APPENDIX A

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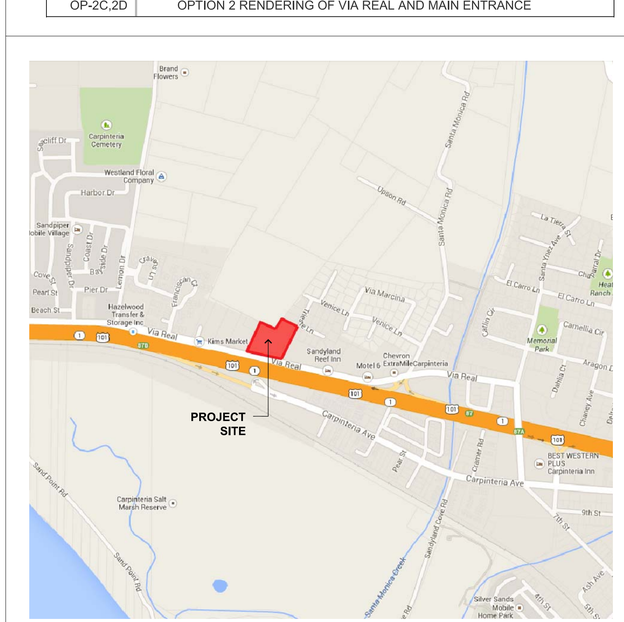
PROJECT INFORMATION

PROJECT ADDRESS:	4110 VIA REAL, CARPINTERIA, CA 93013
ASSESSOR PARCEL NUMBER:	004-017-022
GROSS PARCEL AREA:	± 113,839 SQ.FT (± 2.62 ACRES)
LEGAL DESCRIPTION:	PARCEL C OF PARCEL MAP NO. 25114 IN THE CITY OF CARPINTERIA, COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, AS SHOWN ON MAP FILED IN BOOK 39, PAGES 15 THROUGH 16 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.
GENERAL PLAN LAND USE:	GENERAL COMMERCIAL (GC)
ZONING:	COMMERCIAL PLANNED DEVELOPMENT DISTRICT/ RESIDENTIAL OVERLAY (CPD/R)
BUILDING HEIGHT:	30 FEET MAXIMUM

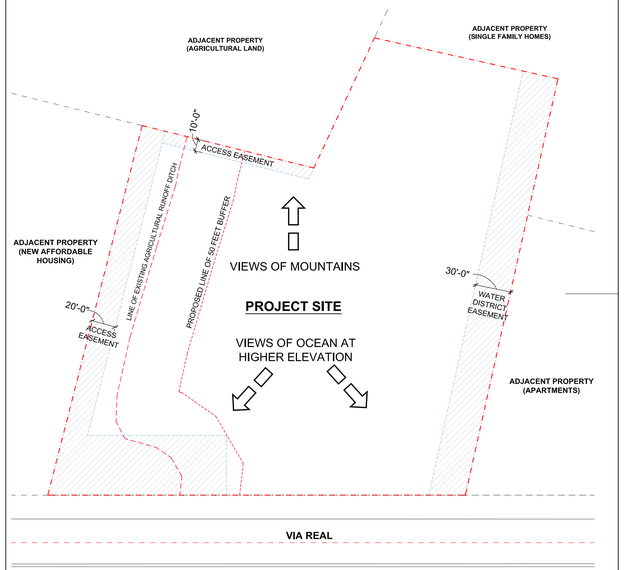
PROPOSED PROJECT

PROPOSED USE:	NEW HOTEL (FAIRFIELD INN & SUITES BY MARRIOTT)
NO. OF GUESTROOMS:	72 GUESTROOMS
NO. OF STORIES:	2 STORY
TOTAL BUILDING AREA:	44,191 SQ.FT (GROSS)
LOT COVERAGE:	BUILDING FOOTPRINT = 22,460 SQ.FT. (20 %)
PARKING REQUIRED:	77 SPACES (72 FOR GUESTROOMS + 5 EMPLOYEES)
PARKING PROVIDED:	77 SPACES (INCLUDES 4 ACCESSIBLE PARKING) 2 LOADING AREAS PROVIDED AT GRADE LEVEL

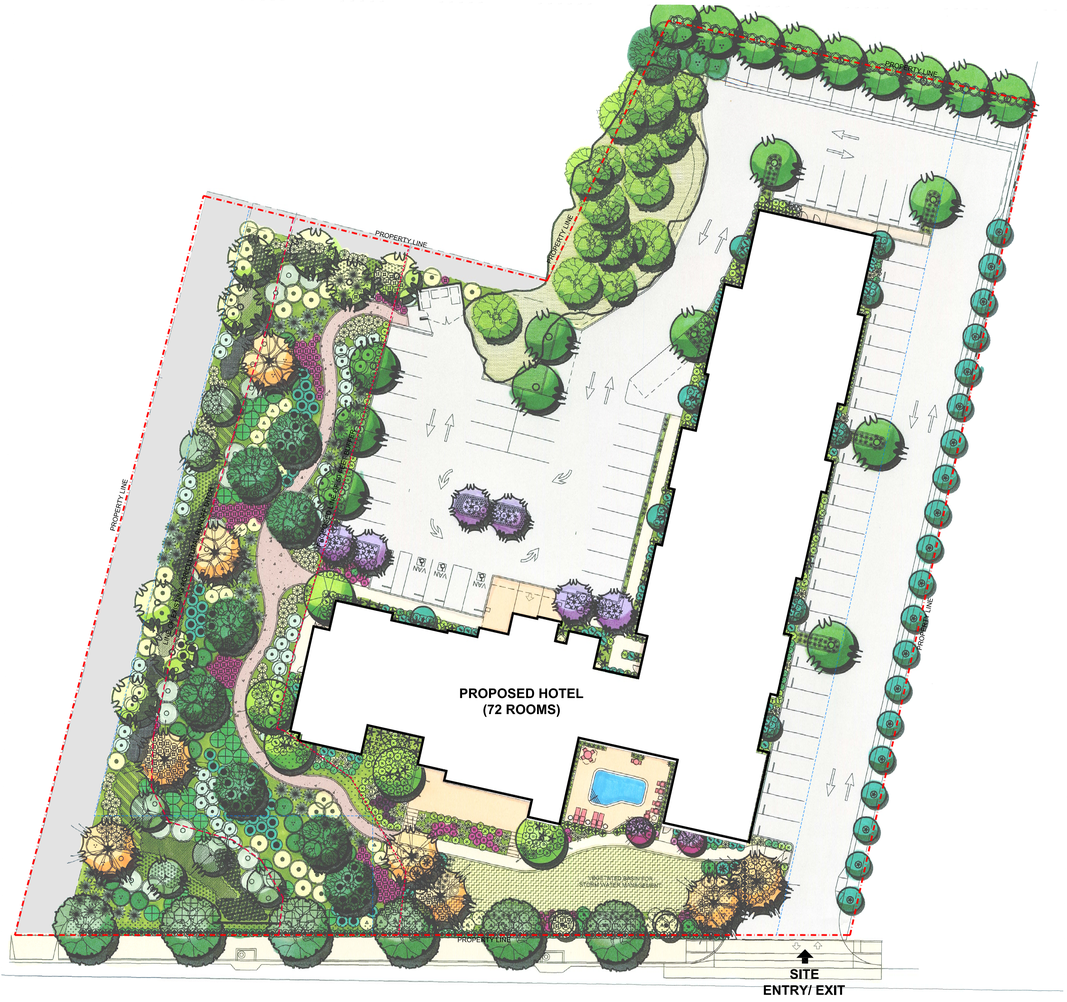
REPORTS INCLUDED:
STORMWATER CONTROL PLAN- DATED JULY 20, 2019 (PREPARED BY STANTEC CONSULTING SERVICES INC.)



