the information collected and available during the timeframe of this project.

GEM has performed this Phase I ESA of the subject property in conformance with the scope and limitations of the *Environmental Protection Agency, Standards and Practices for All Appropriate Inquiries, 40 CFR Part 312* and the standard practice set forth in the *American Society for Testing and Materials (ASTM) Designation: E1527-13, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process."* Any exceptions to, or deletions from, these practices are described in Section 1.2 of this report.

The subject property is a 6.23-acre vacant dirt lot with weeds and trees.

Historical sources show the subject property developed with multiple structures along the northeast corner from at least 1938 until 1987 when it appears the structures were demolished. The remainder of the subject property was part of an orchard. The onsite orchard appears to have been abandoned and allowed to die prior to the 1980s. The subject property appears to have been undeveloped since at least 1987.

The subject property is not listed in the regulatory databases reviewed. There were no records from various regulatory agencies that identify the potential for adverse environmental impact from the subject and adjoining properties. There are no listed offsite listings with the potential for adverse environmental impact on the subject property.

There are no *recognized environmental conditions (RECs)* identified at the subject property. A *REC* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

Given the findings and conclusions of this Phase I ESA, GEM recommends no further investigation at this time. However, if the subject property is redeveloped for residential use, then soil sampling may be required to determine the presence of pesticides from former orchard use.

1.0 INTRODUCTION

The purpose of this Phase I Environmental Site Assessment (ESA) is to assess (1) the likelihood of contamination at the subject property as a result of either past or present land-use practices; and (2) the potential for future environmental contamination which may occur as a result of current conditions or operations and maintenance activities at either the subject property or properties adjoining the subject property, thereby identifying real or potential environmental or economic impact to the subject property. In this way, the client may satisfy a requirement to qualify for the innocent landowner defense to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) liability by completing "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial and customary practice."

1.1 SCOPE OF WORK

To meet the objectives stated above, GEM has performed this Phase I ESA of the subject property in conformance with the scope and limitations of the *Environmental Protection Agency, Standards and Practices for All Appropriate Inquiries, 40 CFR Part 312* and the standard practice set forth in the *American Society for Testing and Materials (ASTM) Designation: E1527-13, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process."* Any exceptions to or deletions from these practices are described in Section 1.2.

The scope of work for the Phase I ESA includes the following tasks:

1. Perform a reconnaissance of the subject property for significant surficial signs of chemical release, improper storage of hazardous materials, and surface indications of the presence of underground storage tanks (USTs) or water wells.
2. Provide off site research into the past land use of the subject property.
3. Review locally available aerial photographs for obvious surficial features indicative of past land use. Review available USGS topographic maps, fire insurance maps, and local telephone directories.
4. Review Federal, State and Local Agency files (available during the time frame of this project) for fuel leak and chemical release lists indicating soil and groundwater contamination cases within a ¼ mile radius to the site, as made available through the above-mentioned agency files.

Based on ASTM E1527, Federal, State, and other regulatory agency guidelines, the following presumptions were in force during site reconnaissance and/or evaluation of the subject property for specific hazardous substances:

- Use of asbestos in many products was banned in 1993; however, several categories of building products were not subject to the ban. Thus, existing and even new buildings may lawfully contain asbestos containing building material (ACBM).

- Use of lead-based paint (LBP) for residential use was prohibited in 1978 in concentrations greater than 0.06 percent lead by weight. It should be noted that the use of LBP in commercial and industrial buildings has not been prohibited.
- Fluorescent light ballasts will be considered PCB-free and will not be noted in the report regardless of their date of manufacture, unless GEM is instructed to do otherwise in writing by the client.
- Electrical transformers installed after 1979 must contain less than 50 parts per million of PCB (this is the requirement for the classification, "PCB non-contaminated").

GEM also conducted a "drive-by" survey of the adjoining properties to note the operations which may pose an imminent or potential environmental threat to the subject property.

1.2 EXCEPTIONS AND/OR DELETIONS

There are no known exceptions or deletions.

1.3 NON-SCOPE ITEMS

Evaluation of non-scope items is not required or relevant for compliance with the all appropriate inquiries (AAI) Rule or E1527. Inclusion of any non-scope item in a Phase I report is entirely within the discretion of the user based on its own risk tolerance.

Non-scope items include, but not limited to, ACBM, biological agents, indoor air quality unrelated to releases of hazardous substances or petroleum products into the environment, mold, radon, LBP, and lead in drinking water.

1.4 USER RELIANCE

This report was prepared for the sole use and benefit of **Golcheh Group** (client), and is based, in part, upon documents, writings, and information owned and possessed by our client. Neither this report, nor any of the information contained herein, shall be used or relied upon for any purpose by any person or entity other than our client.

2.0 SITE DESCRIPTION AND RECONNAISSANCE

The subject property is a 6.23-acre vacant dirt lot with weeds and trees.

2.1 SITE FACTS

| | |
|---------------------------------------|---|
| Address Provided by Client: | 15209 Lincoln Street, Lake Elsinore, CA 92530 |
| Assessor's Parcel Number: | 379-111-014 |
| Total Sq. Ft of Parcel (approximate): | 271,379 (6.23-acres) |
| Total Number of Existing Structures: | None |
| Use: | vacant |

2.2 SITE PHOTOGRAPHS

A number of photographs were taken to document the current condition and use of the subject property. The photographs with descriptions can be found in **Appendix A**.

2.3 GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

GEM reviewed pertinent, reasonably ascertainable information on the soil types and groundwater conditions in the vicinity of the subject property. The research does not include the investigation of seismological concerns (i.e., fault lines) that may affect the area of the subject property. Although the existence of faults in an area may be of concern to property owners and residents in that area, it is not considered to be an environmental concern, and so is not usually a component of a Phase I ESA.

The elevation of the subject property is approximately 1,279 feet above mean sea level. The subject property is underlain by Pleistocene to Holocene age sediments of alluviums, gravel, sand, silt, and. The subject property is in the Elsinore Valley Groundwater Basin. Groundwater is primarily used for municipal and irrigational purposes.

Case closure letters for sites in the general vicinity of the subject property indicated that depth to groundwater was encountered at approximately 28 to 63 feet below ground surface (bgs). Groundwater direction in this region is estimated to flow towards Lake Elsinore which is located 0.5 miles southeast of the subject property. These sites are located approximately 0.8 miles from the subject property.

It should be noted that these information is taken from reports for investigations conducted at other properties in the general vicinity and may not be representative of conditions at the subject property. It should be noted that the flow direction and depth of groundwater may be influenced by rainfall, tidal activity (shore properties), and local groundwater pumping operations. It should also be noted that shallower, unreported, perched groundwater zones may occur in the immediate site vicinity.

2.4 SITE RECONNAISSANCE

A visual site reconnaissance of the subject property was conducted on July 21, 2019 to identify observable signs of environmental impairments, including on-site operations and maintenance activities which may

lead to possible environmental impairment.

As a part of the site reconnaissance the subject property was visually inspected for obvious indications of the following:

| DESCRIPTION | COMMENT |
|---|---------|
| Aboveground Storage Tanks (AST) | None |
| Back-up Power Generators (diesel, battery, natural gas) | None |
| Chemical/Hazardous Materials Storage Area | None |
| Creeks/ Canals | None |
| Debris or Debris Stockpile | None |
| Dispenser Islands, Concrete Pads, and/or Cradles (Fuel) | None |
| Dry Cleaner (drop-off, onsite) | None |
| Electrical Transformers (pole or ground) | None |
| Evidence of Soil Borings | None |
| Evidence of Soil Excavation | None |
| Fill Materials | None |
| Drains (trench drains, proximity to HazMat/ waste) | None |
| Floor Staining or Corrosion (inside) | None |
| Forklift (type) | None |
| Grease Drum | None |
| Grease Trap | None |
| Health and Safety Issues (e.g. molds, standing water) | None |
| Heating/Cooling Systems | None |
| Hydraulic Hoists/Elevator (No./Type) | None |
| Industrial Wastewater | None |
| Loading Dock (drain) | None |
| Odors | None |
| Oil Burners/Furnace | None |
| Oil-Water Separator/Clarifier | None |
| Patches (concrete, asphalt) | None |
| Petroleum Containers (No./size/type) | None |
| Pipes of Unknown Uses | None |
| Pits, Ponds, or Lagoons | None |
| Pools of Liquid | None |
| Railroad, spurs | None |
| Septic Systems | None |
| Stained Soil or Pavement | None |
| Stockpiled Soil | None |
| Storm Drains/ Catch Basins | None |
| Stressed Vegetation | None |
| Sump | None |
| Underground Storage Tanks | None |
| Unidentified/Abandoned Containers | None |
| Well, Type? | None |

The compliance review is not intended as a comprehensive compliance audit. Rather, the compliance review is only intended to aid GEM in determining the likelihood that the subject property may have been

impacted by releases of hazardous substances.

2.4.1 OTHER ENVIRONMENTAL CONDITIONS

There are no other environmental conditions other than those previously discussed.

2.5 VISUAL OBSERVATIONS, ADJOINING SITES

During the site reconnaissance, the GEM field assessor performed a "drive-by" survey of the adjoining properties to note operations that may pose an imminent or potential environmental threat to the subject property.

The area is generally occupied by residential and commercial properties.

Adjoining and adjacent properties are:

- **Northwest:** Flannery Street, Lakehouse Apartments (15195 Lincoln Street)
- **Northeast:** Lincoln Street, Brookstone Landing multi-unit commercial building (31733 Riverside Drive)
- **Southeast:** Riverside Drive, Launch Pointe (32040 Riverside Drive)
- **Southwest:** Lakeview Apartments (32209 Riverside Drive)

3.0 REVIEW OF HISTORICAL INFORMATION AND REGULATORY AGENCY RECORDS

3.1 ARCHIVED AGENCY RECORDS SEARCH

GEM submitted requests to review or obtain records from Agencies who have jurisdiction over the subject property. Records, if available, may either provide information about the environmental conditions on the subject property, or establish that no environmentally relevant records are on file for the subject property. A list of regulatory references/sources is provided in **Section 5.0**. Copies of records are included in **Appendix B**.

3.1.1 STATE WATER QUALITY CONTROL BOARD

The State Water Quality Control Board website does not list the subject property with ongoing site assessment or remediation.

3.1.2 DEPARTMENT OF TOXIC SUBSTANCES CONTROL

The Department of Toxic Substances Control website does not list the subject property with ongoing site assessment or remediation.

3.1.3 DEPARTMENT OF CONSERVATION, DIVISION OF OIL, GAS, & GEOTHERMAL RESOURCES

The Department of Conservation, Division of Oil, Gas & Geothermal Resources website does not identify the presence of oil or gas wells on the subject property. The closest listed inactive well is approximately 2 miles northeast of the subject property.

3.1.4 DEPARTMENT OF TRANSPORTATION, NATIONAL PIPELINE MAPPING SYSTEM

The Department of Transportation, National Pipeline Mapping System website does not identify the presence of hazardous materials pipelines on the subject and adjacent properties.

3.1.5 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

The South Coast Air Quality Management District does not have permits on file for the subject property.

3.1.6 REGIONAL WATER QUALITY CONTROL BOARD, SANTA ANA REGION

The Santa Ana Regional Water Quality Control Board (SARWQCB) does not have records on file for the subject property.

3.1.7 ASSESSOR'S OFFICE, RIVERSIDE COUNTY

The subject property is an undeveloped 6.23-acre lot. The Assessor's Parcel Number is 379-111-014.

3.1.8 BUILDING DEPARTMENT, RIVERSIDE COUNTY

The Riverside County Building Department does not have records on file for the subject property.

3.1.9 FIRE DEPARTMENT, RIVERSIDE COUNTY

The Riverside County Fire Department does not have the capabilities to provide requested environmental records. Relevant documents are provided by the Riverside County Environmental Resources Management Division.

3.1.10 ENVIRONMENTAL RESOURCES MANAGEMENT DIVISION, RIVERSIDE COUNTY

The Riverside County Environmental Resources Management Division does not have records on file for the subject property.

3.1.11 DEPARTMENT OF PUBLIC WORKS, RIVERSIDE COUNTY

The Riverside County Department of Public Works does not have records on file for the subject property.

3.1.12 FIRE DEPARTMENT, CITY OF LAKE ELSINORE

The City of Lake Elsinore Fire Department was associated with a letter from 1987 to J. Grosvenor referencing standing walls on the subject property after a controlled burn. Debris removal including all foundations was noted to be completed.

3.1.13 BUILDING DEPARTMENT, CITY OF LAKE ELSINORE

Historical building permits on file for the subject property are dated from 1979 through 2016.

A permit from 1979 was associated with public sewer connection to a house. The tenant/owner name was blurred/illegible.

A permit from 1987 was associated with “old house”. The remainder of the permit was blurred and illegible.

A closed complaint from 2016 was associated with junk, trash, and debris on the vacant subject property.

3.2 REVIEW OF REGULATORY AGENCY DATABASES

GEM has also reviewed a vendor-supplied, computer-generated federal, state, and regional one-mile regulatory database search in an effort to determine whether the subject property is listed on an agency environmental database and to identify possible regulatory-listed sites of concern within a one-mile radius of the subject property. In general, these documents list known or suspected hazardous-waste generators, release sites, landfills, unauthorized disposal sites, sites with registered underground storage tanks, and sites currently under investigation for known or suspected environmental violations or releases.

The 2012 Leaking Underground Fuel Tank Guidance Manual published by the California State Water Resource Control Board references numerous plume studies. A 2004 study at 500 UST sites in Los Angeles showed 90 percent of the benzene plumes were less than 350 feet long and 90 percent of the methyl tert-

butyl ether (MTBE) plumes were less than 545 feet long (at 5 micrograms/liter [$\mu\text{g/L}$]). Based on this, GEM assesses the potential environmental impact of petroleum hydrocarbon sites within 0.125 miles (660 feet) of the subject property.

GEM assesses the potential environmental impact of a dry cleaner (PCE sites) with active investigation and remediation on the subject property. Since plumes from dry cleaners are generally longer than petroleum hydrocarbon plumes, GEM assesses the potential environmental impact of PCE sites within 0.25 miles (1,320 feet) of the subject property.

The Federal and State listings are summarized in the table below:

| Government Records | Description | ASTM Search Distance (miles) | Total Listing |
|--|--|------------------------------|---------------|
| Federal | | | |
| National Priority List (NPL) | U.S. Environmental Protection Agency's (EPA) list of national priorities among known or threatened releases of hazardous substances, pollutants, or contaminants throughout the U.S. and its territories. The NPL is intended primarily to guide the EPA in determining which sites warrant further investigation under the Superfund Program. | 1.0 | 0 |
| Delisted NPL | Facilities that have been removed from the NPL. | 0.5 | 0 |
| Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) | EPA's list containing information on the assessment and remediation of current hazardous waste sites pursuant to the CERCLA of 1980. | 0.5 | 0 |
| CERCLIS No Further Action Remedial Action Planned (NFRAP) | Facilities that have been removed and archived from EPA's inventory of CERCLA sites. | 0.5 | 0 |
| Resource Conservation and Recovery Act (RCRA) Corrective Action (CORRACTS) | EPA's database of RCRA facilities associated with treatment, storage, and disposal (TSD) of hazardous waste that are undergoing "corrective action." A "corrective action" order is issued when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. | 1.0 | 0 |
| RCRA non-CORRACTS TSD | EPA's database of facilities which report storage, transportation, treatment, or disposal of hazardous waste. Unlike the RCRA CORRACTS/TSD database, the RCRA Non-CORRACTS/TSD database does not include RCRA facilities where corrective action is required. | 0.5 | 0 |

| Government Records | Description | ASTM Search Distance (miles) | Total Listing |
|---|---|-----------------------------------|---------------|
| RCRA Generators | EPA's database of facilities that generate hazardous waste as part of their normal business practices. Generators are listed as either large (LQG), small (SQG), or conditionally exempt (CESQG). | property and adjoining properties | 0 |
| Institutional control (IC)/engineering control (EC) | IC includes administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls. EC includes caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. | property only | 0 |
| Emergency Response Notification System (ERNS) | EPA's database of facilities with reported releases of petroleum and hazardous substances to the air, soil and/or water. | property only | 0 |
| State and Tribal | | | |
| Equivalent NPL | Confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. | 1.0 | 0 |
| Equivalent CERCLIS | Federal Superfund Sites identified by the EPA where the DTSC is actively involved, either in a lead or support capacity, in the investigation and/or remediation currently in progress. | 0.5 | 0 |
| Landfill and/or solid waste disposal sites | Database of solid waste facilities; may include the facility name, class, operation type, area, estimated operational life, and owner. | 0.5 | 0 |
| Leaking underground storage tank (LUST) | List of USTs which have been reported as having had a release. | 0.5 | 0 |
| Registered storage tanks | Database of registered storage tanks | property and adjoining properties | 0 |
| IC/EC | Equivalent to the Federal IC / EC database list | property only | 0 |
| Voluntary cleanup sites | Facilities included as Voluntary Cleanup Program (VCP) | 0.5 | 0 |
| Brownfield sites | Properties addressed by Cooperative Agreement Recipients or Targeted Brownfields Assessments. | 0.5 | 0 |
| Spills, Leaks, Investigation & Cleanup (SLIC) | Sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. SLIC Program deals with site investigation and corrective action involving sites not overseen by the UST Program and the Well Investigation Program. | 0.5 | 0 |

Supplemental and proprietary historic databases were also reviewed. These databases identified the following listings within 0.25 miles of the subject property:

| Source List | Description | Search Distance (miles) | Total Listing |
|-----------------------------|--|-------------------------|---------------|
| DCF2, DryCleaners, Cleaners | drycleaners reported by the DTSC | 0.25 | 1 |
| Historical listings | listings from historical databases that are no longer updated/used. Listings may have been closed or transferred to active databases | 0.0625-0.25 | 1 |
| Historical Service Station | records dating back to the 1800's that have shown up in historic resources and based on their classification, may have used hazardous materials or petroleum products. | 0.25 | 1 |
| Spill-SSO | database contains private lateral sewage discharges from RWQCB | 0.25 | 1 |

The subject property is not listed in the regulatory databases reviewed.

The following adjoining and immediately adjacent properties are listed in the regulatory databases reviewed:

32040 Riverside Drive is located south across Riverside Drive, (RV Resort Rehabilitation Project, Campground Boat Launch Facility Improvements, & Lake Elsinore Recreation Area):

- Identified stormwater construction site.
- Historical service station in 2002.
- This site is located in between the subject property and Lake Elsinore. This site is located down-gradient from the subject property. Based on the available information, the potential for presence of environmental impact on the subject property appears low at this time.

The Cleaners listing is located 0.15 miles from the subject property. There are no listed violations or investigations at this time.

There are no listings which appear to present potential environmental impact on the subject property at this time.

A copy of the complete database search document and a detailed description of the databases that were searched are included in **Appendix C**.

3.3 REVIEW OF HISTORICAL AERIAL PHOTOGRAPHS

GEM reviewed readily available and reasonably ascertainable aerial photographs of the area of the subject property. Each aerial photograph was reviewed for the subject property and, where applicable, adjacent property use.

Aerial photographs for the years of 1938, 1967, 1978, 1980, 1994, 2005, 2009, 2010, 2012, 2014, 2015, 2016, 2017, and 2018 were reviewed.

The 1938 aerial photograph shows what appears to be multiple structures in the northeastern corner. The remainder of the subject property was vacant land. The immediate vicinity, including the subject property, is agricultural.

The 1967 through 1980 aerial photographs still showed structures along the northeast corner. The remainder of the subject property was part of an orchard. The orchard appears to have been abandoned and allowed to die. The general area was mostly undeveloped with few residential developments.

The 1994 through 2018 aerial photographs showed the subject property as undeveloped vacant land. The general area was developed with mostly residential and commercial structures.

3.4 REVIEW OF HISTORICAL USGS TOPOGRAPHIC MAPS

GEM reviewed readily available and reasonably ascertainable USGS topographic maps of the area of the subject property. USGS topographic maps was reviewed for the subject property and, where applicable, adjacent property use.

USGS topographic maps for the years of 1955, 1957, 1967, 1975, 1985, 1988, 2000, 2001, 2012, and 2015 were reviewed.

The 1955 through 1967 USGS topographic maps showed the general area as orchards with road development.

The 1975 through 2015 USGS topographic maps showed the general area developed with buildings and roads. Orchards were depicted in the vicinity through 2001.

3.5 REVIEW OF HISTORICAL FIRE INSURANCE MAPS

Fire insurance maps are the most detailed historical records of the urban landscape. From 1790 to 1961, nearly every U.S. town and city with populations of 2,000 or more had been surveyed. Shown on these maps, sometimes in great detail, is virtually every building, man-made structure, and business standing at the time the survey was made.

A search of multiple national collections and indexes of historical fire insurance maps was conducted for the above referenced site address. The review of collections and indexes has determined that no historical fire insurance maps are available within these collections and indexes for the referenced site; therefore they are not available and are considered not "reasonably ascertainable" according to ASTM standards.

A copy of the report is included in **Appendix C**.

3.6 REVIEW OF HISTORICAL CITY DIRECTORIES

One of the least known, yet most complete and comprehensive historical sources are historical city or street

directories. GEM reviews historical city or street directories (also known as criss-cross or reverse indexed directories) for information on the past occupants of and activities on the subject property and adjoining properties. If they were reasonably ascertainable, they were reviewed to determine current or past occupants of the subject property.

Historical city or street directories were available for 1985, 1990, 1995, 2000, 2004-2005, and 2007-2008. The listings are provided below:

15209 Lincoln Street (subject property)

- 1985 – 2008 – Address Not Listed

32040 Riverside Avenue (adjacent south property)

- 1985 – California State Park & Recreation Bus Service Campground and Ranger, Lake Elsinore State Park, Watkins Scott
- 1990 – California State Park & Recreation Bus Service Campground and Ranger, Lake Elsinore State Park, Hogue Jas and Linda, Jones Linda K
- 1995 – California State Park & Recreation Campground and Ranger, Lake Elsinore State Park, Dearagon Alejandra
- 2000 – Jones Linda, Lake Elsinore Parks & Recreation Campground
- 2004-2005 – Pyramid Enterprises Inc
- 2007-2008 – Lake Elsinore City Campgrounds, Pyramid Enterprises Inc

A copy of the report is included in **Appendix C**.

3.7 PRIOR OR CURRENT AGRICULTURAL LAND USE

The subject and adjoining properties were used for agriculture from at least 1938.

Agrichemicals are primarily sprayed on the foliage or ground surface. Their potential for subsurface migration to a depth greater than 2 feet below ground surface is not likely as they will have primarily degraded. Also, residual concentrations, if any, would naturally attenuate over time.

If the subject property is redeveloped for residential use, then soil sampling may be required to determine the presence of pesticides.

3.8 QUESTIONNAIRE AND/OR INTERVIEW

An environmental questionnaire was not completed/submitted by the client for the completion of this report.

3.9 ADDITIONAL ENVIRONMENTAL DOCUMENTS

No additional environmental document was provided for review.

3.10 HISTORICAL SITE USE

The chronological historical site use summary below is based on reviewed aerial photographs, maps,

regulatory agency files, interviews, and additional environmental documents:

- 1938 – 1987 – residential/orchards
- 1987 – current – undeveloped vacant lot

3.11 TIER 1 VAPOR ENCROACHMENT SCREENING

Tier 1 vapor encroachment screening (VES) was conducted in general accordance with **ASTM E2600-15, “Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions.”**

The goal of conducting a VES, is to identify a vapor encroachment condition (VEC), which is the presence or likely presence of volatile and toxic vapors in the vadose zone of the subject property caused by the release of vapors from contaminated soil and/or groundwater either on or near the subject property.

The default area of concern is 1/10th mile (0.1 mile = 528 feet) for petroleum hydrocarbon chemicals of concern and 1/3rd mile (0.33 mile = 1,760 feet) for other non-petroleum hydrocarbon chemicals of concern around the subject property. The area of concern may be expanded or reduced based on chemicals of concern, soil characteristics, depth/direction of groundwater, surficial feature and other pertinent information to determine whether a VEC exists or a VEC does not exist.

Vapor intrusion is the general term given to migration of hazardous vapors from any subsurface vapor source, such as contaminated soil or groundwater, through the soil and into an overlying building or structure. These vapors can enter buildings through cracks in basements and foundations, as well as through conduits and other openings in the building envelope. Vapors can also enter structures that are not intended for human occupancy (e.g., sewers, drain lines, access vaults, storage sheds, pump houses) through cracks and other openings.

All types of buildings, regardless of foundation type (e.g., basement, crawl space, slab-on-grade), have openings that render them potentially vulnerable to vapor intrusion. Buildings subject to vapor intrusion include, but are not limited to, residential buildings (e.g., detached single-family homes, trailer or ‘mobile’ homes, multi-unit apartments and condominiums), commercial workplaces (e.g., office buildings, retail establishments), educational and recreational buildings (e.g., schools and gyms), and industrial facilities (e.g., manufacturing plants).

The U.S. Environmental Protection Agency’s *Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (OSWER Publication 9200.2-154, June 2015) recommends that 100 feet laterally and vertically is a reasonable initial criterion when considering vapor migration fundamentals. The buffer zone of approximately 100 feet has generally been used in determining which buildings to include in vapor intrusion investigations when significant surface covers are not present, under the assumption that preferential vapor migration routes are absent. Use of the 100-foot buffer zone would be inappropriate for landfills, commercial/industrial releases within an enclosed space, or leaking vapors from natural gas lines.

Based on available information, a VEC does not exist at the subject property.

3.12 REVIEW OF PRELIMINARY TITLE REPORT

A preliminary title report was not available for review.

3.13 REVIEW OF APPRAISAL REPORT

An appraisal report was not available for review.

3.14 IDENTIFICATION OF HISTORICAL DATA GAPS

Data gaps may result from the lack of or inability to obtain information required by ASTM E1527 despite good faith efforts by the environmental professional to gather such information. Data gaps are only significant if “other information and/or professional experience raise reasonable concerns involving the data gap.”

Data gaps may include, but are not limited to, site reconnaissance, interviews, review of standard historical sources, etc. ASTM E1527 requires that all obvious uses of the property shall be identified from the present, back to the property’s first developed use, or back to 1940, whichever is earlier.

During the course of this Phase I ESA, GEM did not identify significant data gaps within the reviewed historic documents for the subject property that could affect the conclusions of this report.

4.0 FINDINGS AND RECOMMENDATIONS

4.1 FINDINGS

The subject property is a 6.23-acre vacant dirt lot with weeds and trees.

Historical sources show the subject property developed with multiple structures along the northeast corner from at least 1938 through 1987 when it appears the structures were demolished. The remainder of the subject property was part of an orchard. The orchard appears to have been abandoned and allowed to die prior to the 1980s. The subject property appears to have been undeveloped since at least 1987.

The subject property is not listed in the regulatory databases reviewed. There were no records from various regulatory agencies that identify the potential for adverse environmental impact from the subject and adjoining properties. There are no listed offsite listings with the potential for adverse environmental impact on the subject property.

4.1.1 RECOGNIZED ENVIRONMENTAL CONDITION

A *REC* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

There are no *RECs* identified at the subject property at this time.

4.1.2 HISTORICAL REC

Historical REC refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

There are no *historical RECs* identified at the subject property at this time.

4.1.3 CONTROLLED REC

Controlled REC is a *REC* resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

There are no *controlled RECs* identified at the subject property at this time.

4.1.4 DE MINIMIS CONDITIONS

A *de minimis condition* generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis conditions* are not *RECs* nor *controlled RECs*.

There are no *de minimis conditions* at the subject property at this time.

4.1.5 BUSINESS ENVIRONMENTAL RISK

BER is a risk which can have a material environmental or environmentally driven impact on the business associated with the current or planned use of commercial real estate, and is not an issue required to be investigated under this practice. A *BER* may include one or more of the non-scope issues contained in subsection 1.3.

There are no *BERs* associated with the subject property at this time.

4.2 RECOMMENDATIONS

Given the findings and conclusions of this Phase I ESA, GEM recommends no further investigation at this time. However, if the subject property is redeveloped for residential use, then soil sampling may be required to determine the presence of pesticides from former orchard use.

5.0 REGULATORY AGENCIES

| Federal and/or State Agencies | |
|--|---|
| State Water Quality Control Board | http://geotracker.waterboards.ca.gov/ |
| Santa Ana Regional Water Quality Control Board (SARWQCB) | FileReview8@waterboards.ca.gov |
| Department of Toxic Substances Control | http://www.envirostor.dtsc.ca.gov/ |
| Department of Conservation, Division of Oil, Gas, & Geothermal Resources | https://maps.conservation.ca.gov/doggr/wellfinder/#close |
| Department of Transportation, National Pipeline Mapping System | https://pvnpm.phmsa.dot.gov/PublicViewer/ |
| South Coast Air Quality Management District | http://www.aqmd.gov/nav/online-services/public-records |

| County Agencies | |
|----------------------------|---|
| Assessor's Office | http://pic.asrclrec.com/ |
| Environmental Health | http://www.rivcoeh.org |
| Fire Department | RRURecords@fire.ca.gov |
| Building Department | http://rctlma.org/building/Records-Request |
| Department of Public Works | http://rctlma.org/ce/PublicRecordsRequest |

| City Agencies | |
|---------------------|---|
| Fire Department | http://www.lake-elsinore.org/Home/Components/Form |
| Building Department | http://www.lake-elsinore.org/Home/Components/Form |

| Environmental Records Search | |
|------------------------------|---|
| City Directories | https://www.reccheck.com/store/default.asp |
| Fire Insurance Maps | |
| Regulatory Agency Databases | |
| Topographic Maps | https://www.historicaerials.com/ and Google Earth |
| Aerial Photographs | |

6.0 LIMITATIONS

To achieve the study objectives stated in this report, we were required to base GEM conclusions and recommendations on the best information available during the period the Phase I ESA was conducted and within the limits prescribed by GEM client in the contract/authorization agreement and standard terms and conditions.

GEM's professional services were performed using that degree of care and skill ordinarily exercised by environmental consultants practicing in this or similar fields. Resumes are included in **Appendix D**. The findings were mainly based upon examination of historic records, maps, aerial photographs, and governmental agencies lists. The hazardous waste site lists represented in this report represent only a search of the specific government records as listed above. It should be noted that governmental agencies often do not list all sites with environmental contamination; the lists could be inaccurate and/or incomplete. Recommendations are based on the historic land use of the subject property, as well as features noted during the site reconnaissance and examined records. The absence of potential gross contamination sources, historic or present, does not necessarily imply that the subject property is free of any contamination. This report only represents a "due diligence" effort as to the integrity of the subject property. No warranty or guarantee, expressed or implied, is made as to the professional conclusions or recommendations contained in this report. The limitations contained within this report supersede all other contracts or scopes of work, implied or otherwise, except those stated or acknowledged herewith.

This report is not a legal opinion. It does not necessarily comply with requirements defined in any environmental law such as the "innocent landowner defense" or "due diligence inquiry." Only legal counsel retained by the client is competent to determine the legal implications of any information, conclusions, or recommendations in this report. The compliance status is not intended for use as a guide to compliance for the present owner. Its intended use is to identify environmental impairments to the subject property and is not to be used as a guide to the legal compliance to any regulations of any kind.

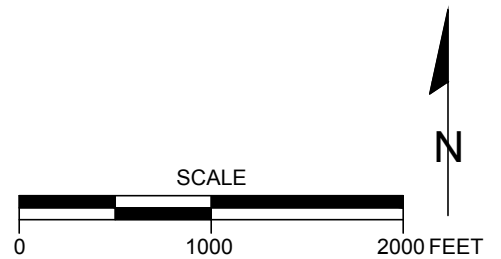
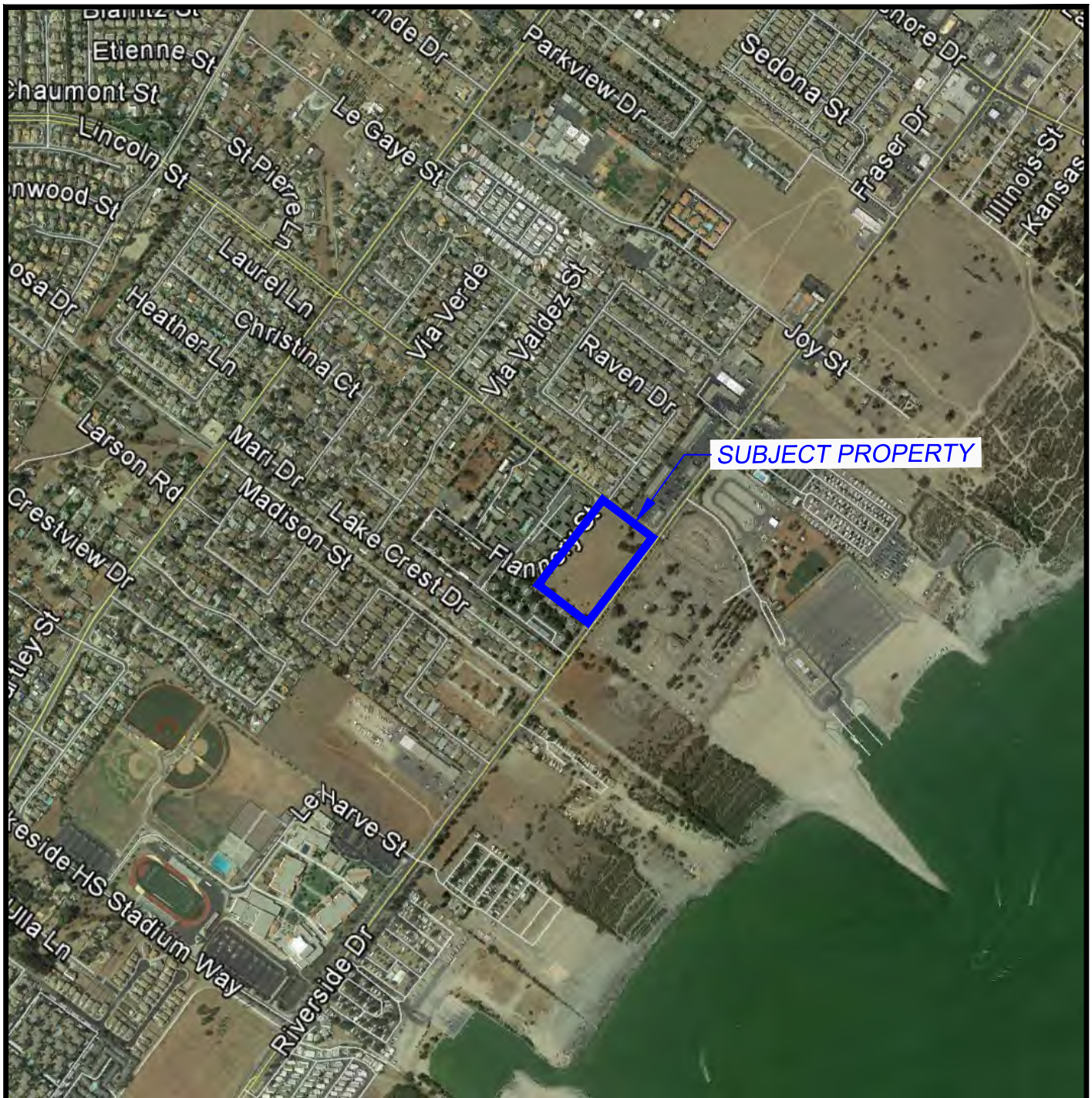
The findings, conclusions, recommendations, and professional opinions contained in this report have been prepared by the staff of GEM, in accordance with generally accepted professional practices. All cost estimates if provided, are purely estimates, and may not represent the actual costs. The costs provided are for budgetary purposes only.

This report does not address, in any way, septic systems, leach fields, septic tanks, or related health hazards.

Analytical results for samples, if collected, should not be construed as conclusive and binding in any way. All sampling conducted is only for the purposes of general screening and does not imply that all materials, locations, or hazardous materials have been identified nor was the sampling intended to identify every instance of the materials sampled. No interpretation of the sample results is made or implied. GEM relays only the information supplied by the laboratory conducting the analysis.

FIGURES

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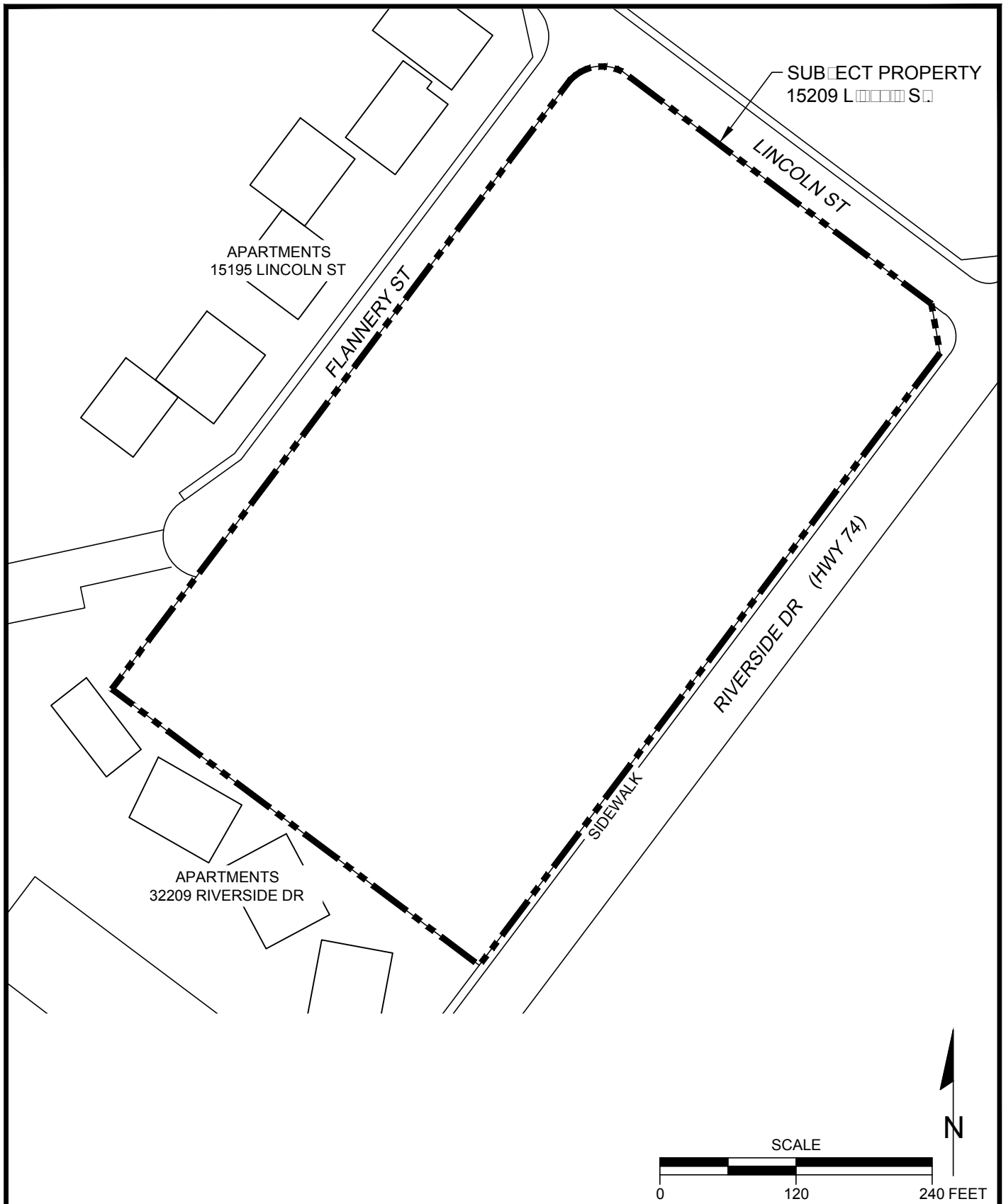
Project Number: 19-9351

Project Address: 15209 Lincoln St.
Lake Elsinore, CA

Figure 1

Site Location Map

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Project Number: 19-9351

Project Address: 15209 Lincoln St.
Lake Elsinore, CA

Figure 2

Site Plan

APPENDIX A
PHOTOGRAPHS

Photo-1
Overview of Subject Property (Facing North)



Photo-2
Overview of Subject Property (Facing Northeast)



Photo-3
Overview of Subject Property (Facing Southeast)



Photo-4
Overview of Subject Property (Facing East)



Photo-5
Overview of Subject Property (Facing Northeast)



Photo-6
Overview of Subject Property (Facing South)



Photo-7
Adjoining Southwest Property, Lakeview Apartments
(32209 Riverside Drive, Facing South)



Photo-8
Adjacent Northwest Property, Lakehouse Apartments
(15195 Lincoln Street, Facing Southwest)



Photo-9
Adjacent Southeast Property, Launch Pointe
(32040 Riverside Drive, Facing Southeast)



Photo-10
Adjacent Northeast Property, Brookstone Landing
(31733 Riverside Drive, Facing Northwest)



APPENDIX B
COPIES OF RECORDS



Map Layers

Query Tools

15209 Lincoln St, Lake Elsinore

Help



Print Map

Map Size

ANSI A (8.5 X 11)

OK

Cancel

Map Layers

☒ Accidents (Liquid)

☒ Incidents (Gas)

☒ Gas Transmission Pipelines

☒ Hazardous Liquid Pipelines

☐ LNG Plants

☐ Breakout Tanks

☐ Other Populated Areas (scale dependent)

☐ Highly Populated Areas (scale dependent)

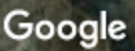
☐ Commercially Navigable Waterways

☐ CNW Inland

☐ CNW Ocean/Great Lakes

☐ State Boundaries

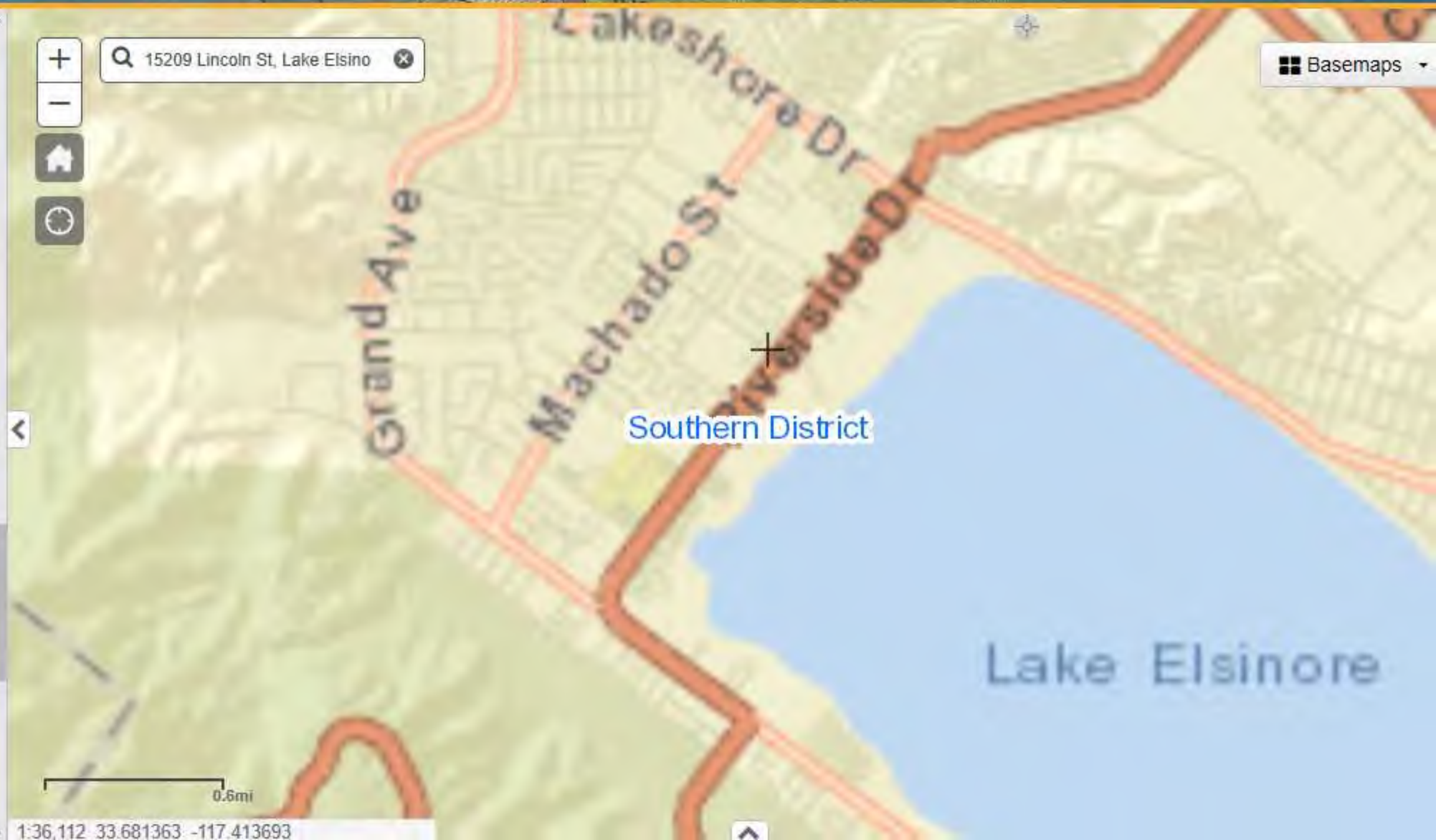
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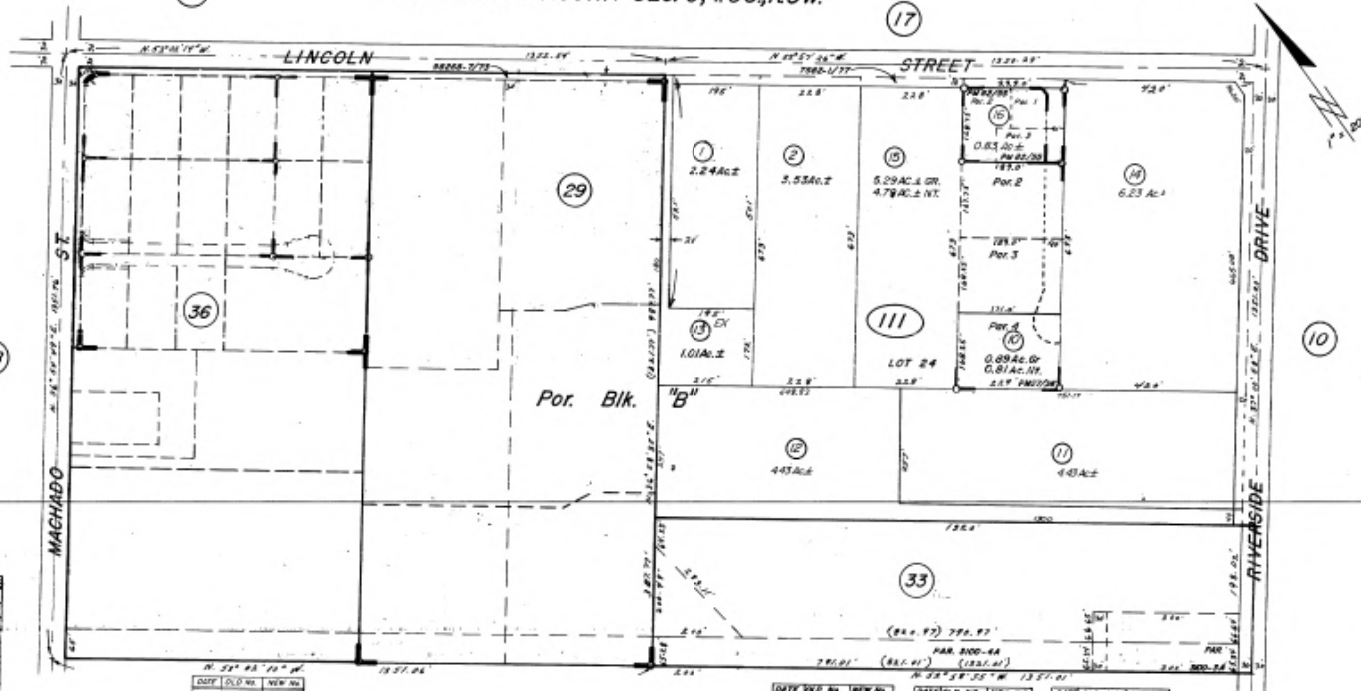
Water Flood

-  Plugged Cyclic Steam
-  Plugged Water Source
-  Plugged Observation
-  Plugged well of Unknown type
-  Plugged Multipurpose
-  Plugged Dry Hole
-  Plugged Core Hole
-  Unknown status Gas: Dry Gas; Liquid Gas
-  Unknown status Oil and Gas
-  Unknown status Gas Storage
-  Unknown status Injectors: Air Injector; Gas Disposal; Pressure Maintenance; Steam Flood; Water Disposal; Water Flood
-  Unknown status Cyclic Steam
-  Unknown status Water Source
-  Unknown status Observation
-  Unknown status well of Unknown type
-  Unknown status Multipurpose
-  Unknown status Dry Hole
-  Unknown status Core Hole



POR. RO. LA LAGUNA SEC. 3, T.6S, R.5W.