VICINITY MAP



EASEMENTS AND EXISTING CONDITIONS



SITE COVERAGE

TOTAL LOT AREA	113,839 SQ.FT.	(100 %)
BUILDING FOOTPRINT	22,511 SQ.FT.	(20 %)
DRIVEWAYS/ PARKING (INCLUDES 18,719 SQ.FT. EASEMENT)	43,496 SQ.FT.	(38 %)
LANDSCAPE (INCLUDES TERRACE & WALKWAYS)	47,832 SQ.FT.	(42 %)
TERRACE & WALKWAYS	6,111 SQ.FT. (5 %)	

PROPOSED SITE PLAN

0' 30'
15' 60'

SCALE: 1" = 30'-0"

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NKLOSURES, INC. ARCHITECTS
Tel: 323.309.7334
Email:info@nKLOSURES.com

RAM HOTELS
21 PRESTWICK LANE,
AMARILLO, TX 79124

VIA REAL HOTEL
4110 VIA REAL, CARPINTERIA
NOVEMBER 21, 2019

N

PROJECT INFORMATION

EXHIBIT
A1

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EXISTING STREET FRONT- VIEW FROM VIA REAL



EXISTING SITE- VIEW LOOKING SOUTH



EXISTING SITE- VIEW LOOKING NORTH



AERIAL MAP- SITE SURROUNDING

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NOVEMBER 21, 2019

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EXISTING
SITE PHOTOGRAPHS

EXHIBIT
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SCALE: 1" = 20'-0"



SCALE: 1" = 30'-0"

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OVERALL SITE SECTION AND SURROUNDING

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NOTE:

SEE SHEET LP-1 FOR PLANTING PLAN INFORMATION
AND SHEET LI-1 FOR IRRIGATION PLAN INFORMATION

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NOVEMBER 21, 2019

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0' 20' 10' 40'

SCALE: 1" = 20'-0"

PROPOSED LANDSCAPE PLAN-COLOR

EXHIBIT

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LEGEND:

- GUESTROOMS
- CORRIDOR/ PUBLIC SPACES
- SERVICE/ BACK OF HOUSE AREAS

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0' 20'
10' 40'
SCALE: 1" = 20'-0"

PROPOSED LEVEL 01 PLAN

EXHIBIT
A5

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LEGEND:

- GUESTROOMS
- CORRIDOR/ PUBLIC SPACES
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NOVEMBER 21, 2019

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0' 20'
10' 40'
SCALE: 1" = 20'-0"

PROPOSED LEVEL 02 PLAN

EXHIBIT
A6

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PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

EAST ELEVATION

1/8" = 1'-0"

2



PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

SOUTH ELEVATION (FROM VIA REAL)

1/8" = 1'-0"

1

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4110 VIA REAL, CARPINTERIA
NOVEMBER 21, 2019

0' 8'
4' 16'
SCALE: 1/8" = 1'-0"

PROPOSED EXTERIOR ELEVATIONS

EXHIBIT
A7

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PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

WEST ELEVATION
1/8" = 1'-0"

2



PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

NORTH ELEVATION (MAIN ENTRY)
1/8" = 1'-0"

1

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NOVEMBER 21, 2019

0' 8'
4' 16'
SCALE: 1/8" = 1'-0"

EXTERIOR ELEVATIONS

EXHIBIT
A8

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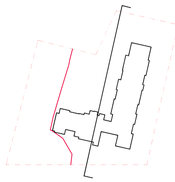
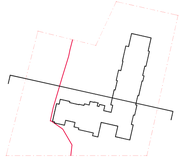
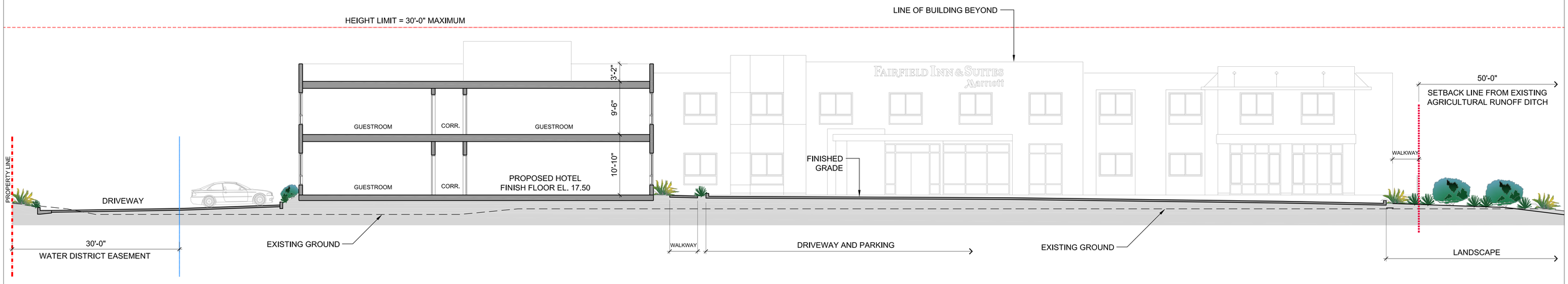




CROSS SECTION BB 2

1/8" = 1'-0"





CROSS SECTION AA 1

1/8" = 1'-0"

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NOVEMBER 21, 2019

0' 8'
4' 16'
SCALE: 1/8" = 1'-0"

BUILDING AND SITE SECTIONS

EXHIBIT
A9

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VIEW OF BUILDING FROM VIA REAL 1

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EXTERIOR RENDERING

EXHIBIT
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VIEW OF MAIN ENTRANCE 1

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EXTERIOR RENDERING

EXHIBIT
A11

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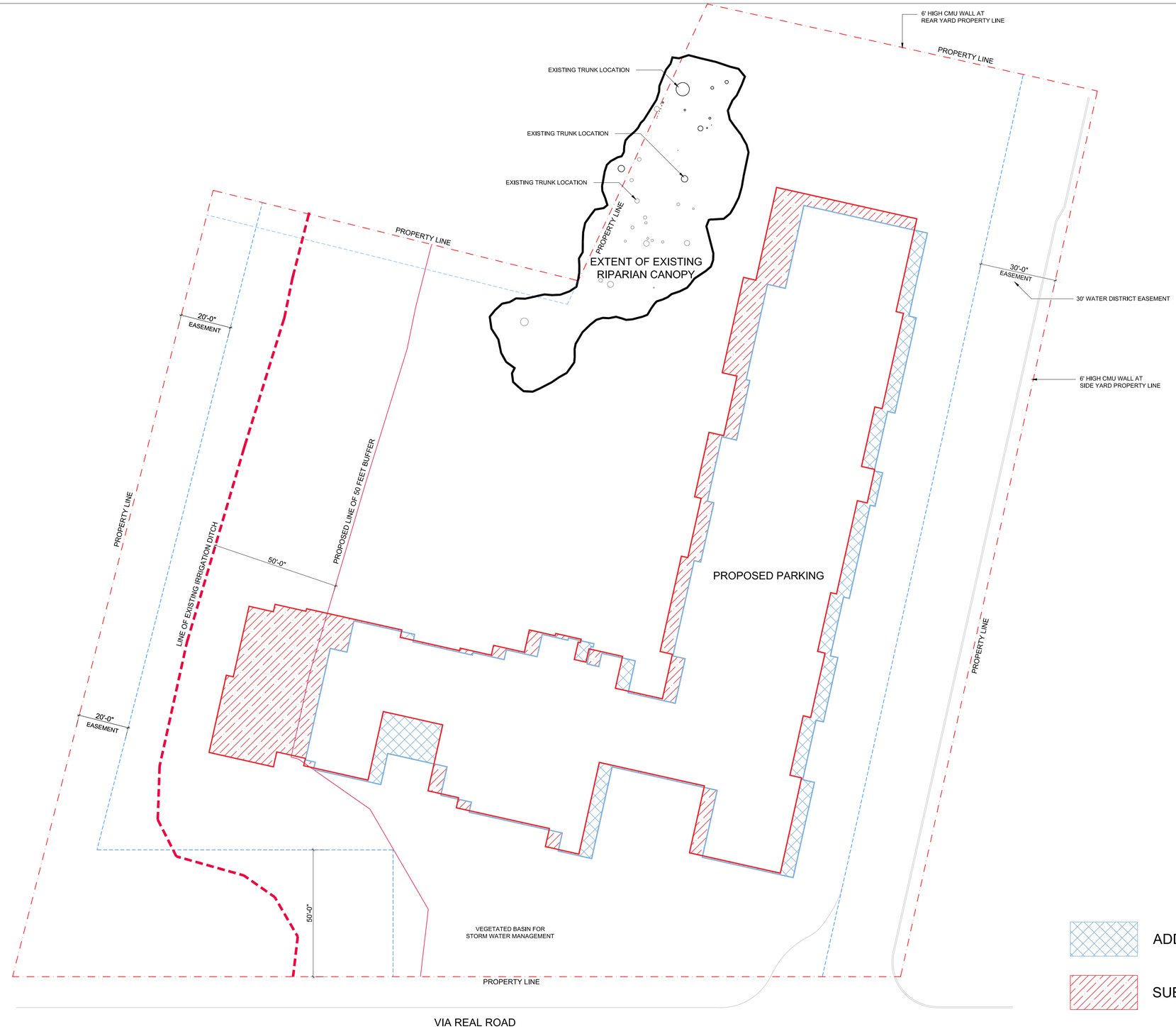

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N

0' 20'
10' 40'
SCALE: 1" = 20'-0"

DESIGN COMPARISON

EXHIBIT
A12

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APPROVED ELEVATION LEVEL 01 FINISH FLOOR EL. 17.50

SOUTH ELEVATION (FROM VIA REAL) 2

1/8" = 1'-0"



PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

SOUTH ELEVATION (FROM VIA REAL) 1

1/8" = 1'-0"

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NOVEMBER 21, 2019

0' 8' 4' 16'
SCALE: 1/8" = 1'-0"

ELEVATIONS COMPARISON

EXHIBIT
A13

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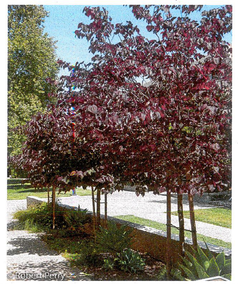


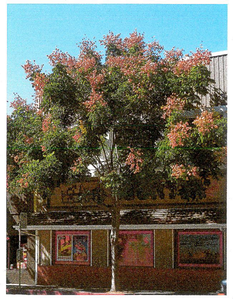
CERCIS C. 'FOREST PANSY'



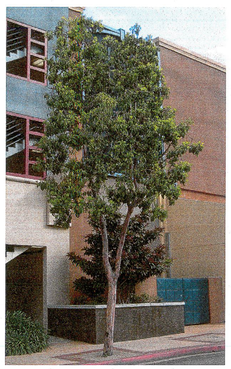
CERCIS OCCIDENTALIS



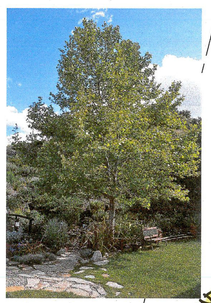
CHITALPA TASHKENTENSIS 'PINK DAWN'



KOELREUTERIA BIPINATA



LOPHOSTEMON CONFERTUS



PLATANUS RACEMOSA



RHUS LANCEA



QUERCUS AGRIFOLIA

POTTED PLANT LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
TREES			
	LAURUS NOBILIS 'SARATOGA'	SARATOGA BAY LAUREL	24" BOX IN 3' DIA LIGHT WEIGHT POT
SHRUBS			
	ASPIDISTRA ELATIOR 'VARIEGATEA'	VARIEGATED CAST IRON PLANT	5 GAL x 1 EA. POT
	DICHONDRA ARGENTEA 'SILVER FALLS'	SILVER DICHONDRA	4" POTS x 6 EA. POT
	VINCA MAJOR 'VARIEGATA'	VARIEGATED PERIWINKLE	4" POTS x 6 EA. POT

POTS - QUICKCRETE - 'SAVANAH' - COLOR TO BE SELECTED BY ARCHITECT

PLANT LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
TREES			
	CERCIS CANADIENSIS 'FOREST PANSY'	PURPLE REDBUD	24" BOX
	CERCIS OCCIDENTALIS	WESTERN REDBUD	24" BOX
	CHITALPA TASHKENTENSIS 'PINK DAWN'	DESERT WILLOW	24" BOX
	LAURUS NOBILIS 'SARATOGA'	SARATOGA BAY LAUREL	24" BOY
	KOELREUTERIA BIPINATA	CHINESE FLAME TREE	24" BOX
	LOPHOSTEMON CONFERTUS	BRISBANE BOX	24" BOX
	PLATANUS RACEMOSA	CALIFORNIA SYCAMORE	24" BOX
	RHUS LANCEA	AFRICAN SUMAC	24" BOX
	QUERCUS AGRIFOLIA	COAST LIVE OAK	24" BOX
	SALIX LASIOLEPIS	ARROYO WILLOW	24" BOX
	POPULUS FREMONTII	FREMONT COTTONWOOD	24" BOX
SHRUBS			
	PHORMIUM 'YELLOW WAVE'	VARIEGATED FLAX	5 GAL
	OLEA EUROPAEA 'LITTLE OLLIE'	DWARF OLIVE	5 GAL
	RHAPHIOLEPIS INDICA 'JACK EVANS'	INDIA HAWTHORN	5 GAL
	BOUGAINVILLEA 'BABY VICTORIA'	DWARF VAR. BOUGAINVILLEA	5 GAL
	CEANOTHUS 'SKYLARK'	SKYLARK CA. LILAC	5 GAL
	AGAVE ATTENUATA	AGAVE	5 GAL
	ANIGOZANTHUS F. 'BUSH PEARL'	PINK COYOTE PAW	1 GAL
	CAREX BUCHANANII 'RED ROOSTER'	LEATHERLEAF SEDGE	1 GAL
	RHAPHIOLEPIS UMBELATTA 'MINOR'	YEDDOW HAWTHORN	1 GAL
	CEANOTHUS 'JOYCE COULTER'	CREEPING MOUNTAIN LILAC	5 GAL
	CISTUS PULVERULENTUS 'SUNSET'	SUNSET ROCKROSE	5 GAL
	GREVILLEA NOELLII	GREVILLEA	5 GAL
	DIETES BICOLOR	FORTNIGHT LILY	5 GAL
	CALLISTEMON 'LITTLE JOHN'	BOTTLEBRUSH SHRUB	5 GAL
	ELAEAGNUS PUNGENS	SILVER BERRY	5 GAL
	DIANELLA TASMANICA 'VARIEGATA'	TASMEN FLAX LILY	5 GAL
	ECHIUM CANDICANS	PRIDE OF MADERA	5 GAL
	BACCHARIS PILULARIS 'PIGEON POINT'	DWARF COYOTE BRUSH	5 GAL
	RIBES SPECIOSUM	FUCHSIA FLOWER GOOSEBERRY	5 GAL
	MIMULUS CARDENALIS	CARDINAL MONKEY FLOWER	5 GAL
	SALVIA MILLIFERA 'TERRA SECA'	BLACK SAGE	5 GAL
	ARTEMISIA CALIFORNICA	CALIFORNIA SAGE	5 GAL
	BACCHARIS SILICIFOLIA	MULEFAT	5 GAL
	ANEMOPIS CALIFORNICA	YERBA MANSA	1 GAL
	MUHLENBERGIA RIGENS	DEER GRASS	1 GAL
	LEYMUS CONDENSTATUS	GIANT WILD RYE	1 GAL
	CERCIS OCCIDENTALIS	WESTERN REDBUD	15 GAL
	RHAMNUS CALIFORNICA	COFFEEBERRY	1 GAL
	ARTEMISIA DOUGLASIANA	MUGWORT	1 GAL