18-34
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| 5/27 | 85 | 93 |
| 5/27 | 86 | 94 |
| 5/27 | 87 | 95 |
| 5/27 | 88 | 96 |
| 5/27 | 89 | 97 |
| 5/27 | 90 | 98 |
| 5/27 | 91 | 99 |
| 5/27 | 92 | 100 |

M.B. 8/377 S.D. Ro. La Laguna
P.M. 82/55 Parcel Map 13633
P.M. 27/36 Parcel Map 7845

J.C.A.

MAR. 1977

| DATE | OLD NO. | NEW NO. |
|------|---------|---------|
| 3/74 | 3 | 18 |
| 3/74 | 4 | 19 |
| 3/74 | 5 | 20 |
| 3/74 | 6 | 21 |
| 3/74 | 7 | 22 |
| 3/74 | 8 | 23 |
| 3/74 | 9 | 24 |
| 3/74 | 10 | 25 |
| 3/74 | 11 | 26 |
| 3/74 | 12 | 27 |
| 3/74 | 13 | 28 |
| 3/74 | 14 | 29 |
| 3/74 | 15 | 30 |
| 3/74 | 16 | 31 |
| 3/74 | 17 | 32 |
| 3/74 | 18 | 33 |
| 3/74 | 19 | 34 |
| 3/74 | 20 | 35 |
| 3/74 | 21 | 36 |
| 3/74 | 22 | 37 |
| 3/74 | 23 | 38 |
| 3/74 | 24 | 39 |
| 3/74 | 25 | 40 |
| 3/74 | 26 | 41 |
| 3/74 | 27 | 42 |
| 3/74 | 28 | 43 |
| 3/74 | 29 | 44 |
| 3/74 | 30 | 45 |
| 3/74 | 31 | 46 |
| 3/74 | 32 | 47 |
| 3/74 | 33 | 48 |
| 3/74 | 34 | 49 |
| 3/74 | 35 | 50 |
| 3/74 | 36 | 51 |
| 3/74 | 37 | 52 |
| 3/74 | 38 | 53 |
| 3/74 | 39 | 54 |
| 3/74 | 40 | 55 |
| 3/74 | 41 | 56 |
| 3/74 | 42 | 57 |
| 3/74 | 43 | 58 |
| 3/74 | 44 | 59 |
| 3/74 | 45 | 60 |
| 3/74 | 46 | 61 |
| 3/74 | 47 | 62 |
| 3/74 | 48 | 63 |
| 3/74 | 49 | 64 |
| 3/74 | 50 | 65 |
| 3/74 | 51 | 66 |
| 3/74 | 52 | 67 |
| 3/74 | 53 | 68 |
| 3/74 | 54 | 69 |
| 3/74 | 55 | 70 |
| 3/74 | 56 | 71 |
| 3/74 | 57 | 72 |
| 3/74 | 58 | 73 |
| 3/74 | 59 | 74 |
| 3/74 | 60 | 75 |
| 3/74 | 61 | 76 |
| 3/74 | 62 | 77 |
| 3/74 | 63 | 78 |
| 3/74 | 64 | 79 |
| 3/74 | 65 | 80 |
| 3/74 | 66 | 81 |
| 3/74 | 67 | 82 |
| 3/74 | 68 | 83 |
| 3/74 | 69 | 84 |
| 3/74 | 70 | 85 |
| 3/74 | 71 | 86 |
| 3/74 | 72 | 87 |
| 3/74 | 73 | 88 |
| 3/74 | 74 | 89 |
| 3/74 | 75 | 90 |
| 3/74 | 76 | 91 |
| 3/74 | 77 | 92 |
| 3/74 | 78 | 93 |
| 3/74 | 79 | 94 |
| 3/74 | 80 | 95 |
| 3/74 | 81 | 96 |
| 3/74 | 82 | 97 |
| 3/74 | 83 | 98 |
| 3/74 | 84 | 99 |
| 3/74 | 85 | 100 |

ASSESSOR'S MAP BK 379 PG. 11
RIVERSIDE COUNTY, CALIF

GEM Group

From: Brittany Palagonia <bpalagonia@aqmd.gov>
Sent: Thursday, July 18, 2019 4:58 PM
To: GEM Group
Cc: OB PR Support NA Docs
Subject: Public Records Request #1397715,
Attachments: - PR - PR Supporting Docs - 7/18/2019 - 1397715 - - - COMPLETION LETTER - BEN KEENEY.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Ben,

Attached is the completion letter regarding your Public Records Request.

Thank you,

Brittany Palagonia

South Coast Air Quality Management District
Public Records | Temporary Senior Office Assistant
Information Management
21865 Copley Drive, Diamond Bar, CA 91765
Direct. 909 396 2362 | Hotline. 909 396 3700
Email. bpalagonia@aqmd.gov | Web. www.aqmd.gov
Please note SCAQMD is closed on Mondays

Information Management
Public Records Unit

Direct Dial (909) 396-3700
Fax: (909) 396-3330

COMPLETION LETTER

July 18, 2019

BEN KEENEY
GEM GROUP
967 KENDALL DR # SUITE A-324
SAN BERNARDINO, CA 92407

Ref: CONTROL NO. 1397715
Received 7/16/2019

Re: P/O'S, EQL'S, NOV'S, I/R'S, & ASBESTOS NOTIFICATIONS FOR 15209 LINCOLN ST, LAKE ELSINORE, CA.

After a thorough search of this agency's records:

NO REQUESTED RECORDS WERE FOUND FOR THE ABOVE-REFERENCED FACILITY OR FACILITY SITE.

If you have any questions, please do not hesitate to contact me. Tuesday through Friday, **8:00 a.m. to 4:30 p.m.**

Sincerely,

BRITTANY PALAGONIA #2362
For COLLEEN PAINE
Public Records Coordinator

bp



15209 LINCOLN ST.

CB-022



City of Lake Elsinore

CITY HALL

130 SOUTH MAIN STREET
LAKE ELSINORE, CALIFORNIA 92530

Telephone (714) 674-3125

June 1, 1987

J. Grosvenor
3145 Sports Arena Blvd.
San Diego, Ca 92110

RE: 15209 Lincoln Street

Dear Mr. Grosvenor:

An inspection of the above referenced property shows that some of the walls remain standing after the controlled burn by the Fire Department.

For the abating process to be complete it will be necessary for all debris to be removed, this includes all foundations. If this has not been completed by June 12, 1987 it will be necessary for the City to complete the job through the abating process.

If you have any questions, please contact the Building Division at (714) 674-3124.

Sincerely,

CITY OF LAKE ELSINORE

Robert L. Fink
Senior Building Inspector

RLF/bp

4-002

7-24-87 note from
Assessor's office

West Victoria
Villages

En Co AMIR

Enterprises Inc

15552 McArthur

#345

Travis, CA 92715

Copy May 1987

~~It is suggested that the following information be included in the report:~~

Re-inspection

TOTAL FEES DUE \$ 15.00

Receipt #2

| ADD: • | | SPACING FEES | |
|-----------|---------------------|--------------|---------|
| | | | DU 1420 |
| | | | DU 1425 |
| 1000-1001 | Plan Fee | \$ | |
| 1000-1002 | Plan Fee | \$ | |
| | Total Fees | \$ | |
| | Summary of Payments | | |
| | Billing | \$ | 15.00 |
| | Payments | \$ | |
| | Interest | \$ | |
| | Verbal Fee | \$ | |
| 1000-1003 | 1000-1004 | \$ | |
| 1000-1005 | 1000-1006 | \$ | |
| | Summary of Plan Fee | | |
| | Billing | \$ | |
| | Payments | \$ | |
| | Interest | \$ | |
| | Verbal Fee | \$ | |
| 1000-1007 | 1000-1008 | \$ | |
| 1000-1009 | Plan Fee | \$ | |
| | TOTAL FEES DUE | \$ | 15.00 |

4, 1974-1975, 1976-1977, 1978-1979, 1980-1981, 1982-1983, 1984-1985, 1986-1987, 1988-1989, 1990-1991, 1992-1993, 1994-1995, 1996-1997, 1998-1999, 2000-2001, 2002-2003, 2004-2005, 2006-2007, 2008-2009, 2010-2011, 2012-2013, 2014-2015, 2016-2017, 2018-2019, 2020-2021, 2022-2023, 2024-2025, 2026-2027, 2028-2029, 2030-2031, 2032-2033, 2034-2035, 2036-2037, 2038-2039, 2040-2041, 2042-2043, 2044-2045, 2046-2047, 2048-2049, 2050-2051, 2052-2053, 2054-2055, 2056-2057, 2058-2059, 2060-2061, 2062-2063, 2064-2065, 2066-2067, 2068-2069, 2070-2071, 2072-2073, 2074-2075, 2076-2077, 2078-2079, 2080-2081, 2082-2083, 2084-2085, 2086-2087, 2088-2089, 2090-2091, 2092-2093, 2094-2095, 2096-2097, 2098-2099, 2100-2101, 2102-2103, 2104-2105, 2106-2107, 2108-2109, 2110-2111, 2112-2113, 2114-2115, 2116-2117, 2118-2119, 2120-2121, 2122-2123, 2124-2125, 2126-2127, 2128-2129, 2130-2131, 2132-2133, 2134-2135, 2136-2137, 2138-2139, 2140-2141, 2142-2143, 2144-2145, 2146-2147, 2148-2149, 2150-2151, 2152-2153, 2154-2155, 2156-2157, 2158-2159, 2160-2161, 2162-2163, 2164-2165, 2166-2167, 2168-2169, 2170-2171, 2172-2173, 2174-2175, 2176-2177, 2178-2179, 2180-2181, 2182-2183, 2184-2185, 2186-2187, 2188-2189, 2190-2191, 2192-2193, 2194-2195, 2196-2197, 2198-2199, 2200-2201, 2202-2203, 2204-2205, 2206-2207, 2208-2209, 2210-2211, 2212-2213, 2214-2215, 2216-2217, 2218-2219, 2220-2221, 2222-2223, 2224-2225, 2226-2227, 2228-2229, 2230-2231, 2232-2233, 2234-2235, 2236-2237, 2238-2239, 2240-2241, 2242-2243, 2244-2245, 2246-2247, 2248-2249, 2250-2251, 2252-2253, 2254-2255, 2256-2257, 2258-2259, 2260-2261, 2262-2263, 2264-2265, 2266-2267, 2268-2269, 2270-2271, 2272-2273, 2274-2275, 2276-2277, 2278-2279, 2280-2281, 2282-2283, 2284-2285, 2286-2287, 2288-2289, 2290-2291, 2292-2293, 2294-2295, 2296-2297, 2298-2299, 2300-2301, 2302-2303, 2304-2305, 2306-2307, 2308-2309, 2310-2311, 2312-2313, 2314-2315, 2316-2317, 2318-2319, 2320-2321, 2322-2323, 2324-2325, 2326-2327, 2328-2329, 2330-2331, 2332-2333, 2334-2335, 2336-2337, 2338-2339, 2340-2341, 2342-2343, 2344-2345, 2346-2347, 2348-2349, 2350-2351, 2352-2353, 2354-2355, 2356-2357, 2358-2359, 2360-2361, 2362-2363, 2364-2365, 2366-2367, 2368-2369, 2370-2371, 2372-2373, 2374-2375, 2376-2377, 2378-2379, 2380-2381, 2382-2383, 2384-2385, 2386-2387, 2388-2389, 2390-2391, 2392-2393, 2394-2395, 2396-2397, 2398-2399, 2400-2401, 2402-2403, 2404-2405, 2406-2407, 2408-2409, 2410-2411, 2412-2413, 2414-2415, 2416-2417, 2418-2419, 2420-2421, 2422-2423, 2424-2425, 2426-2427, 2428-2429, 2430-2431, 2432-2433, 2434-2435, 2436-2437, 2438-2439, 2440-2441, 2442-2443, 2444-2445, 2446-2447, 2448-2449, 2450-2451, 2452-2453, 2454-2455, 2456-2457, 2458-2459, 2460-2461, 2462-2463, 2464-2465, 2466-2467, 2468-2469, 2470-2471, 2472-2473, 2474-2475, 2476-2477, 2478-2479, 2480-2481, 2482-2483, 2484-2485, 2486-2487, 2488-2489, 2490-2491, 2492-2493, 2494-2495, 2496-2497, 2498-2499, 2500-2501, 2502-2503, 2504-2505, 2506-2507, 2508-2509, 2510-2511, 2512-2513, 2514-2515, 2516-2517, 2518-2519, 2520-2521, 2522-2523, 2524-2525, 2526-2527, 2528-2529, 2530-2531, 2532-2533, 2534-2535, 2536-2537, 2538-2539, 2540-2541, 2542-2543, 2544-2545, 2546-2547, 2548-2549, 2550-2551, 2552-2553, 2554-2555, 2556-2557, 2558-2559, 2560-2561, 2562-2563, 2564-2565, 2566-2567, 2568-2569, 2570-2571, 2572-2573, 2574-2575, 2576-2577, 2578-2579, 2580-2581, 2582-2583, 2584-2585, 2586-2587, 2588-2589, 2590-2591, 2592-2593, 2594-2595, 2596-2597, 2598-2599, 2600-2601, 2602-2603, 2604-2605, 2606-2607, 2608-2609, 2610-2611, 2612-2613, 2614-2615, 2616-2617, 2618-2619, 2620-2621, 2622-2623, 2624-2625, 2626-2627, 2628-2629, 2630-2631, 2632-2633, 2634-2635, 2636-2637, 2638-2639, 2640-2641, 2642-2643, 2644-2645, 2646-2647, 2648-2649, 2650-2651, 2652-2653, 2654-2655, 2656-2657, 2658-2659, 2660-2661, 2662-2663, 2664-2665, 2666-2667, 2668-2669, 2670-2671, 2672-2673, 2674-2675, 2676-2677, 2678-2679, 2680-2681, 2682-2683, 2684-2685, 2686-2687, 2688-2689, 2690-2691, 2692-2693, 2694-2695, 2696-2697, 2698-2699, 2700-2701, 2702-2703, 2704-2705, 2706-2707, 2708-2709, 2710-2711, 2712-2713, 2714-2715, 2716-2717,

Date 6/11/87

CONSTRUCTION AND PLANNING APPROVALS

Date

Inspector

Temporary Electrical Service or Pole
Soil Pipe Undergrnd.
Property Sewer Line & House Connection
Electrical Conduit Undergrnd.
Steel Reinforcement
Grout
Footings
Slab
Water Pipe Undergrnd.

DO NOT PLACE CONCRETE UNTIL ABOVE IS SIGNED

Floor Joists
Roof Drain
Rough Plumbing
Rough Electrical Conduit
Rough Electric Wiring
Rough Electrical - T Bar Ceiling
Rough Heating & Air Conditioning
Ducts, Ventilating
Gas Pipe - Rough & Test
Floor Sheathing
Roof Framing
Roof Sheathing
T Bar Ceiling
Frame and Flashing
Lathing & Siding
Insulation
Drywall Nailing

DO NOT PLASTER UNTIL THE ABOVE IS SIGNED

Electrical Power Meter Final
Final Electric
Final Heating & Air Conditioning
Final Gas Pipe Test
Hood or Canopy
Final Plumbing
Water Service Final
Gas Service Final
Solar Domestic Final
Backflow Preventer
Backflow Inigation
Landscape Irrigation System

SUB-LIST FINAL

FINAL STRUCTURE & BUILDING

PLANNING FINAL

Electric Release to Edison
Gas Release to Southern California Gas Co

POOL & SPA APPROVALS

Date

Inspector

Pool & Equipment Location
Steel Reinforcement
Forms
Electrical Bonding
Rough Plumbing & Pressure Test
APPROVAL TO COVER GUNITE
Electrical Conduit Undergrnd.
Gas Pipe, (1) Undergrnd., Test
Backwash Lines, P-Trap, (1) Undergrnd.

APPROVAL TO DECK

Backwash & Receptor Final
Heater & Vent Final
Plumbing System Final
Electrical Final
Solar System Final
Fencing & Access Approval

APPROVED FOR PLASTERING

POOL/SPA SYSTEMS FINAL

FIRE DEPT. REQUIREMENT

Underground Hydro
Overhead Hydro
Dry Chemical
Dry Standpipe

FIXED SYSTEM FINAL

OCC. FINAL

HEALTH DEPT. REQUIREMENT

Septic Sys.

FINAL INSPECTION

CITY OF LAKE ELSINORE BUILDING DEPARTMENT

674-3125

SEWER PERMIT - APPLICATION

S 1591

Renewal

| FOR APPLICANT TO FILL IN | | | |
|--|--|-----------------------------|-----------------------|
| LEGAL DESCRIPTION | | LOT NUMBER 24 | |
| BLOCK B | TRACT EL SINORE | | |
| SIZE OF LOT | | NUMBER OF BLDGS. NOW ON LOT | |
| USE OF BUILDINGS | | APR 379-110-029-6 | |
| CONTRACTOR | | | |
| ADDRESS | | | |
| CITY | | TELEPHONE | |
| CONTRACTOR'S STATE LICENSE NUMBER | | CITY'S LICENSE NUMBER | |
| NO. | DESCRIPTION OF WORK | | FEE |
| 1 | HOUSE SEWER CONNECTING TO PUBLIC SEWER | | \$ 50.00 |
| | SEPTIC TANK, SEEPAGE PIT OR PITS AND/OR DRAINFIELD | | \$ 20.00 |
| | OVERFLOW SEEPAGE PIT, DRAINFIELD EXTN CESSPOOL, DRYWELL, MANHOLE | | \$ 5.00 |
| | HOUSE SEWER CONNECTING TO PRIVATE DISPOSAL SYSTEM | | \$ 5.00 |
| | CONNECT ADDITIONAL BUILDING OR WORK TO HOUSE SEWER | | \$ 5.00 |
| | ALTER, REPAIR OR ABANDON HOUSE SEWER OR DISPOSAL SYSTEM | | \$ 5.00 |
| | SADDLE MAIN LINE | | \$ 50.00 |
| | EXCAVATION | | \$ 2.00 LF |
| OWNER'S AUTHORIZATION | | PERMIT | \$ 2.00 |
| | | TOTAL FEE | 600 |
| I HAVE AT THIS DATE A CONTRACT WITH THE HEREIN NAMED CONTRACTOR TO CONNECT THE ABOVE DESCRIBED EXISTING DWELLING TO THE PUBLIC SEWER. | | | |
| SIGNED THIS _____ DAY OF _____ 19____ | | | |
| OWNER OR OWNER'S AGENT | | | |
| ADDRESS | | | |
| I acknowledge that I have read this application and state that the above is correct and agree to comply with all ordinances and state laws regulating plumbing and sewers. | | | |
| I am properly registered and/or licensed as required by the City of Lake Elsinore and State of California or I am the legal owner of the above described residential property. | | | |
| PERMITTEE'S SIGNATURE | | | |
| BUILDING ADDRESS | | 15249 LINCOLN ST. | |
| NEAREST CROSS STREET | | RIV. DR. | |
| OWNER | | WALNUT GROVE TRUST CO. | |
| MAIL ADDRESS | | 1835 Santa Margarita | |
| CITY | | FALLBROOK | |
| TELEPHONE | | 728-0519 | |
| GROUP | ZONE | PROCESSED BY | |
| | | C-P 26 July 79 | |
| CONNECTION DATA | | | |
| STATION | | DEPTH | |
| MANHOLE REFERENCE | | UPPER LOWER | |
| TYPE OF CONNECTION | | LENGTH FROM M.L. TO P.L. | |
| CURB | | P.L. | |
| STATE ENCROACHMENT PERMIT NUMBER | | | |
| INDUSTRIAL WASTE DISPOSAL CHARGE | | | |
| CONNECTION CHARGE | | | |
| REIMBURSEMENT CHARGE | | | |
| CITY OF LAKE ELSINORE | | DATE | INSPECTOR'S SIGNATURE |
| NEW SEWER | | | |
| CONNECT ADDITIONAL BUILDING OR WORK | | | |
| SEPTIC TANK, SEEP PIT(S) AND/OR DRAINFIELD | | | |
| CESSPOOL <input type="checkbox"/> DRYWELL <input type="checkbox"/> | | | |
| ALTER, REPAIR SEWER OR SEWAGE DISPOSAL SYSTEM | | | |
| BACKFILL SEPTIC TANKS <input type="checkbox"/> SEEP PIT(S) <input type="checkbox"/> CESSPOOLS <input type="checkbox"/> | | | |
| SADDLE MAIN LINE | | | |

This is a Sewer Permit when properly filled out, signed and validated
 Permit void if work is not commenced within 60 days of issuance
 CONTRACTOR'S NOTE: All V.C.P. within street right-of-way to be "Wedgelock" design
 or approved equal. Install 6" Wye cleanout at property line.

Validation

INSPECTOR'S COPY

CITY OF LAKE ELSINORE
BUILDING DEPARTMENT
 674-3125

SOWER
PERMIT - APPLICATION
S 1583

| FOR APPLICANT TO FILL IN | | | |
|--|--|-----------|--------|
| LEGAL DESCRIPTION | LOT NUMBER <u>24</u> | | |
| BLOCK <u>B</u> | TRACT <u>Elsinore</u> | | |
| SIZE OF LOT | NUMBER OF BLDGS. NOW ON LOT | | |
| USE OF BUILDINGS | <u>Single House</u> | | |
| CONTRACTOR | | | |
| ADDRESS | | | |
| CITY | TELEPHONE | | |
| CONTRACTOR'S STATE LICENSE NUMBER | CONTRACTOR'S LICENSE NUMBER | | |
| NO | DESCRIPTION OF WORK | FEE | |
| 1 | HOUSE SEWER CONNECTING TO PUBLIC SEWER | \$10.00 | 10 00 |
| | SEPTIC TANK, SEEPAGE PIT OR PITS AND/OR DRAINFIELD | \$10.00 | |
| | OVERTFLOW SEEPAGE PIT, DRAINFIELD EXTN | \$5.00 | |
| | CESSPOOL DRYWELL, MANHOLE | \$5.00 | |
| | HOUSE SEWER CONNECTING TO PRIVATE DISPOSAL SYSTEM | \$5.00 | |
| | CONNECT ADDITIONAL BUILDING OR WORK TO HOUSE SEWER | \$5.00 | |
| | ALTER REPAIR OR ABANDON HOUSE SEWER OR DISPOSAL SYSTEM | \$5.00 | |
| | SADDLE MAIN LINE | \$10.00 | |
| | EXCAVATION | \$2.00 LF | |
| OWNER'S AUTHORIZATION | | PERMIT | S 2 00 |
| | | TOTAL FEE | 12 00 |
| I HAVE AT THIS DATE A CONTRACT WITH THE HEREIN NAMED CONTRACTOR TO CONNECT THE ABOVE DESCRIBED EXISTING DWELLING TO THE PUBLIC SEWER. | | | |
| SIGNED THIS _____ DAY OF _____ 19____ | | | |
| OWNER OR OWNER'S AGENT | | | |
| ADDRESS _____ | | | |
| I acknowledge that I have read this application and state that the above is correct and agree to comply with all ordinances and state laws regulating plumbing and sewers. | | | |
| I am properly registered and/or licensed as required by the City of Lake Elsinore and State of California or I am the legal owner of the above described residential property. | | | |
| PERMITTEE'S SIGNATURE _____ | | | |

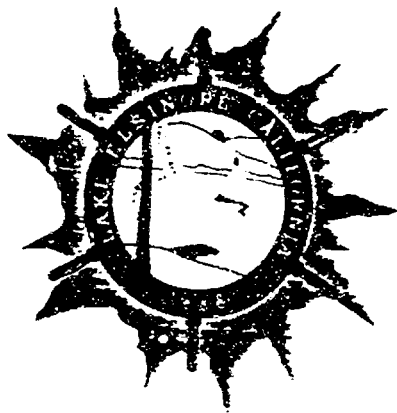
| | | | |
|--|------------------------------|-------------------------|-----------------|
| BUILDING ADDRESS | <u>15309 Lincoln St</u> | | |
| NEAREST CROSS STREET | <u>Riverside Drive</u> | | |
| OWNER | <u>William H. Jones, Jr.</u> | | |
| MAIL ADDRESS | <u>1838 Santa Monica</u> | | |
| CITY | <u>Fallbrook</u> | TELEPHONE | <u>728-0519</u> |
| GROUP | ZONE | PROCESSED BY | |
| | | <u>C. F. D. 5-30-79</u> | |
| CONNECTION DATA | | | |
| STATION | DEPTH | | |
| MANHOLE REFERENCE | | | |
| | UPPER LOWER | | |
| STATION FROM TO P.L. | | | |
| STATE EXAMINATION PERMIT NUMBER | | | |
| INDUSTRIAL WASTE APPL. | | | |
| CITY OF LAKE ELSINORE | | | |
| CONNECTION CHARGE | | | |
| REIMBURSEMENT CHARGE | | | |
| APPROVALS | | | |
| NEW HOUSE SEWER | DATE | INSPECTOR'S SIGNATURE | |
| CONNECT ADDITIONAL BUILDING OR WORK | | | |
| SEPTIC TANK SEEP. PIT, SI AND/OR DRAINFIELD | | | |
| CESSPOOL <input type="checkbox"/> DRYWELL <input type="checkbox"/> | | | |
| ALTER REPAIR SEWER OR SEWAGE DISPOSAL SYSTEM | | | |
| BACKFILL SEPTIC TANKS <input type="checkbox"/> SEEP PIT(S) <input type="checkbox"/> CESSPOOLS <input type="checkbox"/> | | | |
| SADDLE MAIN LINE | | | |

This is a Sewer Permit when properly filled out, signed and validated.
 Permit void if work is not commenced within 60 days of issuance.

CONTRACTOR'S NOTE: All V.C.P. within street right-of-way to be "Wedgelock" design or approved equal. Install 6" Wye cleanout at property line.

*Septic System to be Validation
 immediately filled up and
 prior to final inspection.*

INSPECTOR'S COPY



City of Lake Elsinore

CITY HALL

130 SOUTH MAIN STREET
LAKE ELSINORE, CALIFORNIA 92530
Telephone (714) 674-3125

DEPARTMENT OF BUILDING AND SAFETY

STATEMENT OF INTENT

TO: J. Grosvenor
3145 Sports Arena Blvd.
San Diego, CA 92110

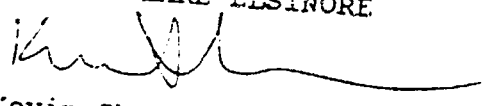
DATE: May 20, 1987

Inspection of your property located at: 15209 Lincoln St.
Legal Description: Use CR Base Yr 81 Convey 078979 04180 STT
6.23 acres M/L in Lot 24 Blk B MB 008/377 SD map subs in Els.
Assessor's Parcel Number(s): 379-111-014-3
Lake Elsinore, California reveals the presence of building(s) in
violation of the City of Lake Elsinore Municipal Code, Section
15.08.020 (a), Ordinance No. 587, declared to be a Public
Nuisance. It is the intentions of this Department to condemn and
abate the nuisance as herein described. A preliminary Title/Lot
Book Report has been ordered to determine all parties with an
interest in the property and the cost therefore shall be assessed
against the property owner(s).

If no response is received within fifteen (15) days from receipt
of this statement, a Condemnation and Abatement Notice shall be
issued.

Sincerely,

CITY OF LAKE ELSINORE


Kevin Shear
Chief Building Official

Certified Mail Receipt No. P 479 075 613
Case No. CB-022



HELP

CE Case Details

Print

Close

CE Case 16-3434

CE Case #: 16-3434 Status: Closed: Unfounded
 eFM Case #: N/A Date Opened-Closed: 01/11/2016 - 01/12/2016
 Case assigned to: Castellanos, Edward Follow Up Date: 01/12/2016
 Case initiated by: Complaint Follow Up Action:
 Priority: Medium Open Violations:
 Location: APN: 379111014
 15209 LINCOLN St
 LAKE ELSINORE, CA 92530
 Property Type: Vacant
 Land
 Historic District: None
 Foreclosed : None
 Zone: None
 Neighborhood: None
 Public/Private: None
 Acreage : None

Forms

Location

Validated: Yes

Last Validated on: 2016-01-11 10:01:55

| Address | APN | Additional Information | Census Tract | Block Group | LowModPct | CDBG Eligible | Property Type |
|--|-----------|---------------------------|-----------------|----------------|-----------|------------------|------------------|
| 15209 LINCOLN St LAKE ELSINORE, CA 92530 | 379111014 | | | | | NO | Vacant Land |

Legal Description

Contacts

| Bill To Contact | Contact Role | Name/Business | Address | Phone | Open Cases |
|-------------------------------------|-----------------|---------------|------------|-------|---------------|
| <input checked="" type="checkbox"/> | Owner | [REDACTED] | [REDACTED] | | 0 |

Violations

| <i>Date</i> | <i>Violation</i> | <i>Submitted By</i> | <i>Status</i> | <i>Disposition</i> | <i>Notes</i> | <i>CDBG Eligible</i> |
|-------------|--|---------------------|---------------|--------------------|--------------|----------------------|
| 01/11/2016 | 8.18.020(J) Declaration of Nuisance-Junk, Trash and Debris | Teyler, Joyce | Closed | | | Yes |

Status and Follow Up

| <i>Status</i> | <i>Follow Up Date</i> | <i>Follow Up Action</i> |
|-------------------|-----------------------|-------------------------|
| Closed: Unfounded | 01/12/2016 | |

Vehicle 1 Information**Vehicle 2 Information****Vehicle 3 Information****Officer Info**

Officer Badge #: E. Castellanos 1812

Custom Field**Hearing Information****Fee Tracking****AVA Tracking**

Notes

| <u>Entry Date</u> | <u>Entered By</u> | <u>Action Date</u> | <u>Note</u> |
|------------------------------|------------------------|--------------------|---------------------------------|
| 01/12/2016 04:58:49 PM | Castellanos, Edward | 01/12/2016 | No mattresses notice |
| 01/11/2016 10:01:56 AM | Teyler, Joyce | 01/11/2016 | Mattresses dumped on vacant lot |

Attachments

| <u>Upload Date</u> | <u>Title</u> | <u>Description</u> | <u>Uploaded By</u> | <u>Selected for Printing</u> | <u>Attachments</u> |
|--------------------|--------------|--------------------|--------------------|------------------------------|--------------------|
|--------------------|--------------|--------------------|--------------------|------------------------------|--------------------|

No Files Uploaded

**Images marked as Selected are included on View/Print Images page, in the Field Report and in forms. View/Print images button has option to "Include all" if checked.*

Mailings**Time Tracking**

| <u>Employee</u> | <u>Date Worked</u> | <u>Hours</u> | <u>Rate Type</u> | <u>Date Entered</u> | <u>Entered By</u> |
|--------------------|--------------------|--------------|------------------|---------------------|--------------------|
| Edward Castellanos | 01/12/2016 | 0.25 | Regular | 01/12/2016 | Edward Castellanos |
| Total | | 0.25 | | | |

Images

GEM Group

From: Records <records@RIVCO.ORG>
Sent: Monday, July 15, 2019 1:23 PM
To: GEM Group
Subject: 15209 Lincoln

After a thorough search of our records, we are unable to locate any building records for this address or APN.

Our records date back to 1963. All building permit records prior to 1963 have been destroyed.

Also, this address is now located in the City of Lake Elsinore's jurisdiction. You may want to contact their Building Department at (951) 674-3124 to check for any permits they may have issued.

If you have any questions, please contact us @ (951) 955-2017 or with a reply email.

Thank you,

Kim
Records & Information Mgmt.
TLMA, County of Riverside
(951) 955-2017
records@rivco.org



How are we doing? Click the Link and tell us

This email contains information which is confidential and is intended only for use of the recipient(s) named above. If you are not an intended recipient, you are hereby notified that any copying, distribution, disclosure, reliance upon or other use of the contents of this email is strictly prohibited. If you have received this email in error, please notify the sender and destroy your copy of this email. Thank you.

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GEM Group

From: Records <records@RIVCO.ORG>
Sent: Monday, July 15, 2019 1:23 PM
To: GEM Group
Subject: 15209 Lincoln

Follow Up Flag: Follow up
Flag Status: Flagged

After a thorough search of our records, we are unable to locate any building records for this address or APN.

Our records date back to 1963. All building permit records prior to 1963 have been destroyed.

Also, this address is now located in the City of Lake Elsinore's jurisdiction. You may want to contact their Building Department at (951) 674-3124 to check for any permits they may have issued.

If you have any questions, please contact us @ (951) 955-2017 or with a reply email.

Thank you,

Kim
Records & Information Mgmt.
TLMA, County of Riverside
(951) 955-2017
records@rivco.org



How are we doing? Click the Link and tell us

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County of Riverside
DEPARTMENT OF ENVIRONMENTAL HEALTH

STEVE VAN STOCKUM, DIRECTOR

RELEASE OF RECORDS RESPONSE

July 23, 2019

Service Request No: 45348

GEM
967 Kendall Dr.
San Bernardino, CA 92407
Attn: Ben Keeney

Your request concerning **Hazardous Materials Management Records** has been received and a file search has been conducted. The appropriate action has been taken.

| Site Address | City | Records Found |
|-------------------------------|-----------------------|---|
| 15209 Lincoln St. | Lake Elsinore | <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO |
| THIS IS NOT AN INVOICE | Estimated Cost | \$0.00 |

If no records are found, no further action will be taken.

If records are found, please contact our office at (951) 358-5055 to schedule a file review appointment. Records will be available for 30 days from the date of this letter, after which a new Records Request will need to be submitted.

**** There is a clerical records research fee of \$.50 for the first page, plus \$.10 per additional page **Records will not be made available until this fee is paid****

Other fees may apply

Note: Additional time for processing may be required

Appointments are scheduled in one (1) hour increments, not to exceed two (2) hours.

Environmental Protection & Oversight Division
Hazardous Materials Management Branch
Attn: Records Management
P.O. Box 7909
Riverside, CA 92513-7909
Ph: (951) 358-5055
Fax (951) 358-5342

*additional fees may include costs for appt. cancellation/no show, time per service, scan/fax/mail of documents, cd/dvd



County of Riverside Code Enforcement Department

(<http://rctlma.org/ce/>)

Select Language ▼

Search...

Our mission is to enhance public safety and the quality of life in partnership with communities through fair enforcement of the law and codes.

Home (<http://rctlma.org/ce/>)

Regional Offices (<http://rctlma.org/ce/districts>)

Code Forms (<http://rctlma.org/ce/Code-Forms>)

Newsletters (<http://rctlma.org/ce/newsletters>)

Code Brochures (<http://rctlma.org/ce/Code-Brochures>)

Who to Call (<http://rctlma.org/ce/whotocall>)

FAQs (<http://rctlma.org/ce/FAQs>)

PublicRecordsRequest (<http://rctlma.org/ce/PublicRecordsRequest>)

Public Records Request

Instructions:

Please complete the form and submit your request. Upon completion of your request, an invoice will be mailed to you once your records have been produced. Charges on the invoice depend on the size of the request. Payment of direct costs is required prior to receiving the requested records (see below for current rates). Once costs have been paid, copies of the requested records will be available for pick-up. Mail delivery is available for an additional cost.

Direct Costs:

\$0.10 per page copied

\$4.95 mailing cost

Requesting Party Information:

Ben

First

Keeney

Last

967 Kendall Drive, Suite A-324

Return Mailing Address

San Bernardino

City

California

State

92407

Zip Code

GEM@MYGEMGROUP.COM

Email Address

9095270408

Phone Number

Records To Be Requested:

379111014

Assessor's Parcel Number (APN)

15209 Lincoln Street

Subject Property Address

Lake Elsinore

City

CA

State

92530

Zip Code

Please specify records request:

Good morning,

In order to perform an environmental site assessment, we request all available documents such as permits, violations, or inspections (between January 1 1950 and today) for the property at:

15209 Lincoln Street, Lake Elsinore, CA 92530

(ESA 9351 public record request sent 7/15/2019)

Please check all that apply:

☐ Records for inspection

☒ Records to be copied (check one only)

☐ I want to pick up the requested records

☐ I want the requested records mailed to my mailing address listed above

☒ I want the requested records E-mailed to Email address listed above

Submit

Reset

Resources

County of Riverside
(<https://www.countyofriverside.us/>)

TLMA Home Page
(<http://rctlma.org/>)

Building & Safety
(<http://rctlma.org/building>)

Environmental Programs
(<http://rctlma.org/epd>)

Planning
(<http://planning.rctlma.org/>)

Transportation
(<http://rctlma.org/trans>)

General Information

FAQs (</ce/FAQs>)

Newsletters
(</ce/newsletters>)

County Ordinances
(</Departments/Administrative-Services/Useful-Ordinances>)

Graffiti Busters
(<http://www.rcwaste.org/graffiti>)

Code Enforcement

Code Brochures
(</ce/Code-Brochures>)

Most Common Code Violations
(</ce/Most-Common-Code-Violations>)

Survey
(<https://www.surveymonkey.com/r/TLMAFeedBack>)

About Us (</ce/About-Us>)

Employee Recognition
(</ce/EmployeeRecognition>)

Contact Us

Administrative Office
4080 Lemon Street
12th Floor
P.O. Box 1469
Riverside, CA 92501

Phone: (951) 955-2004
(760) 393-3344

Email: Code@rivco.org
(mailto:)



(https://twitter.com/RivCo_Code)



City of Lake Elsinore

CITY HALL

130 SOUTH MAIN STREET
LAKE ELSINORE, CALIFORNIA 92530

Telephone (714) 674-3125

June 1, 1987

J. Grosvenor
3145 Sports Arena Blvd.
San Diego, Ca 92110

RE: 15209 Lincoln Street

Dear Mr. Grosvenor:

An inspection of the above referenced property shows that some of the walls remain standing after the controlled burn by the Fire Department.

For the abating process to be complete it will be necessary for all debris to be removed, this includes all foundations. If this has not been completed by June 12, 1987 it will be necessary for the City to complete the job through the abating process.

If you have any questions, please contact the Building Division at (714) 674-3124.

Sincerely,

CITY OF LAKE ELSINORE

Robert L. Fink
Senior Building Inspector

RLF/bp

4-002

GEM Group

From: WB-RB8-FileReview8 <FileReview8@waterboards.ca.gov>
Sent: Friday, July 19, 2019 4:14 PM
To: GEM Group
Subject: RE: Public records request (GEM group project 9351)

Follow Up Flag: Follow up
Flag Status: Flagged

Good afternoon,

After careful review of our records, we show we have no files for the following site:
15209 Lincoln Street, Lake Elsinore, CA 92530

If we can be of further assistance, please do not hesitate to contact us again.

Thank you,
File Review Desk
3737 Main St. Suite 500
Riverside, CA 92501

From: GEM Group <gem@mygemgroup.com>
Sent: Monday, July 15, 2019 9:27 AM
To: WB-RB8-FileReview8 <FileReview8@waterboards.ca.gov>
Subject: Public records request (GEM group project 9351)

Good morning,

In order to perform an environmental site assessment, we request all available documents such as permits, violations, or inspections (between January 1 1950 and today) for the property at:

15209 Lincoln Street, Lake Elsinore, CA 92530

Regards,

Ben Keeney
Geologist Assistant
GEM Group, Inc.
Mobile (909) 527-0408
Fax (877) 857-2212
<https://www.mygemgroup.com/>

(ESA 9351 public record request sent 7/15/2019)

[Search Again](#)

Property Information Center

Property Information for the 2014-2015 tax year as of January 1, 2014

Property Information

Parcel Number: 379111014-3
Property Address: 15209 LINCOLN ST
 LAKE ELSINORE CA 92530
Legal Description: Lot 24 MB 008/377 MAP SUBS IN
 ELSINORE
Property Type: N/A
Assessment
Description: N/A
Year Built N/A
Square Feet: N/A
Bedroom: N/A
Bath: N/A
Pool: N
Lot Size: 6.23 Acres

Sales Information

Last Recorded 03/2003
Document:
Recording Number: 0218687

Related Property Information

City Sphere: LAKE ELSINORE
Supervisory District: KEVIN JEFFRIES
Landuse Designation: CITY
Agriculture Preserve: NOT IN AN AGRICULTURE
 PRESERVE
School District: LAKE ELSINORE UNIFIED
Water District: WMWD
Fema Flood Plan: FLOOD ZONE 0.2 PCT ANNUAL

Assessed Value Information

Land 758,546
Full Value 758,546
Total Net 758,546

Assessment Information

Assessment Number: 379111014-3
Tax Rate Area: 005-028
Taxability Code: 0-00
Base Year: 2004

Parcel Map

[View Parcel Map](#)

Tax Assessment District CITY OF LAKE ELSINORE ANX
 COUNTY FREE LIBRARY
 COUNTY STRUCTURE FIRE PROTECTION
 CSA 152
 ELS MURRIETA ANZA RESOURCE CONS
 ELSINORE AREA ELEM SCHOOL FUND
 ELSINORE VAL MUN WTR IMP DIST 1
 ELSINORE VALLEY CEMETERY
 ELSINORE VALLEY MUNICIPAL WATER
 FLOOD CONTROL ADMINISTRATION
 FLOOD CONTROL ZONE 3
 GENERAL
 GENERAL PURPOSE
 LAKE ELSINORE UNIF IMP NO 96-1

LAKE ELSINORE UNIFIED
METRO WATER WEST 1302999
MT SAN JACINTO JUNIOR COLLEGE
N.W. MOSQUITO & VECTOR CONT DIST
RANCHO LAGUNA RDV 2
RIV CO REG PARK & OPEN SPACE
RIV. CO. OFFICE OF EDUCATION
WESTERN MUNICIPAL WATER

APPENDIX C
FIRE INSURANCE MAPS
CITY DIRECTORIES
REGULATORY AGENCY DATABASES

Fire Insurance Map Results

REPORT RESULTS



Report Results for:

Jen Moser
GEM Group, Inc. DBA Tom Edwards & Associates
5367 N. Valles Drive
San Bernardino CA 92407

Subject Site:

Client's Project #: **undefined**
SiteName: **undefined**
Address: **15209 Lincoln Street**
City, State Zip: **Lake Elsinore, CA**

ERS Order #:
84068

Prepared For:

Name: Jen Moser
Company: GEM Group, Inc. DBA Tom Edwards &
Address: Associates
City, State Zip: 5367 N. Valles Drive
San Bernardino, CA 92407

Date:
July 12, 2019

Historical Fire Insurance Map Search Result:

A search of multiple national collections and indexes of historical fire insurance maps was conducted for the above referenced site address. The review of collections and indexes has determined that no historical fire insurance maps are available within these collections and indexes for the referenced site; therefore they are not available and are considered not "reasonably ascertainable" according to ASTM standards. Environmental Record Search (ERS) certifies that a thorough search of our holdings, various other collections and indexes has been completed.

Thank you for selecting ERS.

Researched by:



Eric Charles Exton

City Directory Research

REPORT RESULTS



Report Results for:

Jen Moser
GEM Group, Inc. DBA Tom Edwards & Associates
5367 N. Valles Drive
San Bernardino, CA 92407
2104709234 CDA
July 18, 2019

Site Information:

15209 Lincoln Street
Lake Elsinore, CA 92530

Subject Site:

Client's Project #: **19-9351**
Address: **15209 Lincoln Street**
City, State Zip: **Lake Elsinore, CA 92530**

ERS Order #:

2104709234 CDAL

Prepared For:

Name: **Jen Moser**
Company: **GEM Group, Inc. DBA Tom Edwards
& Associates**
Address: **5367 N. Valles Drive**
City, State Zip: **San Bernardino, CA 92407**

Date:

July 18, 2019

Prepared By:

Name: **Daniel Johnson**
Phone #: **(714) 669-8096
Ext. 1003**

Enclosed are the results of our:

City Directory Research

Thank you for selecting ***Environmental Record Search!***

Included are the findings of our research of the subject site and immediate adjacent sites.

**Streets Researched: (Subject) 15209 Lincoln Street
(Adjacent) 32000 Block of Riverside Drive**

Years researched which did cover your site or adjacent sites:

| 2007-2008 | 2004-2005 | 2000 | 1995 | 1990 |
|------------------|------------------|-------------|-------------|-------------|
| 1985 | | | | |

Years researched which did NOT cover your site or adjacent sites:

| | | | | |
|--|--|--|--|--|
| | | | | |
|--|--|--|--|--|

ERS's research has been limited to the information presented in the reviewed city directories only. All terms, conditions, and limitations normally associated with work contracted by **ERS** and presented or associated with the city directories are in effect at all times. This letter summary, all its information, and content have been derived from and rely upon the reviewed city directories. **ERS's** research has only been based on these books; **ERS** did not perform any type of independent investigation of any type, including as to the accuracy and/or completeness of the information derived or otherwise obtained from the secondary source or sources.

| Subject Street: | 15209 Lincoln Street |
|-----------------|--|
| Year | Description |
| 2007-2008 | <p>X RIVERSIDE DR</p> <p>15200 GARCIA Sheree 951-245-2860 +7</p> <p>15212 XXXX 00</p> <p>15224 B BETTENCOURT Daniel 951-471-1442 0</p> <p>A EDERLE Hermann 951-609-2806 +7</p> |
| 2004-2005 | <p>15197</p> <p>X ROBIN DR</p> <p>X FLANNRY ST</p> <p>15200 XXXX 00</p> <p>15209 XXXX 00</p> <p>15212 XXXX 00</p> <p>15224 BETTENCOURT Daniel 951-471-1442 0</p> <p>15236 XXXX 00</p> <p>X RIVERSIDE DR</p> <p>★ 2 BUS 83 RES 41 NEW</p> |
| 2000 | <p>15197 MIRANDA Daniel 909-245-8473 +0</p> <p>RIVAS Joe 909-245-3598 +0</p> <p>★ STEADFAST Lisa 00 +0</p> <p>X RIVERSIDE DR</p> <p>15200 ESQUIVEL Rachel 00 +0</p> <p>RYLAND Darlene 909-471-1305 9</p> <p>15209 XXXX 00</p> <p>15212 AGUILAR Maria 909-245-3965 +0</p> <p>15224B BETTENCOURT Daniel 909-471-1442 +0</p> |
| 1995 | <p>15197 CABELLO Laura 245-3802 3</p> <p>HERRERA Joseph 674-1828 +5</p> <p>15209 XXXX 00</p> <p>15212 TAYLOR Duane 245-4175 +5</p> <p>TAYLOR Noelle 245-4175 +5</p> <p>15224 XXXX 00</p> |
| 1990 | <p>15197 BENNETT Paul Jr 674-2449 +0</p> <p>GARNER Dale 674-5301 +0</p> <p>★ LAKESIDE APARTMENTS 674-2816 +0</p> <p>MORROW Sofia C 00 4</p> <p>PUZACH Pamela G 00 +0</p> <p>WEBBER Michael F 674-8153 +0</p> <p>15200 WARNER Donald 674-9638 +0</p> <p>15209 XXXX 00</p> <p>15212 HAMIEH Mazen 674-8268 +0</p> <p>15465 GUMMERT Leo R 00 4</p> |
| 1985 | <p>15197 XXXX 00</p> <p>15209 XXXX 00</p> <p>15465 XXXX 00</p> |

| | |
|------------------|--------------------------------|
| Adjacent Street: | 32000 Block of Riverside Drive |
| Year | Description |
| 2007-2008 | |

| Adjacent Street: | 32000 Block of Riverside Drive |
|------------------|---|
| 2004-2005 | <div> <div> 31741 ★ BARGAIN CITY 951-471-3710 +4 31741A ★ BIG VALUE MARKET 951-674-7798 7 31750 XXXX 00 31761 XXXX 00 32000 LAKE PARK RESORT BLASKOVICH Fred 951-674-1588 3 BOND Bernard L 951-245-9339 9 DELATORRE Mario 951-674-2649 2 DELEON Celso 951-245-5802 +4 10 EADY Abbey 951-674-1558 +4 FITZHUGH Marshal 951-471-1514 2 HEIER John 951-471-3828 0 HEIER Lynn 951-471-3828 0 HILL David 951-245-1530 3 JOHNS Richard L 951-471-3457 0 D8 KASOW Irving 951-471-0833 8 ★ LAKE PARK RESORT 951-674-7911 A18 LAURITSEN Andrew Jr 951-245-2564 2 A12 LEAKE D 951-674-2122 1 LINDSEY Veda 951-674-1799 +4 E11 PADILLA Oliver 951-674-5683 3 Y RICHMOND George H 951-678-8582 3 ROBERTSON Sherie L 951-674-7379 +4 E9 SCOTT Bill 951-674-9263 STROOK William 951-678-8514 +4 E2 TATE Larry W 951-245-5682 0 WILLIAMMEE Lyle 951-471-5471 +4 WILLIAMS Doyle 951-245-5489 +4 32000 32040 ★ PYRAMID 951-471-1212 3 ENTERPRISES INC X LINCOLN ST 32209 LAKE VIEW APTS </div> </div> |

| Adjacent Street: | 32000 Block of Riverside Drive |
|------------------|--|
| 2000 | <div> <div> 31741 ★ BIG VALUE MARKET 909-674-7798 7 ★ COUCH CLUB VIDEO 909-674-6909 1 ● HAMIDEH Hashem OO +0 31750 ● WESSELINK Richard OO +0 31761 XXXX OO </div> <div> 32000 LAKE PARK RESORT BOND Bernard L 909-245-9339 9 BROOKES Joanne 909-245-0540 +0 HEIER John 909-471-3828 +0 HEIER Lynn 909-471-3828 +0 HIBBARD Chas 909-674-9885 HIBBARD William D 909-245-1384 2 JOHNS Richard L 909-471-3457 +0 JOHNSON Carol 909-674-6666 5 JOHNSON Clarence 909-245-4945 +0 JOHNSON Larry 909-674-6666 5 KASOW Irving 909-471-0833 8 KUPRION N 909-674-3517 ★ LAKE PARK RESORT 909-674-7911 MATTHEWS E Fredk 909-245-2801 3 MESSERALL Thomas 909-674-8165 7 PORTZER J 909-245-4747 2 RESER Phil 909-245-0203 2 RICE Marla 909-245-2843 +0 ROSE Lester M 909-674-1756 5 ROSE Sharon 909-674-1756 5 SCOTT Bill 909-674-9263 SHAFFER Jackie D 909-245-4587 +0 SMITH Keith 909-674-5450 1 TATE Larry W 909-245-5682 +0 32000 32040 ● JONES Linda OO +0 ★ LAKE ELSN CTY 909-471-1212 9 PKS&REC CMP GRND X LINCOLN 32209 LAKE VIEW APTS </div> </div> |

| Adjacent Street: | 32000 Block of Riverside Drive |
|------------------|---|
| 1995 | <p> 31741 ★ COUCH CLUB VIDEO 674-6909 1 ★ CROWN MORTGAGE 245-6488 3 ★ J HABER ATTORNEY SV 245-2283 +5 ★ REALTY WORLD 674-6831 1 31750 XXXX 00 31761 XXXX 00 32000 LAKE PARK RESORT ALLEN John W 674-6698 2 ANTINE Harry J 674-2776 +5 CROCKETT Linda 245-1009 3 CURTIS Jackie 245-2249 CURTIS Ted 245-2249 DENNING Wm 674-8619 +5 DUMMERT Eugene 245-5842 +5 DUNKS Tom 674-1909 1 HAMILTON Mary 245-9645 2 HIBBARD Chas 674-9885 7 HIBBARD Wm D 245-1384 2 HORGER Jas 674-9858 3 JASTER Richard A 674-9457 7 JOHNSON Carol 674-6666 +5 JOHNSON Larry 674-6666 +5 KUPRION N 674-3517 7 ★ LAKE PARK RESORT 674-7911 MATTHEWS E Fredk 245-2801 3 MILES Freeman Jr 245-4812 +5 NICOLEN John 674-2609 NICOLEN Shirley 674-2609 PORTZER J 245-4747 2 RESER Phil 245-0203 2 ROSE Lester M 674-1756 +5 ROSE Sharon 674-1756 +5 SCOTT Bill 674-9263 9 SHIMBOFF Chris R 245-0545 +5 SMITH Keith 674-5450 1 TIBBETS John H 674-4658 9 TUCK Sam 674-5140 +5 YOUNG Richard 245-3936 +5 32000 32040 ★ CA ST PK&REC CMPGRD 674-3177 2 ★ CA ST PK&REC RANGER 674-3005 DEARAGON Alejandra 674-5193 2 ★ LAKE ELSN CTY PARKS 674-3177 ★ LAKE ELSN STATE PRK 674-3177 32209 LAKE VIEW APTS </p> |

| Adjacent Street: | 32000 Block of Riverside Drive |
|------------------|--|
| 1990 | <p>31750 XXXX 00</p> <p>31761 XXXX 00</p> <p>32000..... LAKE PARK RESORT</p> <p>ANDERSON Faye 674-4950 9</p> <p>BARNETT Gene 245-1776 +0</p> <p>BASSETT Karen 245-1226 9</p> <p>BEHNEY Ruth 674-5231</p> <p>BELL Paul 674-6041 7</p> <p>BRADLEY Jerry 674-6290 +0</p> <p>BRIDWELL W L 245-1541 +0</p> <p>BROWN Richard L 674-8005 6</p> <p>COLEMAN Danl 245-1711 +0</p> <p>COLWELL Harry 674-5570 7</p> <p>CRENSHAW Joe 00 4</p> <p>DAVIS Harold L 674-3670 +0</p> <p>DUNKS Thos 674-8020</p> <p>DUNKS Vera 674-8020</p> <p>EDGAR Velda 674-4712 +0</p> <p>EMARD Dorothy 245-1802 +0</p> <p>EMARD Ted 245-1802 +0</p> <p>FUTCHER Jas 674-1739 +0</p> <p>GAYLE Starland 674-8449 +0</p> <p>HIBBARD Chas 674-9885 7</p> <p>HUTCHINSON Stuart 00 4</p> <p>JASTER Richard A 674-9457 7</p> <p>JENNINGS Judy 245-1282 +0</p> <p>JOHNS Richard L 674-7100 +0</p> <p>JOHNSON Larry 674-6666 9</p> <p>JOHNSTON J B 245-1786 +0</p> <p>KINDIG James 674-6573 9</p> <p>KIPERS Marlene 674-9665 +0</p> <p>KIPERS Paul 674-9665 +0</p> <p>KUPRION N 674-3517 7</p> <p>*LAKE PARK RESORT 674-7911 5</p> <p>LEONHARDT Cherie 00 +0</p> <p>MCDONAGH Richard B 00 4</p> <p>MOORE Jack E 00 +0</p> <p>MUELLER Ginny 245-1557 +0</p> <p>MURPHY Linda 674-3880 +0</p> <p>MURPHY Robt 674-3880 +0</p> <p>NICHOLS Chas C 245-1035 +0</p> <p>NICOLEN John 674-2609</p> <p>NICOLEN Shirley 674-2609</p> <p>PIERCE Alfred 674-7081 +0</p> <p>PTOLOMEY Alex 674-0031 +0</p> <p>REED Chas 245-1538 +0</p> <p>SCHDELL Lauren 674-5469 +0</p> <p>SCHLICHTING John 674-4815 +0</p> <p>SCHLICHTING John 00 +0</p> <p>SCOTT Bill 674-9263 9</p> <p>SHEPARD Robt 674-9483 +0</p> <p>STUMP Kenneth 674-0390 +0</p> <p>THOMPSON D 245-1717 +0</p> <p>TIBBETS John H 674-4658 9</p> <p>VALERIO Guido 674-9311 7</p> <p>WILSEY F D 674-1984 7</p> <p>32000.....</p> <p>32040 *CA ST PK&REC BUS SV 657-0224 4</p> <p>*CA ST PK&REC CMPGRD 674-3177 2</p> <p>*CA ST PK&REC RANGER 674-3005 5</p> <p>HOGUE Jas 674-4100</p> <p>HOGUE Linda 674-4100</p> <p>JONES Linda K 00 4</p> <p>*LAKE ELSN STATE PRK 674-3177</p> <p>32209..... LAKE VIEW APTS</p> |

| Adjacent Street: | 32000 Block of Riverside Drive |
|------------------|---|
| 1985 | <div> <div>31750</div> <div>HOGUE JAS</div> <div>674-4100 +5</div> </div> <div> <div>31761</div> <div>XXXX</div> <div>00</div> </div> <div> <div>32000</div> <div>LAKE PARK RESORT</div> <div>674-7911 +5</div> </div> <div> <div>32040</div> <div>CA ST PK&REC BUS SV</div> <div>657-0224 4</div> </div> <div> <div></div> <div>CA ST PK&REC CMPGRD</div> <div>674-3177 2</div> </div> <div> <div></div> <div>CA ST PK&REC RANGER</div> <div>674-3005 +5</div> </div> <div> <div></div> <div>LAKE ELSN STATE PRK</div> <div>674-3177 9</div> </div> <div> <div></div> <div>WATKINS SCOTT</div> <div>674-1364 +5</div> </div> <div> <div>32209</div> <div>APARTMENTS</div> <div></div> </div> |



RecCheck

The Standard for ASTM/AAI Radius Searches
(One Mile Environmental Records Search, Exceeds ASTM 1527/1528 and EPA AII Appropriate Inquiry)

Report Results

REPORT RESULTS



Site Location:

15209 Lincoln Street
Lake Elsinore, CA 92530
(N 33-40-33, W 117-22-31) NAD83

Client:

GEM Group, Inc. DBA Tom Edwards & Associates

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EXECUTIVE SUMMARY

INFORMATION ON THE REQUESTED LOCATION

| | |
|---|--|
| Site Address: | 15209 Lincoln Street Lake Elsinore, CA 92530 |
| Client Project Name/Number: | 19-9351 |
| Coordinates: | N 33-40-33, W 117-22-31 (NAD 83) 33.67597, -117.375248 |
| Date of Report | July 12, 2019 |
| ERS Project Number: | 2104709234 |
| Subject Site Listed on the following lists: | Not Listed |
| Subject Site Listed as Map ID#: | N/A |
| USGS 7.5 Minute Quad Map: | Alberhill (2015-03-10) |
| Subject Site Located within a Potential Area of Concern: | No |
| Township, Section and Range: | Township: 06S Range: 05W Section: 02 Baseline: San Bernardino |
| Site Elevation: (feet above or below (-) mean sea level) | 1279 |
| Flood Zone: (FEMA Q3 Digital Data) | Panel: 06059C0375J, Effective Date: 12/3/2009 Zone X - Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. |
| Fire Insurance Map Coverage: | No |
| Radon Information: | EPA Radon Zone: 2 (Predicted avg for county: 2 to 4 pCi/L) |
| Search Radius Expansion Size: (In Miles) | 0 |
| Soil Type: (USDA Soil Survey Geographic Database) (SSURGO) | Cortina cobbly sandy loam, 2 to 12 percent slopes Map Unit Type: Consociation Hydric: No Drainage Class: Excessively drained General Information: Loamy-skeletal, mixed, nonacid, thermic Typic Xerofluvents |

| | |
|--|----------------|
| Zip Codes Searched for “Un-Mappable” Sites: | Not Researched |
| Occurrence Count: | 11 |

SUMMARY OF OCCURRENCES

| MAP ID | ID/SITE NAME | ADDRESS | DATABASE | STATUS | DISTANCE (MILES) | ELEV DIFF (FEET) |
|---|---|--|-----------------------|--------|------------------|------------------|
| 1 Maps: 1 , 2 , 4 | 491287 RV Resort Rehabilitation Project | 32040 RIVERSIDE DRIVE LAKE ELSINORE | CRSP-CA | Listed | 0.08 E | -2 |
| 1 Maps: 1 , 2 , 4 | 408283 Campground Boat Launch Facility Improvements | 32040 Riverside Drive Lake Elsinore | ENF-SMARTS-CA | Active | 0.08 E | -2 |
| 1 Maps: 1 , 2 , 4 | 212598 LAKE ELSINORE REC. AREA | 32040 RIVERSIDE AVE LAKE ELSINORE | Hist-Service Stations | Listed | 0.08 E | -2 |
| 1 Maps: 1 , 2 , 4 | 4503609 LAKE ELSINORE RECREATIONA AREA | 32040 RIVERSIDE LAKE ELSINORE | Hist-USTReg-CA | Listed | 0.08 E | -2 |
| 2 Maps: 1 , 2 , 4 | 7654 888 Laundromat | 31723 Riverside Dr Lake Elsinore | Cleaners-CA | Listed | 0.15 NE | 0 |
| 3 Maps: 1 , 2 , 4 | CAL000385799 KHALED EISSA DDS INC | 31737 RIVERSIDE DR STE B LAKE ELSINORE | RCRA-NON-US | Listed | 0.15 NE | 2 |
| 4 Maps: 1 , 2 , 4 | 345627 Lake Street Properties LP- Wyroc | 3100 LAKE LAKE ELSINORE | CRSP-CA | Listed | 0.16 S | -10 |
| 5 Maps: 1 , 2 , 4 | CAC002999804 BROOKSTONE LANDING - COMMERCIAL BLDG SUI | 31735 RIVERSIDE DRIVE LAKE ELSINORE | RCRA-NON-US | Listed | 0.19 NE | 6 |
| 6 Maps: 1 , 2 , 4 | 807485 Riverside Dr | Not Reported by Agency | Spills-SSO-CA | Listed | 0.21 SW | -11 |
| 7 Maps: 1 , 2 , 4 | 5650-RSD EVMWD-Lincoln Street Well | 15157 Lincoln St Lake Elsinore | County-Others-CA | Listed | 0.22 NW | 17 |
| 7 Maps: 1 , 2 , 4 | 28969 EVMWD-Lincoln Street Well | 15157 LINCOLN ST LAKE ELSINORE | CRSP-CA | Listed | 0.22 NW | 17 |

POTENTIAL AREAS OF CONCERN/CONTAMINATION SUMMARY

| DATABASE SEARCHED | SUBJECT SITE WITHIN POTENTIAL AREA OF CONCERN | AREAS FOUND WITHIN 1-MILE RADIUS |
|-------------------------------------|---|----------------------------------|
| NPL-R9-US | No | 0 |
| MethaneLF-CA | No | 0 |
| LA-LF-CA | No | 0 |
| Military-Bases-US | No | 0 |
| SGV-Deep-Plumes-CA | No | 0 |
| SGV-Shallow-Plumes-Puente-Valley-CA | No | 0 |
| SGV-Shallow-Plumes-CA | No | 0 |

DATABASE OCCURRENCE SUMMARY

| HIGH RISK* OCCURRENCES IDENTIFIED IN REQUESTED SEARCH RADIUS | | |
|--|---------------------------|-----------------------------|
| DATABASE SEARCHED | DISTANCE SEARCHED (MILES) | HIGH RISK OCCURRENCES FOUND |
| CERCLIS-US | 0.5 | 0 |
| CorAct-Open-CA | 0.5 | 0 |
| County-LUST-Open-CA | 0.5 | 0 |
| County-SLIC-Open-CA | 0.5 | 0 |
| Eval-Hist-Active-CA | 0.5 | 0 |
| Hist-UST-Cleanup-CA | 0.5 | 0 |
| LUST-Open-CA | 0.5 | 0 |
| Military-Active-CA | 1 | 0 |
| NPL-US | 1 | 0 |
| Proposed-NPL-US | 1 | 0 |
| Response-CA | 1 | 0 |
| SAA-Agreements-US | 1 | 0 |
| School-Active-CA | 0.5 | 0 |
| SLIC-Open-CA | 0.5 | 0 |
| State-Response-Active-CA | 1 | 0 |
| Superfund-Active-CA | 1 | 0 |
| Tribal-LUST-Open-Reg9 | 0.5 | 0 |
| VCP-Active-CA | 0.5 | 0 |

* For the purposes of this report, "high risk" occurrences are those that have known contamination and have not received a "case closed" or "no further action" status from the agency that maintains the records.

ASTM/AAI STANDARD RECORD SOURCES SUMMARY

| STANDARD ENVIRONMENTAL RECORD SOURCES | ASTM MIN. SEARCH DIST. / ERS SEARCH DIST. (MILES) | ERS DATABASE NAME | TOTAL LISTINGS | MAP ID #'S |
|---------------------------------------|---|-------------------|----------------|-------------|
| Federal NPL site list | 1.0 / 1.0 | NPL-US | 0 | None Listed |
| | | Proposed-NPL-US | 0 | None Listed |

| | | | | |
|---|--|--------------------------|---|----------------------|
| Federal Delisted NPL site list | 0.5 / 1.0 | Delisted-NPL-US | 0 | None Listed |
| Federal CERCLIS list | 0.5 / 0.5 | CERCLIS-US | 0 | None Listed |
| Federal CERCLIS NFRAP site list | 0.5 / 0.5 | CERCLIS-Archived-US | 0 | None Listed |
| Federal RCRA CORRACTS facilities list | 1.0 / 1.0 | RCRA-COR-US | 0 | None Listed |
| Federal RCRA non-CORRACTS TSD facilities list | 0.5 / 0.5 | RCRA-TSDF-US | 0 | None Listed |
| Federal RCRA generators list | Property and adjoining properties / 0.25 | RCRA-CESQG-US | 0 | None Listed |
| | | RCRA-LQG-US | 0 | None Listed |
| | | RCRA-NON-US | 2 | 3, 5 |
| | | RCRA-SQG-US | 0 | None Listed |
| Federal Inst/Eng control registries | Property Only / 0.25 | Controls-RCRA-US | 0 | None Listed |
| | | Controls-US | 0 | None Listed |
| | | Hist-US-EC | 0 | None Listed |
| | | Hist-US-IC | 0 | None Listed |
| | | LIENS-US | 0 | None Listed |
| Federal ERNS list | Property Only / 0.0625 | ERNS-US | 0 | None Listed |
| State and Tribal-Equivalent NPL | 1.0 / 1.0 | Response-CA | 0 | None Listed |
| | | State-Response-Active-CA | 0 | None Listed |
| | | State-Response-NFA-CA | 0 | None Listed |
| | | State-Response-Other-CA | 0 | None Listed |
| State and Tribal-Equivalent CERCLIS | 0.5 / 0.5 | Superfund-Active-CA | 0 | None Listed |
| | | Superfund-NFA-CA | 0 | None Listed |
| | | Superfund-Other-CA | 0 | None Listed |
| State and Tribal landfill and/or solid waste disposal sites | 0.5 / 0.5 | County-SWF-CA | 0 | None Listed |
| | | Debris-US | 0 | None Listed |
| | | Hist-Dumps-US | 0 | None Listed |
| | | Land-Disposal-CA | 0 | None Listed |
| | | SWIS-CA | 0 | None Listed |
| | | SWLF-US | 0 | None Listed |
| | | Tribal-ODI-US | 0 | None Listed |
| | | County-LUST-CA | 0 | None Listed |
| State and Tribal Leaking Storage Tank Lists | 0.5 / 0.5 | County-LUST-Closed-CA | 0 | None Listed |
| | | County-LUST-Open-CA | 0 | None Listed |
| | | Hist-UST-Cleanup-CA | 0 | None Listed |
| | | LUST-Closed-CA | 0 | None Listed |
| | | LUST-Open-CA | 0 | None Listed |
| | | Tribal-LUST-Closed-Reg9 | 0 | None Listed |
| | | | | |

| | | | | |
|--|--|-----------------------|---|-------------|
| | | Tribal-LUST-Open-Reg9 | 0 | None Listed |
| State and Tribal Registered Storage Tank Lists | Property and adjoining properties / 0.25 | AST-CA | 0 | None Listed |
| | | AST-CRSP-CA | 0 | None Listed |
| | | City-AST-CA | 0 | None Listed |
| | | City-UST-CA | 0 | None Listed |
| | | County-AST-CA | 0 | None Listed |
| | | County-UST-CA | 0 | None Listed |
| | | FEMA-UST-US | 0 | None Listed |
| | | Hist-UST-CA | 0 | None Listed |
| | | Tribal-UST-Reg9 | 0 | None Listed |
| | | UST-Abandoned-CA | 0 | None Listed |
| | | UST-CA | 0 | None Listed |
| | | UST-Closed-CA | 0 | None Listed |
| | | USTComp-CA | 0 | None Listed |
| | | UST-CRSP-CA | 0 | None Listed |
| | | UST-Priority-CA | 0 | None Listed |
| | | UST-Proposed-CA | 0 | None Listed |
| State and Tribal Inst/Eng Control Registries | Property Only / 0.5 | Controls-CA | 0 | None Listed |
| | | Deed-CA | 0 | None Listed |
| | | Hist-Controls-CA | 0 | None Listed |
| | | HWMP-Controls-CA | 0 | None Listed |
| | | Liens-CA | 0 | None Listed |
| State and Tribal Voluntary Cleanup Sites | 0.5 / 0.5 | Military-Active-CA | 0 | None Listed |
| | | Military-NFA-CA | 0 | None Listed |
| | | Military-Other-CA | 0 | None Listed |
| | | School-Active-CA | 0 | None Listed |
| | | School-NFA-CA | 0 | None Listed |
| | | School-Other-CA | 0 | None Listed |
| | | Tribal-VCP-US | 0 | None Listed |
| | | VCP-Active-CA | 0 | None Listed |
| | | VCP-NFA-CA | 0 | None Listed |
| State and Tribal Brownfield Sites | 0.5 / 0.5 | VCP-Other-CA | 0 | None Listed |
| | | BF-MOA-CA | 0 | None Listed |
| | | BF-Tribal-US | 0 | None Listed |

| FEDERAL ASTM/AAI DATABASES | | | | | | | |
|----------------------------|-------------------|--------------|-------------|------------|-----------|-----------|-------|
| DATABASE SEARCHED | DISTANCE SEARCHED | SUBJECT SITE | 0.125 MILES | 0.25 MILES | 0.5 MILES | 1.0 MILES | TOTAL |
| BF-Tribal-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| BF-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| CERCLIS-Archived-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| CERCLIS-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Controls-RCRA-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Controls-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Debris-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |

| FEDERAL ASTM/AAI DATABASES | | | | | | | |
|----------------------------|-------------------|--------------|-------------|------------|-----------|-----------|-------|
| DATABASE SEARCHED | DISTANCE SEARCHED | SUBJECT SITE | 0.125 MILES | 0.25 MILES | 0.5 MILES | 1.0 MILES | TOTAL |
| Delisted-NPL-US | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| ERNS-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| FEMA-UST-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| FTTS-ENF-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Dumps-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Hist-US-EC | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Hist-US-IC | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| HMIS-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| LIENS-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| NPL-US | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| PADS-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| PCB-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Proposed-NPL-US | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| RCRA-CESQG-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| RCRA-COR-US | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| RCRA-LQG-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| RCRA-NON-US | 0.25 | 0 | 0 | 2 | - | - | 2 |
| RCRA-SQG-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| RCRA-TSDF-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| SAA-Agreements-US | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| SWLF-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Tribal-LUST-Closed-Reg9 | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Tribal-LUST-Open-Reg9 | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Tribal-ODI-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Tribal-UST-Reg9 | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Tribal-VCP-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |

| STATE ASTM/AAI DATABASES | | | | | | | |
|--------------------------|-------------------|--------------|-------------|------------|-----------|-----------|-------|
| DATABASE SEARCHED | DISTANCE SEARCHED | SUBJECT SITE | 0.125 MILES | 0.25 MILES | 0.5 MILES | 1.0 MILES | TOTAL |
| AST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| AST-CRSP-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| BF-MOA-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| BZ-HazWaste-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| CERS-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| CHMIRS-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| City-AST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| City-CUPA-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| City-Others-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| City-UST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Controls-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| CorAct-Closed-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| CorAct-Open-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| CorAct-Other-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| CORTESE-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| County-AST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| County-Hist-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| County-LUST-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| County-LUST-Closed-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| County-LUST-Open-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| County-Others-CA | 0.25 | 0 | 0 | 1 | - | - | 1 |
| County-SLIC-Closed-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| County-SLIC-Open-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |

STATE ASTM/AAI DATABASES

| DATABASE SEARCHED | DISTANCE SEARCHED | SUBJECT SITE | 0.125 MILES | 0.25 MILES | 0.5 MILES | 1.0 MILES | TOTAL |
|--------------------------|-------------------|--------------|-------------|------------|-----------|-----------|-------|
| County-SML-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| County-SWF-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| County-UST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| CRSP-CA | 0.25 | 0 | 1 | 2 | - | - | 3 |
| CUPA-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Deed-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| ENF-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| ENF-SMARTS-CA | 0.25 | 0 | 1 | 0 | - | - | 1 |
| ENF-Wastewater-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Eval-Hist-Active-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Eval-Hist-NFA-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Eval-Hist-Other-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| HazWaste-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Controls-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Hist-Cort-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| HIST-R4-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| HIST-SLIC-CV-CLOSED-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| HIST-SLIC-CV-OPEN-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Hist-UST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-UST-Cleanup-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Hist-WIP-Active-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Hist-WIP-Backlog-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Hist-WIP-Historical-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| HWIS-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| HWMP-Controls-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| ICE-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Land-Disposal-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Liens-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| LUST-Closed-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| LUST-Open-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Manifest2-RI | 0.0625 | 0 | 0 | - | - | - | 0 |
| Military-Active-CA | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Military-NFA-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Military-Other-CA | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| PR-MOA-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Response-CA | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| School-Active-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| School-NFA-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| School-Other-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| SLIC-Closed-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| SLIC-Open-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| SML-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| State-Response-Active-CA | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| State-Response-NFA-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| State-Response-Other-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Superfund-Active-CA | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Superfund-NFA-CA | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Superfund-Other-CA | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| SWIS-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| SWRCY-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| UST-Abandoned-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| UST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| UST-Closed-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| USTComp-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| UST-CRSP-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |

STATE ASTM/AAI DATABASES

| DATABASE SEARCHED | DISTANCE SEARCHED | SUBJECT SITE | 0.125 MILES | 0.25 MILES | 0.5 MILES | 1.0 MILES | TOTAL |
|-------------------|-------------------|--------------|-------------|------------|-----------|-----------|-------|
| UST-Priority-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| UST-Proposed-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| VCP-Active-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| VCP-NFA-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| VCP-Other-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |

SUPPLEMENTAL DATABASES

| DATABASE SEARCHED | DISTANCE SEARCHED | SUBJECT SITE | 0.125 MILES | 0.25 MILES | 0.5 MILES | 1.0 MILES | TOTAL |
|--------------------------|-------------------|--------------|-------------|------------|-----------|-----------|-------|
| Air-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| AIR-DIST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| BioFuel-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| CAF-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| CDL-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| CDL-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| CHWF-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Cleaners-CA | 0.25 | 0 | 1 | 0 | - | - | 1 |
| Coal-Ash-Dams-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| County-BI-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Dams-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| DPR-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| DryCleaners-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| EGRID-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| EPA-Watch-List-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| FA-HW-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| FA-HW-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| FA-SWF-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| FRS-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| FTTS-INSP-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| FUDS-US | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| FUSRAP-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Haulers-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-AFS2-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-AFS-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-AST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-AWS-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-CalFID-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-CALSITES-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-CERCLIS-NFRAP-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-CERCLIS-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-City-UST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Deed-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-DTG-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-ERNS-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-FIFRA-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-FINDS-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-HWS-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-LUSTIS-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| HIST-MLTS-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| HIST-MTBE-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-NPL-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Orange-County-LF-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |

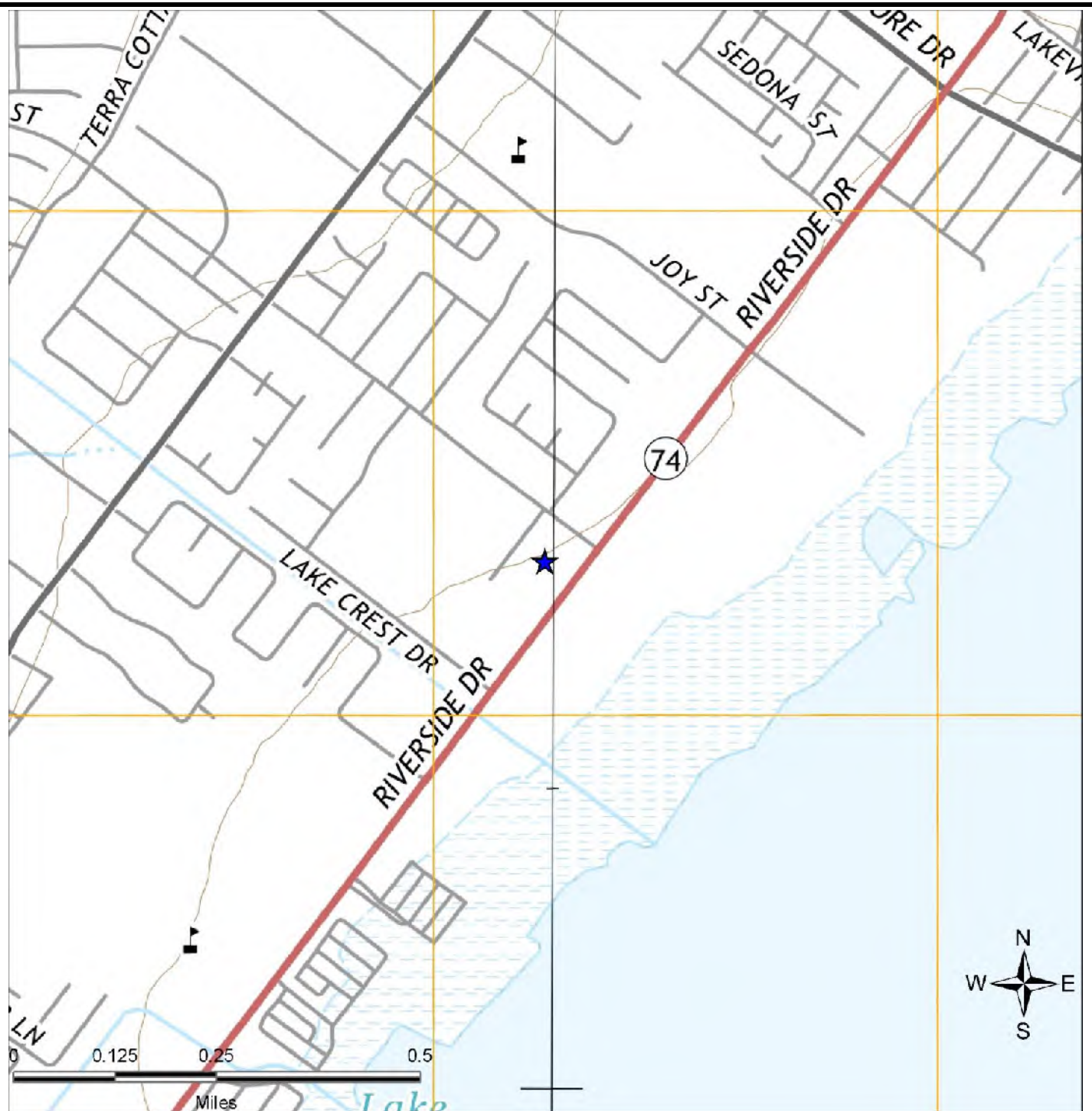
| SUPPLEMENTAL DATABASES | | | | | | | |
|-------------------------|-------------------|--------------|-------------|------------|-----------|-----------|-------|
| DATABASE SEARCHED | DISTANCE SEARCHED | SUBJECT SITE | 0.125 MILES | 0.25 MILES | 0.5 MILES | 1.0 MILES | TOTAL |
| Historical-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Hist-Prop65-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-RCRIS-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Regional-LUST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Regional-Other-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Regional-SLIC-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Regional-Spills-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Regional-SWLF-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Regional-UST-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-SCL-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-SWIS-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-ToxicPits-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-TRIS-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-USGS-WaterWells-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-USTReg-CA | 0.25 | 0 | 1 | 0 | - | - | 1 |
| Hist-WaterWells-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-WMUDS-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| HWT-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| ICIS-Air-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| ICIS-FEC-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| ICIS-NPDES-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| LA-Waste-Haulers-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| Lead-Smelter-2-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Lead-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| LMOP-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| Mines2-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| Mines-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| Mines-CDMG-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| MINES-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| MLTS-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| Mortgage-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| MRDS-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| MWMP-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| NCI-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| NEI-LF-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| NPDES-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| NPDES-SW-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| OGM-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| OGW-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| OSCF-CA | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| PCS-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Perch1-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Perch2-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Project-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| RADINFO-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| RFG-Lab-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| RMP-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| ROD-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| SDWIS-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| SP-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Spills-SSO-CA | 0.25 | 0 | 0 | 1 | - | - | 1 |
| SSTS-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| TierPer-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |
| TOMS-CA | 0.0625 | 0 | 0 | - | - | - | 0 |

SUPPLEMENTAL DATABASES

| DATABASE SEARCHED | DISTANCE SEARCHED | SUBJECT SITE | 0.125 MILES | 0.25 MILES | 0.5 MILES | 1.0 MILES | TOTAL |
|---------------------|-------------------|--------------|-------------|------------|-----------|-----------|-------|
| Tribal-Air-US | 0.25 | 0 | 0 | 0 | - | - | 0 |
| TRIS2000-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| TRIS2010-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| TRIS80-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| TRIS90-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| TSCA-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| UIC2-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| UIC-CA | 0.0625 | 0 | 0 | - | - | - | 0 |
| UMTRA-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| USGS-Waterwells-US | 0.0625 | 0 | 0 | - | - | - | 0 |
| Vapor-Intrusions-US | 0.5 | 0 | 0 | 0 | 0 | - | 0 |
| WDR-CA | 0.25 | 0 | 0 | 0 | - | - | 0 |

PROPRIETARY HISTORIC DATABASES

| DATABASE SEARCHED | DISTANCE SEARCHED | SUBJECT SITE | 0.125 MILES | 0.25 MILES | 0.5 MILES | 1.0 MILES | TOTAL |
|-----------------------------|-------------------|--------------|-------------|------------|-----------|-----------|-------|
| Hist-Agriculture | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Auto Dealers | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Auto Repair | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Chemical Manufacturing | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Chemical-Storage | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Cleaners | 0.25 | 0 | 0 | 0 | - | - | 0 |
| Hist-Convenience | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Disposal-Recycle | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Food-Processors | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Gun-Ranges | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Machine Shop | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Manufacturing | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Metal Plating | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Mining | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Mortuaries | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Oil-Gas | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-OilGas-Refiners | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Other | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Paint-Stores | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Petroleum | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Post-Offices | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Printers | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Rental | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-RV-Dealers | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Salvage | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Service Stations | 0.25 | 0 | 1 | 0 | - | - | 1 |
| Hist-Steel-Metals | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Textile | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Transportation | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Trucking | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Vehicle-Parts | 0.0625 | 0 | 0 | - | - | - | 0 |
| Hist-Vehicle-Washing | 0.0625 | 0 | 0 | - | - | - | 0 |