GROUNDCOVER

DYMONDIA MARGARETAE - DYMONDIA - 9" O.C. FROM FLATS	JUNCUS PATENS - COMMON RUSH - 1 GAL @ - 2'-0" O.C.	
MYOPORUM PARVIFOLIUM 'PUTAH CREEK' - MYOPORUM - 1 GAL @ 8'-0" O.C.	JUNCUS EFFUSUS - BOG RUSH - 1GAL @ 3'-0" O.C.	
MIXTURE OF NATIVE GRASSES, CAREX AND RUSH - 1 GAL @ 3'-0" O.C. AVG.	MIMULUS CARDINALIS - SCARLET MONKEY FLOWER - 1 GAL @ 30" O.C.	
EXISTING RIPARIAN ZONE - PROTECT IN PLACE	JUNCUS TEXTILIS - INDIAN RUSH - 1 GAL @ 3'-0" O.C.	
	ELEOCHARIS MACROSTACHYA - COMMON SPIKERUSH - 1 GAL @ 3'-0" O.C.	

VINES

TRACHELOSPERMUM A. 'OGON NISHIKI'	JAPANESE STAR JASMINE	15 GAL ESPALIER	

RECESSED AREA FOR STORM WATER MANAGEMENT

CHARLES TROWBRIDGE AND ASSOCIATES
1901 ROMOLA AVENUE
LOMPOC, CA 93436
PH (714) 532-3663 FAX (714) 532-3667
chas2.cta@gmail.com
LANDSCAPE ARCHITECTURE LIC. # 2243

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RAM HOTELS
21 PRESTWICK LANE
AMARILLO, TX 79124

VIA REAL HOTEL
4110 VIA REAL, CARPINTERIA
NOVEMBER 6, 2019

N

0' 20' 10' 40'

SCALE: 1" = 20'-0"

CONCEPTUAL LANDSCAPE PLAN

EXHIBIT
L1

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PLANTING NOTES

1. LANDSCAPE CONTRACTOR SHALL REVIEW ALL EXISTING SITE CONDITIONS PRIOR TO SUBMITTING HIS BID AND PRIOR TO STARTING CONSTRUCTION. IF ANY DISCREPANCIES EXIST THEY SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.
2. LANDSCAPE CONTRACTOR SHALL HOLD A CURRENT BUSINESS LICENSE IN THE CITY OR COUNTY THAT HAS JURISDICTION OVER THE PROJECT.
3. LANDSCAPE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT FOR THE INSTALLATION OF PLANT MATERIAL AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
4. LANDSCAPE CONTRACTOR SHALL COORDINATE PLANTING WITH OTHER SITE IMPROVEMENTS UNLESS SPECIFIED, STRUCTURAL IMPROVEMENTS SHALL BE INSTALLED PRIOR TO PLANTING OPERATIONS.
5. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND STAKING EXISTING SEWER AND UTILITY LINES ABOVE GRADE THAT MIGHT BE DAMAGED AS A RESULT OF PLANTING OPERATIONS. CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE AND FOR REPLACEMENT OF AFOREMENTIONED UTILITIES.
6. DO NOT INSTALL PLANTING WHEN UNKNOWN OBSTRUCTIONS, GRADE DIFFERENCES OR DISCREPANCIES IN AREA DIMENSIONS EXIST. IMMEDIATELY BRING DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE, OF NOTIFICATION IS NOT PERFORMED, THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR REVISIONS NECESSARY.
7. THE PLANTING DESIGN AS INDICATED ON THE DRAWINGS IS DIAGAMMATIC. SCALED DIMENTIONS ARE APPROXIMATE. BEFORE PROCEEDING WITH WORK, CHECK AND VERIFY SITE DIMENTIONS.
8. COORDINATE INSTALLATION OF PLANTING TO AVOID CONFLICTS WITH IRRIGATION WORK, UTILITIES OR ENGINEERING AND ARCHITECTURAL FEATURES. VERIFY REQUIRED SETBACKS FROM UTILITIES.
9. PROTECT INSTALLED CONTRACT WORK AND WORK OF OTHERS.
10. APPLY AND PAY FOR NECESSARY PERMITS AND FEES REQUIRED IN PURSUTE OF WORK AS REQUIRED BY GOVERNING CODES.
11. LOCAL, MUNICIPAL AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO A PORTION OF THIS WORK ARE HEREBY MADE A PART OF THESE SPECIFICATIONS.
12. KEEP PREMISES CLEAN AND FREE OF EXCESS EQUIPMENT, MATERIALS AND RUBBISH INCIDENTAL TO WORK DURING CONSTRUCTION AND MAINTENANCE PERIOD. BROOM CLEAN ALL PAVED AREAS.
13. NOTE ALL FINISH GRADES BEFORE COMMENCING WORK. LANDSCAPE CONTRACTOR TO RECEIVE SITE GRADED TO ±0.10 UNLESS NOTED DIFFERENTLY ON THE PLANS. RESTORE FINISH GRADES CHANGED DURING COURSE OF THIS WORK TO ORIGINAL OR INTENDED CONTOURS WHERE PRACTICAL.
14. LANDSCAPE CONTRACTOR SHALL PROVIDE THE OWNER AND LANDSCAPE ARCHITECT WITH A COPY OF A HORTICULTURAL SUITABILITY SOIL TEST WITH RECOMMENDATIONS FROM SOIL AND PLANT LAB IN ORANGE COUNTY, CA. A MINIMUM OF 15 SAMPLES SHALL BE PROCURED BY SOIL AND PLANT LAB TAKEN FROM WITHIN THE LIMITS OF WORK.
15. SAMPLES OF FERTILIZER , SOIL CONDITIONERS, SEED, OR OTHER MATERIAL SHALL BE SUBMITTED TO OWNER FORTY-EIGHT (48) HOURS PRIOR TO INCORPORATION IN THE WORK.
16. THE LANDSCAPE CONTRACTOR SHALL INSTALL PLANT MATERIAL IN ACCORDANCE WITH DETAILS, DRAWINGS AND SPECIFICATIONS.
17. LANDSCAPE CONTRACTOR TO VERIFY SIZES AND QUANTITIES BY PLAN CHECK.
18. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND OR PROVIDING POSITIVE DRAINAGE IN ALL NON-HARDSCAPE PLANTING AREAS.
19. INSTALL 3" LAYER, ES-2 WOOD MULCH IN ALL PLANTING AREAS.
20. INSTALL DEEP ROOT BARIER ON ALL TREES WITHIN 6' OF ANY HARDSCAPE PER DETAIL -THIS SHEET.
21. SOIL AT VINE POCKETS SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 24" AND WIDTH OF 3' SQUARE. PRIOR TO PAVING. BACKFILL VINE PITS WITH AMENDED SOIL PER SOILS ANALYSIS RECOMMENDATIONS.
22. INSTALL VINE AT APPROPRIATE ELEVATION PRIOR TO PAVING IF NECESSARY.
23. THE LANDSCAPE CONTRACTOR SHALL INSTALL PLANT MATERIAL IN ACCORDANCE WITH DETAILS, DRAWINGS AND SPECIFICATIONS.
24. PLANT LIST SHALL BE USED AS A GUIDELINE ONLY: LANDSCAPE CONTRACTOR TO VERIFY SIZES AND QUANTITIES BY PLAN CHECK.
25. ALL SPECIMENS (24" BOX AND OVER) SHALL BE SELECTED IN THE FIELD BY LANDSCAPE ARCHITECT. FINAL LOCATIONS ON SITE SHALL BE APPROVED BY LANDSCAPE ARCHITECET PRIOR TO PLANTING.
26. PLANT MATERIAL IN OR NEAR PAVING AND WALLS MAY BE REQUIRED TO BE PLANTED PRIOR TO CONSTRUCTION.
27. REMOVE STAKES AND TRELLIS FROM ALL VINES AND SECURE TO WALLS WITH PLASTIC TABS AND TIES AND / OR MASONRY NAILS.
28. HEIGHT OF PALM TREES NOTED ON PLAN REPRESENTS THE HEIGHT OF BROWN TRUNK UNLESS OTHERWISE NOTED.
29. THE EXISTING TREES THAT ARE TO BE SAVED AND REUSED SHALL BE TAGGED IN THE FIELD BY THE LANDSCAPE ARCHITECT PRIOR TO ANY DEMOLITION.
30. TREES SHALL BE INSTALLED IN APPROVED BARRIERS.
    a. ALL STREET TREES / PUBLIC PARKWAY TREES OR PUBLIC UTILITY EASEMENT TREES: DO NOT WRAP AROUND BALL.
    b. TREES WITHIN 6' (FT.) OF ANY INTERIOR HARDSCAPE, PAVEMENT, ASPHALT OR CURB OR STREETS.
    c. TREES WITHIN 10' (FT.) OF PUBLIC RIGHTS-OF-WAY, SIDEWALKS, CURBS OR STREETS.
31. INCLUDE A MINIMUM VERTICAL CLEARANCE OF 13'-6" FROM TOP OF FIRE ACCESS ROADWAY TO LOWEST BRANCHES OF TREE AND A MINIMUM OF 28' (FT.) WIDTH CLEARANCE IN FIRE ACCESS ROADWAYS.