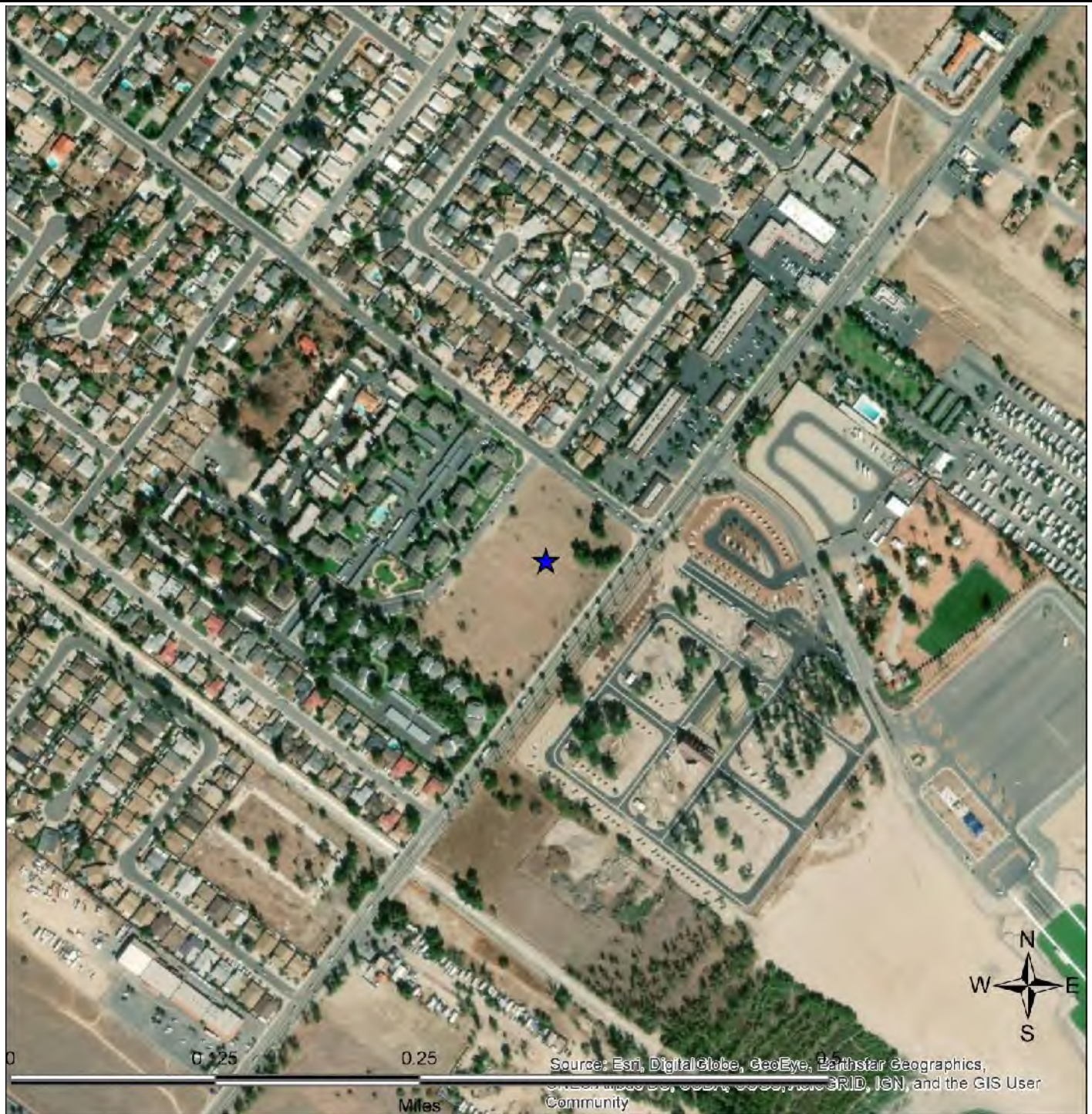
SITE LOCATION TOPOGRAPHIC MAP

U.S. Geological Survey. Alberhill (2015-03-10) Quadrangle, 7.5 Minute Series

GEM Group, Inc. DBA Tom
Edwards & Associates

15209 Lincoln Street
Lake Elsinore, CA 92530

FIGURE: 1
JOB: 19-9351
DATE: 7/12/2019



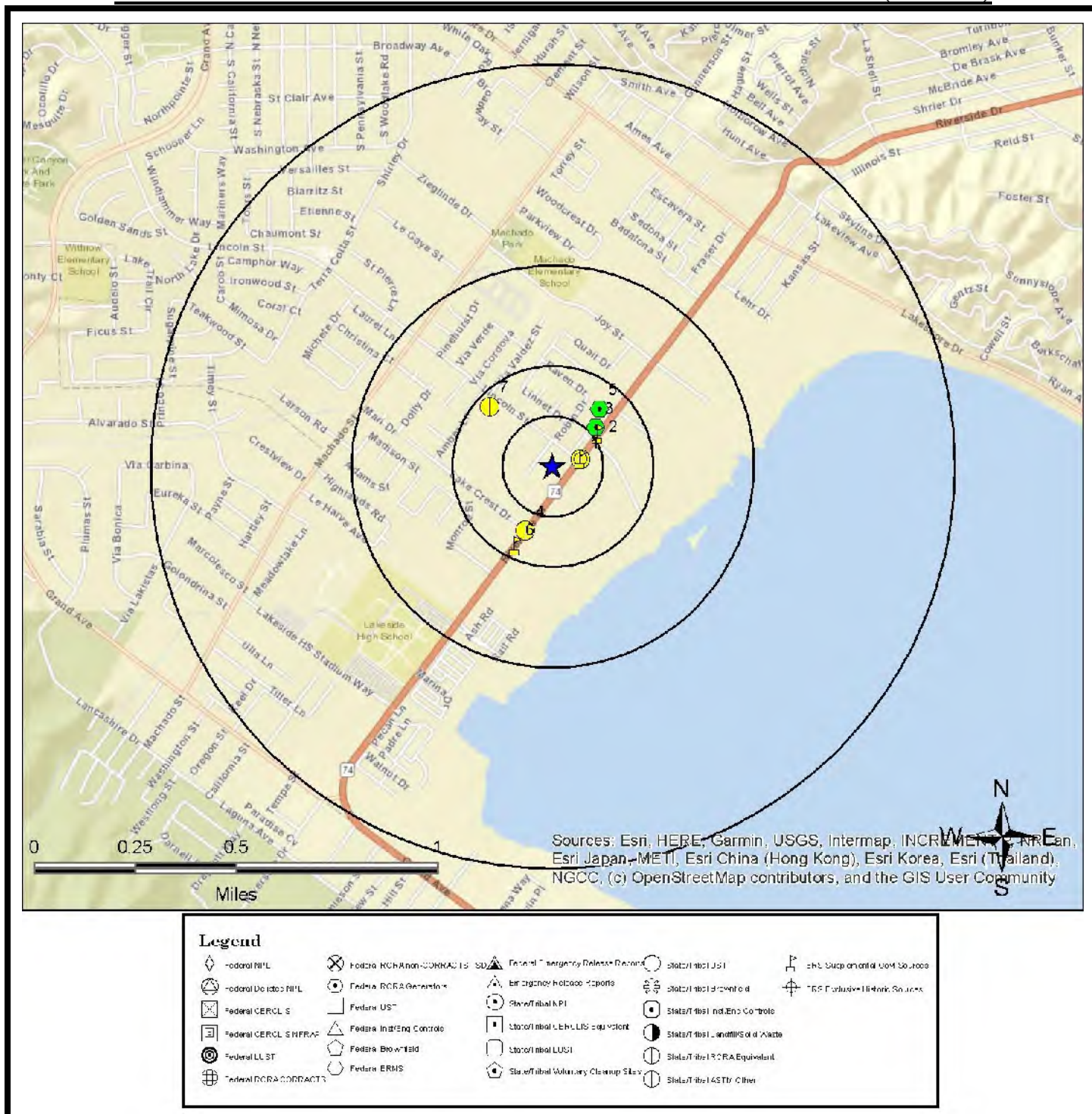
SITE LOCATION MAP

GEM Group, Inc. DBA Tom
Edwards & Associates

15209 Lincoln Street
Lake Elsinore, CA 92530

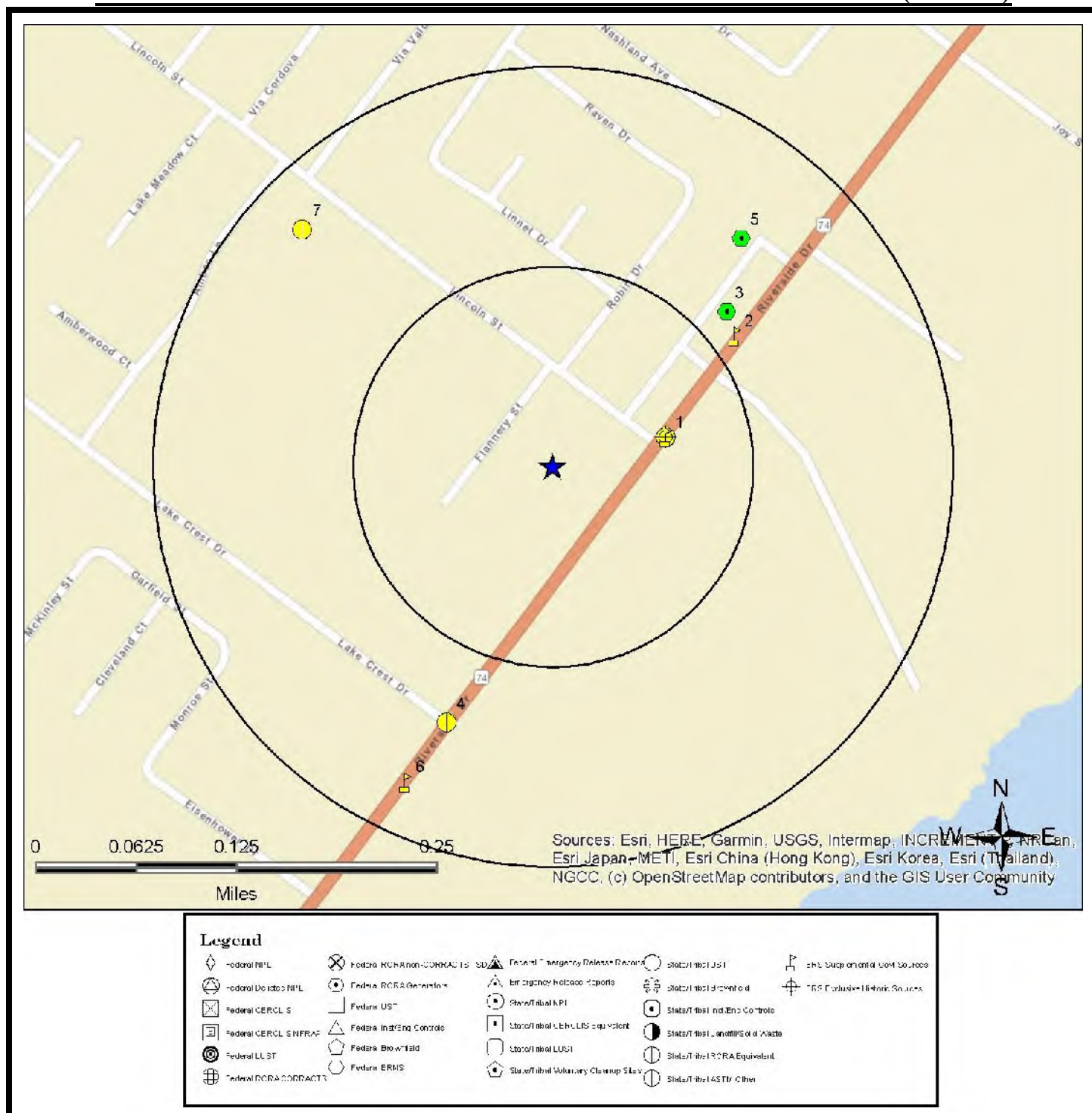
FIGURE: 2
JOB: 19-9351
DATE: 7/12/2019

1-MILE RADIUS STREET MAP W/OCCURRENCES (MAP1)

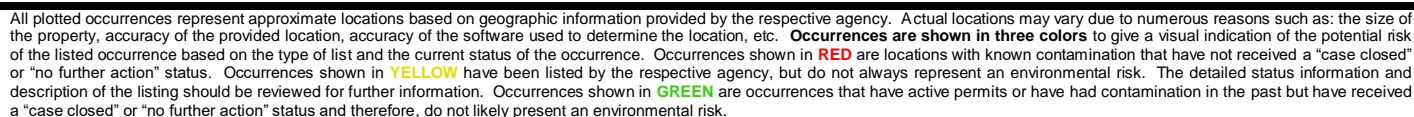


All plotted occurrences represent approximate locations based on geographic information provided by the respective agency. Actual locations may vary due to numerous reasons such as: the size of the property, accuracy of the provided location, accuracy of the software used to determine the location, etc. **Occurrences are shown in three colors** to give a visual indication of the potential risk of the listed occurrence based on the type of list and the current status of the occurrence. Occurrences shown in **RED** are locations with known contamination that have not received a "case closed" or "no further action" status. Occurrences shown in **YELLOW** have been listed by the respective agency, but do not always represent an environmental risk. The detailed status information and description of the listing should be reviewed for further information. Occurrences shown in **GREEN** are occurrences that have active permits or have had contamination in the past but have received a "case closed" or "no further action" status and therefore, do not likely present an environmental risk.

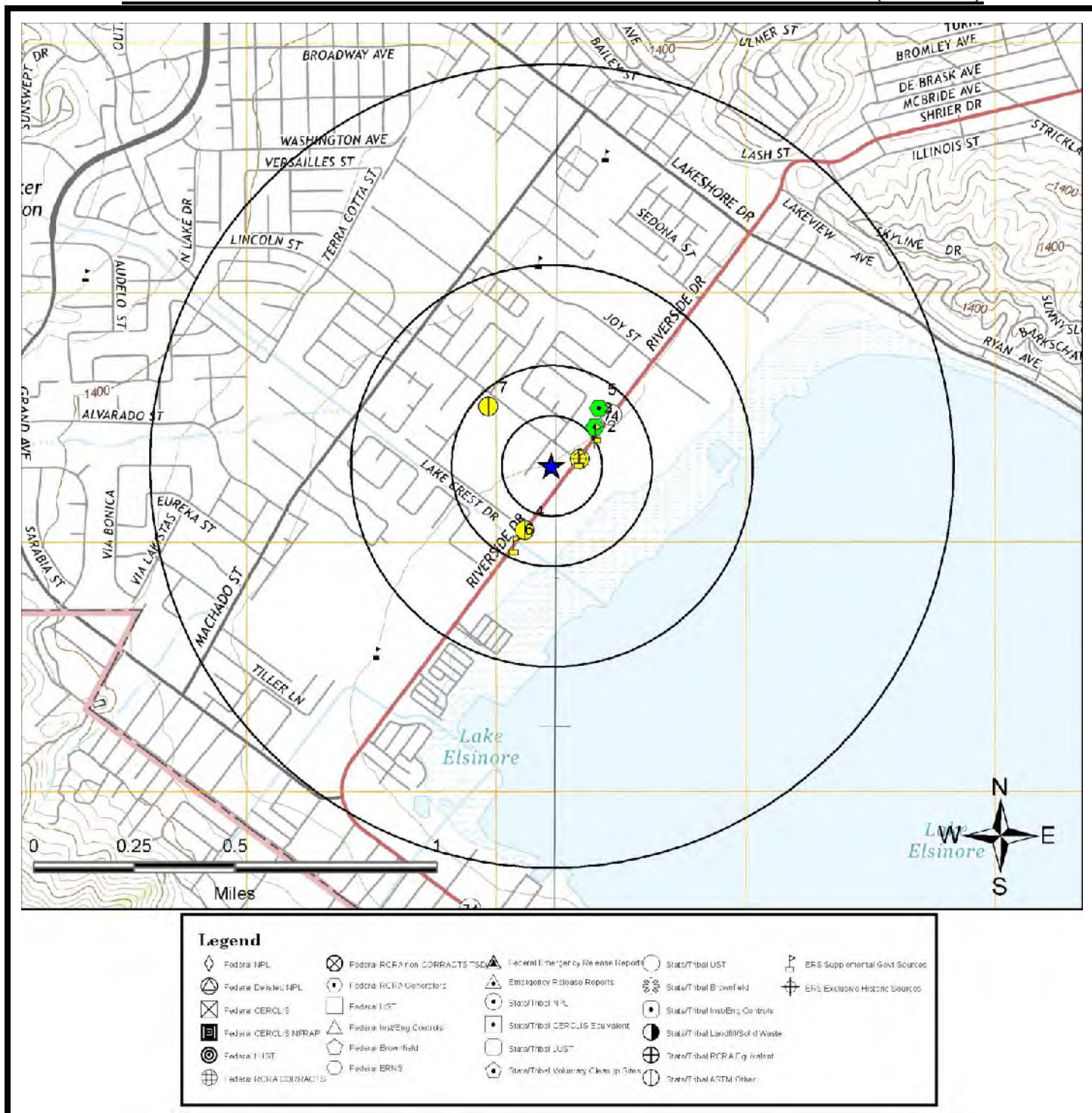
0.25-MILE RADIUS STREET MAP W/OCCURRENCES (MAP2)



All plotted occurrences represent approximate locations based on geographic information provided by the respective agency. Actual locations may vary due to numerous reasons such as: the size of the property, accuracy of the provided location, accuracy of the software used to determine the location, etc. Occurrences are shown in three colors to give a visual indication of the potential risk of the listed occurrence based on the type of list and the current status of the occurrence. Occurrences shown in **RED** are locations with known contamination that have not received a "case closed" or "no further action" status. Occurrences shown in **YELLOW** have been listed by the respective agency, but do not always represent an environmental risk. The detailed status information and description of the listing should be reviewed for further information. Occurrences shown in **GREEN** are occurrences that have active permits or have had contamination in the past but have received a "case closed" or "no further action" status and therefore, do not likely present an environmental risk.



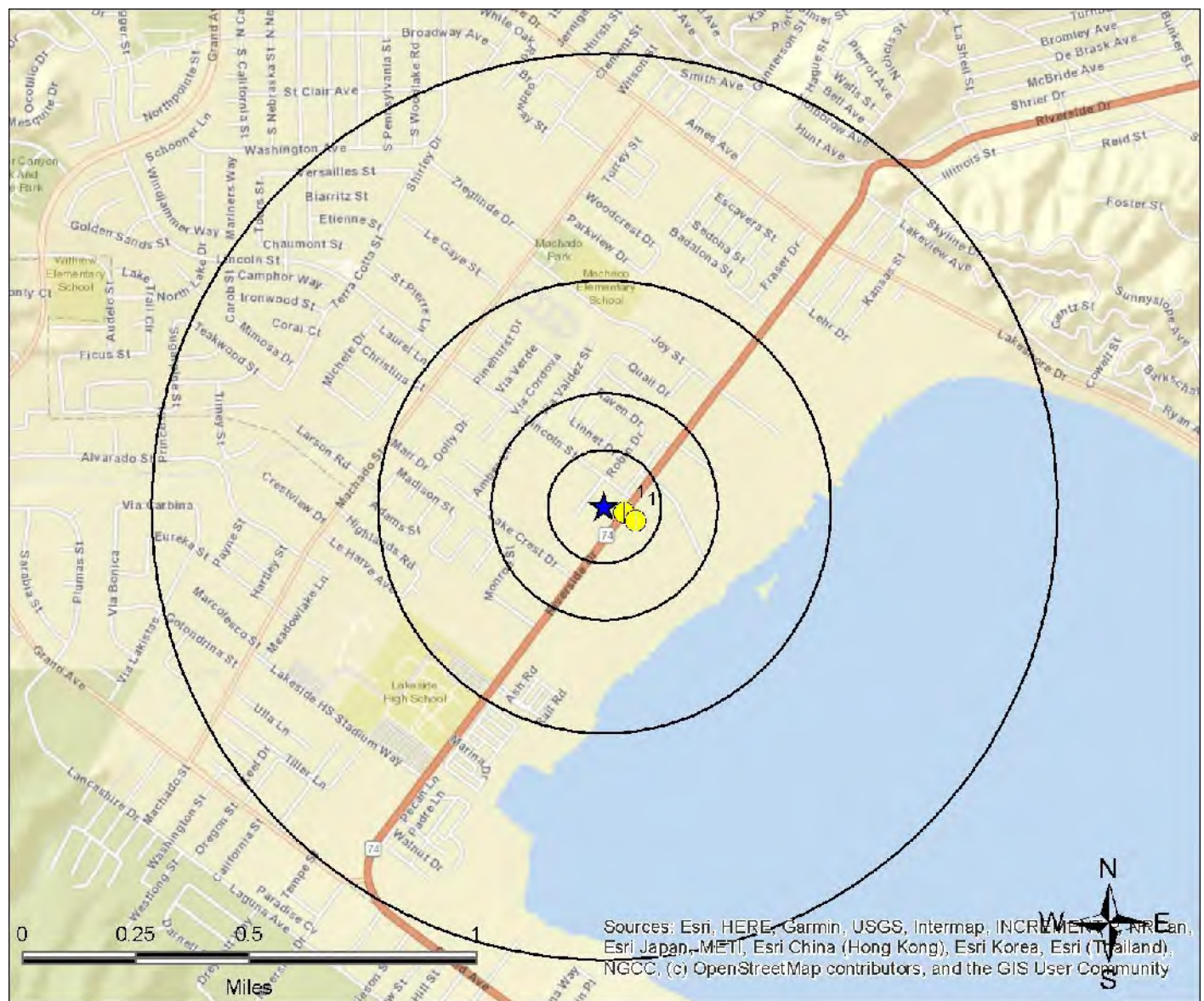
1-MILE TOPOGRAPHIC MAP W/OCCURRENCES (MAP4)



All plotted occurrences represent approximate locations based on geographic information provided by the respective agency. Actual locations may vary due to numerous reasons such as: the size of the property, accuracy of the provided location, accuracy of the software used to determine the location, etc. Occurrences are shown in three colors to give a visual indication of the potential risk of the listed occurrence based on the type of list and the current status of the occurrence. Occurrences shown in **RED** are locations with known contamination that have not received a "case closed" or "no further action" status. Occurrences shown in **YELLOW** have been listed by the respective agency, but do not always represent an environmental risk. The detailed status information and description of the listing should be reviewed for further information. Occurrences shown in **GREEN** are occurrences that have active permits or have had contamination in the past but have received a "case closed" or "no further action" status and therefore, do not likely present an environmental risk.

AGENCY DIFFERENCES IN MAPPED LOCATIONS (MAP5)

Note: Occurrences on this map have agency provided coordinates which differ significantly from geocoded locations.



Legend

- | | | | | |
|--------------------------------|---------------------------------------|-----------------------------------|-------------------|-------------------|
| Federal NPL | Federal RCRA Action/Corrective Action | Federal Emergency Release/Release | State/tribal LUST | State/tribal LUST |
| Federal Designated NPL | Federal RCRA Generator | Emergency Release/Release | State/tribal LUST | State/tribal LUST |
| Federal CERCLA | Federal US | State/tribal LUST | State/tribal LUST | State/tribal LUST |
| Federal CERCLA S/NFRAS | Federal Interim Control | State/tribal LUST | State/tribal LUST | State/tribal LUST |
| Federal LUST | Federal Bio-Waste | State/tribal LUST | State/tribal LUST | State/tribal LUST |
| Federal RCRA Corrective Action | Federal ERHS | State/tribal LUST | State/tribal LUST | State/tribal LUST |
| | | State/tribal LUST | State/tribal LUST | State/tribal LUST |
| | | State/tribal LUST | State/tribal LUST | State/tribal LUST |

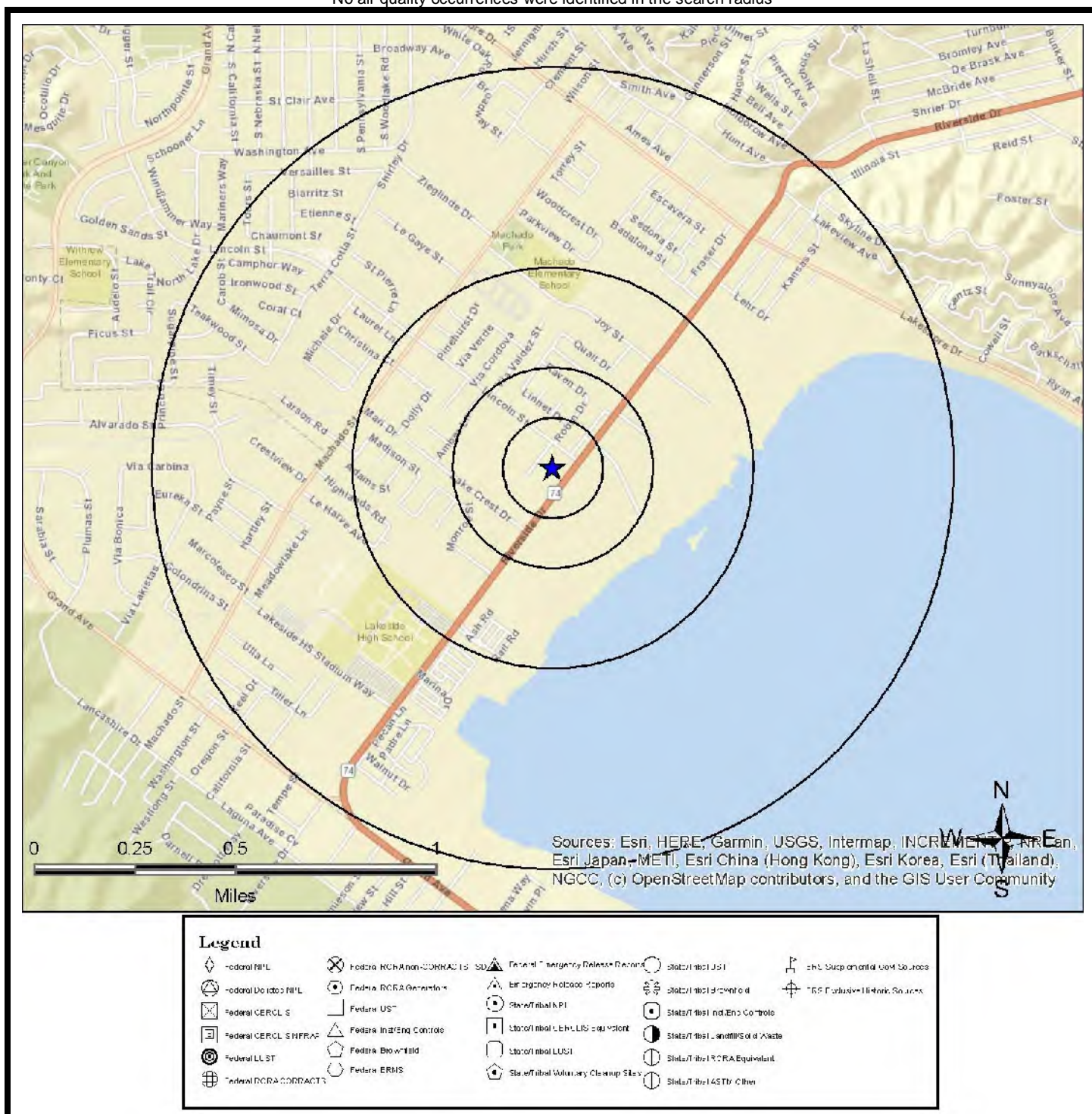
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SUMMARY OF AGENCY DIFFERENCES

| MAP ID | ID / SITE NAME | ADDRESS / DATABASE | AGENCY COORDINATES | DISTANCE (MILES) | DIRECTION |
|---------------|--|--|---------------------------|-------------------------|------------------|
| 1 | 491287 RV Resort Rehabilitation Project | 32040 RIVERSIDE DRIVE CRSP-CA | -117.37396, 33.67565 | 0.08 | E |
| 1 | 408283 Campground Boat Launch Facility Improvements | 32040 Riverside Drive ENF-SMARTS-CA | -117.3744, 33.6759 | 0.05 | E |

MAPPED AIR PERMITS WITH POTENTIAL DISPERSION (MAP6)

Note: Occurrences on this map are reported in Air Quality databases. Potential air plumes are drawn in the direction of the prevailing wind.
No air quality occurrences were identified in the search radius



All plotted occurrences represent approximate locations based on geographic information provided by the respective agency/source. Actual locations may vary due to numerous reasons such as: the size of the property, accuracy of the provided location, accuracy of the software used to determine the location, etc. Potential air dispersion plumes are depicted to graphically show the direction contaminants may travel based on prevailing wind data and provide a visual screening tool only. Actual direction will vary especially by season. Depending on the actual contaminate, amount released, and other variables, the distance from the source the contaminate may travel can and will vary. Interpretation and review of all the actual relevant data by an environmental professional is recommended before making any decisions, conclusions or otherwise based on the map depictions, air data, and potential air dispersion plumes.

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LISTED OCCURRENCE DETAILS

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|---|--------|--------------|---|----------|
| CRSP-CA | Listed | 0.08 miles E | 1277 ft (2 ft lower than site) | 1 |
| SITE NAME | | | MAPS | ID |
| RV Resort Rehabilitation Project | | | 1 , 2 , 4 | 491287 |
| ADDRESS | | | CITY | ZIP |
| 32040 RIVERSIDE DRIVE | | | LAKE ELSINORE | 92530 |
| DETAILS | | | | |
| <p>Site Regulated Program Information Site ID: 491287 Site EI ID: 857469 Agency Provided Latitude: 33.67565 Agency Provided Longitude: -117.37396</p> <p>Program Description: Construction Storm Water</p> <p>Evaluation Information : Not Reported : Violation Information : Not Reported : Enforcement Information : Not Reported : Chemical Information : Not Reported : Coordinate Information : Not Reported :</p> | | | | |

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|--|--------|--------------|---|----------|
| ENF-SMARTS-CA | Active | 0.08 miles E | 1277 ft (2 ft lower than site) | 1 |
| SITE NAME | | | MAPS | ID |
| Campground Boat Launch Facility Improvements | | | 1 , 2 , 4 | 408283 |
| ADDRESS | | | CITY | ZIP |
| 32040 Riverside Drive | | | Lake Elsinore | 92530 |

DETAILS

Enforcement ID: 408283
 Facility ID: 810493
 Regulatory Measure ID: 416214
 Waste Discharge ID: Not Reported
 Order/Resolution Number: Not Reported
 Regional Water Board number: 8
 Agency: City of Lake Elsinore
 Agency Type: City/Town Agency
 Regulatory Measure Type: Region 8 MS4 CIPs
 Facility/Site County: Riverside
 Coverage Status: Terminated
 Enforcement Status: Active
 Enforcement Type: Verbal Communication
 Effective Date: 7/28/2011
 Termination Date: 3/5/2013
 Enforcement Adoption Date: 2/21/2012
 Enforcement Effective Date: 2/21/2012
 Enforcement Description: Verbal communication - 20120221 - email question - Rita said she was looking forward to inspection report to see what they did wrong.
 Initial Assessed Amount: Not Reported
 Total Assessment Amount: Not Reported
 Liability \$ Amount: Not Reported
 Liability \$ Paid: Not Reported
 Project \$ Amount: Not Reported
 Project \$ Completed: Not Reported
 Total \$ Paid/Completed: Not Reported
 Agency Provided Latitude: 33.675899
 Agency Provided Longitude: -117.374401

[More Details Link](#)

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|-------------------------|--------|--------------|---|----------|
| Hist-Service Stations | Listed | 0.08 miles E | 1277 ft (2 ft lower than site) | 1 |
| SITE NAME | | | MAPS | ID |
| LAKE ELSINORE REC. AREA | | | 1 , 2 , 4 | 212598 |
| ADDRESS | | | CITY | ZIP |
| 32040 RIVERSIDE AVE | | | LAKE ELSINORE | 92530 |

| DETAILS | | | | |
|---|--|--|--|--|
| AS OF DATE: 1/3/2002 SITE TYPE: STATE TANK TYPE: UST COUNTY: RIVERSIDE | | | | |

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|--------------------------------|--------|--------------|---|----------|
| Hist-USTReg-CA | Listed | 0.08 miles E | 1277 ft (2 ft lower than site) | 1 |
| SITE NAME | | | MAPS | ID |
| LAKE ELSINORE RECREATIONA AREA | | | 1 , 2 , 4 | 4503609 |
| ADDRESS | | | CITY | ZIP |
| 32040 RIVERSIDE | | | LAKE ELSINROE | 92530 |
| DETAILS | | | | |
| Reported Date: 1998 | | | | |

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|--------------------|--------|---------------|---|----------|
| Cleaners-CA | Listed | 0.15 miles NE | 1279 ft (0 ft higher than site) | 2 |
| SITE NAME | | | MAPS | ID |
| 888 Laundromat | | | 1 , 2 , 4 | 7654 |
| ADDRESS | | | CITY | ZIP |
| 31723 Riverside Dr | | | Lake Elsinore | 92530 |

DETAILS

Facility and Program Information
 County: Riverside
 Executive First Name: Not Reported
 Executive Last Name: Not Reported
 Professional Title: Not Reported
 Executive Title: Not Reported
 Executive Gender: Not Reported
 ZIP Four: 7813
 Carrier Route: C027
 Delivery Point Barcode: 237
 Metro Area: Riverside, CA
 Neighborhood: Lake Edge District
 Phone Number Combined: (951) 471-8889
 Fax Number Combined: 0
 Toll Free Number Combined: 0
 Website: Not Reported
 Company Description: Not Reported
 Primary SIC Code: 721501
 Primary SIC Description: Laundries-Self Service
 Primary SIC Ad Size: Not Reported
 Primary SIC Year Appeared: 2012
 SIC Code 1: 721101
 SIC Code 1 Description: Laundries
 SIC Code 1 Ad Size: Not Reported
 SIC Code 1 Year Appeared: Not Reported
 SIC Code 2: 721501
 SIC Code 2 Description: Laundries-Self Service

[More Details Link](#)

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|--------------------------|--------|---------------|---|--------------|
| RCRA-NON-US | Listed | 0.15 miles NE | 1281 ft (2 ft higher than site) | 3 |
| SITE NAME | | | MAPS | ID |
| KHALED EISSA DDS INC | | | 1 , 2 , 4 | CAL000385799 |
| ADDRESS | | | CITY | ZIP |
| 31737 RIVERSIDE DR STE B | | | LAKE ELSINORE | 92530 |

DETAILS

Additional details may be found online using the following link:

http://oaspub.epa.gov/enviro/fii_query_dtl_disp_program_facility?pgm_sys_id_in=CAL000385799&pgm_sys_acrnm_in=RCRAINFO

Source Type: Implementer
 Generator Status Universe: N
 Generator Status: Non-Generator
 NAICS1: ALL OTHER WASTE MANAGEMENT SERVICES
 Active Site Indicator: H----
 Owner Name: KHALED EISSA
 Operator Name: ROSA CRUZ
 In Handler Universes: Y
 In a Universe: Y
 Short Term Generator: N
 Importer Activity: N
 Mixed Waste Generator: N
 Transporter Activity: Y
 Transfer Facility: N
 Recycler Activity: N
 Onsite Burner Exemption: N
 Furnace Exemption: N
 Underground Injection Activity: N
 Receives Waste From Off-site: N
 Universal Waste: N
 Universal Waste Destination Facility: Y
 Used Oil Universe: NNNNNNN
 Federal Universal Waste: N
 Active Site Federally Regulated TSDF: -----

[More Details Link](#)

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|---------------------------------|--------|--------------|---|----------|
| CRSP-CA | Listed | 0.16 miles S | 1269 ft (10 ft lower than site) | 4 |
| SITE NAME | | | MAPS | ID |
| Lake Street Properties LP-Wyroc | | | 1 , 2 , 4 | 345627 |
| ADDRESS | | | CITY | ZIP |
| 3100 LAKE | | | LAKE ELSINORE | 92530 |

DETAILS

Site Regulated Program Information

Site ID: 345627

Site EI ID: 206567

Agency Provided Latitude: 33.72923

Agency Provided Longitude: -117.39341

Program Description: Waste Discharge Requirements

Evaluation Information

Evaluation Date: 3/8/2017

Violations Found? (Y/N): No

Evaluation General Type: Compliance Evaluation Inspection

Evaluation Type: RWQCB Type B compliance inspection

Evaluation Note(s): Not Reported

Evaluation Division: Water Boards

Evaluation Program: WDR

Evaluation Source: CIWQS

Violation Information

: Not Reported

:Enforcement Information

: Not Reported

:Chemical Information

: Not Reported

:Coordinate Information

[More Details Link](#)

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|--|--------|---------------|---|--------------|
| RCRA-NON-US | Listed | 0.19 miles NE | 1285 ft (6 ft higher than site) | 5 |
| SITE NAME | | | MAPS | ID |
| BROOKSTONE LANDING - COMMERCIAL BLDG SUI | | | 1 , 2 , 4 | CAC002999804 |
| ADDRESS | | | CITY | ZIP |
| 31735 RIVERSIDE DRIVE | | | LAKE ELSINORE | 92530 |

DETAILS

Additional details may be found online using the following link:

http://oaspub.epa.gov/enviro/fii_query_dtl_disp_program_facility?pgm_sys_id_in=CAC002999804&pgm_sys_acrnm_in=RCRAINFO

Source Type: Implementer
 Generator Status Universe: N
 Generator Status: Non-Generator
 NAICS1: ALL OTHER WASTE MANAGEMENT SERVICES
 Active Site Indicator: -----
 Owner Name: BROOKSTONE LANDING
 Operator Name: CLYDE BRUNNER
 In Handler Universes: N
 In a Universe: N
 Short Term Generator: N
 Importer Activity: N
 Mixed Waste Generator: N
 Transporter Activity: N
 Transfer Facility: N
 Recycler Activity: N
 Onsite Burner Exemption: N
 Furnace Exemption: N
 Underground Injection Activity: N
 Receives Waste From Off-site: N
 Universal Waste: N
 Universal Waste Destination Facility: Y
 Used Oil Universe: NNNNNNN
 Federal Universal Waste: N
 Active Site Federally Regulated TSDF: -----

[More Details Link](#)

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|------------------------|--------|---------------|---|----------|
| Spills-SSO-CA | Listed | 0.21 miles SW | 1268 ft (11 ft lower than site) | 6 |
| SITE NAME | | | MAPS | ID |
| Riverside Dr | | | 1 , 2 , 4 | 807485 |
| ADDRESS | | | CITY | ZIP |
| Not Reported by Agency | | | | |

DETAILS

Facility and Program Information

Event ID: 807485

Certificate ID: 607241

Region: 8

County: Riverside

Agency: Elsinore Valley Municipal Water Dist

Collection SYS: EVMWD Regional Plant CS

WDID: 8SSO10620

Certificate Person Name: Robert O Barnard

Certificate Person Title: Wastewater Collections Superintendent

Certificate Location: 11.03

Certificate Date: 2014.07.03 00.00.00

Spill Location Description: spill came up from a MH housing an air vac for a sewer force main. the sewage ran to the dirt along the edge of the road.

Spill Type: Category 3

Appear PT: Manhole

Appear PT Explanation: Manhole housing an air vac

Reach Surface: No

reach Storm Drainpipe: No

Return To SSS: Not Applicable - Spill did not reach a separate storm drainpipe

Privt Latrl Spill: No

Responsible Party: Not Reported

Final Spill Dest: Unpaved surface

Final Spill Dest Explanation: NA

Spill Volume Reached Land: 15

Spill Volume Discharge A: 0

Spill Volume Discharge B: 0

Spill Volume Discharge C: 0

[More Details Link](#)

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|---|--------|---------------|---|----------|
| County-Others-CA | Listed | 0.22 miles NW | 1296 ft (17 ft higher than site) | 7 |
| SITE NAME | | | MAPS | ID |
| EVMWD-Lincoln Street Well | | | 1 , 2 , 4 | 5650-RSD |
| ADDRESS | | | CITY | ZIP |
| 15157 Lincoln St | | | Lake Elsinore | 92530 |
| DETAILS | | | | |
| Agency: Riverside County Department of Environmental Health, Hazardous Materials Management Branch Note: This is an ERS assigned ID County: Riverside Type: Disclosure Facility List | | | | |

| DATABASE | STATUS | DISTANCE | ELEVATION | MAP ID |
|--|--------|---------------|---|--------|
| CRSP-CA | Listed | 0.22 miles NW | 1296 ft (17 ft higher than site) | 7 |
| SITE NAME | | | MAPS | ID |
| EVMWD-Lincoln Street Well | | | 1 , 2 , 4 | 28969 |
| ADDRESS | | | CITY | ZIP |
| 15157 LINCOLN ST | | | LAKE ELSINORE | 92530 |
| DETAILS | | | | |
| <p>Site Regulated Program Information</p> <p>Site ID: 28969</p> <p>Site EI ID: 10319269</p> <p>Agency Provided Latitude: 33.67823</p> <p>Agency Provided Longitude: -117.377907</p> <p>Program Description: Chemical Storage Facilities</p> <p>Evaluation Information</p> <p>Evaluation Date: 12/6/2017</p> <p>Violations Found? (Y/N): No</p> <p>Evaluation General Type: Compliance Evaluation Inspection</p> <p>Evaluation Type: Routine done by local agency</p> <p>Evaluation Note(s): Not Reported</p> <p>Evaluation Division: Riverside County Department of Env Health</p> <p>Evaluation Program: HMRRP</p> <p>Evaluation Source: CERS</p> <p>Evaluation Date: 4/7/2015</p> <p>Violations Found? (Y/N): No</p> <p>Evaluation General Type: Other/Unknown</p> <p>Evaluation Type: Other, not routine, done by local agency</p> <p>Evaluation Note(s): Not Reported</p> <p>Evaluation Division: Riverside County Department of Env Health</p> <p>Evaluation Program: HMRRP</p> <p>Evaluation Source: CERS</p> <p>More Details Link</p> | | | | |

RECORDS SOURCES SEARCHED

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|---------------------|---|-------------------------------|----------------------------|----------------|
| Air-CA | Air Permits with Emissions | ERS Supplemental Govt Sources | Click Here | None Found |
| AIR-DIST-CA | Air Pollution Control District | ERS Supplemental Govt Sources | Click Here | None Found |
| AST-CA | Historical Aboveground Storage Tanks | State/Tribal UST | Click Here | None Found |
| AST-CRSP-CA | Aboveground Storage Tanks | State/Tribal UST | Click Here | None Found |
| BF-MOA-CA | Brownfield MOA Sites (aka Considered Brownfield Sites, SWRCB MOA, Brownfield Memorandum of Agreement) | State/Tribal Brownfield | Click Here | None Found |
| BF-Tribal-US | Historical Tribal Brownfields | Federal Brownfield | Click Here | None Found |
| BF-US | Brownfields Sites | Federal Brownfields | Click Here | None Found |
| BioFuel-US | Bio Diesel Fuel | ERS Supplemental Govt Sources | Click Here | None Found |
| BZ-HazWaste-CA | Border Zone or Hazardous Waste Property | State/Tribal ASTM Other Med | Click Here | None Found |
| CAF-CA | Confined Animal Facilities | ERS Supplemental Govt Sources | Click Here | None Found |
| CDL-CA | Clandestine Drug Labs | ERS Supplemental Govt Sources | Click Here | None Found |
| CDL-US | National Clandestine Drug Lab Register | ERS Supplemental Govt Sources | Click Here | None Found |
| CERCLIS-Archived-US | CERCLIS sites that have been archived | Federal CERCLIS NFRAP | Click Here | None Found |
| CERCLIS-US | Comprehensive Environmental Response, Compensation, and Liability Information System | Federal CERCLIS | Click Here | None Found |
| CERS-CA | California Environmental Reporting System (CERS) | State/Tribal ASTM Other Med | Click Here | None Found |
| CHMIRS-CA | California Hazardous Material Incident Report System | Emergency Release Reports | Click Here | None Found |
| CHWF-CA | Commercial Offsite Hazardous Waste Facilities | ERS Supplemental Govt Sources | Click Here | None Found |
| City-AST-CA | Underground Storage Tanks | State/Tribal UST | Click Here | None Found |
| City-CUPA-CA | Certified Unified Program Agency | State/Tribal ASTM Other Med | Click Here | None Found |
| City-Others-CA | Hazardous Material Facilities | State/Tribal ASTM Other Med | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|-----------------------|--|--|----------------------------|----------------|
| City-UST-CA | City Agency Underground Storage Tanks | State/Tribal UST | Click Here | None Found |
| Cleaners-CA | Cleaners | ERS Supplemental Govt Sources | Click Here | 1 |
| Coal-Ash-Dams-US | Coal Ash Contaminated Sites and Hazard Dams | ERS Supplemental Govt Sources | Click Here | None Found |
| Controls-CA | California sites with Deed Restrictions or other Controls | State/Tribal Inst/Eng Controls | Click Here | None Found |
| Controls-RCRA-US | RCRA Institutional and Engineering Controls Summary (aka Federal RCRA with Controls) | Federal Institutional/Engineering Controls | Click Here | None Found |
| Controls-US | US CERCLA Sites with Controls (aka US IC/EC, Institutional/Engineering List Controls, Land Use Controls) | Federal Institutional/Engineering Controls | Click Here | None Found |
| CorAct-Closed-CA | Corrective Action Sites | State/Tribal ASTM Other Low | Click Here | None Found |
| CorAct-Open-CA | Corrective Action Sites | State/Tribal ASTM Other High | Click Here | None Found |
| CorAct-Other-CA | Corrective Action Sites | State/Tribal ASTM Other Low | Click Here | None Found |
| CORTESE-CA | Cortese Hazardous Waste & Substances Sites List | State/Tribal ASTM Other Med | Click Here | None Found |
| County-AST-CA | Aboveground Storage Tanks | State/Tribal UST | Click Here | None Found |
| County-BI-CA | Business Inventory | ERS Supplemental Govt Sources | Click Here | None Found |
| County-Hist-CA | Historic Environmental County Listings | State/Tribal ASTM Other Med | Click Here | None Found |
| County-LUST-CA | County Agency Leaking Underground Storage Tanks | State/Tribal LUST | Click Here | None Found |
| County-LUST-Closed-CA | County Agency Leaking Underground Storage Tanks, Closed Cases | State/Tribal LUST | Click Here | None Found |
| County-LUST-Open-CA | County Agency Leaking Underground Storage Tanks, Open Cases | State/Tribal LUST | Click Here | None Found |
| County-Others-CA | Environmental Related Databases | State/Tribal ASTM Other Med | Click Here | 1 |
| County-SLIC-Closed-CA | County SLIC Sites | Emergency Release Reports | Click Here | None Found |
| County-SLIC-Open-CA | County SLIC Sites | Emergency Release Reports | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|---------------------|--|-----------------------------------|----------------------------|----------------|
| County-SML-CA | County Site Mitigation Unit List | State/Tribal ASTM Other Med | Click Here | None Found |
| County-SWF-CA | County Solid Waste Facilities | State/Tribal Landfill/Solid Waste | Click Here | None Found |
| County-UST-CA | County Agency Underground Storage Tanks | State/Tribal UST | Click Here | None Found |
| CRSP-CA | Cal EPA Regulated Site Portal | State/Tribal ASTM Other Med | Click Here | 3 |
| CUPA-CA | Certified Unified Program Agency | State/Tribal ASTM Other Med | Click Here | None Found |
| Dams-CA | California Dams | ERS Supplemental Govt Sources | Click Here | None Found |
| Debris-US | Historical Debris Sites | Federal Solid Waste | Click Here | None Found |
| Deed-CA | Deed Restrictions/Land Use Restrictions | State/Tribal Inst/Eng Controls | Click Here | None Found |
| Delisted-NPL-US | Delisted NPL Sites | Federal Delisted NPL | Click Here | None Found |
| DPR-CA | Pesticide Regulation Licenses | ERS Supplemental Govt Sources | Click Here | None Found |
| DryCleaners-CA | Dry Cleaner Facilities | ERS Supplemental Govt Sources | Click Here | None Found |
| EGRID-US | Emissions & Generation Resource Facilities | ERS Supplemental Govt Sources | Click Here | None Found |
| ENF-CA | Enforcement Actions Data | State/Tribal ASTM Other Med | Click Here | None Found |
| ENF-SMARTS-CA | Storm Water Enforcement Actions | State/Tribal ASTM Other Med | Click Here | 1 |
| ENF-Wastewater-CA | Wastewater Enforcement Actions | State/Tribal ASTM Other Med | Click Here | None Found |
| EPA-Watch-List-US | Historical EPA Watch List | ERS Supplemental Govt Sources | Click Here | None Found |
| ERNS-US | Emergency Response Notification System | Federal ERNS | Click Here | None Found |
| Eval-Hist-Active-CA | EnviroStor Evaluation History Sites | State/Tribal ASTM Other | Click Here | None Found |
| Eval-Hist-NFA-CA | EnviroStor Database Evaluation History NFA Sites | State/Tribal ASTM Other | Click Here | None Found |
| Eval-Hist-Other-CA | EnviroStor Database Evaluation History NFA Sites | State/Tribal ASTM Other | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|-------------------|---|--------------------------------|----------------------------|----------------|
| FA-HW-CA | Financial Assurance, Hazardous Waste | ERS Supplemental Govt Sources | Click Here | None Found |
| FA-HW-US | Financial Assurance, Hazardous Waste | ERS Supplemental Govt Sources | Click Here | None Found |
| FA-SWF-CA | Financial Assurance, Solid Waste Facilities | ERS Supplemental Govt Sources | Click Here | None Found |
| FEMA-UST-US | Historical FEMA Underground Storage Tanks | Federal UST | Click Here | None Found |
| FRS-US | Facility Registry Index (FINDS) | ERS Supplemental Govt Sources | Click Here | None Found |
| FTTS-ENF-US | Historical FIFRA/TSCA Tracking System (FTTS) Enforcement Actions | Federal ASTM Other | Click Here | None Found |
| FTTS-INSP-US | Historical FIFRA/TSCA Tracking System (FTTS) Inspections | ERS Supplemental Govt Sources | Click Here | None Found |
| FUDS-US | Formerly Used Defense Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| FUSRAP-US | Formerly Utilized Sites Remedial Action Program Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Haulers-CA | Registered Waste Tire Haulers Listing | ERS Supplemental Govt Sources | Click Here | None Found |
| HazWaste-CA | Hazardous Waste Facilities | State/Tribal ASTM Other Med | Click Here | None Found |
| Hist-AFS2-US | Historical Air Facility System for Clean Air Act stationary sources | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-AFS-US | Historical Air Facility System for Clean Air Act stationary sources | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Agriculture | Historical Ranches/Farms, Livestock/Agriculture | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-AST-CA | Historical Aboveground Storage Tanks | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Auto Dealers | Historical Auto and Truck Dealers | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Auto Repair | Historical Automotive Repair | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-AWS-CA | Historical Annual Workplan Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-CA | Previously Listed California Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-CalFID-CA | Historical Facility Inventory Database | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-CALSITES-CA | Historical Calsites Database | ERS Supplemental Govt Sources | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|-----------------------------|---|--------------------------------|----------------------------|----------------|
| Hist-CERCLIS-NFRAP-US | Historical CERCLIS-NFRAP | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-CERCLIS-US | Historical CERCLIS Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Chemical Manufacturing | Historical Manufacturing and Distribution of Chemicals, Gases, and/or Solids | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Chemical-Storage | Historical Chemical/Hazardous Use Storage | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-City-UST-CA | Historical Underground Storage Tanks | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Cleaners | Historical Laundry, Cleaners, and Dry Cleaning Services | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Controls-CA | Historical Restricted Use Sites | State/Tribal Inst/Eng Controls | Click Here | None Found |
| Hist-Convenience | Historical Convenience Store with Possible Gas | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Cort-CA | Historical Cortese list | State/Tribal ASTM Other Med | Click Here | None Found |
| Hist-Deed-CA | Historical Deed Restriction Properties | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Disposal-Recycle | Historical Hazardous Disposal/Recycle and Dumps/Waste | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-DTG-CA | Depth to Groundwater | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Dumps-US | Historical Dumps Inventory of 1985 | Federal Solid Waste | Click Here | None Found |
| Hist-ERNS-US | Historical Emergency Response Notification System (ERNS) | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-FIFRA-US | Historical Case Administration Data from National Compliance Database (Federal Insecticide, Fungicide, and Rodenticide Act) | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-FINDS-US | Historical Facility Index System | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Food-Processors | Historical Food Processing Manufacturers | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Gun-Ranges | Historical Gun Ranges/Clubs | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-HWS-CA | Historical Cortese List-Hazardous Waste Substance Site List | ERS Supplemental Govt Sources | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|--------------------------|--|--------------------------------|----------------------------|----------------|
| Hist-LUSTIS-CA | Historical Lust Information System (LUSTIS) | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Machine Shop | Historical Machine Shops, Welding, Machine Repair | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Manufacturing | Historical Sources US: Manufacturing | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Metal Plating | Historical Metal Plating | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Mining | Historical Mining Operations | ERS Exclusive Historic Sources | Click Here | None Found |
| HIST-MLTS-US | Historical Material Licensing Tracking System | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Mortuaries | Historical Crematories/Mortuaries | ERS Exclusive Historic Sources | Click Here | None Found |
| HIST-MTBE-CA | Historical Sites With MTBE (Methyl Tertiary-Butyl Ether) Contamination | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-NPL-US | Historical National Priority List | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Oil-Gas | Historical Oil and Gas Well Related Facilities | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-OilGas-Refiners | Historical Oil/Gas Refiners/Manufacturers/Plants | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Orange-County-LF-CA | Historical Orange County Landfills | ERS Supplemental Govt Sources | Click Here | None Found |
| Historical-CA | Historical Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Other | Historical Environmental Facilities | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Paint-Stores | Historical Paint Stores | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Petroleum | Historical Petroleum Refining/ Manufacturing/ Chemicals | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Post-Offices | Historical Post Offices | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Printers | Historical Printers and Publishers | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Prop65-CA | Historical Prop 65 Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| HIST-R4-CA | Historical sites | State/Tribal ASTM Other Med | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|-------------------------|--|--------------------------------|----------------------------|----------------|
| Hist-RCRIS-US | Historical EPA's Resource Conservation and Recovery Act | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Regional-LUST-CA | Historical Leaking Underground Storage Tanks | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Regional-Other-CA | Historical Toxic Lists, Site Mitigation, and Groundwater Cleanup Program | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Regional-SLIC-CA | Historical Spills and Leak Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Regional-Spills-CA | Historical Industrial Cleanup Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Regional-SWLF-CA | Historical County Landfills and Transfer Stations | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Regional-UST-CA | Historical Underground Storage Tanks | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Rental | Historical Rental Equipment & Yards | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-RV-Dealers | Historical Trailer and Recreational Vehicle Dealers | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Salvage | Historical Vehicle Salvage Yards or Wreckers | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-SCL-CA | Historical California Cerclis Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Service Stations | Historical Service Stations/Vehicle Fueling | ERS Exclusive Historic Sources | Click Here | 1 |
| HIST-SLIC-CV-CLOSED-CA | Historical Central Valley Spills and Leak Sites | Emergency Release Reports | Click Here | None Found |
| HIST-SLIC-CV-OPEN-CA | Historical Central Valley Spills and Leak Sites | Emergency Release Reports | Click Here | None Found |
| Hist-Steel-Metals | Historical Steel Mills/Manufacturers/Foundries/Smelters | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-SWIS-CA | Historical Solid Waste Information System (SWIS) | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Textile | Historical Textile Mills/Manufacturers | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-ToxicPits-CA | Historical Toxic Pits Cleanup Facilities | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Transportation | Historical Transportation Facilities | ERS Exclusive Historic Sources | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|-------------------------|--|--|----------------------------|----------------|
| Hist-TRIS-US | Historical Toxic Release Inventory System | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-Trucking | Historical Trucking, Shipping, Delivery, and/or Storage | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-US | Historical Previously Listed Federal Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-US-EC | Historical Engineering Controls Sites (aka US EC, Engineering Controls, Land Use Controls) | Federal Institutional/Engineering Controls | Click Here | None Found |
| Hist-USGS-WaterWells-CA | Historical Ground Water Site Inventory for California | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-US-IC | Historical Sites with Institutional Controls (aka US IC, Institutional Controls, Land Use Controls) | Federal Institutional/Engineering Controls | Click Here | None Found |
| Hist-UST-CA | Historical Hazardous Substance Storage Information (aka Historical Underground Storage Tanks) | State/Tribal UST | Click Here | None Found |
| Hist-UST-Cleanup-CA | Historic UST Cases Recommended for Closure under UST Cleanup Fund 5 Year Review (aka UST Cleanup Fund Cases) | State/Tribal LUST | Click Here | None Found |
| Hist-USTReg-CA | Historical Underground Storage Tank Registrations Database | ERS Supplemental Govt Sources | Click Here | 1 |
| Hist-Vehicle-Parts | Historical Vehicle Parts | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-Vehicle-Washing | Historical Vehicle/Truck Washing Facilities | ERS Exclusive Historic Sources | Click Here | None Found |
| Hist-WaterWells-US | Historical Public Community Water Supply/Well Head Protection Database | ERS Supplemental Govt Sources | Click Here | None Found |
| Hist-WIP-Active-CA | Historical Well Investigation Program Case List, Active Sites (aka WIP) | State/Tribal ASTM Other Med | Click Here | None Found |
| Hist-WIP-Backlog-CA | Historical Well Investigation Program Case List, Backlog Sites (aka WIP) | State/Tribal ASTM Other Med | Click Here | None Found |
| Hist-WIP-Historical-CA | Historical Well Investigation Program Case List, Historical Sites (aka WIP) | State/Tribal ASTM Other Low | Click Here | None Found |
| Hist-WMUDS-CA | Historical Waste Management Unit Database System | ERS Supplemental Govt Sources | Click Here | None Found |
| HMIS-US | Hazardous Materials Information System | Federal Emergency Release Reports | Click Here | None Found |
| HWIS-CA | Hazardous Waste Information Summary | State/Tribal RCRA Equivalent | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|---------------------|--|--|----------------------------|----------------|
| HWMP-Controls-CA | Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction | State/Tribal Inst/Eng Controls | Click Here | None Found |
| HWT-CA | Hazardous Waste Transporters | ERS Supplemental Govt Sources | Click Here | None Found |
| ICE-CA | Inspection, Compliance, and Enforcement | State/Tribal ASTM Other Med | Click Here | None Found |
| ICIS-Air-US | Integrated Compliance Information System for Air | ERS Supplemental Govt Sources | Click Here | None Found |
| ICIS-FEC-US | Integrated Compliance Information System for Federal Enforcement Data | ERS Supplemental Govt Sources | Click Here | None Found |
| ICIS-NPDES-US | National Pollutant Discharge Elimination System (NPDES) | ERS Supplemental Govt Sources | Click Here | None Found |
| LA-LF-CA | Los Angeles County Landfills | State/Tribal Solid Waste | Click Here | None Found |
| Land-Disposal-CA | Geotracker - Land Disposal Sites (aka Landfills, LDS) | State/Tribal Landfill/Solid Waste | Click Here | None Found |
| LA-Waste-Haulers-CA | Waste Haulers | ERS Supplemental Govt Sources | Click Here | None Found |
| Lead-Smelter-2-US | Historical Lead Smelter Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Lead-US | Lead Smelter Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| Liens-CA | Environmental Liens | State/Tribal Inst/Eng Controls | Click Here | None Found |
| LIENS-US | Superfund Liens | Federal Institutional/Engineering Controls | Click Here | None Found |
| LMOP-US | Landfill Methane Outreach Program | ERS Supplemental Govt Sources | Click Here | None Found |
| LUST-Closed-CA | Geotracker - Leaking Underground Storage Tanks, Closed Cases | State/Tribal LUST | Click Here | None Found |
| LUST-Open-CA | Geotracker - Leaking Underground Storage Tanks, Open Cases | State/Tribal LUST | Click Here | None Found |
| Manifest2-RI | Hazardous Waste Manifest | State/Tribal RCRA Equivalent | Click Here | None Found |
| MethaneLF-CA | Methane Producing Landfills | State/Tribal Other | Click Here | None Found |
| Military-Active-CA | EnviroStor Database Military Active Sites (aka MCS) | State/Tribal Voluntary Cleanup Sites | Click Here | None Found |
| Military-Bases-US | Military Base Boundaries | ERS Supplemental Govt Sources | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|-------------------|---|--------------------------------------|----------------------------|----------------|
| Military-NFA-CA | EnviroStor Database Military Active Sites (aka MCS) | State/Tribal Voluntary Cleanup Sites | Click Here | None Found |
| Military-Other-CA | EnviroStor Database Military Active Sites (aka MCS) | State/Tribal Voluntary Cleanup Sites | Click Here | None Found |
| Mines2-CA | California Mines | ERS Supplemental Govt Sources | Click Here | None Found |
| Mines-CA | Historical Death Valley Mines | ERS Supplemental Govt Sources | Click Here | None Found |
| Mines-CDMG-CA | California Division of Mines and Geology | ERS Supplemental Govt Sources | Click Here | None Found |
| MINES-US | Mines Master Index File | ERS Supplemental Govt Sources | Click Here | None Found |
| MLTS-US | Material Licensing Tracking System | ERS Supplemental Govt Sources | Click Here | None Found |
| Mortgage-CA | Cal Mortgage Facilities | ERS Supplemental Govt Sources | Click Here | None Found |
| MRDS-US | Mineral Resources Data System (MRDS) | ERS Supplemental Govt Sources | Click Here | None Found |
| MWMP-CA | Medical Waste Management Program | ERS Supplemental Govt Sources | Click Here | None Found |
| NCI-CA | Non-Case Information | ERS Supplemental Govt Sources | Click Here | None Found |
| NEI-LF-CA | Historical NEI (National Emission Inventory) Landfill Point Sources | ERS Supplemental Govt Sources | Click Here | None Found |
| NPDES-CA | National Pollutant Discharge Elimination System | ERS Supplemental Govt Sources | Click Here | None Found |
| NPDES-SW-CA | Notice of Intent Data | ERS Supplemental Govt Sources | Click Here | None Found |
| NPL-R9-US | NPL Region 9 Site Boundaries | Federal NPL | Click Here | None Found |
| NPL-US | National Priorities List | Federal NPL | Click Here | None Found |
| OGM-CA | Oil and Gas Monitoring | ERS Supplemental Govt Sources | Click Here | None Found |
| OGW-CA | California Oil and Gas Wells | ERS Supplemental Govt Sources | Click Here | None Found |
| OSCF-CA | Orphan Site Cleanup Fund | ERS Supplemental Govt Sources | Click Here | None Found |
| PADS-US | PCB Registration Database System | Federal ASTM Other | Click Here | None Found |
| PCB-US | PCB Transformers | Federal ASTM Other | Click Here | None Found |
| PCS-US | Historical Permit Compliance System for Clean Water Act | ERS Supplemental Govt Sources | Click Here | None Found |
| Perch1-CA | Perchlorate Confirmed Contaminant Sites | ERS Supplemental Govt Sources | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|-------------------|--|-------------------------------|----------------------------|----------------|
| Perch2-CA | Perchlorate Confirmed Contaminant Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| PR-MOA-CA | Polanco Redevelopment MOA Sites | State/Tribal ASTM Other Med | Click Here | None Found |
| Project-CA | Project - Multipurpose Site Type | ERS Supplemental Govt Sources | Click Here | None Found |
| Proposed-NPL-US | Proposed NPL Sites | Federal NPL | Click Here | None Found |
| RADINFO-US | Radiation Information Database | ERS Supplemental Govt Sources | Click Here | None Found |
| RCRA-CESQG-US | Resource Conservation and Recovery Act, Conditionally Exempt Small Quantity Generators (aka RCRA CESQG) | Federal RCRA Generators | Click Here | None Found |
| RCRA-COR-US | Resource Conservation and Recovery Act, - Corrective Actions (aka RCRA CORRACTS) | Federal RCRA CORRACTS | Click Here | None Found |
| RCRA-LQG-US | Resource Conservation and Recovery Act, Large Quantity Generators (aka RCRA LQG) | Federal RCRA Generators | Click Here | None Found |
| RCRA-NON-US | Resource Conservation and Recovery Act, Non-Hazardous Generators (aka RCRA Non-Haz, RCRA NonGen, RCRA No longer Regulated) | Federal RCRA Generators | Click Here | 2 |
| RCRA-SQG-US | Resource Conservation and Recovery Act, Small Quantity Generators (aka RCRA SQG) | Federal RCRA Generators | Click Here | None Found |
| RCRA-TSDF-US | Resource Conservation and Recovery Act -, Treatment, Storage, and Disposal Facilities (aka RCRA TSD, RCRA TSDF) | Federal RCRA non-CORRACTS TSD | Click Here | None Found |
| Response-CA | State Response Sites and National Priorities List (NPL) | State/Tribal NPL | Click Here | None Found |
| RFG-Lab-US | Reformulated Gasoline (RFG) | ERS Supplemental Govt Sources | Click Here | None Found |
| RMP-US | Risk Management Plans | ERS Supplemental Govt Sources | Click Here | None Found |
| ROD-US | Records of Decision | ERS Supplemental Govt Sources | Click Here | None Found |
| SAA-Agreements-US | Sites with Superfund Alternative Approach Agreements | Federal ASTM Other | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|-------------------------------------|---|--------------------------------------|----------------------------|----------------|
| School-Active-CA | EnviroStor Database School Active Sites (aka School Property Evaluation Program, SCH) | State/Tribal Voluntary Cleanup Sites | Click Here | None Found |
| School-NFA-CA | EnviroStor Database School Active Sites (aka School Property Evaluation Program, SCH) | State/Tribal Voluntary Cleanup Sites | Click Here | None Found |
| School-Other-CA | EnviroStor Database School Active Sites (aka School Property Evaluation Program, SCH) | State/Tribal Voluntary Cleanup Sites | Click Here | None Found |
| SDWIS-US | Safe Drinking Water Information System | ERS Supplemental Govt Sources | Click Here | None Found |
| SGV-Deep-Plumes-CA | San Gabriel Valley Deep Plumes | State/Tribal Solid Waste | Click Here | None Found |
| SGV-Shallow-Plumes-CA | San Gabriel Valley Shallow Plumes | State/Tribal Solid Waste | Click Here | None Found |
| SGV-Shallow-Plumes-Puente-Valley-CA | Puente Valley Shallow Plumes | State/Tribal Solid Waste | Click Here | None Found |
| SLIC-Closed-CA | Geotracker - The Spills, Leaks, Investigation & Cleanup (SLIC), Closed Cases | Emergency Release Reports | Click Here | None Found |
| SLIC-Open-CA | Geotracker -Spills, Leaks, Investigation & Cleanup (SLIC), Open Cases | Emergency Release Reports | Click Here | None Found |
| SML-CA | Site Mitigation List | State/Tribal ASTM Other Med | Click Here | None Found |
| SP-CA | Sampling Points | ERS Supplemental Govt Sources | Click Here | None Found |
| Spills-SSO-CA | Sanitary Sewer System | ERS Supplemental Govt Sources | Click Here | 1 |
| SSTS-US | Section 7 Tracking System | ERS Supplemental Govt Sources | Click Here | None Found |
| State-Response-Active-CA | EnviroStor State Response Active Sites | State/Tribal NPL | Click Here | None Found |
| State-Response-NFA-CA | EnviroStor State Response NFA Sites | State/Tribal NPL | Click Here | None Found |
| State-Response-Other-CA | EnviroStor State Response Other Sites | State/Tribal NPL | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|-------------------------|---|-----------------------------------|----------------------------|----------------|
| Superfund-Active-CA | Envirostor Superfund Active Sites (aka BEAP, CalSites, Brownfields and Environmental Restoration Program) | State/Tribal CERCLIS Equivalent | Click Here | None Found |
| Superfund-NFA-CA | EnviroStor Superfund NFA Sites (aka BEAP, CalSites, Brownfields and Environmental Restoration Program) | State/Tribal CERCLIS Equivalent | Click Here | None Found |
| Superfund-Other-CA | EnviroStor Superfund Sites (aka BEAP, CalSites, Brownfields and Environmental Restoration Program) | State/Tribal CERCLIS Equivalent | Click Here | None Found |
| SWIS-CA | Solid Waste Information System | State/Tribal Landfill/Solid Waste | Click Here | None Found |
| SWLF-US | Solid Waste Facilities | Federal Solid Waste | Click Here | None Found |
| SWRCY-CA | Beverage Container Recycler Database | State/Tribal ASTM Other Med | Click Here | None Found |
| TierPer-CA | Tiered Permits | ERS Supplemental Govt Sources | Click Here | None Found |
| TOMS-CA | Topographically Occurring Mine Symbols | ERS Supplemental Govt Sources | Click Here | None Found |
| Tribal-Air-US | Tribal Air Permitted Facilities | ERS Supplemental Govt Sources | Click Here | None Found |
| Tribal-LUST-Closed-Reg9 | Tribal Leaking Underground Storage Tanks, Region 9 (aka Indian Lust) | Federal LUST | Click Here | None Found |
| Tribal-LUST-Open-Reg9 | Tribal Leaking Underground Storage Tanks , Region 9 (aka Indian Lust) | Federal LUST | Click Here | None Found |
| Tribal-ODI-US | Tribal Open Dump Sites | Federal Solid Waste | Click Here | None Found |
| Tribal-UST-Reg9 | Tribal Underground Storage Tanks (aka Tribal UST) | Federal UST | Click Here | None Found |
| Tribal-VCP-US | Tribal VCP | Federal Tribal VCP | Click Here | None Found |
| TRIS2000-US | Historical Toxics Release Inventory System | ERS Supplemental Govt Sources | Click Here | None Found |
| TRIS2010-US | Toxics Release Inventory System | ERS Supplemental Govt Sources | Click Here | None Found |
| TRIS80-US | Historical Toxics Release Inventory System | ERS Supplemental Govt Sources | Click Here | None Found |
| TRIS90-US | Historical Toxics Release Inventory System | ERS Supplemental Govt Sources | Click Here | None Found |
| TSCA-US | Toxics Substance Control Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| UIC2-CA | Injection Wells | ERS Supplemental Govt Sources | Click Here | None Found |
| UIC-CA | Underground Injection Control Wells | ERS Supplemental Govt Sources | Click Here | None Found |

| ABREVIATION | DATABASE FULLNAME | DATABASE CATEGORY | DATABASE DETAILS LINK | TOTAL LISTINGS |
|---------------------|---|--------------------------------------|----------------------------|----------------|
| UMTRA-US | Historical Uranium Mill Tailings Remedial Action Sites | ERS Supplemental Govt Sources | Click Here | None Found |
| USGS-Waterwells-US | Ground Water Site Inventory | ERS Supplemental Govt Sources | Click Here | None Found |
| UST-Abandoned-CA | Abandoned UST Initiative (aka Inventory of Abandoned Tank Sites) | State/Tribal UST | Click Here | None Found |
| UST-CA | Geotracker - Underground Storage Tanks | State/Tribal UST | Click Here | None Found |
| UST-Closed-CA | UST Case Closure Review Denials and Approved Orders (aka Closure of Underground Storage Tank (UST) Cases) | State/Tribal UST | Click Here | None Found |
| USTComp-CA | Previously Abandoned Tanks Now in Compliance (aka Compliance UST) | State/Tribal UST | Click Here | None Found |
| UST-CRSP-CA | Underground Storage Tanks | State/Tribal UST | Click Here | None Found |
| UST-Priority-CA | UST Cleanup Fund Priority List | State/Tribal UST | Click Here | None Found |
| UST-Proposed-CA | Proposed Closure of UST Cases (aka UST Proposed for Closure) | State/Tribal UST | Click Here | None Found |
| Vapor-Intrusions-US | Vapor Intrusion Database | ERS Supplemental Govt Sources | Click Here | None Found |
| VCP-Active-CA | EnviroStor VCP Active Sites | State/Tribal Voluntary Cleanup Sites | Click Here | None Found |
| VCP-NFA-CA | EnviroStor Database VCP NFA Listing | State/Tribal Voluntary Cleanup Sites | Click Here | None Found |
| VCP-Other-CA | EnviroStor VCP Other Sites | State/Tribal Voluntary Cleanup Sites | Click Here | None Found |
| WDR-CA | Waste Discharge Requirements | ERS Supplemental Govt Sources | Click Here | None Found |

UN-MAPPABLE OCCURRENCES

The following occurrences were not mapped primarily due to incomplete or inaccurate address information. All of the following occurrences were determined to share the same zip code as the area searched. General status information is given with each occurrence along with any address information entered by the agency responsible for the list.

| ID | Facility Name | Address | Database | Status |
|---------------------------------|---------------|---------|----------|--------|
| No "un-mapped" sites requested. | | | | |

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APPENDIX D

RESUMES



Environmental Consulting ~ Project Management ~ Technical Management ~ Contract & Project Work

JEN MOSER, P.G.

Phone: (510) 376-5771 ~ E-mail: jenmoser@mygemgroup.com

PROFILE

- Resourceful and solution-driven environmental consultant
- 25+ years' experience in site characterization and remediation projects of up to \$10+ million
- 8+ years' experience in exploration, development, open pit and underground mining
- History of implementing new technologies to solve problems before projects are impacted
- Skilled in managing field operations, including determination of approach and equipment
- Experienced in operations and maintenance of a landfill
- Co-authored report published in The Military Engineer (the Society of American Military Engineers), *Historical Range Assessment at Fort Ord*

PROFESSIONAL EXPERIENCE

GEM Group, Inc. dba Tom Edwards & Associates

2005-present

Environmental and Geological Consultant

- Prepare plans, investigation, remediation, and completion reports
- Conduct Phase 1 Environmental Site Assessments (ESAs)
- Determine the need for further site investigation and/or remedial action and direct implementation
- Prepare proposals and budgets
- Interface extensively with Federal, State, County, and Local government agencies on project permits, investigations, evaluations, and recommendations
- Managed the evaluation and remediation of contaminated soil and ground water, from planning to delivery and reporting in compliance with 100% of regulatory requirements (former Fort Ord)
- Coordinated DGM and MEC removal from ranges requiring soil remediation
- Supervised operations and maintenance of landfill, including LFG extraction, treatment, and monitoring

AARON ENVIRONMENTAL / HARZA / ONSITE ENVIRONMENTAL / ITSI

1994-2005

Geologist

- Supervised excavation of contaminated soil at Superfund site
- Conducted Phase 1 ESAs and Phase II investigations
- Prepare plans, investigation, remediation, and completion reports
- Prepared proposals and budgets
- Presented plans and project status to clients and regulatory agencies
- Managed the evaluation and remediation of contaminated soil, from planning to delivery and reporting in compliance with 100% of regulatory requirements (former Fort Ord)
- Supervised operations and maintenance of landfill, including LFG extraction, treatment, and monitoring

TETRA TECH INC.

1993-1994

Project Geologist

- Remedial Investigation and Feasibility Studies at Superfund sites
- Supervised drilling of soil borings, installation of ground water monitoring wells, trenching on landfill areas, soil, sediment, ground water, and surface water sampling

ARMENONIC DEL ECUADOR

1989-1991

Consultant Resident Geologist

- Responsible for startup and takeover of geology department of Armenonic del Ecuador's' underground complex silver mines
- Mapped, evaluated, and proposed tunnels to intercept high-grade complex silver veins
- Hired and trained personnel and developed SOPs for geology department
- Assessed effects of tunneling, milling and tailings dam on drinking water supply of nearby towns

BENGUET CORPORATION

1983-1989

- Mapped, evaluated, delineated, and supervised underground and open pit mining
- Evaluated effects of drilling and underground mining on water supplies
- Supervised tunneling and diamond core drilling during exploration and development of underground and open pit mines
- Planned and supervised access road and site preparation
- Performed resource evaluation of project sites – field geology technique reviews
- Recommended improved mapping and sampling techniques

CERTIFICATIONS

- Professional Geologist, 2001
- OSHA (Occupational Safety & Health Administration)
 - 8-Hour OSHA Refresher Course (Annual)
 - 8-Hour OSHA Supervisory Training
 - 40-Hour OSHA Training



Environmental Consulting ~ Project Management ~ Technical Management ~ Contract & Project Work

MIKE ERVING, JUNIOR GEOLOGIST

Phone: (626) 513-5095 ~ **E-mail:** mikeerving@mygemgroup.com

PROFILE

- Eager to learn and excel in the environmental field
- Self-driven, results-oriented, and diligent professional

PROFESSIONAL EXPERIENCE

GEM Group, Inc.

2018-Present

Junior Geologist

- Prepare Transaction Screen and Phase I Environmental Site Assessment reports, including:
 - Interpret information gathered from third-party computer-generated reports.
 - Request and review public agency records from various cities and counties.
 - Site reconnaissance and visual site inspections throughout Southern California.
 - Review of historical information including topographic maps, fire insurance maps, city directories, and aerial photographs.
- Assist Project Geologist in conducting soil, soil gas, groundwater, and indoor air investigations.
- Assist Project Geologist in completion of other reports including desktop reviews.

Geoscience Support Services Inc.

2015-2016

Intern

- Participated in site investigations including sample collection, well transducer monitoring, and well drilling.
- Assisted in the physical completion of reports.
- Prepared clerical work for the overall efficiency of the office.
- Assisted in the design and completion of website.

EDUCATION

Gustavus Adolphus College, Saint Peter, MN

2017

- Geology; Bachelor of Arts

CERTIFICATIONS

- HAZWOPER, 40 Hour General Site Worker, Occupational Safety & Health Administration (OSHA) (April 2018)
- HAZWOPER, 8 Hour Refresher Course, OSHA (April 2019)

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Not Applicable

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

| <u>Santa Ana Watershed</u> - 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 ATC Design Group | | | | | | Date 12/8/2021 | | | |
| Designed by Jim Turpin, P.E. | | | | | | Case No 2020-092 | | | |
| Company Project Number/Name | | | | | | 20-4081/15209 Lincoln Street Mixed Use | | | |
| BMP Identification | | | | | | | | | |
| BMP NAME / ID BMP A | | | | | | | | | |
| 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 _p | 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-A-R | 37836.653 | Roofs | 1 | 0.89 | 33750.3 | | | | |
| DMA-A-PCC | 7260.5784 | Concrete or Asphalt | 1 | 0.89 | 6476.4 | | | | |
| DMA-A-AC | 43480.558 | Concrete or Asphalt | 1 | 0.89 | 38784.7 | | | | |
| DMA-A-LS | 4031 | Ornamental Landscaping | 0.1 | 0.11 | 445.3 | | | | |
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| | 92608.7894 | Total | | | 79456.7 | | | | 0.85 |
| Notes: | | | | | | | | | |

| Santa Ana Watershed - BMP Design Volume, V_{BMP} <small>(Rev. 10-2011)</small> | | | | | | 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 ATC Design Group | | | | Date 12/8/2021 | | | | |
| Designed by Jim Turpin, P.E. | | | | Case No 2020-092 | | | | |
| Company Project Number/Name | | | | 20-4081/15209 Lincoln Street Mixed Use | | | | |
| BMP Identification | | | | | | | | |
| BMP NAME / ID BMP B | | | | | | | | |
| <i>Must match Name/ID used on BMP Design Calculation Sheet</i> | | | | | | | | |
| 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 | | | | | | | | |
| <i>Insert additional rows if needed to accommodate all DMAs draining to the BMP</i> | | | | | | | | |
| DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type | Effective Imperivous Fraction, I _p | 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-B-R | 4475.3972 | Roofs | 1 | 0.89 | 3992.1 | | | |
| DMA-B-PCC | 6207.5809 | Concrete or Asphalt | 1 | 0.89 | 5537.2 | | | |
| DMA-B-AC | 24732.3638 | Concrete or Asphalt | 1 | 0.89 | 22061.3 | | | |
| DMA-B-LS | 3821.204 | Ornamental Landscaping | 0.1 | 0.11 | 422.1 | | | |
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| 39236.5459 | | Total | | | 32012.7 | | | |
| Notes: | | | | | | | | |

| 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 ATC Design Group | | | | | | Date 12/8/2021 | | | | | |
| Designed by Jim Turpin, P.E. | | | | | | Case No 2020-092 | | | | | |
| Company Project Number/Name 20-4081/15209 Lincoln Street Mixed Use | | | | | | | | | | | |
| BMP Identification | | | | | | | | | | | |
| BMP NAME / ID BMP C1 | | | | | | | | | | | |
| 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 ImperVIOUS 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-C1-R | 2313 | Roofs | 1 | 0.89 | 2063.2 | | | | | | |
| DMA-C1-PCC | 2397 | Concrete or Asphalt | 1 | 0.89 | 2138.1 | | | | | | |
| DMA-1C-AC | 20370 | Concrete or Asphalt | 1 | 0.89 | 18170 | | | | | | |
| DMA-C1-LS | 4436 | Ornamental Landscaping | 0.1 | 0.11 | 490 | | | | | | |
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| 29516 | | Total | | | 22861.3 | | | | 0.85 | 1619.3 | 1768 |

Notes:

| <u>Santa Ana Watershed</u> - 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 ATC Design Group | | | | | | Date 12/8/2021 | | | |
| Designed by Jim Turpin, P.E. | | | | | | Case No 2020-092 | | | |
| Company Project Number/Name | | | | | | 20-4081/15209 Lincoln Street Mixed Use | | | |
| BMP Identification | | | | | | | | | |
| BMP NAME / ID BMP C2 | | | | | | | | | |
| 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 _p | 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-C-R | 2276 | Roofs | 1 | 0.89 | 2030.2 | | | | |
| DMA-C-PCC | 2428 | Concrete or Asphalt | 1 | 0.89 | 2165.8 | | | | |
| DMA-C-AC | 8724 | Concrete or Asphalt | 1 | 0.89 | 7781.8 | | | | |
| DMA-C-LS | 4967 | Ornamental Landscaping | 0.1 | 0.11 | 548.6 | | | | |
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| | 18395 | Total | | | 12526.4 | | | | 0.85 |
| Notes: | | | | | | | | | |

[illegible]

| Santa Ana Watershed - BMP Design Flow Rate, Q_{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 ATC Design Group | | | | | | Date 11/13/2020 | | | | |
| Designed by Jim Turpin, P.E. | | | | | | Case No 2020-092 | | | | |
| Company Project Number/Name | | | | | | 20-4081/15209 Lincoln Street Mixed Use | | | | |
| BMP Identification | | | | | | | | | | |
| BMP NAME / ID BMP A | | | | | | | | | | |
| Must match Name/ID used on BMP Design Calculation Sheet | | | | | | | | | | |
| Design Rainfall Depth | | | | | | | | | | |
| Design Rainfall Intensity | | | | | | I = 0.20 in/hr | | | | |
| Drainage Management Area Tabulation | | | | | | | | | | |
| Insert additional rows if needed to accommodate all DMAs draining to the BMP | | | | | | | | | | |
| DMAs | DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type (use pull-down menu) | Effective Imperivous Fraction, I _f | DMA Runoff Factor | DMA Areas x Runoff Factor | Design Rainfall Intensity (in/hr) | Design Flow Rate (cfs) | Proposed Flow Rate (cfs) | |
| | DMA-A-R | 37836.653 | Roofs | 1 | 0.89 | 33750.3 | | | | |
| | DMA-A-PCC | 7260.5784 | Concrete or Asphalt | 1 | 0.892 | 6476.4 | | | | |
| | DMA-A-AC | 43480.558 | Concrete or Asphalt | 1 | 0.892 | 38784.7 | | | | |
| | DMA-A-LS | 4031 | Ornamental Landscaping | 0.1 | 0.11046 | 445.3 | | | | |
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| | | 92608.7894 | Total | | | 79456.7 | 0.20 | 0.4 | 0.462 | |
| | Notes: | | | | | | | | | |

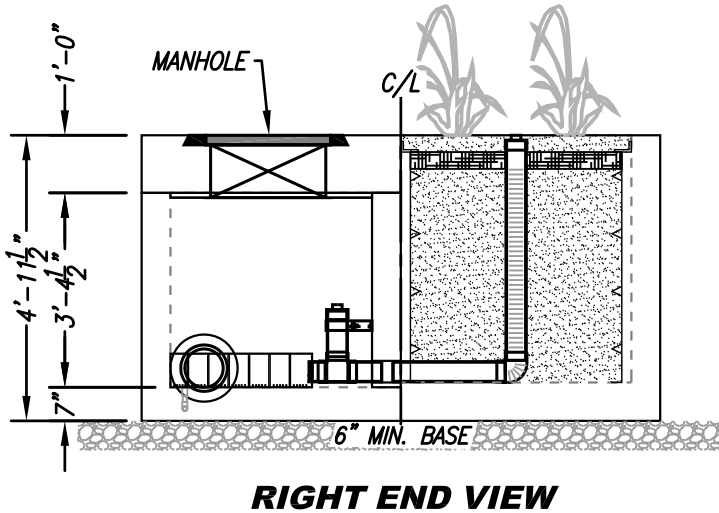
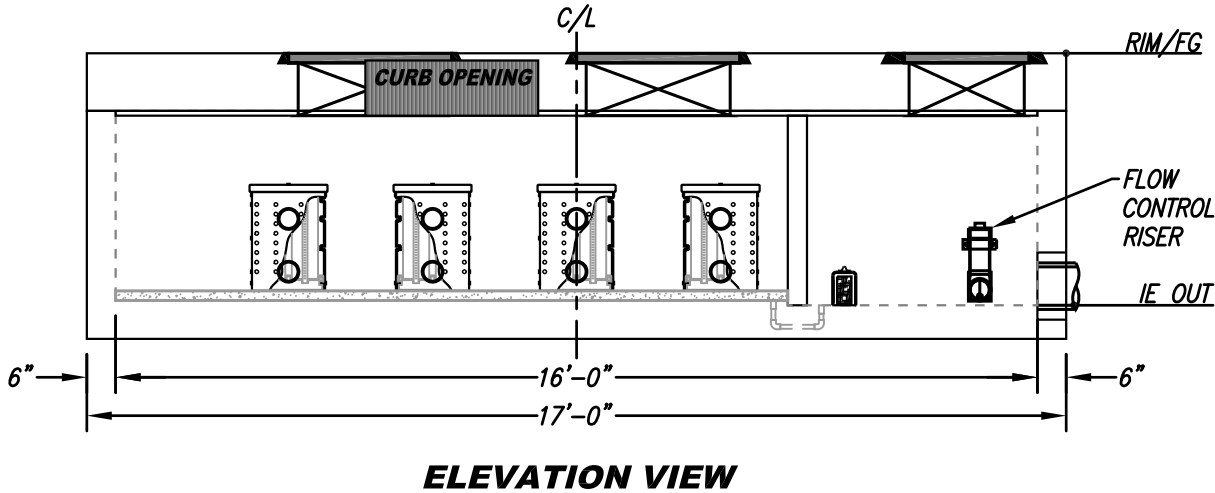
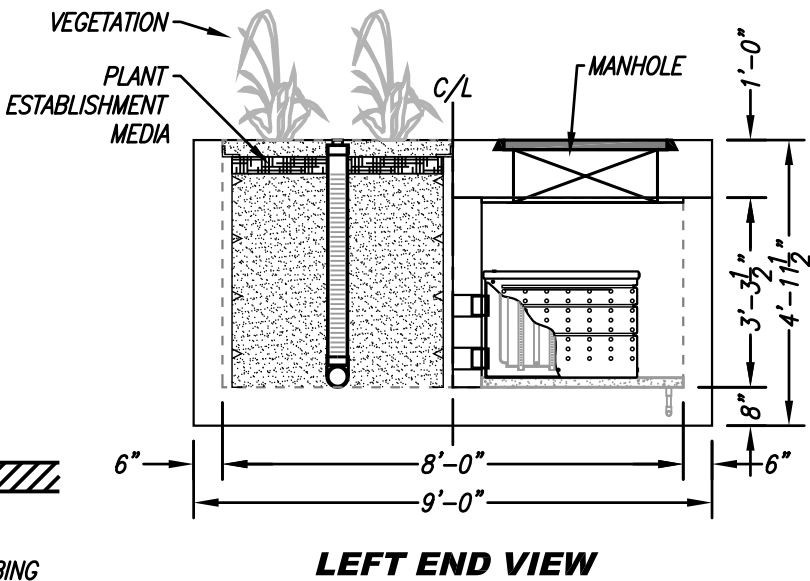
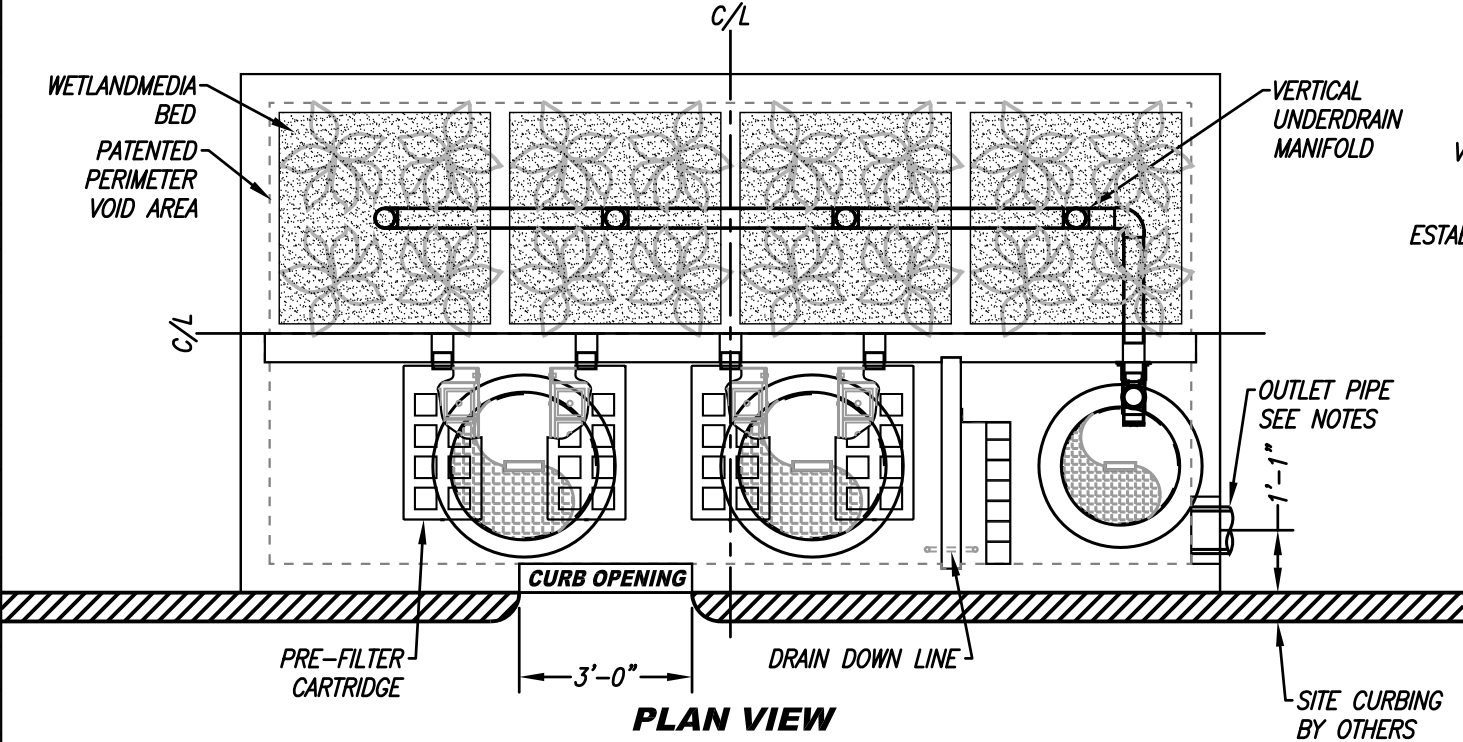
| SITE SPECIFIC DATA | | | |
|--|--------------|------------------|------------|
| PROJECT NUMBER | | | |
| ORDER NUMBER | | | |
| PROJECT NAME | | | |
| PROJECT LOCATION | | | |
| STRUCTURE ID | | | |
| TREATMENT REQUIRED | | | |
| VOLUME BASED (CF) | | FLOW BASED (CFS) | |
| | | | |
| TREATMENT HGL AVAILABLE (FT) | | | |
| PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE | | | |
| PIPE DATA | I.E. | MATERIAL | DIAMETER |
| INLET PIPE 1 | | | |
| INLET PIPE 2 | | | |
| OUTLET PIPE | | | |
| | PRETREATMENT | BIOFILTRATION | DISCHARGE |
| RIM ELEVATION | | | |
| SURFACE LOAD | PEDESTRIAN | OPEN PLANTER | PEDESTRIAN |
| FRAME & COVER | 2EA ø30” | N/A | ø24” |
| WETLANDMEDIA VOLUME (CY) | | | TBD |
| ORIFICE SIZE (DIA. INCHES) | | | TBD |
| NOTES: PRELIMINARY NOT FOR CONSTRUCTION. | | | |

INSTALLATION NOTES

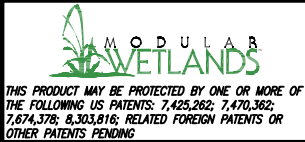
1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATER TIGHT PER MANUFACTURERS STANDARD CONNECTION DETAIL.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. VEGETATION SUPPLIED AND INSTALLED BY OTHERS. ALL UNITS WITH VEGETATION MUST HAVE DRIP OR SPRAY IRRIGATION SUPPLIED AND INSTALLED BY OTHERS.
7. CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURERS WARRANTY IS VOID WITH OUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT BIO CLEAN.



| | |
|-------------------------------------|-------|
| TREATMENT FLOW (CFS) | 0.462 |
| OPERATING HEAD (FT) | 3.4 |
| PRETREATMENT LOADING RATE (GPM/SF) | 2.0 |
| WETLAND MEDIA LOADING RATE (GPM/SF) | 1.0 |