POTTED PLANT LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
TREES			
	LAURUS NOBILIS 'SARATOGA'	SARATOGA BAY LAUREL	24" BOX IN 3' DIA. LIGHT WEIGHT POT
SHRUBS			
	ASPADISTRA ELATIOR 'VARIEGATEA'	VARIEGATED CAST IRON	5 GAL / 1 EA. POT
	DICHONDRA ARGENTEA 'SILVER FALLS'	SILVER DICHONDRA	4" POTS x 6 EA. POT
	VINCA MAJOR 'VARIEGATA'	VARIEGATED PERIWINKLE	4" POTS x 6 EA. POT

POTS - QUICKCRETE - 'SAVANAH' - COLOR TO BE SELECTED BY ARCHITECT

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17901 NEWLAE AVENUE
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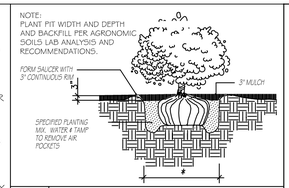
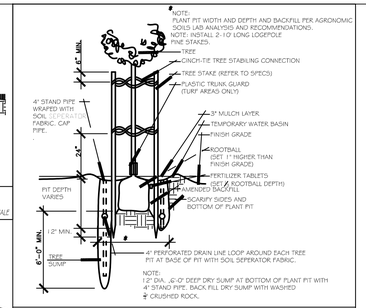
charlz_cta@gmail.com
LANDSCAPE ARCHITECTURE LIC. # 2242

NOTE:
PLANT PIT WIDTH AND DEPTH AND BACKFILL PER AGRONOMIC SOILS LAB ANALYSIS AND RECOMMENDATIONS.



B SHRUB PLANTING — SCALE: NOT TO SCALE

NOTE:
PLANT PIT WIDTH AND DEPTH AND BACKFILL PER AGRONOMIC SOILS LAB ANALYSIS AND RECOMMENDATIONS.
NOTE: INSTALL 2-10' LONG LOGEPOLE PINE STAKES.



NOTE:
1'-2" DIA. x 6'-0" DEEP DRY SUMP AT BOTTOM OF PLANT PIT WITH 4" STAND PIPE. BACK FILL DRY SUMP WITH WASHED ¾" CRUSHED ROCK.

A TREE PLANTING - VERT. STAKES

PLANT LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
TREES			
	CERCIS CANADIENSIS 'FOREST PANSY'	PURPLE REDBUD	24" BOX
	CERCIS OCCIDENTALIS	WESTERN REDBUD	24" BOX
	CHITALPA TASHKENTENSIS 'PINK DAWN'	DESERT WILLOW	24" BOX
	LAURUS NOBILIS 'SARATOGA'	SARATOGA BAY LAUREL	24" BOX
	KOELREUTERIA BIPINATA	CHINESE FLAME TREE	24" BOX
	LOPHOSTEMON CONFERTUS	BRISBANE BOX	24" BOX
	PLATANUS RACEMOSA	CALIFORNIA SYCAMORE	24" BOX
	RHUS LANCEA	AFRICAN SUMAC	24" BOX
	QUERCUS AGRIFOLIA	COAST LIVE OAK	24" BOX
	SALIX LASIOLEPIS	ARROYO WILLOW	24" BOX
	POPULUS FREMONTII	FREMONT COTTONWOOD	24" BOX
SHRUBS			
	PHORMIUM 'YELLOW WAVE'	VARIEGATED FLAX	5 GAL
	OLEA EUROPAEA 'LITTLE OLLIE'	DWARF OLIVE	5 GAL
	RHAPHIOLEPIS INDICA 'JACK EVANS'	INDIA HAWTHORN	5 GAL
	BOUGAINVILLEA 'BABY VICTORIA'	DWARF VAR. BOUGAINVILLEA	5 GAL
	CEANOTHUS 'SKYLARK'	SKYLARK CA. LILAC	5 GAL
	AGAVE ATTENUATA	AGAVE	5 GAL
	ANIGOZANTHUS F. 'BUSH PEARL'	PINK COYOTE PAW	1 GAL
	CAREX BUCHANANII 'RED ROOSTER'	LEATHERLEAF SEDGE	1 GAL
	RHAPHIOLEPIS UMBELATTA 'MINOR'	YEDDOW HAWTHORN	1 GAL
	CEANOTHUS 'JOYCE COULTER'	CREEPING MOUNTAIN LILAC	5 GAL
	CISTUS PULVERULENTUS 'SUNSET'	SUNSET ROCKROSE	5 GAL
	GREVILLEA NOELLII	GREVILLEA	5 GAL
	DIETES BICOLOR	FORTNIGHT LILY	5 GAL
	CALLISTEMON 'LITTLE JOHN'	BOTTLEBRUSH SHRUB	5 GAL
	ELAEAGNUS PUNGENS	SILVER BERRY	5 GAL
	DIANELLA TASMANICA 'VARIEGATA'	TASMEN FLAX LILY	5 GAL
	ECHIUM CANDICANS	PRIDE OF MADERA	5 GAL
	BACCHARIS PILULARIS 'PIGEON POINT'	DWARF COYOTE BRUSH	5 GAL
	RIBES SPECIOSUM	FUCHSIA FLOWER GOOSEBERRY	5 GAL
	MIMULUS CARDENALIS	CARDINAL MONKEY FLOWER	5 GAL
	SALVIA MILLIFERA 'TERRA SECA'	BLACK SAGE	5 GAL
	ARTEMISIA CALIFORNICA	CALIFORNIA SAGE	5 GAL
	BACCHARIS SILICIFOLIA	MULEFAT	5 GAL
	ANEMOPIS CALIFORNICA	YERBA MANSA	1 GAL
	MUHLENBERGIA RIGENS	DEER GRASS	1 GAL
	LEYMUS CONDENSTATUS	GIANT WILD RYE	1 GAL
	CERCIS OCCIDENTALIS	WESTERN REDBUD	15 GAL
	RHAMNUS CALIFORNICA	COFFEEBERRY	1 GAL
	ARTEMISIA DOUGLASIANA	MUGWORT	1 GAL
VINE			
	TRACHELOSPERMUM ASIA. 'OGON NISHIKI'	ASIAN STAR JASMINE	15 GAL ESPALIER