PROPRIETARY AND CONFIDENTIAL:
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MWS-L-8-16-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

| | | | | | |
|---|------------------|-----------------|--------------------------------|------------------|-----------------|
| Bioretention Facility - Design Procedure | | BMP ID BMP B | Legend: | Required Entries | |
| | | | | Calculated Cells | |
| Company Name: | ATC Design Group | | Date: | | |
| Designed by: | Jim Turpin, P.E. | | County/City Case No.: 2020-092 | | |
| Design Volume | | | | | |
| Enter the area tributary to this feature | | | $A_T =$ | 0.901 | acres |
| Enter V_{BMP} determined from Section 2.1 of this Handbook | | | $V_{BMP} =$ | 2,268 | ft ³ |
| Type of Bioretention Facility Design | | | | | |
| <input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> 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 | | | $w_T =$ | 14.0 | ft |
| Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ | | | $d_E =$ | 1.60 | ft |
| Minimum Surface Area, A_m $A_M (ft^2) = \frac{V_{BMP} (ft^3)}{d_E (ft)}$ | | | $A_M =$ | 1,418 | ft ² |
| Proposed Surface Area | | | $A =$ | 1,432 | 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: | | | | | |
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|---|------------------|------------------|--------------------------------|------------------|-----------------|
| Bioretention Facility - Design Procedure | | BMP ID BMP C1 | Legend: | Required Entries | |
| | | | | Calculated Cells | |
| Company Name: | ATC Design Group | | Date: | | |
| Designed by: | Jim Turpin, P.E. | | County/City Case No.: 2020-092 | | |
| Design Volume | | | | | |
| Enter the area tributary to this feature | | | $A_T =$ | 0.68 | acres |
| Enter V_{BMP} determined from Section 2.1 of this Handbook | | | $V_{BMP} =$ | 1,619 | ft ³ |
| Type of Bioretention Facility Design | | | | | |
| <input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> 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 | | | $w_T =$ | 14.0 | ft |
| Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ | | | $d_E =$ | 1.60 | ft |
| Minimum Surface Area, A_m $A_M (ft^2) = \frac{V_{BMP} (ft^3)}{d_E (ft)}$ | | | $A_M =$ | 1,012 | ft ² |
| Proposed Surface Area | | | $A =$ | 1,240 | 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: | | | | | |
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|---|------------------|------------------|--------------------------------|------------------|-----------------|
| Bioretention Facility - Design Procedure | | BMP ID BMP C2 | Legend: | Required Entries | |
| | | | | Calculated Cells | |
| Company Name: | ATC Design Group | | Date: | | |
| Designed by: | Jim Turpin, P.E. | | County/City Case No.: 2020-092 | | |
| Design Volume | | | | | |
| Enter the area tributary to this feature | | | $A_T =$ | 0.42 | acres |
| Enter V_{BMP} determined from Section 2.1 of this Handbook | | | $V_{BMP} =$ | 886 | ft ³ |
| Type of Bioretention Facility Design | | | | | |
| <input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> 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 | | | $w_T =$ | 14.0 | ft |
| Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ | | | $d_E =$ | 1.60 | ft |
| Minimum Surface Area, A_m $A_M (ft^2) = \frac{V_{BMP} (ft^3)}{d_E (ft)}$ | | | $A_M =$ | 554 | ft ² |
| Proposed Surface Area | | | $A =$ | 1,056 | 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: | | | | | |
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|---|------------------|-----------------|--------------------------------|------------------|-----------------|
| Bioretention Facility - Design Procedure | | BMP ID BMP D | Legend: | Required Entries | |
| | | | | Calculated Cells | |
| Company Name: | ATC Design Group | | Date: | | |
| Designed by: | Jim Turpin, P.E. | | County/City Case No.: 2020-092 | | |
| Design Volume | | | | | |
| Enter the area tributary to this feature | | | $A_T =$ | 1.33 | acres |
| Enter V_{BMP} determined from Section 2.1 of this Handbook | | | $V_{BMP} =$ | 3,206 | ft ³ |
| Type of Bioretention Facility Design | | | | | |
| <input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> 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 | | | $w_T =$ | 14.0 | ft |
| Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ | | | $d_E =$ | 1.60 | ft |
| Minimum Surface Area, A_m $A_M (ft^2) = \frac{V_{BMP} (ft^3)}{d_E (ft)}$ | | | $A_M =$ | 2,004 | ft ² |
| Proposed Surface Area | | | $A =$ | 2,569 | 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: | | | | | |
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Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

This project is exempt from hydromodification (reference HCOC Exemption 3)

All site discharge will be to an existing 48" RCP storm drain within Riverside Drive. This storm drain flows southwest to the concrete lined Leach Canyon Channel approximately 900 feet downstream. The Leach Canyon Channel discharges directly Lake Elsinore, which is an exempt "sump"

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.1 on 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 |
| <input checked="" type="checkbox"/> A. On-site storm drain inlets | <input checked="" type="checkbox"/> Locations of inlets. | <input checked="" type="checkbox"/> 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. | <input checked="" type="checkbox"/> Maintain and periodically repaint or replace inlet markings. <input checked="" type="checkbox"/> Provide stormwater pollution prevention information to new site owners, lessees, or operators. <input type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com <input checked="" type="checkbox"/> 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.” |
| <input type="checkbox"/> B. Interior floor drains and elevator shaft sump pumps | | <input type="checkbox"/> State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer. | <input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow. |
| <input type="checkbox"/> C. Interior parking garages | | <input type="checkbox"/> State that parking garage floor drains will be plumbed to the sanitary sewer. | <input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow. |

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 |
| <input type="checkbox"/> D1. Need for future indoor & structural pest control | | <input type="checkbox"/> Note building design features that discourage entry of pests. | <input type="checkbox"/> Provide Integrated Pest Management information to owners, lessees, and operators. |
| <input checked="" type="checkbox"/> D2. Landscape/ Outdoor Pesticide Use | <input type="checkbox"/> Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. <input type="checkbox"/> Show self-retaining landscape areas, if any. <input checked="" type="checkbox"/> Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.) | <p>State that final landscape plans will accomplish all of the following.</p> <input type="checkbox"/> Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. <input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. <input checked="" type="checkbox"/> Consider using pest-resistant plants, especially adjacent to hardscape. <p>To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.</p> | <input checked="" type="checkbox"/> Maintain landscaping using minimum or no pesticides. <input type="checkbox"/> See applicable operational BMPs in “What you should know for.....Landscape and Gardening” at http://rcflood.org/stormwater/Error! <small>Hyperlink reference not valid.</small> <p>Provide IPM information to new owners, lessees and operators.</p> <input checked="" type="checkbox"/> |

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 |
| <input type="checkbox"/> E. Pools, spas, ponds, decorative fountains, and other water features. | <input type="checkbox"/> 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. | <input type="checkbox"/> See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/ |
| <input checked="" type="checkbox"/> F. Food service | <input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer. | <input type="checkbox"/> Describe the location and features of the designated cleaning area. <input type="checkbox"/> Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated. | <input type="checkbox"/> 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. |
| <input checked="" type="checkbox"/> G. Refuse areas | <input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> 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. <input type="checkbox"/> Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer. | <input type="checkbox"/> State how site refuse will be handled and provide supporting detail to what is shown on plans. <input type="checkbox"/> State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar. | <input type="checkbox"/> 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 |

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 |
| <input type="checkbox"/> H. Industrial processes. | <input type="checkbox"/> Show process area. | <input type="checkbox"/> 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.” | <input type="checkbox"/> 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/ |

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 |
| <input type="checkbox"/> I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.) | <input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> 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. | <p>Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.</p> <p>Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:</p> <ul style="list-style-type: none"> ▪ 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 <p>www.cchealth.org/groups/hazmat/</p> | <input type="checkbox"/> 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 |

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 |
| <input checked="" type="checkbox"/> J. Vehicle and Equipment Cleaning | <input checked="" type="checkbox"/> 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. | <input type="checkbox"/> 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): <input checked="" type="checkbox"/> Wastewater 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/ <input type="checkbox"/> Car dealerships and similar may rinse cars with water only. |

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 |
| <input type="checkbox"/> K. Vehicle/Equipment Repair and Maintenance | <input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> 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. | <input type="checkbox"/> State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. <input type="checkbox"/> 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. <input type="checkbox"/> 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. | <p>In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:</p> <input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> 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. <p>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/</p> <p>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/</p> |

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 |
| <input checked="" type="checkbox"/> L. Fuel Dispensing Areas | <input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> 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. | | <input checked="" type="checkbox"/> The property owner shall dry sweep the fueling area routinely. <input checked="" type="checkbox"/> 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.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

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|--|---|--|---|
| 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 |
| <input type="checkbox"/> M. Loading Docks | <input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer. | | <input type="checkbox"/> Move loaded and unloaded items indoors as soon as possible. <input type="checkbox"/> See Fact Sheet SC-30, “Outdoor Loading and Unloading,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |

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 |
| <input type="checkbox"/> N. Fire Sprinkler Test Water | | <input type="checkbox"/> Provide a means to drain fire sprinkler test water to the sanitary sewer. | <input type="checkbox"/> 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 <input type="checkbox"/> Boiler drain lines <input type="checkbox"/> Condensate drain lines <input type="checkbox"/> Rooftop equipment <input type="checkbox"/> Drainage sumps <input type="checkbox"/> Roofing, gutters, and trim. <input type="checkbox"/> Other sources | | <input type="checkbox"/> Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. <input type="checkbox"/> 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. <input type="checkbox"/> Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. <input type="checkbox"/> 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

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|---|--|--|---|
| 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 |
| <input checked="" type="checkbox"/> P. Plazas, sidewalks, and parking lots. | | | <input checked="" type="checkbox"/> 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

The BMP maintenance/funding mechanism will be the responsibility of the current site owner(s) and their successors and shall be responsible for all future required operation and maintenance of the on-site water quality BMPs.

INSPECTION AND MAINTENANCE AGREEMENT
FOR STORMWATER MANAGEMENT FACILITIES

Map & Parcel No: LOT 24, BLOCK "B", MB 8/377, APN 379-111-014

Project Name & Address: Riverside/Lincoln Commercial, SW Corner of Lincoln St. and Riverside Dr.

THIS AGREEMENT, made this 23rd day of December, 20 21, by and

between Ilan Golchek,

hereinafter referred to as the "OWNER(S)" of the following property and CITY OF LAKE ELSINORE, a municipal corporation, located in the County of Riverside, State of California hereinafter referred to as the "CITY".

WHEREAS, the OWNER(S) own real property ("Property") in the City of Lake Elsinore, County of Riverside, State of California, more specifically described in Exhibit "A" and show in Exhibit "B" attached hereto and incorporate herein by this reference;

WHEREAS, at the time of initial approval of development project know as

Riverside/Lincoln Commercial

Within the Property described herein, the CITY required the project to employ Best Management Practices (BMP), hereinafter referred to as "BMPs", to minimize pollutants in urban runoff;

WHEREAS, the OWNER(S) has chosen to install and/or implement BMPs as described in the Water Quality Management Plan (WQMP) on file with the CITY to minimize pollutants in urban runoff and to minimize other adverse impacts of urban runoff;

WHEREAS, the OWNER(S) in said WQMP at Section I have identified the funding and maintenance sources for the BMPs. The OWNER(S) has agreed to provide funding for and conduct the maintenance of the stormwater quality facilities identified in Exhibit "C" attached hereto and incorporated herein by this reference;

WHEREAS, the OWNER(S) is aware that periodic and continuous maintenance, including, but not necessarily limited to, filter material replacement and sediment removal, is required to assure peak performance of all BMPs in the WQMP and that furthermore, such maintenance activity will require compliance with all Local, State, or Federal laws and regulations, including those pertaining to confined space and waste disposal methods, in effect at the time such maintenance occurs;

WITNESSETH WE, the OWNER(S), with full authority to execute deeds, mortgages, other covenants, do hereby covenant with the CITY and agree as follows:

1. The OWNER(S) covenant and agree with the CITY that the OWNER(S) shall provide for adequate long term funding and maintenance and continuation of the stormwater quality measures described in the Long Term Maintenance Plan and shown in the location map, deed of easement drawing or plat attached hereto to ensure that the facilities are and remain in

proper working condition in accordance with approved design standards, rules and regulations, and applicable laws. The OWNER(S) shall perform preventative maintenance activities at intervals described in the inspection schedule included in the Long Term Maintenance Plan along with necessary landscaping (grass cutting, etc.) and trash removal as part of regular maintenance. All reasonable precautions shall be exercised by OWNER(S) and OWNER(S) representative or contractor in the removal and extraction of any material(s) from the BMPs and the ultimate disposal of the materials(s) in a manner consistent with all relevant laws and regulations in effect at the time. As may be requested from time to time and provided in the annual report to the CITY, the OWNER shall provide the CITY with documentation identifying the material(s) removed, the quantity, and disposal destination.

2. The OWNER(S) shall submit to the CITY an **annual report and certification prepared by a Registered Civil Engineer by July 1st** of each year. The report shall include the Long Term Maintenance Plan that documents the inspection schedule, times of inspection, remedial actions taken to repair, modify or reconstruct the system, the state of control measures, and notification of any planned change in responsibility for the system.

3. The OWNER(S) shall grant to the CITY or its agent or contractor the right of entry at reasonable times and in a reasonable manner for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the facility at the OWNER(S) expense as provided in paragraph 5 below.

4. The OWNER(S) shall grant to the CITY the necessary easements and rights-of-way and maintain perpetual access from public rights-of-way to the facility for CITY or its agent and contractor.

5. If, upon inspection, the CITY finds that OWNER(S) has failed to properly maintain the facilities, the CITY may order the work performed within ten (10) days. In the event the work is not performed within the specified time, the OWNER(S) agrees to allow the CITY to enter the property and take whatever steps it deems necessary to maintain the stormwater quality facilities. This provision shall not be construed to allow the CITY to erect any structure of a permanent nature on the land of the OWNER(S) without first obtaining written approval of the OWNER(S).

6. 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 on the CITY. The OWNER(S) shall reimburse the CITY upon demand the costs incurred in the maintenance of the facilities.

7. The CITY may require the OWNER(S) to post security in form and for a time period satisfactory to the CITY to guarantee the performance of the obligations stated herein. Should the OWNER fail to perform the obligations under the Agreement, the CITY may, in the case of a cash bond, act for the OWNER(S) using the proceeds from it, or in the case of a surety bond, require the sureties to perform the obligations of the Agreement. As an additional remedy, the CITY may withdraw any previous stormwater related approval with respect to the property on which BMPs have been installed and/or implemented until such time as OWNER(S) repays to CITY its reasonable costs incurred in accordance with paragraph 5 above.

8. If the OWNER(S) fails to pay the CITY for the above expenses after forty-five (45) days written notice, the OWNER(S) authorizes the CITY to collect said expenses from the

OWNER(S) through appropriate legal action and the OWNER(S) shall be liable for the reasonable expenses of collection, court costs, and attorney fees.

9. The OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successor in interest shall indemnify and hold harmless the CITY and its officers, agents and employees for any and all damages, accidents, casualties, occurrences, claims or attorney's fees which might arise or be asserted, in whole or in part, against the CITY from the construction, presence, existence, or maintenance of the stormwater control facilities subject to this AGREEMENT. In the event a claim is asserted against the CITY, its officers, agents or employees, the CITY shall notify OWNER(S) and the OWNER(S) shall defend at OWNER(S) expense any suit based on such claim. If any judgment or claims against the CITY, its officers, agents or employees, shall be allowed, the OWNER(S) shall pay all costs and expenses in connection therewith. The CITY will not indemnify, defend or hold harmless in any fashion the OWNER(S) from any claims arising from any failure, regardless of any language in any attachment or other document that the OWNER(S) may provide.

10. The OWNER(S) shall not be able to transfer, assign or modify its responsibilities with respect to this agreement without the CITY'S written prior consent. Nothing herein shall be construed to prohibit a transfer by OWNER(S)

11. No waiver of any provision of this AGREEMENT shall affect the right of any party thereafter to enforce such provision or to exercise any right or remedy available to it in the event of any other default.

12. The OWNER(S) shall record a plat showing and accurately defining the easements for stormwater control facilities. The plat must reference the Instrument Number where this AGREEMENT and its or attachments are recorded and contain a note that the OWNER(S) is responsible for maintaining the stormwater management facilities.

13. The OWNER(S) shall record this AGREEMENT in the Office of the Recorder of Riverside County, California, at the expense of the OWNER(S) and shall constitute notice to all successors and assigns of the title to said Property of the obligation herein set forth, and also a lien in such amount as will fully reimburse the CITY, including interest as herein above set forth, subject to foreclosure in event of default in payment.

14. It is the intent of the parties hereto that burdens and benefits herein undertaken shall constitute a covenant running with the land, and shall be binding upon the OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successors in interest and constitute a lien there against OWNER(S) shall provide such notice prior to such successor obtaining an interest in all or part of the Property. Owner shall provide a copy of such notice to the CITY at the same time such notice is provided to the successor.

15. Time is of the essence in the performance of this Agreement.

16. Any notice to a party required or called for in this Agreement shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two (72) hours after deposit in the U.S. Mail, whichever is earlier. A party may change a notice address only by providing written notice thereof to the other party.

IF TO CITY: City of Lake Elsinore
 Engineering Division
 130 South Main Street
 Lake Elsinore, CA 92530

IF TO OWNER(S): ILAN GOLCHEH

[SIGNATURES ON NEXT PAGE]

In WITNESS WHEREOF, the OWNER(S) has caused this agreement to be executed this 23rd
day of December, 2021.

OWNER(S):

SIGNED: Ilan Golcheh

BY: ILAN GOLCHEH, PRESIDENT
Type Name & Title on line above

FOR: GOLCHEH GROUP
Type Name of Company on line above

SIGNED: _____

BY: _____
Type Name & Title on line above

FOR: _____
Type Name of Company on line above

CITY OF LAKE ELSINORE

BY: _____
City Manager
CITY OF LAKE ELSINORE

ATTEST:

City Clerk
CITY OF LAKE ELSINORE

NOTARIES ON FOLLOWING PAGE

RECORDING REQUESTED BY

AND WHEN RECORDED MAIL TO:

Owner Information

Ilan Golcheh
Golcheh Group
1180 S Beverly Dr. Suite 300
Los Angeles, CA 90035

**TAX STATEMENTS
DO NOT CHANGE MAILING**

(Space above this line for City and Recorder's use)

APN'S: 379-111-014

**STORMWATER MANAGEMENT FACILITIES OPERATIONS AND
MAINTENANCE AGREEMENT AND
RIGHT OF ENTRY**

PROJECT: Riverside/Lincoln Commercial

Project Address, 15209 Lincoln Street,
Lake Elsinore, CA 92530

OWNER'S NAMES: Ilan Golcheh

by *Ilan Golcheh*

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information



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

Stormwater Pollution

What you should know for...

Industrial & Commercial Facilities

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@rcfllood.org.

We our Watershed!

A clean and healthy watershed is important to all of us.

Trash, debris, chemicals and other contaminants from business activities often make their way into the Riverside County storm drain system. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife.

Did you know?

There is a difference between storm drains and sewers.

Storm drains capture rainwater and flow directly to our rivers, lakes and streams – untreated.

Sewers capture and collect water from sinks, toilets and floor drains, and then it is processed and treated before it is released into the environment.

For more information about how you can protect our watershed, please visit:

www.rcwatershed.org

Questions?

If you have questions about Best Management Practices, or if you have questions about illicit dumping and stormwater pollution visit the Pollution Prevention website: rcwatershed.org.

For more information on requirements for all retail food facilities go to Riverside County Environmental Health's website: rivcoeh.org



RIVERSIDE COUNTY
WATERSHED PROTECTION

Riverside County Watershed Protection Program is managed by Riverside County Flood Control & Water Conservation District in partnership with 27 Cities, the County of Riverside and the Coachella Valley Water District.

OUR MISSION

"To protect, preserve and enhance the quality of Riverside County watersheds by fostering a community-wide commitment to clean water."

Watershed Protection

Food Service Industry Best Practices



Restaurants
Mobile Food Trucks
Grocery Stores
Bakeries
Delicatessens

Best Kitchen Practices

Recycle Oil & Grease

- Never put oil or grease down the drain. Contain grease and oil by using covered grease storage containers or installing a grease interceptor.
- Never overfill your grease storage container or transport it without a cover.
- Grease control devices must be emptied and cleaned by permitted companies and according to manufacturer's specifications.
- Keep maintenance records on site.
- For a list of oil/grease recycling companies, contact CalRecycle www.calrecycle.ca.gov or contact your local sanitation district.

Managing Spills

- Clean food spills in loading and trash areas by using absorbent materials and sweeping then mopping.
- Discharge mop water into the sewer through a grease interceptor.
- Have spill containment and cleanup kits available.
- To report serious toxic spills, call 911.

Handling Toxic Chemicals

- Dispose of all unwanted toxic materials like cleaners, solvents and detergents through a hazardous waste hauler. These items are not trash!
- Use non-toxic cleaning products whenever possible.
- For information on hazardous waste transporters, call (888) 722-4234.

Dumpster Areas

- Keep dumpster lids closed and the areas around them clean.
- Do not fill with liquid waste or hose them out.
- Call your trash hauler to replace any dumpsters that are damaged or leaking.



Cleaning & Maintenance

- Clean equipment, floor mats, filters and garbage cans in a mop sink, wash rack or floor drain connected to a sanitary sewer.
- Sweep outside areas and put the debris in trash containers DO NOT hose down or sweep into the parking lot or street.
- Outside eating areas and sidewalks may not be hosed down or pressure washed UNLESS the following standards are met:
 - ✓ Use dry cleanup methods prior to any pressure washing – absorbing with kitty litter, sweeping, vacuuming, scraping off dried debris.
 - ✓ Wash waters must be captured for proper disposal: collected waters should be discharged to a sanitary drain.
 - ✓ DO NOT use any chemicals or detergents.
 - ✓ DO NOT wash or pour water in a parking lot, alley, sidewalk or street.

Mobile Food Trucks

- The potential for generating stormwater pollution as part of a mobile food business requires special attention. Cleaning activities are required to be conducted at an approved fixed location with a connection to a sanitary sewer. For more information contact Riverside County Environmental Health at (888) 722-4234.
- Do not discharge wash water into storm drains.
- Clean on a properly equipped wash pad and drain wastewater to a sanitary sewer system.

Food Waste Disposal

- Scrape food waste off of plates, pots and food prep areas and dispose of in the trash.
- Food scraps often contain grease, which can clog sewer pipes and result in costly sewer backups and overflows.
- Never put food waste down the drain.



3.5 Bioretention Facility

| | |
|------------------------------|--|
| Type of BMP | LID – Bioretention |
| Treatment Mechanisms | Infiltration, Evapotranspiration, Evaporation, Biofiltration |
| Maximum Drainage Area | This BMP is intended to be integrated into a project’s landscaped area in a distributed manner. Typically, contributing drainage areas to Bioretention Facilities range from less than 1 acre to a maximum of around 10 acres. |
| Other Names | Rain Garden, Bioretention Cell, Bioretention Basin, Biofiltration Basin, Landscaped Filter Basin, Porous Landscape Detention |

Description

Bioretention Facilities are shallow, vegetated basins underlain by an engineered soil media. Healthy plant and biological activity in the root zone maintain and renew the macro-pore space in the soil and maximize plant uptake of pollutants and runoff. This keeps the Best Management Practice (BMP) from becoming clogged and allows more of the soil column to function as both a sponge (retaining water) and a highly effective and self-maintaining biofilter. In most cases, the bottom of a Bioretention Facility is unlined, which also provides an opportunity for infiltration to the extent the underlying onsite soil can accommodate. When the infiltration rate of the underlying soil is exceeded, fully biotreated flows are discharged via underdrains. Bioretention Facilities therefore will inherently achieve the maximum feasible level of infiltration and evapotranspiration and achieve the minimum feasible (but highly biotreated) discharge to the storm drain system.

Siting Considerations

These facilities work best when they are designed in a relatively level area. Unlike other BMPs, Bioretention Facilities can be used in smaller landscaped spaces on the site, such as:

- ✓ Parking islands
- ✓ Medians
- ✓ Site entrances

Landscaped areas on the site (such as may otherwise be required through minimum landscaping ordinances), can often be designed as Bioretention Facilities. This can be accomplished by:

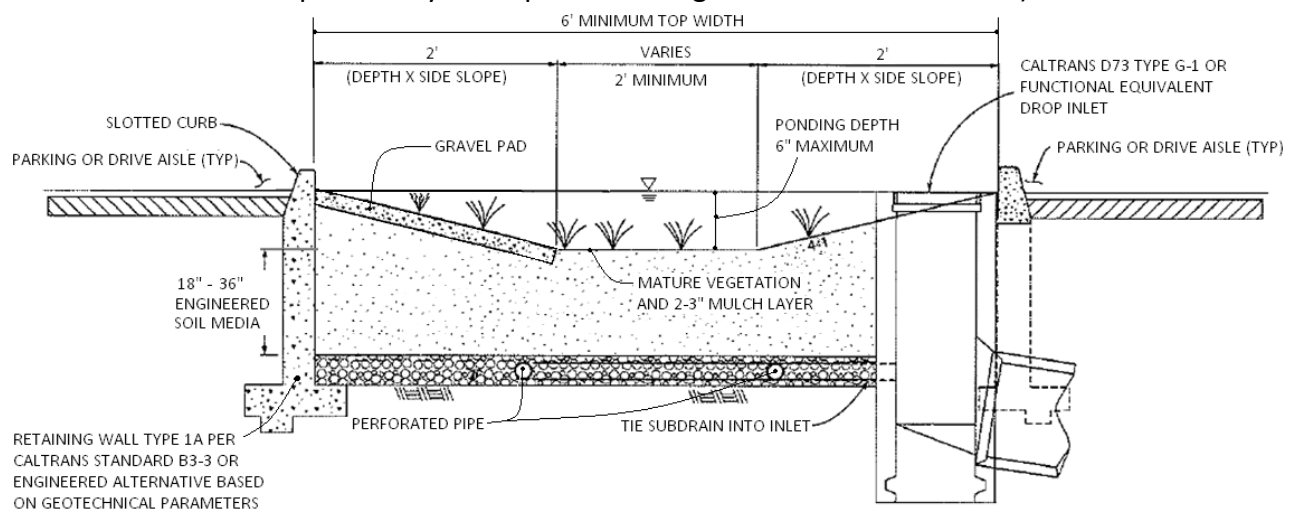
- *Depressing* landscaped areas below adjacent impervious surfaces, rather than elevating those areas
- Grading the site to direct runoff from those impervious surfaces *into* the Bioretention Facility, rather than away from the landscaping
- Sizing and designing the depressed landscaped area as a Bioretention Facility as described in this Fact Sheet

Bioretention Facilities should however not be used downstream of areas where large amounts of sediment can clog the system. Placing a Bioretention Facility at the toe of a steep slope should also be avoided due to the potential for clogging the engineered soil media with erosion from the slope, as well as the potential for damaging the vegetation.

Design and Sizing Criteria

The recommended cross section necessary for a Bioretention Facility includes:

- Vegetated area
- 18' minimum depth of engineered soil media
- 12' minimum gravel layer depth with 6' perforated pipes (added flow control features such as orifice plates may be required to mitigate for HCOG conditions)



While the 18-inch minimum engineered soil media depth can be used in some cases, it is recommended to use 24 inches or a preferred 36 inches to provide an adequate root zone for the chosen plant palate. Such a design also provides for improved removal effectiveness for nutrients. The recommended ponding depth inside of a Bioretention Facility is 6 inches; measured from the flat bottom surface to the top of the water surface as shown in Figure 1.

Because this BMP is filled with an engineered soil media, pore space in the soil and gravel layer is assumed to provide storage volume. However, several considerations must be noted:

- Surcharge storage above the soil surface (6 inches) is important to assure that design flows do not bypass the BMP when runoff exceeds the soil's absorption rate.
- In cases where the Bioretention Facility contains engineered soil media deeper than 36 inches, the pore space within the engineered soil media can only be counted to the 36-inch depth.
- A maximum of 30 percent pore space can be used for the soil media whereas a maximum of 40 percent pore space can be use for the gravel layer.

Figure 1: Standard Layout for a Bioretention Facility

BIORETENTION FACILITY BMP FACT SHEET

Engineered Soil Media Requirements

The engineered soil media shall be comprised of 85 percent mineral component and 15 percent organic component, by volume, drum mixed prior to placement. The mineral component shall be a Class A sandy loam topsoil that meets the range specified in Table 1 below. The organic component shall be nitrogen stabilized compost¹, such that nitrogen does not leach from the media.

Table 1: Mineral Component Range Requirements

| Percent Range | Component |
|---------------|-----------|
| 70-80 | Sand |
| 15-20 | Silt |
| 5-10 | Clay |

The trip ticket, or certificate of compliance, shall be made available to the inspector to prove the engineered mix meets this specification.

Vegetation Requirements

Vegetative cover is important to minimize erosion and ensure that treatment occurs in the Bioretention Facility. The area should be designed for at least 70 percent mature coverage throughout the Bioretention Facility. To prevent the BMP from being used as walkways, Bioretention Facilities shall be planted with a combination of small trees, densely planted shrubs, and natural grasses. Grasses shall be native or ornamental; preferably ones that do not need to be mowed. The application of fertilizers and pesticides should be minimal. To maintain oxygen levels for the vegetation and promote biodegradation, it is important that vegetation not be completely submerged for any extended period of time. Therefore, a maximum of 6 inches of ponded water shall be used in the design to ensure that plants within the Bioretention Facility remain healthy.

A 2 to 3-inch layer of standard shredded aged hardwood mulch shall be placed as the top layer inside the Bioretention Facility. The 6-inch ponding depth shown in Figure 1 above shall be measured from the top surface of the 2 to 3-inch mulch layer.

Curb Cuts

To allow water to flow into the Bioretention Facility, 1-foot-wide (minimum) curb cuts should be placed approximately every 10 feet around the perimeter of the Bioretention Facility. Figure 2 shows a curb cut in a Bioretention Facility. Curb cut flow lines must be at or above the V_{BMP} water surface level.

¹ For more information on compost, visit the US Composting Council website at: <http://compostingcouncil.org/>

BIORETENTION FACILITY BMP FACT SHEET



Figure 2: Curb Cut located in a Bioretention Facility

To reduce erosion, a gravel pad shall be placed at each inlet point to the Bioretention Facility. The gravel should be 1- to 1.5-inch diameter in size. The gravel should overlap the curb cut opening a minimum of 6 inches. The gravel pad inside the Bioretention Facility should be flush with the finished surface at the curb cut and extend to the bottom of the slope.

In addition, place an apron of stone or concrete, a foot square or larger, inside each inlet to prevent vegetation from growing up and blocking the inlet. See Figure 3.

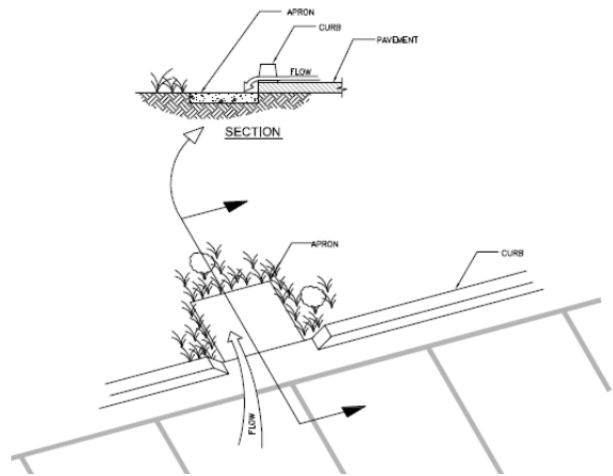


Figure 3: Apron located in a Bioretention Facility

Terracing the Landscaped Filter Basin

It is recommended that Bioretention Facilities be level. In the event the facility site slopes and lacks proper design, water would fill the lowest point of the BMP and then discharge from the basin without being treated. To ensure that the water will be held within the Bioretention Facility on sloped sites, the BMP must be terraced with nonporous check dams to provide the required storage and treatment capacity.

The terraced version of this BMP shall be used on non-flat sites with no more than a 3 percent slope. The surcharge depth cannot exceed 0.5 feet, and side slopes shall not exceed 4:1. Table 2 below shows the spacing of the check dams, and slopes shall be rounded up (i.e., 2.5 percent slope shall use 10' spacing for check dams).

Table 2: Check Dam Spacing

| 6" Check Dam Spacing | |
|----------------------|---------|
| Slope | Spacing |
| 1% | 25' |
| 2% | 15' |
| 3% | 10' |

BIORETENTION FACILITY BMP FACT SHEET

Roof Runoff

Roof downspouts may be directed towards Bioretention Facilities. However, the downspouts must discharge onto a concrete splash block to protect the Bioretention Facility from erosion.

Retaining Walls

It is recommended that Retaining Wall Type 1A, per Caltrans Standard B3-3 or equivalent, be constructed around the entire perimeter of the Bioretention Facility. This practice will protect the sides of the Bioretention Facility from collapsing during construction and maintenance or from high service loads adjacent to the BMP. Where such service loads would not exist adjacent to the BMP, an engineered alternative may be used if signed by a licensed civil engineer.

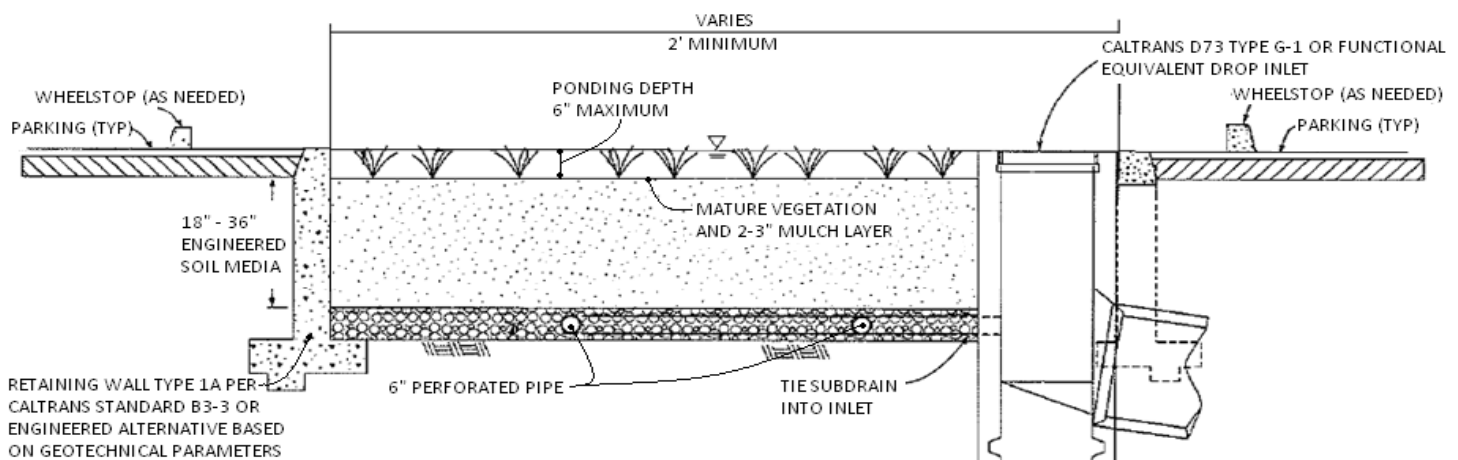
Side Slope Requirements

Bioretention Facilities Requiring Side Slopes

The design should assure that the Bioretention Facility does not present a tripping hazard. Bioretention Facilities proposed near pedestrian areas, such as areas parallel to parking spaces or along a walkway, must have a gentle slope to the bottom of the facility. Side slopes inside of a Bioretention Facility shall be 4:1. A typical cross section for the Bioretention Facility is shown in Figure 1.

Bioretention Facilities Not Requiring Side Slopes

Where cars park perpendicular to the Bioretention Facility, side slopes are not required. A 6-inch maximum drop may be used, and the Bioretention Facility must be planted with trees and shrubs to prevent pedestrian access. In this case, a curb is not placed around the Bioretention Facility, but wheel stops shall be used to prevent vehicles from entering the Bioretention Facility, as shown in Figure 4.



BIORETENTION FACILITY BMP FACT SHEET

Planter Boxes

Bioretention Facilities can also be placed above ground as planter boxes. Planter boxes must have a minimum width of 2 feet, a maximum surcharge depth of 6 inches, and no side slopes are necessary. Planter boxes must be constructed so as to ensure that the top surface of the engineered soil media will remain level. This option may be constructed of concrete, brick, stone or other stable materials that will not warp or bend. Chemically treated wood or galvanized steel, which has the ability to contaminate stormwater, should not be used. Planter boxes must be lined with an impermeable liner on all sides, including the bottom. Due to the impermeable liner, the inside bottom of the planter box shall be designed and constructed with a cross fall, directing treated flows within the subdrain layer toward the point where subdrain exits the planter box, and subdrains shall be oriented with drain holes oriented down. These provisions will help avoid excessive stagnant water within the gravel underdrain layer. Similar to the in-ground Bioretention Facility versions, this BMP benefits from healthy plants and biological activity in the root zone. Planter boxes should be planted with appropriately selected vegetation.



Figure 5: Planter Box

Source: LA Team Effort

Overflow

An overflow route is needed in the Bioretention Facility design to bypass stored runoff from storm events larger than V_{BMP} or in the event of facility or subdrain clogging. Overflow systems must connect to an acceptable discharge point, such as a downstream conveyance system as shown in Figure 1 and Figure 4. The inlet to the overflow structure shall be elevated inside the Bioretention Facility to be flush with the ponding surface for the design capture volume (V_{BMP}) as shown in Figure 4. This will allow the design capture volume to be fully treated by the Bioretention Facility, and for larger events to safely be conveyed to downstream systems. The overflow inlet shall **not** be located in the entrance of a Bioretention Facility, as shown in Figure 6.

BIORETENTION FACILITY BMP FACT SHEET

Underdrain Gravel and Pipes

An underdrain gravel layer and pipes shall be provided in accordance with Appendix B – Underdrains.



Figure 6: Incorrect Placement of an Overflow Inlet.

Inspection and Maintenance Schedule

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 Bioretention Facility should be minimized.

| Schedule | Activity |
|--------------------|--|
| Ongoing | <ul style="list-style-type: none">• Keep adjacent landscape areas maintained. Remove clippings from landscape maintenance activities.• Remove trash and debris• Replace damaged grass and/or plants• Replace surface mulch layer as needed to maintain a 2-3 inch soil cover. |
| After storm events | <ul style="list-style-type: none">• Inspect areas for ponding |
| Annually | <ul style="list-style-type: none">• Inspect/clean inlets and outlets |

Site Design & Landscape Planning SD-10



Design Objectives

- ☒ Maximize Infiltration
- ☒ Provide Retention
- ☒ Slow Runoff
- ☒ Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.



SD-10 Site Design & Landscape Planning

Designing New Installations

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.
- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Conserve Natural Areas during Landscape Planning

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands.

Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.
- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and

Site Design & Landscape Planning SD-10

regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

Protection of Slopes and Channels during Landscape Design

- Convey runoff safely from the tops of slopes.
- Avoid disturbing steep or unstable slopes.
- Avoid disturbing natural channels.
- Stabilize disturbed slopes as quickly as possible.
- Vegetate slopes with native or drought tolerant vegetation.
- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.
- Consider other design principles that are comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

SD-10 Site Design & Landscape Planning

Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.



Rain Garden

Design Objectives

- ☒ Maximize Infiltration
- ☒ Provide Retention
- ☒ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☒ Contain Pollutants
- Collect and Convey

Description

Various roof runoff controls are available to address stormwater that drains off rooftops. The objective is to reduce the total volume and rate of runoff from individual lots, and retain the pollutants on site that may be picked up from roofing materials and atmospheric deposition. Roof runoff controls consist of directing the roof runoff away from paved areas and mitigating flow to the storm drain system through one of several general approaches: cisterns or rain barrels; dry wells or infiltration trenches; pop-up emitters, and foundation planting. The first three approaches require the roof runoff to be contained in a gutter and downspout system. Foundation planting provides a vegetated strip under the drip line of the roof.

Approach

Design of individual lots for single-family homes as well as lots for higher density residential and commercial structures should consider site design provisions for containing and infiltrating roof runoff or directing roof runoff to vegetative swales or buffer areas. Retained water can be reused for watering gardens, lawns, and trees. Benefits to the environment include reduced demand for potable water used for irrigation, improved stormwater quality, increased groundwater recharge, decreased runoff volume and peak flows, and decreased flooding potential.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Designing New Installations

Cisterns or Rain Barrels

One method of addressing roof runoff is to direct roof downspouts to cisterns or rain barrels. A cistern is an above ground storage vessel with either a manually operated valve or a permanently open outlet. Roof runoff is temporarily stored and then released for irrigation or infiltration between storms. The number of rain



barrels needed is a function of the rooftop area. Some low impact developers recommend that every house have at least 2 rain barrels, with a minimum storage capacity of 1000 liters. Roof barrels serve several purposes including mitigating the first flush from the roof which has a high volume, amount of contaminants, and thermal load. Several types of rain barrels are commercially available. Consideration must be given to selecting rain barrels that are vector proof and childproof. In addition, some barrels are designed with a bypass valve that filters out grit and other contaminants and routes overflow to a soak-away pit or rain garden.

If the cistern has an operable valve, the valve can be closed to store stormwater for irrigation or infiltration between storms. This system requires continual monitoring by the resident or grounds crews, but provides greater flexibility in water storage and metering. If a cistern is provided with an operable valve and water is stored inside for long periods, the cistern must be covered to prevent mosquitoes from breeding.

A cistern system with a permanently open outlet can also provide for metering stormwater runoff. If the cistern outlet is significantly smaller than the size of the downspout inlet (say $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter), runoff will build up inside the cistern during storms, and will empty out slowly after peak intensities subside. This is a feasible way to mitigate the peak flow increases caused by rooftop impervious land coverage, especially for the frequent, small storms.

Dry wells and Infiltration Trenches

Roof downspouts can be directed to dry wells or infiltration trenches. A dry well is constructed by excavating a hole in the ground and filling it with an open graded aggregate, and allowing the water to fill the dry well and infiltrate after the storm event. An underground connection from the downspout conveys water into the dry well, allowing it to be stored in the voids. To minimize sedimentation from lateral soil movement, the sides and top of the stone storage matrix can be wrapped in a permeable filter fabric, though the bottom may remain open. A perforated observation pipe can be inserted vertically into the dry well to allow for inspection and maintenance.

In practice, dry wells receiving runoff from single roof downspouts have been successful over long periods because they contain very little sediment. They must be sized according to the amount of rooftop runoff received, but are typically 4 to 5 feet square, and 2 to 3 feet deep, with a minimum of 1-foot soil cover over the top (maximum depth of 10 feet).

To protect the foundation, dry wells must be set away from the building at least 10 feet. They must be installed in solids that accommodate infiltration. In poorly drained soils, dry wells have very limited feasibility.

Infiltration trenches function in a similar manner and would be particularly effective for larger roof areas. An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. These are described under Treatment Controls.

Pop-up Drainage Emitter

Roof downspouts can be directed to an underground pipe that daylights some distance from the building foundation, releasing the roof runoff through a pop-up emitter. Similar to a pop-up irrigation head, the emitter only opens when there is flow from the roof. The emitter remains flush to the ground during dry periods, for ease of lawn or landscape maintenance.

Foundation Planting

Landscape planting can be provided around the base to allow increased opportunities for stormwater infiltration and protect the soil from erosion caused by concentrated sheet flow coming off the roof. Foundation plantings can reduce the physical impact of water on the soil and provide a subsurface matrix of roots that encourage infiltration. These plantings must be sturdy enough to tolerate the heavy runoff sheet flows, and periodic soil saturation.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

Supplemental Information

Examples

- City of Ottawa’s Water Links Surface –Water Quality Protection Program
- City of Toronto Downspout Disconnection Program
- City of Boston, MA, Rain Barrel Demonstration Program

Other Resources

Hager, Marty Catherine, Stormwater, “Low-Impact Development”, January/February 2003.
www.stormh2o.com

Low Impact Urban Design Tools, Low Impact Development Design Center, Beltsville, MD.
www.lid-stormwater.net

Start at the Source, Bay Area Stormwater Management Agencies Association, 1999 Edition



Design Objectives

- ☒ Maximize Infiltration
- ☒ Provide Retention
- ☒ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Designing New Installations

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.



- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.
- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:
 - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff
 - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect
 - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible
 - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth
- Employ other comparable, equally effective methods to reduce irrigation water runoff.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

Other Resources

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Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.



Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- ☒ Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Waste materials dumped into storm drain inlets can have severe impacts on receiving and ground waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

Approach

The stencil or affixed sign contains a brief statement that prohibits dumping of improper materials into the urban runoff conveyance system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

Suitable Applications

Stencils and signs alert the public to the destination of pollutants discharged to the storm drain. Signs are appropriate in residential, commercial, and industrial areas, as well as any other area where contributions or dumping to storm drains is likely.

Design Considerations

Storm drain message markers or placards are recommended at all storm drain inlets within the boundary of a development project. The marker should be placed in clear sight facing toward anyone approaching the inlet from either side. All storm drain inlet locations should be identified on the development site map.

Designing New Installations

The following methods should be considered for inclusion in the project design and show on project plans:

- Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language. Examples include “NO DUMPING



– DRAINS TO OCEAN” and/or other graphical icons to discourage illegal dumping.

- Post signs with prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.

Note - Some local agencies have approved specific signage and/or storm drain message placards for use. Consult local agency stormwater staff to determine specific requirements for placard types and methods of application.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. If the project meets the definition of “redevelopment”, then the requirements stated under “designing new installations” above should be included in all project design plans.

Additional Information

Maintenance Considerations

- Legibility of markers and signs should be maintained. If required by the agency with jurisdiction over the project, the owner/operator or homeowner’s association should enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards or signs.

Placement

- Signage on top of curbs tends to weather and fade.
- Signage on face of curbs tends to be worn by contact with vehicle tires and sweeper brooms.

Supplemental Information

Examples

- Most MS4 programs have storm drain signage programs. Some MS4 programs will provide stencils, or arrange for volunteers to stencil storm drains as part of their outreach program.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.



Photo Credit: Geoff Brosseau

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☒ Contain Pollutants
- ☒ Collect and Convey

Description

Fueling areas have the potential to contribute oil and grease, solvents, car battery acid, coolant and gasoline to the stormwater conveyance system. Spills at vehicle and equipment fueling areas can be a significant source of pollution because fuels contain toxic materials and heavy metals that are not easily removed by stormwater treatment devices.

Approach

Project plans must be developed for cleaning near fuel dispensers, emergency spill cleanup, containment, and leak prevention.

Suitable Applications

Appropriate applications include commercial, industrial, and any other areas planned to have fuel dispensing equipment, including retail gasoline outlets, automotive repair shops, and major non-retail dispensing areas.

Design Considerations

Design requirements for fueling areas are governed by Building and Fire Codes and by current local agency ordinances and zoning requirements. Design requirements described in this fact sheet are meant to enhance and be consistent with these code and ordinance requirements.

Designing New Installations

Covering



Fuel dispensing areas should provide an overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area should drain to the project's treatment control BMP(s) prior to discharging to the stormwater conveyance system. Note - If fueling large equipment or vehicles that would prohibit the use of covers or roofs, the fueling island should be designed to sufficiently accommodate the larger vehicles and equipment and to prevent stormwater run-on and runoff. Grade to direct stormwater to a dead-end sump.

Surfacing

Fuel dispensing areas should be paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete should be prohibited. Use asphalt sealant to protect asphalt paved areas surrounding the fueling area. This provision may be made to sites that have pre-existing asphalt surfaces.

The concrete fuel dispensing area should be extended a minimum of 6.5 ft from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 ft, whichever is less.

Grading/Contouring

Dispensing areas should have an appropriate slope to prevent ponding, and be separated from the rest of the site by a grade break that prevents run-on of urban runoff. (Slope is required to be 2 to 4% in some jurisdictions' stormwater management and mitigation plans.)

Fueling areas should be graded to drain toward a dead-end sump. Runoff from downspouts/roofs should be directed away from fueling areas. Do not locate storm drains in the immediate vicinity of the fueling area.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of "redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Additional Information

- In the case of an emergency, provide storm drain seals, such as isolation valves, drain plugs, or drain covers, to prevent spills or contaminated stormwater from entering the stormwater conveyance system.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Description

Trash storage areas are areas where a trash receptacle (s) are located for use as a repository for solid wastes. Stormwater runoff from areas where trash is stored or disposed of can be polluted. In addition, loose trash and debris can be easily transported by water or wind into nearby storm drain inlets, channels, and/or creeks. Waste handling operations that may be sources of stormwater pollution include dumpsters, litter control, and waste piles.

Approach

This fact sheet contains details on the specific measures required to prevent or reduce pollutants in stormwater runoff associated with trash storage and handling. Preventative measures including enclosures, containment structures, and impervious pavements to mitigate spills, should be used to reduce the likelihood of contamination.

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☒ Contain Pollutants
- Collect and Convey

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Design requirements for waste handling areas are governed by Building and Fire Codes, and by current local agency ordinances and zoning requirements. The design criteria described in this fact sheet are meant to enhance and be consistent with these code and ordinance requirements. Hazardous waste should be handled in accordance with legal requirements established in Title 22, California Code of Regulation.

Wastes from commercial and industrial sites are typically hauled by either public or commercial carriers that may have design or access requirements for waste storage areas. The design criteria in this fact sheet are recommendations and are not intended to be in conflict with requirements established by the waste hauler. The waste hauler should be contacted prior to the design of your site trash collection areas. Conflicts or issues should be discussed with the local agency.

Designing New Installations

Trash storage areas should be designed to consider the following structural or treatment control BMPs:

- Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on. This might include berming or grading the waste handling area to prevent run-on of stormwater.
- Make sure trash container areas are screened or walled to prevent off-site transport of trash.



- Use lined bins or dumpsters to reduce leaking of liquid waste.
- Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers.
- Pave trash storage areas with an impervious surface to mitigate spills.
- Do not locate storm drains in immediate vicinity of the trash storage area.
- Post signs on all dumpsters informing users that hazardous materials are not to be disposed of therein.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

Additional Information***Maintenance Considerations***

The integrity of structural elements that are subject to damage (i.e., screens, covers, and signs) must be maintained by the owner/operator. Maintenance agreements between the local agency and the owner/operator may be required. Some agencies will require maintenance deed restrictions to be recorded of the property title. If required by the local agency, maintenance agreements or deed restrictions must be executed by the owner/operator before improvement plans are approved.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

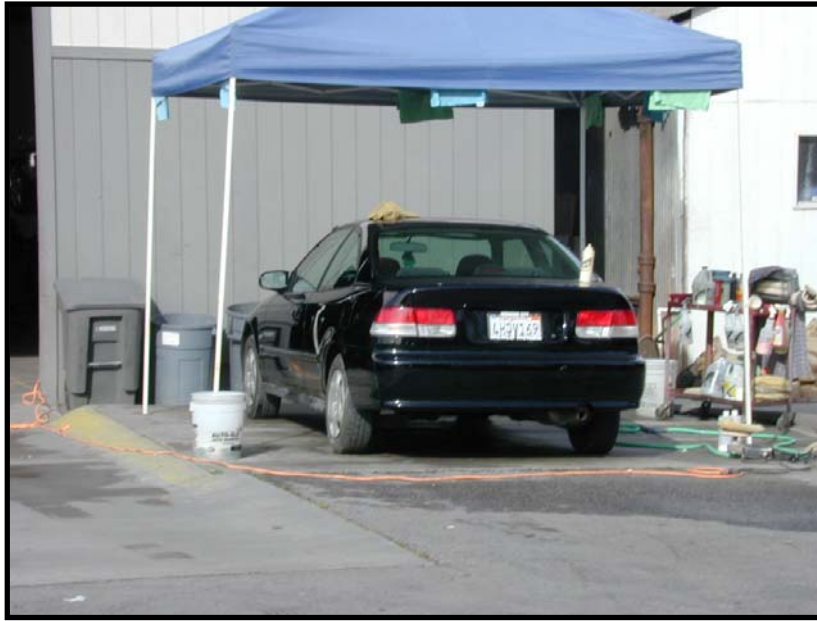


Photo Credit: Geoff Brosseau

Design Objectives

- ☒ Maximize Infiltration
 - Provide Retention
 - Slow Runoff
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 - Prohibit Dumping of Improper Materials
- ☒ Contain Pollutants
- ☒ Collect and Convey

Description

Vehicle washing, equipment washing, and steam cleaning may contribute high concentrations of metals, oil and grease, solvents, phosphates, and suspended solids to wash waters that drain to stormwater conveyance systems.

Approach

Project plans should include appropriately designed area(s) for washing-steam cleaning of vehicles and equipment. Depending on the size and other parameters of the wastewater facility, wash water may be conveyed to a sewer, an infiltration system, recycling system or other alternative. Pretreatment may be required for conveyance to a sanitary sewer.

Suitable Applications

Appropriate applications include commercial developments, restaurants, retail gasoline outlets, automotive repair shops and others.

Design Considerations

Design requirements for vehicle maintenance are governed by Building and Fire Codes, and by current local agency ordinances, and zoning requirements. Design criteria described in this fact sheet are meant to enhance and be consistent with these code requirements.

Designing New Installations

Areas for washing/steam cleaning should incorporate one of the following features:

- Be self-contained and/or covered with a roof or overhang
- Be equipped with a clarifier or other pretreatment facility
- Have a proper connection to a sanitary sewer



- Include other features which are comparable and equally effective

CAR WASH AREAS - Some jurisdictions' stormwater management plans include vehicle-cleaning area source control design requirements for community car wash racks in complexes with a large number of dwelling units. In these cases, wash water from the areas may be directed to the sanitary sewer, to an engineered infiltration system, or to an equally effective alternative. Pre-treatment may also be required.

Depending on the jurisdiction, developers may be directed to divert surface water runoff away from the exposed area around the wash pad (parking lot, storage areas), and wash pad itself to alternatives other than the sanitary sewer. Roofing may be required for exposed wash pads.

It is generally advisable to cover areas used for regular washing of vehicles, trucks, or equipment, surround them with a perimeter berm, and clearly mark them as a designated washing area. Sumps or drain lines can be installed to collect wash water, which may be treated for reuse or recycling, or for discharge to the sanitary sewer. Jurisdictions may require some form of pretreatment, such as a trap, for these areas.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment.

Additional Information

Maintenance Considerations

Stormwater and non-stormwater will accumulate in containment areas and sumps with impervious surfaces. Contaminated accumulated water must be disposed of in accordance with applicable laws and cannot be discharged directly to the storm drain or sanitary sewer system without the appropriate permit.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

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Description

The bioretention best management practice (BMP) functions as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a grass buffer strip, sand bed, ponding area, organic layer or mulch layer, planting soil, and plants. The runoff's velocity is reduced by passing over or through buffer strip and subsequently distributed evenly along a ponding area. Exfiltration of the stored water in the bioretention area planting soil into the underlying soils occurs over a period of days.

California Experience

None documented. Bioretention has been used as a stormwater BMP since 1992. In addition to Prince George's County, MD and Alexandria, VA, bioretention has been used successfully at urban and suburban areas in Montgomery County, MD; Baltimore County, MD; Chesterfield County, VA; Prince William County, VA; Smith Mountain Lake State Park, VA; and Cary, NC.

Advantages

- Bioretention provides stormwater treatment that enhances the quality of downstream water bodies by temporarily storing runoff in the BMP and releasing it over a period of four days to the receiving water (EPA, 1999).
- The vegetation provides shade and wind breaks, absorbs noise, and improves an area's landscape.

Limitations

- The bioretention BMP is not recommended for areas with slopes greater than 20% or where mature tree removal would

Design Considerations

- Soil for Infiltration
- Tributary Area
- Slope
- Aesthetics
- Environmental Side-effects

Targeted Constituents

| | | |
|---|----------------|---|
| ✓ | Sediment | ■ |
| ✓ | Nutrients | ▲ |
| ✓ | Trash | ■ |
| ✓ | Metals | ■ |
| ✓ | Bacteria | ■ |
| ✓ | Oil and Grease | ■ |
| ✓ | Organics | ■ |

Legend (Removal Effectiveness)

- Low
- High
- ▲ Medium



be required since clogging may result, particularly if the BMP receives runoff with high sediment loads (EPA, 1999).

- Bioretention is not a suitable BMP at locations where the water table is within 6 feet of the ground surface and where the surrounding soil stratum is unstable.
- By design, bioretention BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water.
- In cold climates the soil may freeze, preventing runoff from infiltrating into the planting soil.

Design and Sizing Guidelines

- The bioretention area should be sized to capture the design storm runoff.
- In areas where the native soil permeability is less than 0.5 in/hr an underdrain should be provided.
- Recommended minimum dimensions are 15 feet by 40 feet, although the preferred width is 25 feet. Excavated depth should be 4 feet.
- Area should drain completely within 72 hours.
- Approximately 1 tree or shrub per 50 ft² of bioretention area should be included.
- Cover area with about 3 inches of mulch.

Construction/Inspection Considerations

Bioretention area should not be established until contributing watershed is stabilized.

Performance

Bioretention removes stormwater pollutants through physical and biological processes, including adsorption, filtration, plant uptake, microbial activity, decomposition, sedimentation and volatilization (EPA, 1999). Adsorption is the process whereby particulate pollutants attach to soil (e.g., clay) or vegetation surfaces. Adequate contact time between the surface and pollutant must be provided for in the design of the system for this removal process to occur. Thus, the infiltration rate of the soils must not exceed those specified in the design criteria or pollutant removal may decrease. Pollutants removed by adsorption include metals, phosphorus, and hydrocarbons. Filtration occurs as runoff passes through the bioretention area media, such as the sand bed, ground cover, and planting soil.

Common particulates removed from stormwater include particulate organic matter, phosphorus, and suspended solids. Biological processes that occur in wetlands result in pollutant uptake by plants and microorganisms in the soil. Plant growth is sustained by the uptake of nutrients from the soils, with woody plants locking up these nutrients through the seasons. Microbial activity within the soil also contributes to the removal of nitrogen and organic matter. Nitrogen is removed by nitrifying and denitrifying bacteria, while aerobic bacteria are responsible for the decomposition of the organic matter. Microbial processes require oxygen and can result in depleted oxygen levels if the bioretention area is not adequately

aerated. Sedimentation occurs in the swale or ponding area as the velocity slows and solids fall out of suspension.

The removal effectiveness of bioretention has been studied during field and laboratory studies conducted by the University of Maryland (Davis et al, 1998). During these experiments, synthetic stormwater runoff was pumped through several laboratory and field bioretention areas to simulate typical storm events in Prince George's County, MD. Removal rates for heavy metals and nutrients are shown in Table 1.

| Table 1 Laboratory and Estimated Bioretention Davis et al. (1998); PGDER (1993) | |
|--|---------------------|
| Pollutant | Removal Rate |
| Total Phosphorus | 70-83% |
| Metals (Cu, Zn, Pb) | 93-98% |
| TKN | 68-80% |
| Total Suspended Solids | 90% |
| Organics | 90% |
| Bacteria | 90% |

Results for both the laboratory and field experiments were similar for each of the pollutants analyzed. Doubling or halving the influent pollutant levels had little effect on the effluent pollutants concentrations (Davis et al, 1998).

The microbial activity and plant uptake occurring in the bioretention area will likely result in higher removal rates than those determined for infiltration BMPs.

Siting Criteria

Bioretention BMPs are generally used to treat stormwater from impervious surfaces at commercial, residential, and industrial areas (EPA, 1999). Implementation of bioretention for stormwater management is ideal for median strips, parking lot islands, and swales. Moreover, the runoff in these areas can be designed to either divert directly into the bioretention area or convey into the bioretention area by a curb and gutter collection system.

The best location for bioretention areas is upland from inlets that receive sheet flow from graded areas and at areas that will be excavated (EPA, 1999). In order to maximize treatment effectiveness, the site must be graded in such a way that minimizes erosive conditions as sheet flow is conveyed to the treatment area. Locations where a bioretention area can be readily incorporated into the site plan without further environmental damage are preferred. Furthermore, to effectively minimize sediment loading in the treatment area, bioretention only should be used in stabilized drainage areas.

Additional Design Guidelines

The layout of the bioretention area is determined after site constraints such as location of utilities, underlying soils, existing vegetation, and drainage are considered (EPA, 1999). Sites with loamy sand soils are especially appropriate for bioretention because the excavated soil can be backfilled and used as the planting soil, thus eliminating the cost of importing planting soil.

The use of bioretention may not be feasible given an unstable surrounding soil stratum, soils with clay content greater than 25 percent, a site with slopes greater than 20 percent, and/or a site with mature trees that would be removed during construction of the BMP.

Bioretention can be designed to be off-line or on-line of the existing drainage system (EPA, 1999). The drainage area for a bioretention area should be between 0.1 and 0.4 hectares (0.25 and 1.0 acres). Larger drainage areas may require multiple bioretention areas. Furthermore, the maximum drainage area for a bioretention area is determined by the expected rainfall intensity and runoff rate. Stabilized areas may erode when velocities are greater than 5 feet per second (1.5 meter per second). The designer should determine the potential for erosive conditions at the site.

The size of the bioretention area, which is a function of the drainage area and the runoff generated from the area is sized to capture the water quality volume.

The recommended minimum dimensions of the bioretention area are 15 feet (4.6 meters) wide by 40 feet (12.2 meters) long, where the minimum width allows enough space for a dense, randomly-distributed area of trees and shrubs to become established. Thus replicating a natural forest and creating a microclimate, thereby enabling the bioretention area to tolerate the effects of heat stress, acid rain, runoff pollutants, and insect and disease infestations which landscaped areas in urban settings typically are unable to tolerate. The preferred width is 25 feet (7.6 meters), with a length of twice the width. Essentially, any facilities wider than 20 feet (6.1 meters) should be twice as long as they are wide, which promotes the distribution of flow and decreases the chances of concentrated flow.

In order to provide adequate storage and prevent water from standing for excessive periods of time the ponding depth of the bioretention area should not exceed 6 inches (15 centimeters). Water should not be left to stand for more than 72 hours. A restriction on the type of plants that can be used may be necessary due to some plants' water intolerance. Furthermore, if water is left standing for longer than 72 hours mosquitoes and other insects may start to breed.

The appropriate planting soil should be backfilled into the excavated bioretention area. Planting soils should be sandy loam, loamy sand, or loam texture with a clay content ranging from 10 to 25 percent.

Generally the soil should have infiltration rates greater than 0.5 inches (1.25 centimeters) per hour, which is typical of sandy loams, loamy sands, or loams. The pH of the soil should range between 5.5 and 6.5, where pollutants such as organic nitrogen and phosphorus can be adsorbed by the soil and microbial activity can flourish. Additional requirements for the planting soil include a 1.5 to 3 percent organic content and a maximum 500 ppm concentration of soluble salts.

Soil tests should be performed for every 500 cubic yards (382 cubic meters) of planting soil, with the exception of pH and organic content tests, which are required only once per bioretention area (EPA, 1999). Planting soil should be 4 inches (10.1 centimeters) deeper than the bottom of the largest root ball and 4 feet (1.2 meters) altogether. This depth will provide adequate soil for the plants' root systems to become established, prevent plant damage due to severe wind, and provide adequate moisture capacity. Most sites will require excavation in order to obtain the recommended depth.

Planting soil depths of greater than 4 feet (1.2 meters) may require additional construction practices such as shoring measures (EPA, 1999). Planting soil should be placed in 18 inches or greater lifts and lightly compacted until the desired depth is reached. Since high canopy trees may be destroyed during maintenance the bioretention area should be vegetated to resemble a terrestrial forest community ecosystem that is dominated by understory trees. Three species each of both trees and shrubs are recommended to be planted at a rate of 2500 trees and shrubs per hectare (1000 per acre). For instance, a 15 foot (4.6 meter) by 40 foot (12.2 meter) bioretention area (600 square feet or 55.75 square meters) would require 14 trees and shrubs. The shrub-to-tree ratio should be 2:1 to 3:1.

Trees and shrubs should be planted when conditions are favorable. Vegetation should be watered at the end of each day for fourteen days following its planting. Plant species tolerant of pollutant loads and varying wet and dry conditions should be used in the bioretention area.

The designer should assess aesthetics, site layout, and maintenance requirements when selecting plant species. Adjacent non-native invasive species should be identified and the designer should take measures, such as providing a soil breach to eliminate the threat of these species invading the bioretention area. Regional landscaping manuals should be consulted to ensure that the planting of the bioretention area meets the landscaping requirements established by the local authorities. The designers should evaluate the best placement of vegetation within the bioretention area. Plants should be placed at irregular intervals to replicate a natural forest. Trees should be placed on the perimeter of the area to provide shade and shelter from the wind. Trees and shrubs can be sheltered from damaging flows if they are placed away from the path of the incoming runoff. In cold climates, species that are more tolerant to cold winds, such as evergreens, should be placed in windier areas of the site.

Following placement of the trees and shrubs, the ground cover and/or mulch should be established. Ground cover such as grasses or legumes can be planted at the beginning of the growing season. Mulch should be placed immediately after trees and shrubs are planted. Two to 3 inches (5 to 7.6 cm) of commercially-available fine shredded hardwood mulch or shredded hardwood chips should be applied to the bioretention area to protect from erosion.

Maintenance

The primary maintenance requirement for bioretention areas is that of inspection and repair or replacement of the treatment area's components. Generally, this involves nothing more than the routine periodic maintenance that is required of any landscaped area. Plants that are appropriate for the site, climatic, and watering conditions should be selected for use in the bioretention cell. Appropriately selected plants will aide in reducing fertilizer, pesticide, water, and overall maintenance requirements. Bioretention system components should blend over time through plant and root growth, organic decomposition, and the development of a natural

soil horizon. These biologic and physical processes over time will lengthen the facility's life span and reduce the need for extensive maintenance.

Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation (EPA, 1999). Diseased vegetation should be treated as needed using preventative and low-toxic measures to the extent possible. BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water. Routine inspections for areas of standing water within the BMP and corrective measures to restore proper infiltration rates are necessary to prevent creating mosquito and other vector habitat. In addition, bioretention BMPs are susceptible to invasion by aggressive plant species such as cattails, which increase the chances of water standing and subsequent vector production if not routinely maintained.

In order to maintain the treatment area's appearance it may be necessary to prune and weed. Furthermore, mulch replacement is suggested when erosion is evident or when the site begins to look unattractive. Specifically, the entire area may require mulch replacement every two to three years, although spot mulching may be sufficient when there are random void areas. Mulch replacement should be done prior to the start of the wet season.

New Jersey's Department of Environmental Protection states in their bioretention systems standards that accumulated sediment and debris removal (especially at the inflow point) will normally be the primary maintenance function. Other potential tasks include replacement of dead vegetation, soil pH regulation, erosion repair at inflow points, mulch replenishment, unclogging the underdrain, and repairing overflow structures. There is also the possibility that the cation exchange capacity of the soils in the cell will be significantly reduced over time. Depending on pollutant loads, soils may need to be replaced within 5-10 years of construction (LID, 2000).

Cost

Construction Cost

Construction cost estimates for a bioretention area are slightly greater than those for the required landscaping for a new development (EPA, 1999). A general rule of thumb (Coffman, 1999) is that residential bioretention areas average about \$3 to \$4 per square foot, depending on soil conditions and the density and types of plants used. Commercial, industrial and institutional site costs can range between \$10 to \$40 per square foot, based on the need for control structures, curbing, storm drains and underdrains.

Retrofitting a site typically costs more, averaging \$6,500 per bioretention area. The higher costs are attributed to the demolition of existing concrete, asphalt, and existing structures and the replacement of fill material with planting soil. The costs of retrofitting a commercial site in Maryland, Kettering Development, with 15 bioretention areas were estimated at \$111,600.

In any bioretention area design, the cost of plants varies substantially and can account for a significant portion of the expenditures. While these cost estimates are slightly greater than those of typical landscaping treatment (due to the increased number of plantings, additional soil excavation, backfill material, use of underdrains etc.), those landscaping expenses that would be required regardless of the bioretention installation should be subtracted when determining the net cost.

Perhaps of most importance, however, the cost savings compared to the use of traditional structural stormwater conveyance systems makes bioretention areas quite attractive financially. For example, the use of bioretention can decrease the cost required for constructing stormwater conveyance systems at a site. A medical office building in Maryland was able to reduce the amount of storm drain pipe that was needed from 800 to 230 feet - a cost savings of \$24,000 (PGDER, 1993). And a new residential development spent a total of approximately \$100,000 using bioretention cells on each lot instead of nearly \$400,000 for the traditional stormwater ponds that were originally planned (Rappahanock,). Also, in residential areas, stormwater management controls become a part of each property owner's landscape, reducing the public burden to maintain large centralized facilities.

Maintenance Cost

The operation and maintenance costs for a bioretention facility will be comparable to those of typical landscaping required for a site. Costs beyond the normal landscaping fees will include the cost for testing the soils and may include costs for a sand bed and planting soil.

References and Sources of Additional Information

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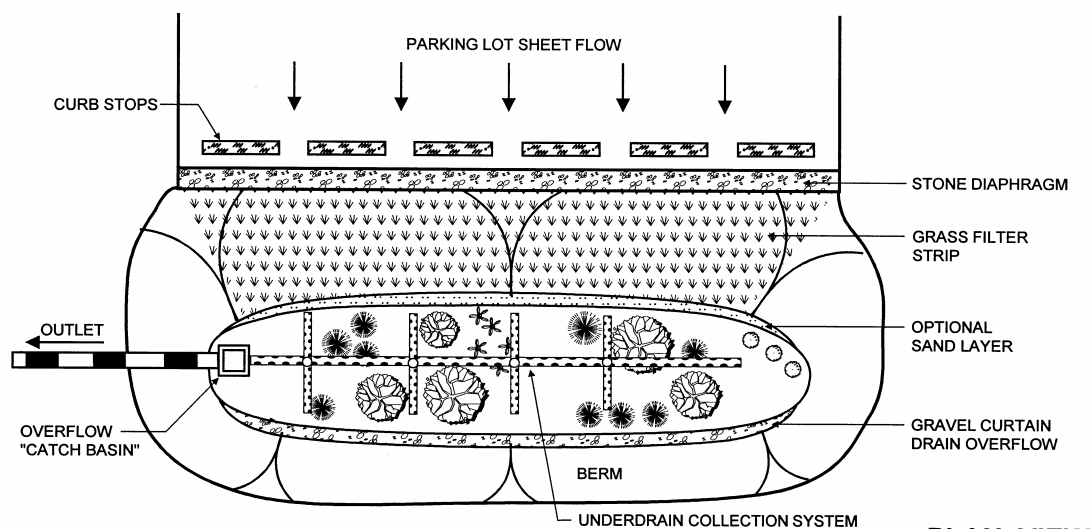
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Hsieh, C.-h. and Davis, A.P. "Engineering Bioretention for Treatment of Urban Stormwater Runoff," *Watersheds 2002, Proceedings on CDROM Research Symposium*, Session 15, Ft. Lauderdale, FL, Feb. 2002.

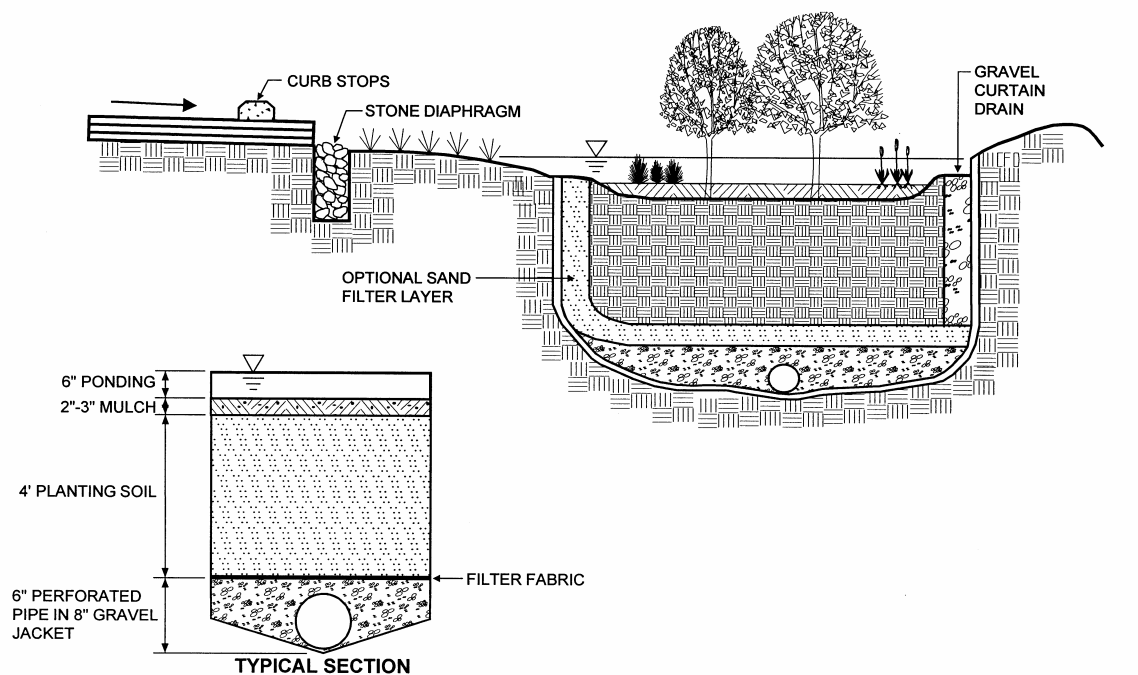
Prince George's County Department of Environmental Resources (PGDER), 1993. Design Manual for Use of *Bioretention in Stormwater Management*. Division of Environmental Management, Watershed Protection Branch. Landover, MD.

U.S. EPA Office of Water, 1999. Stormwater Technology Fact Sheet: Bioretention. EPA 832-F-99-012.

Weinstein, N. Davis, A.P. and Veeramachaneni, R. "Low Impact Development (LID) Stormwater Management Approach for the Control of Diffuse Pollution from Urban Roadways," *5th International Conference Diffuse/Nonpoint Pollution and Watershed Management Proceedings*, C.S. Melching and Emre Alp, Eds. 2001 International Water Association



PLAN VIEW



PROFILE

Schematic of a Bioretention Facility (MDE, 2000)



WetlandMod[®]

A Stormwater Biofiltration Solution



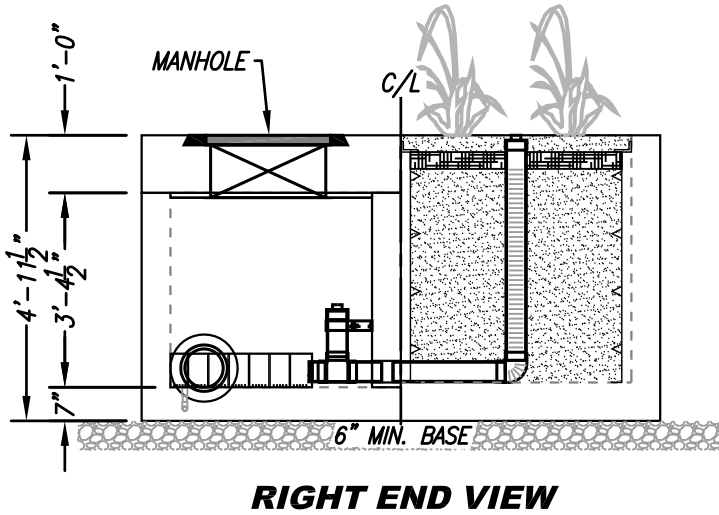
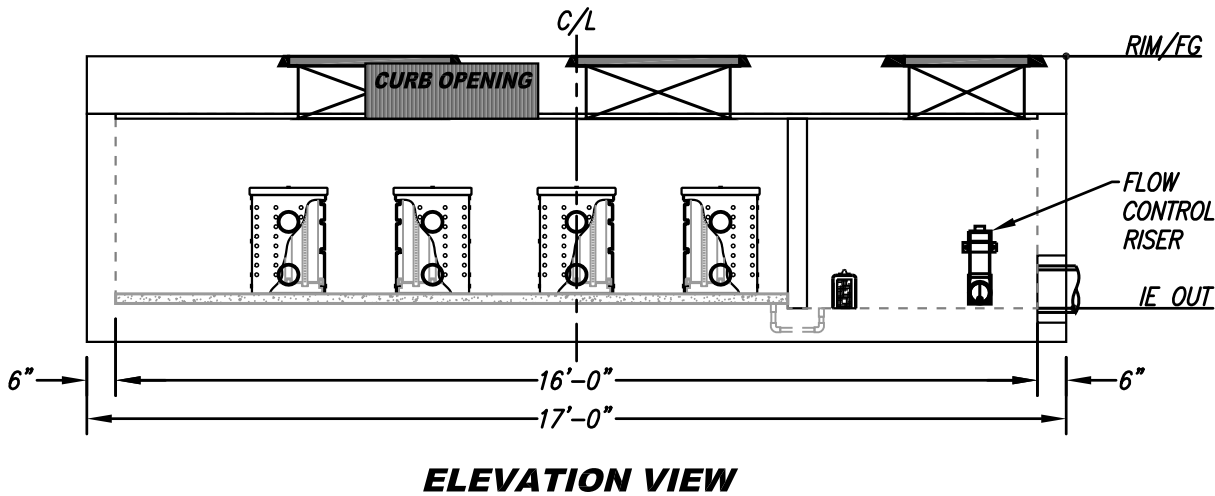
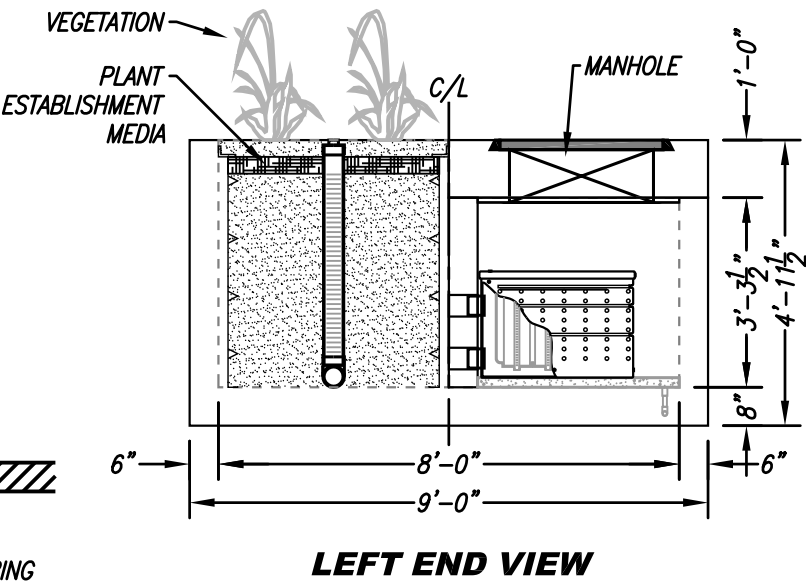
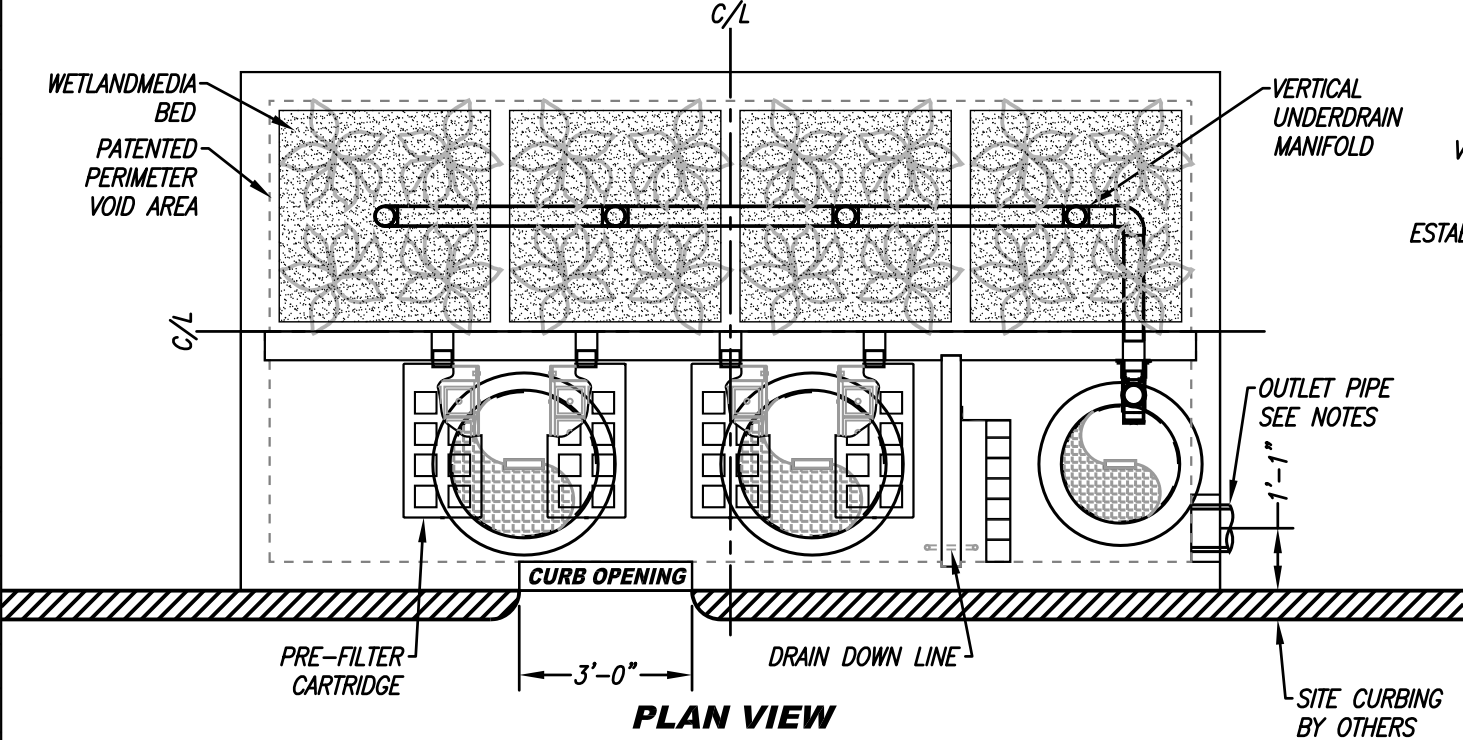
| SITE SPECIFIC DATA | | | |
|--|--------------|------------------|------------|
| PROJECT NUMBER | | | |
| ORDER NUMBER | | | |
| PROJECT NAME | | | |
| PROJECT LOCATION | | | |
| STRUCTURE ID | | | |
| TREATMENT REQUIRED | | | |
| VOLUME BASED (CF) | | FLOW BASED (CFS) | |
| | | | |
| TREATMENT HGL AVAILABLE (FT) | | | |
| PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE | | | |
| PIPE DATA | I.E. | MATERIAL | DIAMETER |
| INLET PIPE 1 | | | |
| INLET PIPE 2 | | | |
| OUTLET PIPE | | | |
| | PRETREATMENT | BIOFILTRATION | DISCHARGE |
| RIM ELEVATION | | | |
| SURFACE LOAD | PEDESTRIAN | OPEN PLANTER | PEDESTRIAN |
| FRAME & COVER | 2EA ø30” | N/A | ø24” |
| WETLANDMEDIA VOLUME (CY) | | | TBD |
| ORIFICE SIZE (DIA. INCHES) | | | TBD |
| NOTES: PRELIMINARY NOT FOR CONSTRUCTION. | | | |

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATER TIGHT PER MANUFACTURERS STANDARD CONNECTION DETAIL.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. VEGETATION SUPPLIED AND INSTALLED BY OTHERS. ALL UNITS WITH VEGETATION MUST HAVE DRIP OR SPRAY IRRIGATION SUPPLIED AND INSTALLED BY OTHERS.
7. CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURERS WARRANTY IS VOID WITH OUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT BIO CLEAN.



| | |
|-------------------------------------|-------|
| TREATMENT FLOW (CFS) | 0.462 |
| OPERATING HEAD (FT) | 3.4 |
| PRETREATMENT LOADING RATE (GPM/SF) | 2.0 |
| WETLAND MEDIA LOADING RATE (GPM/SF) | 1.0 |



PROPRIETARY AND CONFIDENTIAL:
THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE SOLE PROPERTY OF FORTERRA AND ITS COMPANIES. THIS DOCUMENT, NOR ANY PART THEREOF, MAY BE USED, REPRODUCED OR MODIFIED IN ANY MANNER WITH OUT THE WRITTEN CONSENT OF FORTERRA.



MWS-L-8-16-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

OVERVIEW

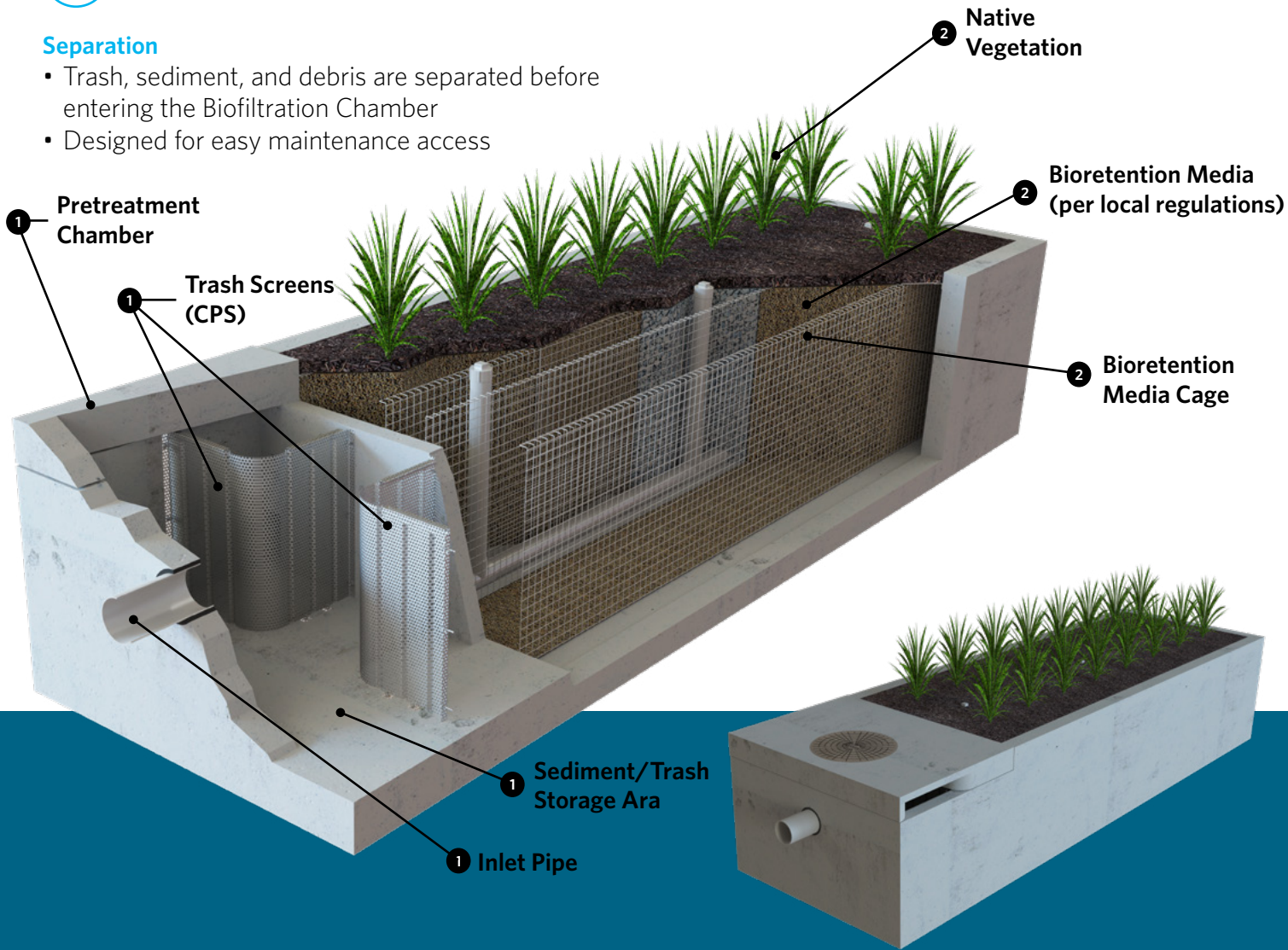
The WetlandMod® provides the *right* direction in stormwater bioretention/biofiltration treatment, leveraging the same horizontal flow advantages as the Modular Wetlands® System Linear to combine screening, separation, and biofiltration treatment stages.

WetlandMod is a modular compact solution, and Low Impact Development (LID) solution which is functionally equivalent to bioretention, with up to a 50% smaller footprint and the ability to reduce and control water volume in a more efficient way.