GROUNDCOVER

DYMONDIA MARGARETAE - DYMONDIA - 9" O.C. FROM FLATS	JUNCUS PATENS - COMMON RUSH - 1 GAL @ - 2'-0" O.C.
MYOPORUM PARVIFOLIUM 'PUTAH CREEK' - MYOPORUM - 1 GAL @ 8'-0" O.C.	JUNCUS EFFUSUS - BOG RUSH - 1GAL @ 3'-0" O.C.
MIXTURE OF NATIVE GRASSES, CAREX AND RUSH - 1 GAL @ 3'-0" O.C. AVG.	MIMULUS CARDINALIS - SCARLET MONKEY FLOWER - 1 GAL @ 30" O.C.
EXISTING RIPARIAN ZONE - PROTECT IN PLACE	JUNCUS TEXTILIS - INDIAN RUSH - 1 GAL @ 3'-0" O.C.
	ELEOCHARIS MACROSTACHYA - COMMON SPIKERUSH - 1 GAL @ 3'-0" O.C.

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RAM HOTELS
21 PRESTWICK LANE
AMARILLO, TX 79124

VIA REAL HOTEL
4110 VIA REAL, CARPINTERIA
NOVEMBER 5, 2019

N

0' 20' 10' 40'

SCALE: 1" = 20'-0"

PLANTING PLAN

EXHIBIT
LP-1

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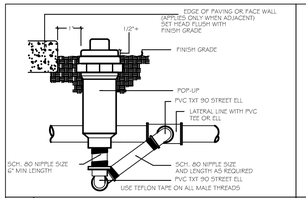
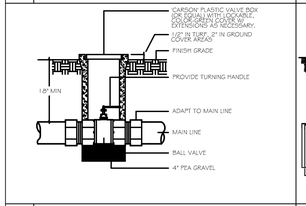
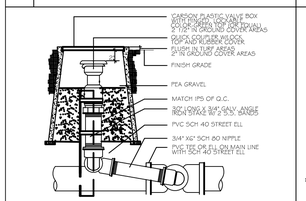


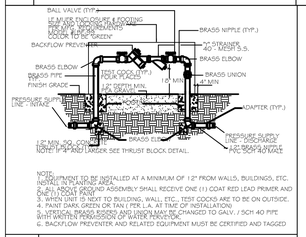
D BUBBLER POP-UP HEAD



E BALL VALVE

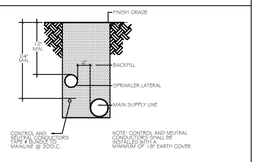


F QUICK COUPLING VALVE

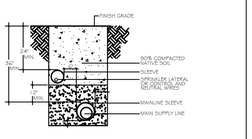


NOTE:
1. EQUIPMENT TO BE INSTALLED AT A MINIMUM OF 12" FROM WALLS, BUILDINGS, ETC. INSTALL IN PLANTING AREA.
2. ALL ABOVE GROUND ASSEMBLY SHALL RECEIVE ONE (1) COAT RED LEAD PRIMER AND PAINT (TOUCH UP)
3. WHEN UNIT IS NEXT TO BUILDING, WALL, ETC., TEST COCKS ARE TO BE ON OUTSIDE.
4. PAINT DARK GREEN OR TAN (PER L.A. DEPT. OF PLANNING) AFTER INSTALLATION
5. VERTICAL BRASS RISERS AND UNIONS MAY BE CHANGED TO GALV. I SCH 40 PIPE WITH WRITTEN PERMISSION OF WATER PURVEYOR.
6. BACKFLOW PREVENTER AND RELATED EQUIPMENT MUST BE CERTIFIED AND TAGGED