1 PRETREATMENT CHAMBER

Separation

- Trash, sediment, and debris are separated before entering the Biofiltration Chamber
- Designed for easy maintenance access



ADVANTAGES

- REDUCES CLOGGING
- BUILT-IN PRETREATMENT
- USES AGENCY PRESCRIBED BIORETENTION SOILS
- NO DEPRESSED LANDSCAPING/ PONDING WATER
- 50% SMALLER FOOTPRINT
- LID COMPLIANT
- NO STANDING WATER / VECTOR CONTROL ISSUES

2 BIOFILTRATION CHAMBER

Horizontal Flow

- Less clogging than downward flow biofilters
- Water flow is subsurface
- Improves biological filtration

Patented Vertical Void Area

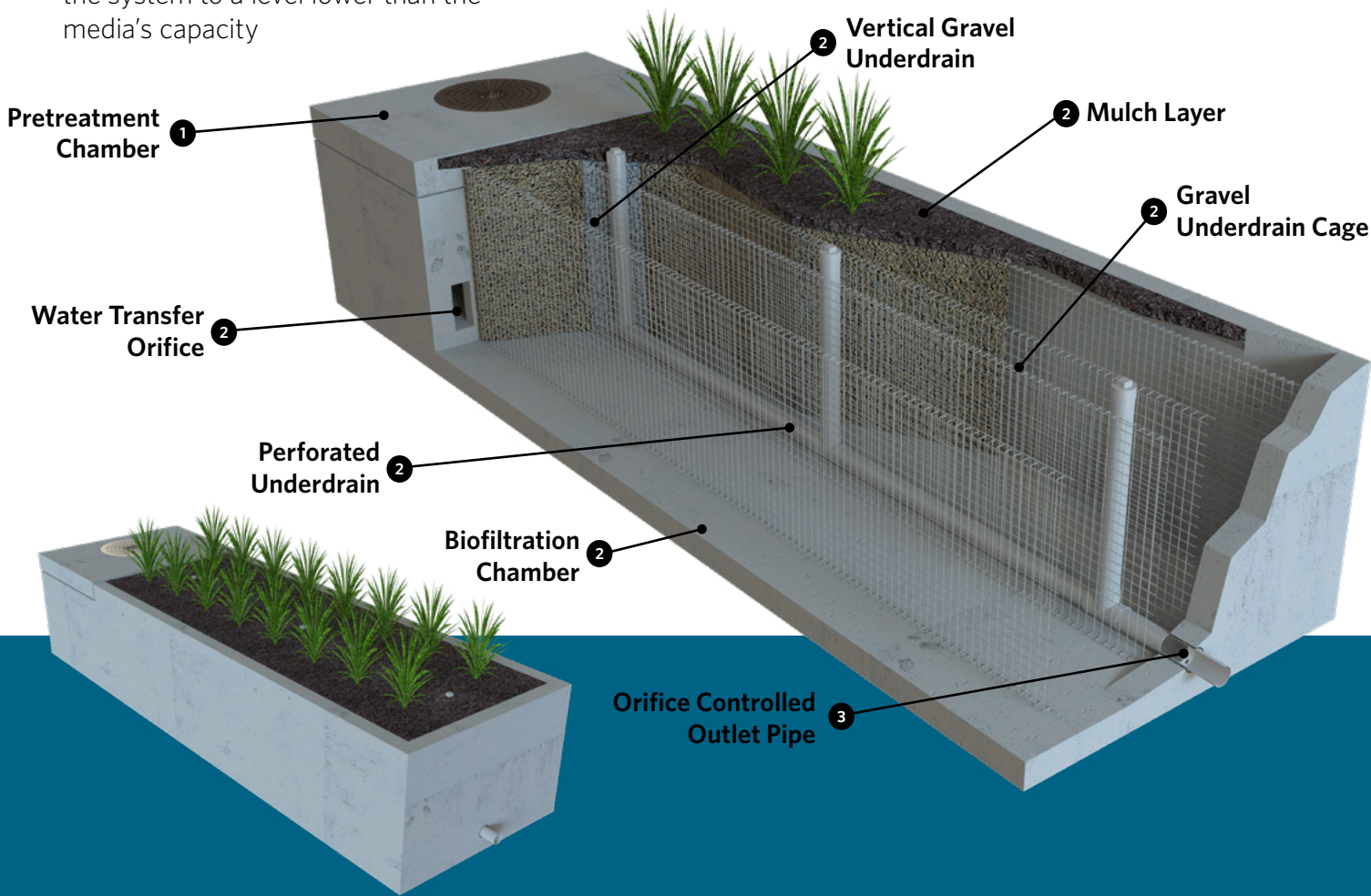
- Vertical ponding area between the walls and biofiltration media
- Maximizes surface area of the media for higher treatment capacity

3 DISCHARGE

Flow Control

- Orifice plate controls flow of water through the system to a level lower than the media's capacity

- Extends the life of the media and improves performance



ADVANTAGES

- 5" - 12" / HOUR INFILTRATION RATE
- LOW MAINTENANCE COSTS
- INCREASED AESTHETIC APPEAL
- NO SAFETY CONCERNS

APPROVALS

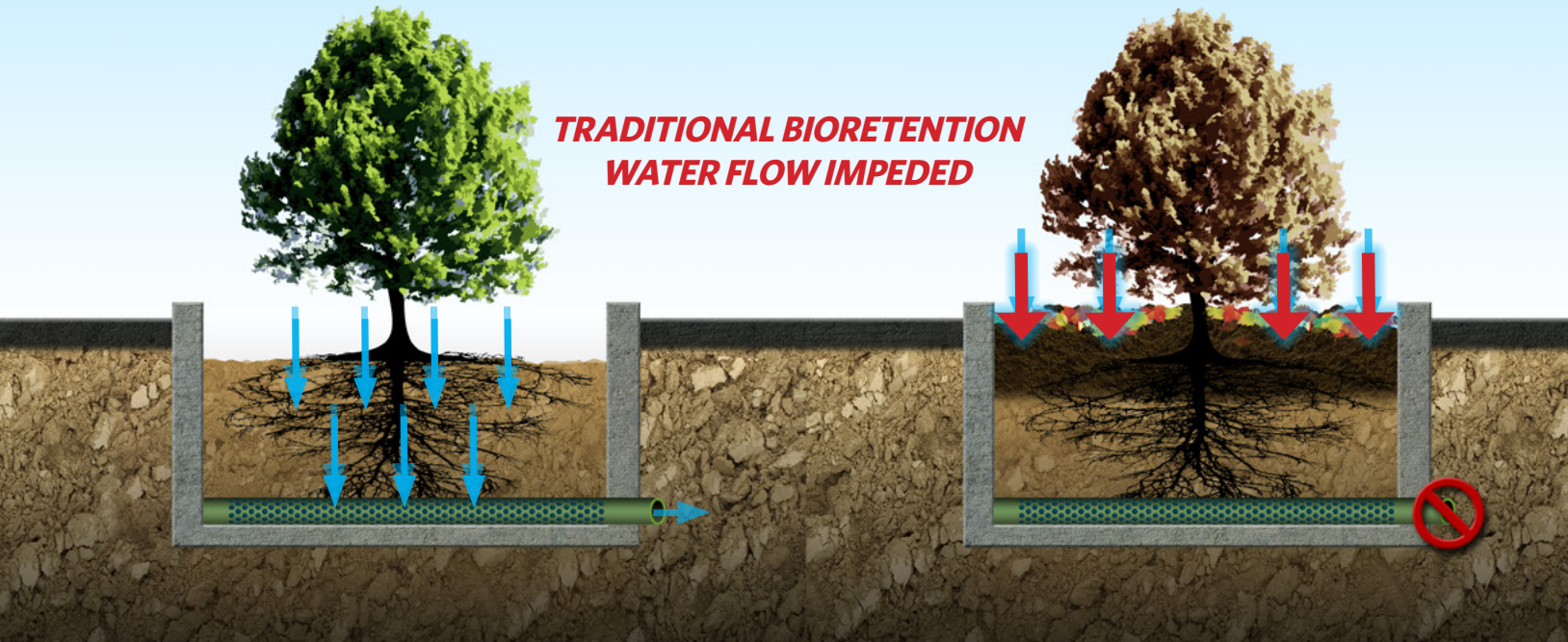


WASHINGTON ECOLOGY
Functionally Equivalent to a Bioretention
Facility for Treating Stormwater
(Bioretention examples: Planter Boxes, Rain Gardens, Biofiltration)

ALTERNATIVE DOWNWARD FLOW FLAWS

Bioretention systems have an inherent flaw — the force of gravity. As stormwater runoff carries pollutants into the system, including sediments and hydrocarbons, they are deposited on top of the bioretention media where it accumulates and quickly clogs the filter media.

It has been documented that sediment accumulation from just a few storm events can completely clog a bioretention system. This leads to drastically reduced infiltration rates, expensive maintenance burdens, and safety issues associated with standing water, depressed landscaping, and vector control.



Downward flow systems filter water in a single vertical direction, forcing polluted material to build up on the top.

As sediment rapidly builds up on the media bed, flow is impeded and the bioretention system quickly clogs or fails.

| | Standard Bioretention | WetlandMod System |
|---|-------------------------|-----------------------------------|
| Total Suspended Solids (TSS) Performance Above 90%? | ✔ Yes | ✔ Yes |
| Water Volume Treated | ✘ 1.074 Million Gallons | ✔ 1.596 Million Gallons (33%More) |
| Sediment Load Treated | ✘ 8,224 Pounds | ✔ 11,460 Pounds (28% More) |

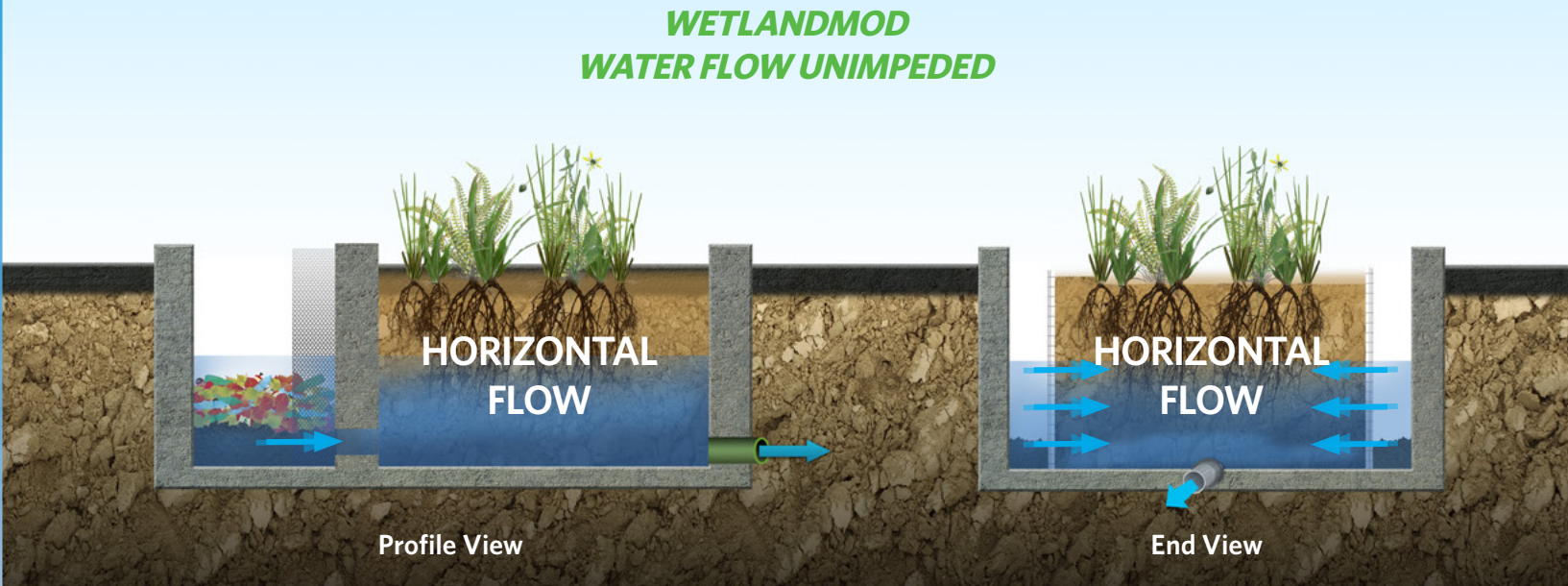
Notes
1. Numbers scaled to a 1306 sqft bioretention system which is typical sizing for a 1 acre commercial development
2. Testing stopped once infiltration rate fell below 5 in/hr at which point the system is no longer treating the design flow rate or water quality volume.
3. Based upon independent third-party comparative testing.

OPERATION

WETLANDMOD FLOW DIRECTION

Horizontal flow biofiltration systems allow sediments to accumulate adjacent to the media bed, drastically reducing clogging, and focusing maintenance attention to one area; for long-term efficiency and treatment quality.

WetlandMod’s horizontal design also allows water to consistently flow subsurface, clear of obstructions in a more controlled state.



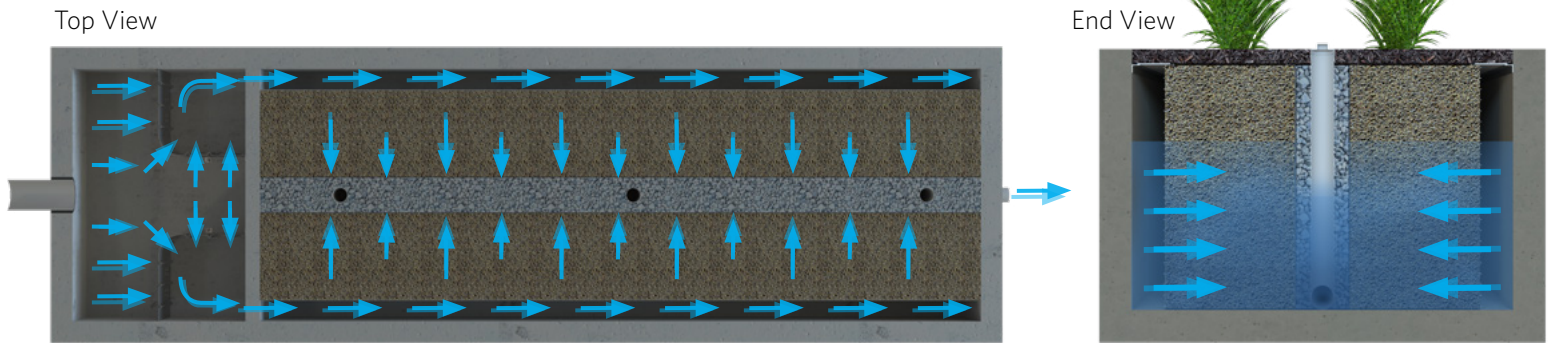
Sediment, trash and debris entering the WetlandMod accumulate adjacent to vertical media surface, reducing clogging.

The vertical ponding area (void area) maximizes sedimentation and minimizes clogging issues associated with downward flow bioretention.

BIOFILTRATION CHAMBER

The patented void area maximizes surface area and minimizes footprint, saving space and money. The unique design accomplishes this by allowing water to penetrate the media bed, not only from the top, but from each side.

Up to 2x more surface area than traditional downward flow bioretention systems.

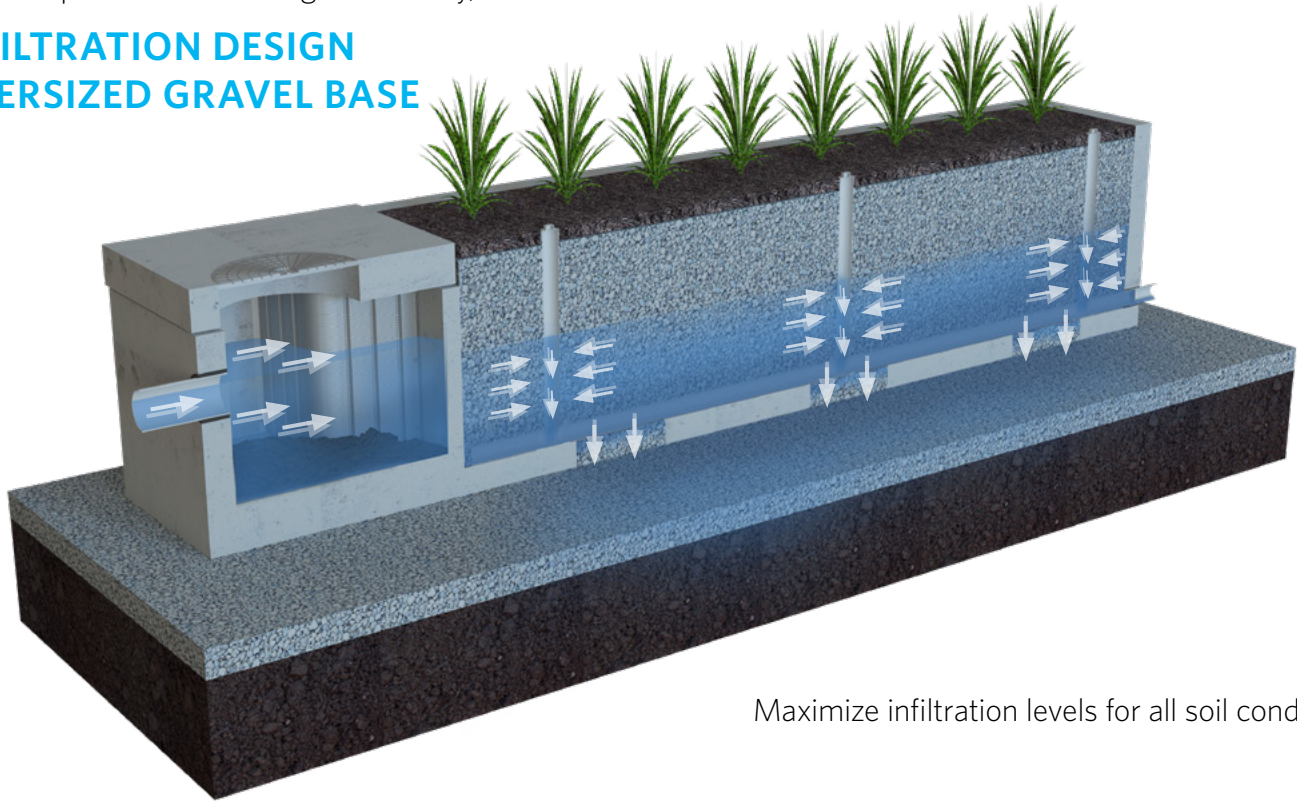


CONFIGURATIONS

The goal of the WetlandMod system is to minimize footprint and land costs associated with traditional bioretention/biofiltration systems. This is achieved by utilizing horizontal flow technology and combining it with traditional downward flow, therefore maximizing the surface area for a given footprint.

WetlandMod is constructed from modular precast concrete structures. The system can be configured as standard curb type, multiple inlet pipes, and/or grate options into the pretreatment chamber with optional internal bypass. The biofiltration chambers can be designed for various length and width combinations (shown below) to allow for easy integration with parking lot island designs. The system comes in two standard widths: 5 feet (18" minimum media requirement - San Diego County and Bay Area Region) and 6 feet (24" minimum media requirement - Los Angeles County).

INFILTRATION DESIGN OVERSIZED GRAVEL BASE

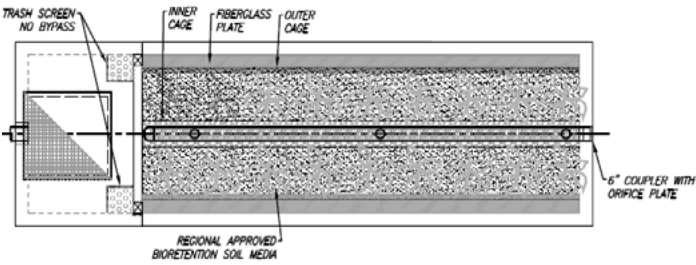


Maximize infiltration levels for all soil conditions.

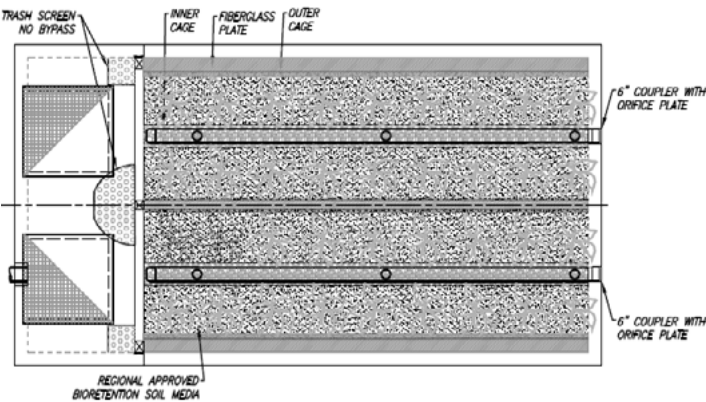
HIGHLY MODULAR

Our standard 6 foot single row and 11 foot double row models, for 24" soil media thickness, are commonly used together to meet wide design requirements and address transportation challenges.

Single Row



Double Row



INSTALLATION



Simple vault and media installation.



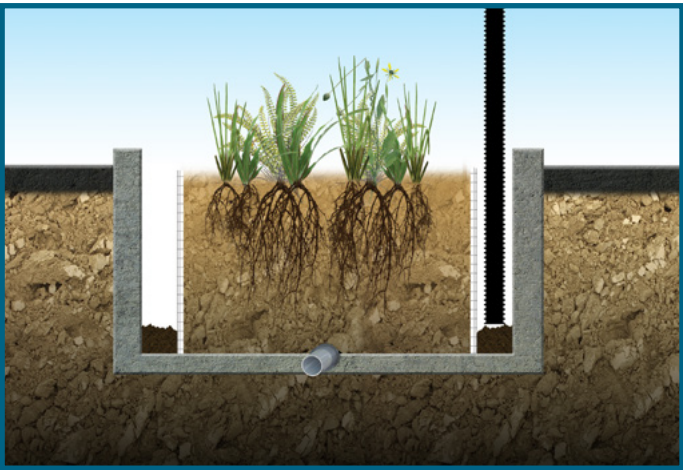
All-in-one treatment train, no need for separate trash capture manhole or vault.

MAINTENANCE

A quick and easy maintenance regimen begins with a simple design, and the WetlandMod features benefits that no other bioretention system can replicate. First, the WetlandMod's pretreatment chamber can be accessed via a manhole cover or grate, providing consolidated access to most of the trash, debris, and sediment. The perimeter void areas are more easily accessible with a conventional vacuum truck, allowing plant beds to remain undisturbed.



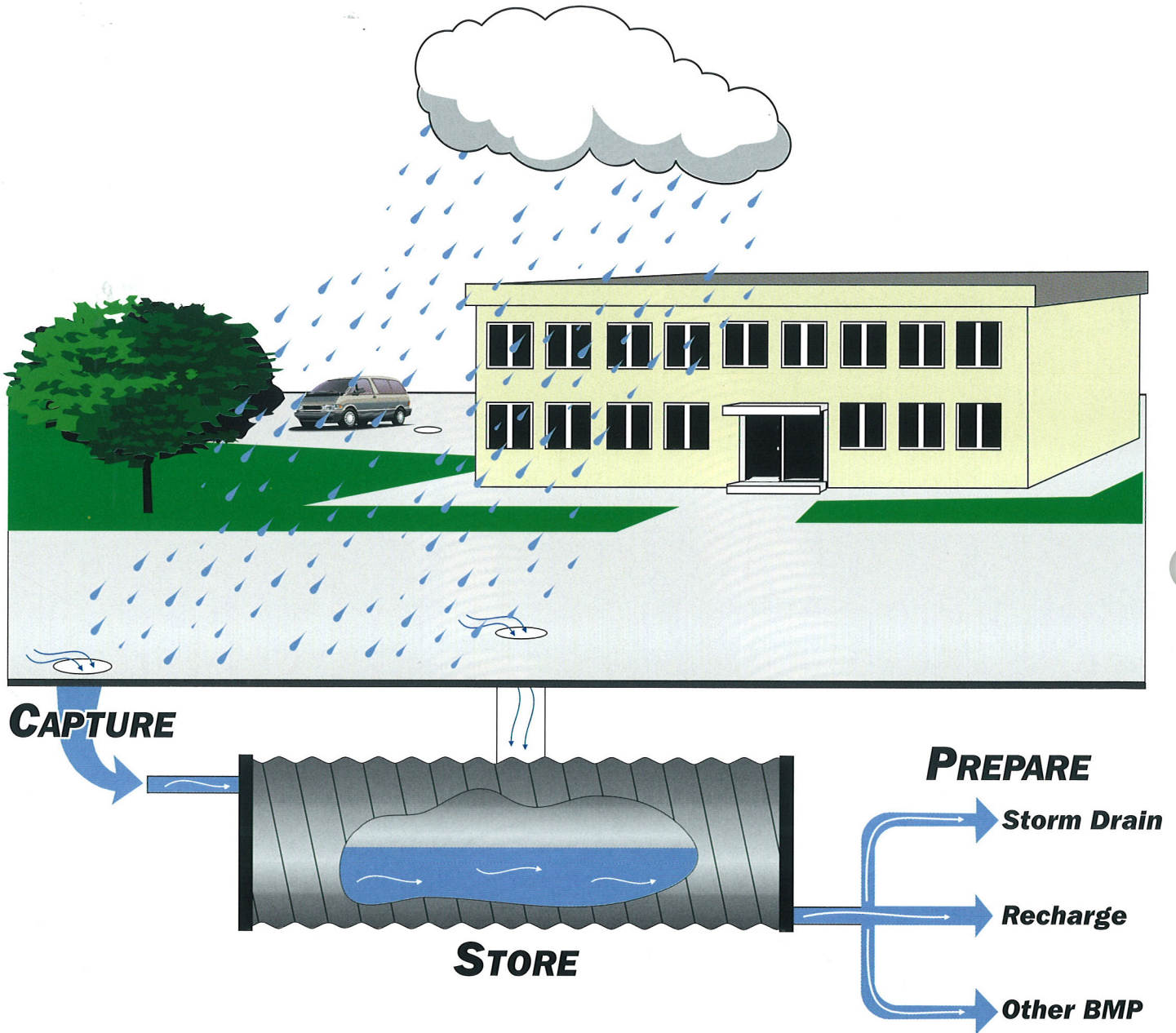
The average maintenance time is 45 minutes using a standard vacuum truck.



The WetlandMod is designed for easy hose line access to every debris and sediment chamber.

In areas under C.3 guidance, there is no need for removal and replacement of the 6 inches or more of top soil, so there is no risk of damaging the plants and irrigation systems (if needed) that may occur during the topsoil replacement with a vertical flow planter.

STORMWATER MANAGEMENT



CAPTURE stormwater near its inception without having to convey to a centralized detention facility.

STORE large volumes of stormwater economically underground within a small footprint conserving valuable surface space.

PREPARE stormwater for onsite infiltration, flow rate reduction control, or water quality treatment.



STORM WATER MANAGEMENT

As American communities continue to grow, parking lots and buildings are replacing natural open space and permeable surfaces. This transformation from permeable to impermeable surfaces increases the volume and peak flow rate of urban runoff. Increased runoff can overload existing municipal storm drains and contribute to the pollution of our national waterways.

Under the National Pollutant Discharge Elimination System (NPDES) regulations, the EPA requires government agencies to implement programs to mitigate increases in stormwater runoff and pollutant discharges from storm drains. Agencies nationwide recognize onsite detention systems as valuable tools to help meet the EPA requirements.

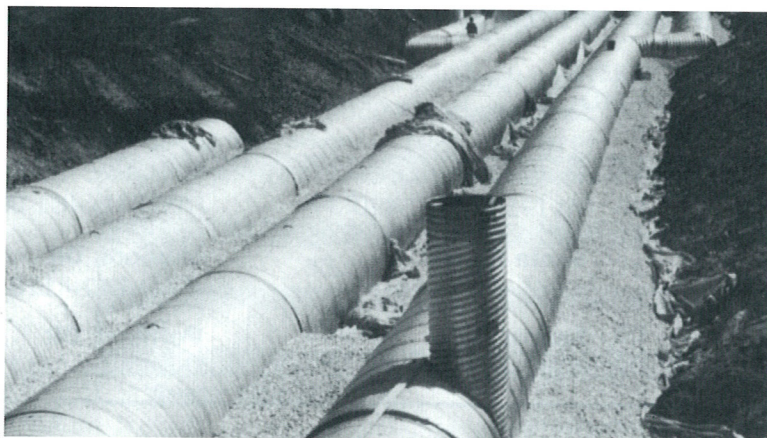
Detention systems can be used to store and release excess stormwater for beneficial uses, such as ground water recharge or irrigation. When required, outlet control devices can reduce the release rate into existing drainage systems or water quality treatment systems.

CORRUGATED STEEL PIPE (CSP) DETENTION SYSTEMS

Corrugated Steel Pipe (CSP) detention systems offer more design versatility, storage value, and lower installation cost than any other underground storage system or method. Large diameter CSP detention systems, with a 75-year minimum service life, provide the most cost effective stormwater storage methods available.

A simple system may consist of a single chamber with welded end caps, inlet, outlet, and a means of access to the chamber. Single detention chambers, scattered throughout the site, can sometimes utilize existing natural drainage and may eliminate the need to convey water to a large central multibarrel structure. Small diameter pipe can be used to connect multiple barrels or convey system discharges.

Most underground detention systems are designed and installed with minimal cover, typically four feet or less. Simple, more economical, 30" access risers can be substituted for larger, more expensive, storm drain sized manholes with prefabricated ladder assemblies. Special component sizes and/or configurations are available. Contact your local Pacific Corrugated Pipe Company sales representative for more information.



The storage capacity of a CSP detention system is virtually unlimited. Space permitting, any number of chambers can be added for an increased capacity.

BEST MANAGEMENT PRACTICES

In response to EPA mandates, municipalities have strengthened "zero increase" runoff and pollutant migration regulations. Most runoff control and pollutant treatment techniques available today cannot handle peak flow or volume criteria adopted by local municipalities. Pacific Corrugated Pipe CSP detention systems compliment water quality treatment systems by releasing captured runoff at a rate that maximizes treatment.

Pacific Corrugated Pipe CSP detention chambers in combination with a dry well can eliminate the need for connections to municipal storm sewers. These stand-alone combination systems may greatly reduce permit and construction costs.

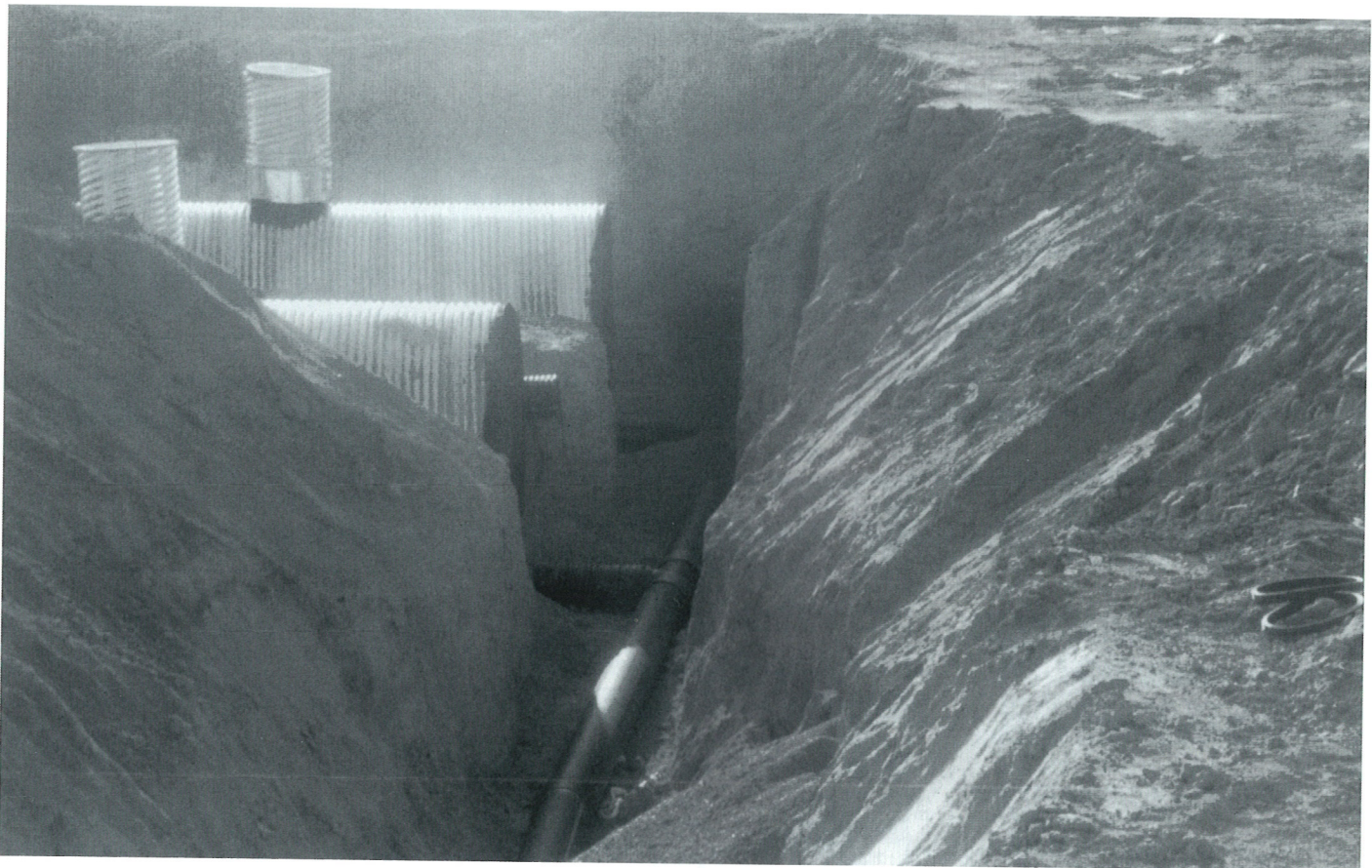
Regional flow criteria and preferred BMPS (Best Management Practices) will vary. Pacific Corrugated Pipe Company representatives will work with developers, design engineers and contractors to comply with all project requirements.

DURABILITY AND INSTALLATION

Galvanized steel can provide a 75-year service life in non-corrosive soil conditions. For longer service life or harsher environments, Aluminized Type II or specialized high performance coatings are also available.

CSP structures are designed to work in conjunction with the surrounding backfill as a soil-structure interaction system. Live loads and dead loads are carried in ring compression in the pipe wall, which in turn is supported by the surrounding backfill. Backfill may be suitable granular materials compacted to a specified AASHTO T-99 density of 90%, or flowable backfill materials that approximate the same bearing capacity.

A good system design considers not only stormwater capacity and discharge rates, but installation factors. Some of these include depth of cover, live loads, dead loads, wall thickness, backfill materials, and installation procedures. Four feet of compacted cover is required in areas where pipe is subject to construction loading.



Contact Pacific Corrugated Pipe Company for information pertaining to a specific region or jobsite design, fabrication, or installation of corrugated steel pipe products.

CSP ADVANTAGES

Corrugated Steel Pipe Detention/Retention Systems are. . .

ECONOMICAL

CSP Systems provide more storage capacity per dollar invested.

DURABLE

Can be designed for any service life requirement.

VERSATILE

Easy to design for any service life requirements.

EXPANDABLE

Just add more pipe for additional storage.

LIGHTWEIGHT

Up to 40 times lighter than concrete

Easy to install with smaller equipment.

EFFECTIVE LAND USE

Requires no valuable surface area.

LOW MAINTENANCE

Years of maintenance free operation.

ENVIRONMENTALLY SOUND

Reduce damage from excessive surface runoff.

Recharge groundwater.

Can be used to treat captured water.



Four feet of cover is required in areas where pipe is subject to construction loading.



PACIFIC CORRUGATED PIPE CO.

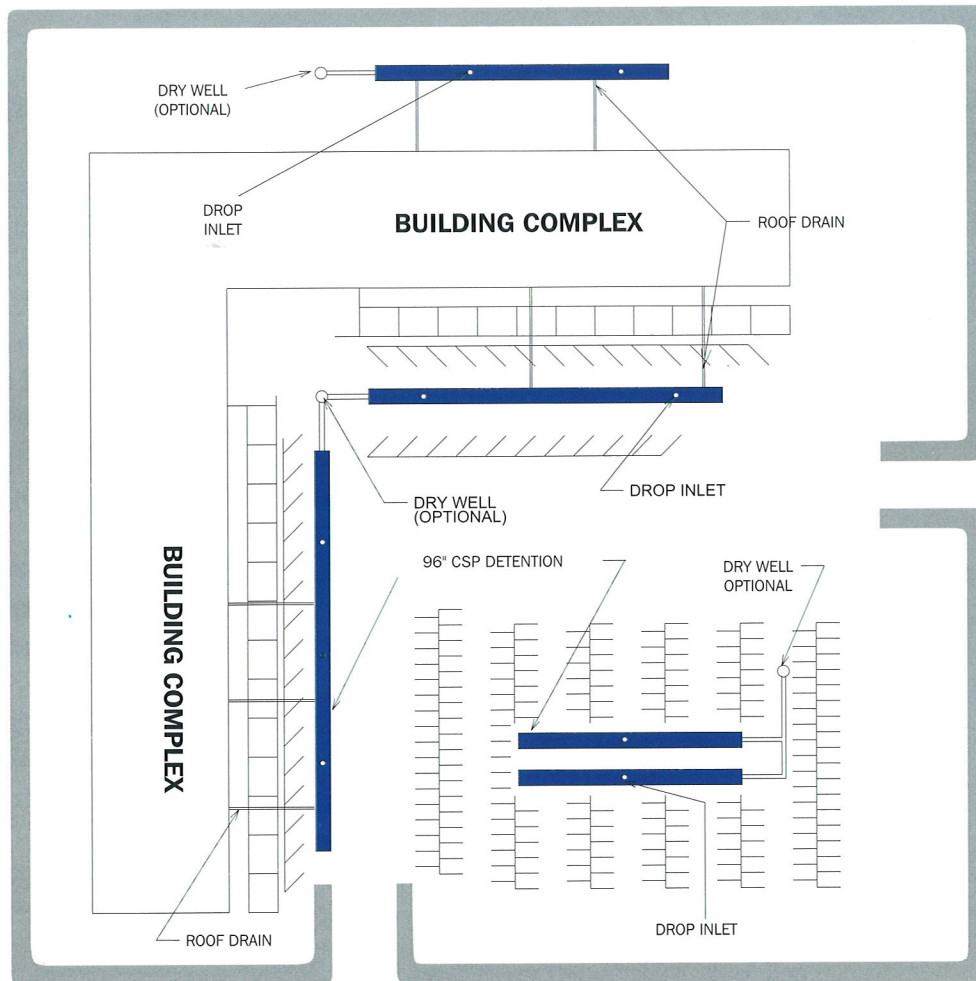
DESIGN TABLE



CORRUGATED STEEL PIPE DETENTION CHAMBER

| DIAMETER (INCH) | VOLUME / LF | | WEIGHT (LBS/FT) | MINIMUM GAUGE | CORR (INCH) |
|---------------------------|-------------|---------|--------------------|------------------|----------------|
| | CF | GALLONS | | | |
| **Larger Sizes Available | | | | | |
| 96 | 50.3 | 376 | 87 | 16 | 3 X 1 |
| 90 | 44.2 | 331 | 82 | 16 | 3 X 1 |
| 84 | 38.5 | 288 | 77 | 16 | 3 X 1 |
| 78 | 33.2 | 248 | 71 | 16 | 3 X 1 |
| 72 | 28.3 | 212 | 66 | 16 | 3 X 1 |
| 66 | 23.8 | 178 | 60 | 16 | 3 X 1 |
| 60 | 19.6 | 147 | 55 | 16 | 3 X 1 |
| **Smaller Sizes Available | | | | | |

Onsite Detention



LEGEND: **CSP DETENTION CHAMBER**

COMMITMENT TO CUSTOMER SATISFACTION

Pacific CSP representatives are committed to work closely with design engineers, developers, contractors and agencies to insure the most economical and feasible detention system is approved and designed. Construction specifications, bid estimates, calculation procedures, and structurally pre-engineered height-of-cover tables are also available.

Contact your local Pacific representative below for details and design options.



PACIFIC CORRUGATED PIPE CO.

WEB SITE: <http://www.pac-corr-pipe.com> **EMAIL:** info@pac-corr-pipe.com

13680 Slover Avenue
Fontana, CA 92337
 (909) 829-4235
 TOLL FREE (800) 338-5858
 FAX (909) 829-8035

Las Vegas, NV
 (702) 363-5530

San Diego, CA
 (760) 732-1444

5999 Power Inn Road
Sacramento, CA 95824
 (916) 383-4891
 No. CA only (800) 852-7272
 FAX (916) 383-5420

Santa Fe, NM
 (505) 474-5400

Seattle, WA
 (206) 382-9889

89822 Highway 99 North
Eugene, OR 97402
 (541) 461-0990
 TOLL FREE (800) 528-8815
 FAX (541) 461-0993

Medford, OR
 (541) 772-4123

Portland, OR
 (503) 224-4817

28999 W. Highway 84
Casa Grande, AZ 85222
 (520) 426-6000
 TOLL FREE (800) 822-1770
 FAX (520) 426-1209

MEMBER
NCSPA
 NATIONAL CORRUGATED STEEL PIPE ASSOCIATION

Parking/Storage Area Maintenance SC-43



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 protocols in this fact sheet 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

The goal of this program is to ensure stormwater pollution prevention practices are considered when conducting activities on or around parking areas and storage areas to reduce potential for pollutant discharge to receiving waters. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

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.

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

| | |
|----------------|---|
| Sediment | ✓ |
| Nutrients | |
| Trash | ✓ |
| Metals | ✓ |
| Bacteria | |
| Oil and Grease | ✓ |
| Organics | ✓ |



SC-43 Parking/Storage Area Maintenance

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 quantities.
- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.
- Discharge soapy water remaining in mop or wash buckets to the sanitary sewer through a sink, toilet, clean-out, or wash area with drain.

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, vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system if possible.
- 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.
- Follow the procedures below if water is used to clean surfaces:
 - Block the storm drain or contain runoff.
 - Collect and pump wash water to the sanitary sewer or discharge to a pervious surface. Do not allow wash water to enter storm drains.
 - Dispose of parking lot sweeping debris and dirt at a landfill.
- Follow the procedures below when cleaning heavy oily deposits:
 - Clean oily spots with absorbent materials.
 - Use a screen or filter fabric over inlet, then wash surfaces.

Parking/Storage Area Maintenance SC-43

- Do not allow discharges to the storm drain.
- Vacuum/pump discharges to a tank or discharge to sanitary sewer.
- Appropriately dispose of spilled materials and absorbents.

Surface Repair

- Preheat, transfer or load hot bituminous material away from storm drain inlets.
- Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff.
- Cover and seal nearby storm drain inlets where applicable (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and 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 parking facilities and stormwater conveyance systems associated with parking facilities 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

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Place a stockpile of spill cleanup materials where it will be readily accessible or at a central location.
- Clean up fluid spills immediately with absorbent rags or material.
- Dispose of spilled material and absorbents properly.

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.

SC-43 Parking/Storage Area Maintenance

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 regularly to minimize cleaning with water.
- Clean out oil/water/sand separators regularly, especially after heavy storms.
- Clean parking facilities regularly to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions.

Supplemental Information

Further Detail of the BMP

Surface Repair

Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from 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 all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal. Only use only as much water as is necessary for dust control to avoid runoff.

References and Resources

California's Nonpoint Source Program Plan <http://www.swrcb.ca.gov/nps/index.html>

Clark County Storm Water Pollution Control Manual
<http://www.co.clark.wa.us/pubworks/bmpman.pdf>

King County Storm Water Pollution Control Manual <http://dnr.metrokc.gov/wlr/dss/spcm.htm>

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA). <http://www.basmaa.org/>

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program <http://www.scvurppp.org>

The Storm Water Managers Resource Center <http://www.stormwatercenter.net/>



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize

Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff and stormwater that may contain certain pollutants. The protocols in this fact sheet are intended to reduce pollutants reaching receiving waters through proper conveyance system operation and maintenance.

Approach

Pollution Prevention

Maintain catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis to remove pollutants, reduce high pollutant concentrations during the first flush of storms, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

Suggested Protocols

Catch Basins/Inlet Structures

- Staff should regularly inspect facilities to ensure compliance with 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 SC34 Waste Handling and Disposal).

Targeted Constituents

| | |
|----------------|---|
| Sediment | ✓ |
| Nutrients | |
| Trash | ✓ |
| Metals | |
| Bacteria | ✓ |
| Oil and Grease | |
| Organics | |



SC-44 Drainage System Maintenance

- Clean catch basins, storm drain inlets, and other conveyance structures before the wet season to remove sediments and debris accumulated during the summer.
- 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.
- 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 if necessary 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. Do not dewater near a storm drain or stream.

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 and pump flushed effluent to the sanitary sewer for treatment whenever possible.

Pump Stations

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do not allow discharge to reach the storm drain system when cleaning a storm drain pump station or other facility.
- Conduct routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.

Open Channel

- Modify storm channel characteristics to improve channel hydraulics, increase pollutant removals, and 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 Stream 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

- Look for evidence of illegal discharges or illicit connections during routine maintenance of conveyance system and drainage structures:
 - 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 upgradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
- Eliminate the discharge once the origin of flow is established.
- Stencil or demarcate 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

- Inspect and clean up hot spots and other storm drainage areas regularly 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.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Allow only properly trained individuals to handle hazardous materials/wastes.
- Have staff involved in detection and removal of illicit connections trained in the following:
 - OSHA-required Health and Safety Training (29 CFR 1910.120) plus annual refresher training (as needed).

SC-44 Drainage System Maintenance

- 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).

Spill Response and Prevention

- Investigate all reports of spills, leaks, and/or illegal dumping promptly.
- Clean up all spills and leaks using “dry” methods (with absorbent materials and/or rags) or dig up, remove, and properly dispose of contaminated soil.
- Refer to fact sheet SC-11 Spill Prevention, Control, and Cleanup.

Other Considerations (Limitations and Regulations)

- Clean-up 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 prohibition against disposal of flushed effluent to sanitary sewer in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Local municipal codes may include sections prohibiting discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.

Requirements

Costs

- An aggressive catch basin cleaning program could require a significant capital and O&M budget.
- The elimination of illegal dumping is dependent on the availability, convenience, and cost of alternative means of disposal. The primary cost is for staff time. Cost depends on how aggressively a program is implemented. Other cost considerations for an illegal dumping program include:
 - Purchase and installation of signs.
 - Rental of vehicle(s) to haul illegally-disposed items and material to landfills.
 - Rental of heavy equipment to remove larger items (e.g., car bodies) from channels.
 - Purchase of landfill space to dispose of illegally-dumped items and material.

- 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.

Maintenance

- Two-person teams may be required to clean catch basins with vactor trucks.
- Teams of at least two people plus administrative personnel are required to identify illicit discharges, depending on the complexity of the storm sewer system.
- Arrangements must be made for proper disposal of collected wastes.
- Technical staff are required to detect and investigate illegal dumping violations.

Supplemental Information

Further Detail of the BMP

Storm Drain Flushing

Flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in storm drainage systems. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as an open channel, another point where flushing will be initiated, or the sanitary sewer and the treatment facilities, thus preventing resuspension and overflow of a portion of the solids during storm events. Flushing prevents “plug flow” discharges of concentrated pollutant loadings and sediments. 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, thereby releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce impacts of stormwater pollution, a second inflatable device placed well downstream may be used to recollect 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 recollect 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% for organics and 55-65% 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 sewer flushing.

SC-44 Drainage System Maintenance

References and Resources

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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.

Objectives

- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

| | |
|------------------|-------------------------------------|
| Sediment | <input checked="" type="checkbox"/> |
| Nutrients | <input checked="" type="checkbox"/> |
| Trash | <input checked="" type="checkbox"/> |
| Metals | |
| Bacteria | |
| Oil and Grease | |
| Organics | |
| Oxygen Demanding | <input checked="" type="checkbox"/> |



- 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 known 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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A Citizen's Guide to Understanding Stormwater



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After the Storm

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.

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.

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.

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.



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.