G BACKFLOW PREVENTER



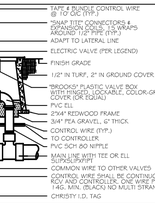
H TRENCHING



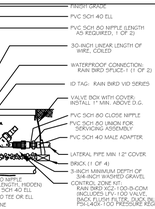
I SLEEVING



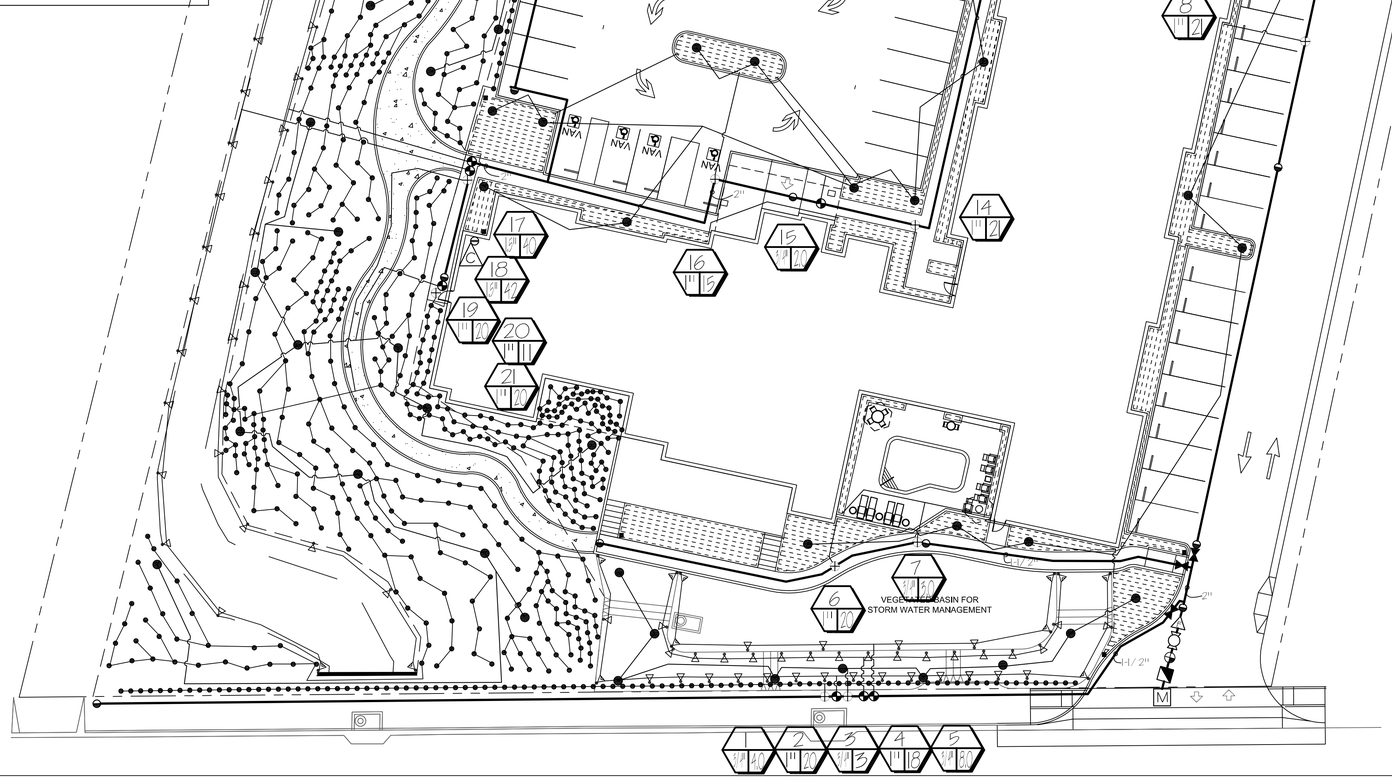
A WALL MOUNTED CONTROLLER



B CONTROL VALVE



C CONTROL ZONE KIT



NOTES

1. DRAWINGS ARE DIAGRAMMATIC. EQUIPMENT SHOWN IN PAVED AREAS ARE FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED WITHIN PLANTING AREAS.
2. DO NOT WILLFULLY INSTALL THE SYSTEM AS SHOWN WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSRTUCTIONS OR GRADE DIFFRENCES EXIST THAT MIGHT NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS AUTHORIZED REPRESENTATIVE. IN EVENT THIS NOTIFICATION IS NOT GIVEN, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY NECESSARY REVISIONS.
3. INSTALL ALL EQUIPMENT AS SHOWN IN THE DETAILS AND SPECIFICATIONS, CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH LOCAL CITY, COUNTY AND STATE REQUIREMENTS FOR BOTH EQUIPMENT AND INSTALLATION.
4. INSTALL ELECTRICAL HOOK UP FOR CONTROLLER, INSTALL NO. 14 UF DIRECT BURIAL IRRIGATION WIRE (WHITE COMMON, DIFFERENT COLOR PILOT FOR EACH CONTROLLER) USE EPOXY CONNECTORS AND BURY WIRE A MINIMUM OF EIGHTEEN (18) INCHES IN DEPTH, BUNDLE AND TAPED TOGETHER EVERY TEN (10) FEET. FORM EXPANSION COILS AT EACH VALVE AND CHANGE OF DIRECTION. INSTALL WIRING IN PVC SCH 40 SLEEVES UNDER PAVING.
5. PRESSURE MAINLINE TWO (2) INCHES AND LARGER SHALL BE PVC CLASS 315 WITH SCHEDULE 40 FITTINGS. PRESSURE MAINLINE AND FITTINGS LESS THAN TWO (2) INCHES SHALL BE PVC SCHEDULE 80.
6. NON PRESSURE LATERAL SHALL BE PVC SCH 40 WITH SCHEDULE 40 FITTINGS.
7. FLUSH ALL LINES AND ADJUST ALL HEADS FOR MAXIMUM PERFORMANCE AND TO PREVENT OVER SPRAY ONTO EXISTING WALKS, DRIVES AND BUILDINGS AS MUCH AS POSSIBLE. THIS SHALL INCLUDE SELECTING THE BEST DEGREE OF ARC TO FIT EXISTING SITE CONDITIONS.
8. GATE VALVE SHALL BE LINE SIZED AND LOCATED IN PURPLE VALVE BOXES, PER SPECIFICATIONS.
9. CONTROL VALVES SHALL BE SIZED AS NOTED ON DRAWING AND LOCATED IN PURPLE VALVE BOXES,PER SPECIFICATIONS.
10. ELIMINATE ALL LOWHEAD DRAINAGE AS NECESSARY.
11. CONTRACTOR SHALL MAKE ALL NECESSARY ADJUSTMENTS TO IRRIGATION SYSTEM AS REQUIRED TO INSURE AN OPTIMAL SYSTEM FOR 100% COVERAGE WITH 60% OVERLAP OF HEADS IN ALL PLANTING AREAS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POSITIVE DRAINAGE IN ALL NON-HARDSCAPE / PLANTED AREAS.
13. ALL LOCAL MUNICIPAL AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THE WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATIONS OF ALL UTILITIES, STRUCTURES AND SERVICES BEFORE COMMENCING WORK. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE.
15. THE CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING OR ARCHITECTURAL PLANS BEFORE BEGINNING WORK.
16. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK.
17. ACTUAL LOCATION FOR THE INSTALLATION OF THE BACKFLOW PREVENTER AND THE AUTOMATIC CONTROLLER IS TO BE DETERMINED IN THE FIELD BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
18. ALL PIPE UNDER PAVED AREAS TO BE INSTALLED IN A SCH. 40 SLEEVE TWICE THE DIAMETER OF THE PIPE CARRIED. ALL WIRE UNDER PAVED AREAS TO BE INSTALLED IN A SCH. 40 SLEEVE THE SIZE REQUIRED TO EASILY PULL WIRE THROUGH. ALL SLEEVES TO BE INSTALLED WITH A MINIMUM DEPTH AS SHOWN ON THE SLEEVING DETAILS. SLEEVES TO EXTEND AT LEAST 12" PAST THE EDGE OF THE PAVING.
19. ALL QUICK COUPLER VALVES TO BE INSTALLED AS SHOWN ON THE INSTALLATION DETAILS.
20. ALL HEADS ARE TO BE INSTALLED WITH THE NOZZLE, SCREEN AND ARCS SHOWN ON THE PLANS. ALL HEADS ARE TO BE ADJUSTED TO PREVENT OVERSPRAY ONTO BUILDING, WALLS, FENCES AND HARDSCAPE. THIS INCLUDES BUT IS NOT LIMITED TO, ADJUSTMENT OF DIFFUSER PIN OR ADJUSTMENT SCREW, REPLACEMENT OF PRESSURE COMPENSATING SCREENS, REPLACEMENT OF NOZZLES WITH MORE APPROPRIATE RADIUS UNITS AND THE REPLACEMENT OF NOZZLES WITH ADJUSTABLE ARC UNITS.
21. ALL IRRIGATION SYTEMS SHALL BE INSTALLED PER GOVERNING WATER AGENCY STANDARDS, REQUIREMENTS AND SPECIFICATIONS. IF A DISCREPANCY EXISTS BETWEEN THE GOVERNING WATER AGENCY STANDARDS, REQUIREMENTS AND SPECIFICATIONS AND THESE PLANS, THE MORE STRINGENT STANDARDS, REQUIREMENTS AND SPECIFICATIONS SHALL BE IMPLEMENTED.

IRRIGATION LEGEND

SYMBOL	MFG.	MODEL NUMBER	DESCRIPTION	GPM	RAD	PSI
— — —	RAINBIRD	XFCV5 - 06-18 SUBSURFACE DRIPLINE	LANDSCAPE DRIPLINE ROW SPACING @ 18" O.C.	0.60 GPH /EMITTER		20
●	RAINBIRD	XBT-2.0-PC	SINGLE-PORT EMITTER 3 EACH TREE	3X5.0=1.5 / GPH		30
•	RAINBIRD	XBT-2.0(1GAL) 5.0(5 GAL)-PC	SINGLE-PORT EMITTER	2.0 & 5.0 GPH		30
▽	RAINBIRD	RD-5-1812--R24 -VAN-90	POP-UP ROTARY	1.05	24'	50
▽	RAINBIRD	RD-5-1812-R24-VAN-180	POP-UP ROTARY	1.98	24'	50
▽	RAINBIRD	RD-5-R24 -VAN-90	ROTARY ON RISER	1.05	24'	50
▽	RAINBIRD	RD-5-R24-VAN-180	ROTARY ON RISER	1.98	24'	50
■	NETAFIM	TL050MFV-1	FLUSH VALVE			
△	RAINBIRD	ESP-LXMEF-30 STATIONS W/ I.Q. DESKTOP	AUTOMATIC CONTROLLER - INSTALL ON BACK OF WALL INSTALL IN VANDAL RESISTANT - LEMUER STAINLESS STEEL ENCLOSURE OR APPROVED EQUAL			
△F	NETAFIM	DF1505-140 1-1/2" FILTER	MANUAL DISC WATER FILTER W/ 140 FILTER			
⊡	RAINBIRD	IFS-150-PBSB	FLOW SENSOR			
⋈	WATTS	WBV STD PORT THD BRASS OR APPROVED EQUAL	BALL VALVE LINE SIZED			
⊖	RAINBIRD	RSD-BEx - RAIN CHECK	AUTOMATIC RAIN SHUT OFF DEVICE. INSTALL PER MFG. REC'S. LOCATION TO BE APPROVED BY OWNER			
◒	RAINBIRD	33D-LRC-ACME THREAD	QUICK COUPLER - INSTALL IN GREEN PLASTIC VALVE BOX CARSON OR APRVD. EQUAL. Q.C.'S @ 150' O.C.			
◕	RAINBIRD	PESB-PRS-D SERIES	AUTOMATIC REMOTE CONTROL VALVE - SIZE PER PLAN			
⊕	RAINBIRD	XCZ-150-COM - PRS	AUTOMATIC CONTROL ZONE KIT			
◍	IRRITROL	MASTER VALVE. MODEL 102P2	AUTOMATIC REMOTE CONTROL VALVE - SIZE PER PLAN			
◥	FEBCO	825 Y LINE SIZE	REDUCED PRESSURE BACKFLOW PREVENTER			
—— ——	LATERAL LINE	SCH. 40 PVC SIZE AS NOTED - UVS RESISTANT - ON GRADE				
—— ——	LATERAL LINE	SCH. 40 PVC SIZE AS NOTED - 12" MINIMUM COVER				
—— ——	MAIN LINE	CLASS 315 PVC 2" AND LARGER SCH 40 PVC 1-1/2" AND SMALLER SIZE AS NOTED - 24" MINIMUM COVER				
⊐ ⊐	SLEEVE	SCH. 40 PVC SIZE = TWICE DIAMETER OF PIPE - 24" MINIMUM COVER				
⊐ ⊐	ELECTRICAL CONTROL WIRE SLEEVE	SCH. 40 PVC = 2" DIA 24" COVER MIN., SIZE AS NECESSARY				
M	WATER METER	SEE CIVIL ENGINEERS PLANS FOR EXISTING 2" METER LOCATION AND SIZE THIS WATER METER AND EQUIPMENT SHALL BE FOR LANDSCAPE IRRIGATION USE ONLY				

SIZE
VALVE & HYDROZONE NO.
GPM

NOTES: INSTALL ANTI-DRAIN DEVICE ON ALL ROTARY HEADS.
INSTALL FLUSH VALVES & AIR RELEIF VALVES AS NECESSARY MIN. 1 ONE EA. SYSTEM
ALL IRRIGATION EQUIPMENT,PRESSURE & NONE PRESSURE IRRIGATION LINES TO MEET ALL IRRIGATION WATER DISTRICT AND CITY REQUIREMENTS.

CHARLES TROWBRIDGE AND ASSOCIATES
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SANTA ANA, CA. 92705
PH (714) 532-3663 FAX (714) 532-3667
cfield.cta@gmail.com
LANDSCAPE ARCHITECTURE LIC. # 2242

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Email:info@nKLOSURES.com

RAM HOTELS

21 PRESTWICK LANE
AMARILLO, TX 79124

VIA REAL HOTEL

4110 VIA REAL, CARPINTERIA
NOVEMBER 5, 2019

N

0' 20' 10' 40'

SCALE: 1" = 20'-0"

IRRIGATION PLAN

EXHIBIT

LI-1

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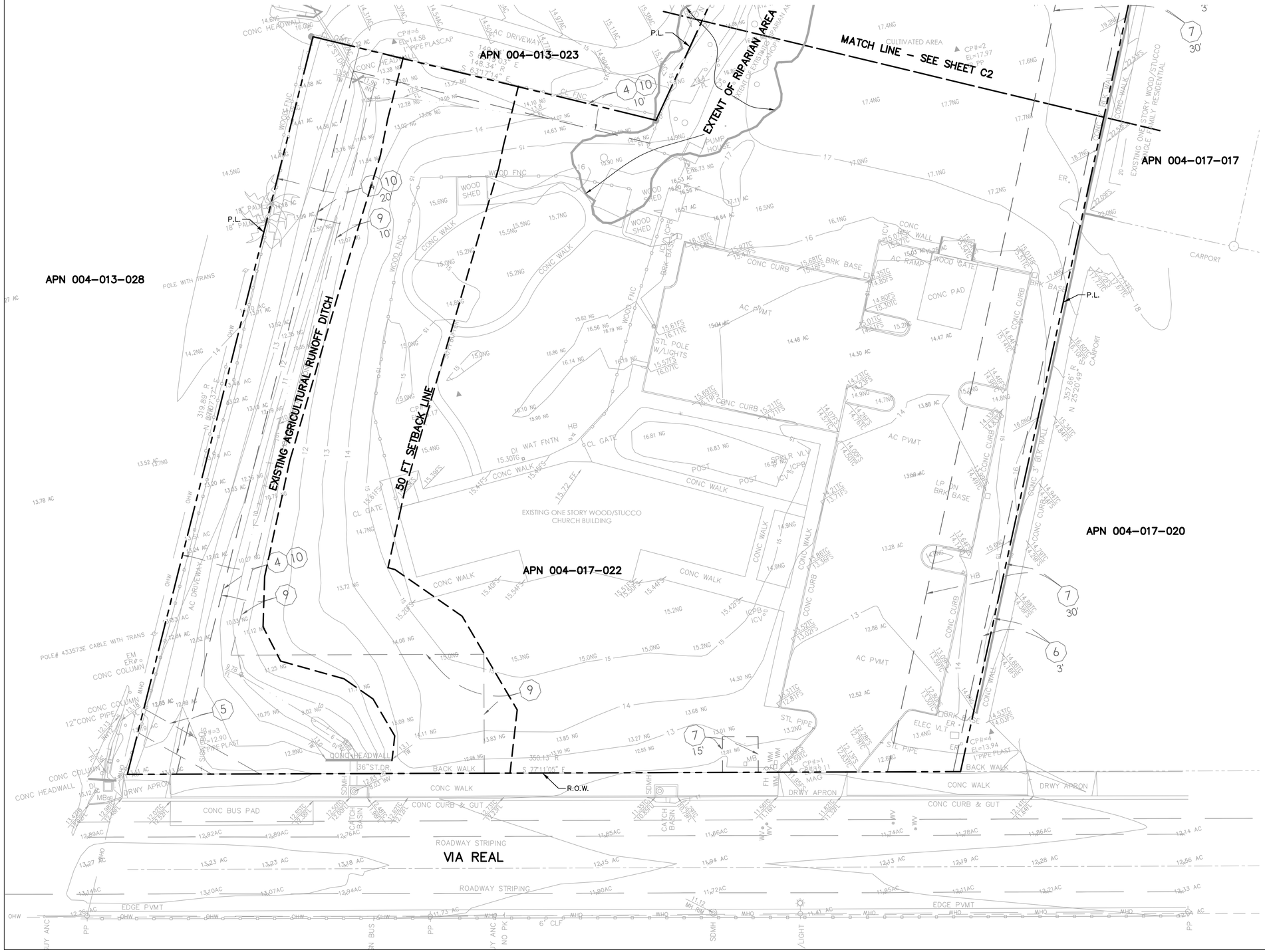

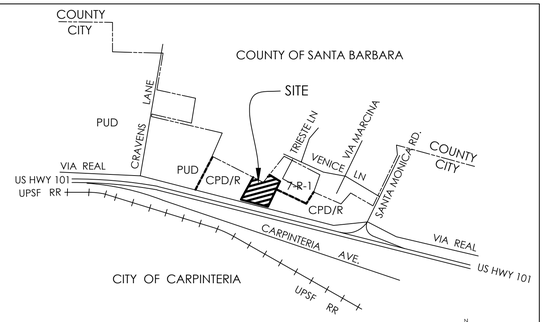

VICINITY MAP

NOT TO SCALE

SURVEYORS NOTES:

THIS SURVEY WAS PERFORMED IN APRIL 2013 AT THE REQUEST OF LISA PLOWMAN OF PEIKERT GROUP AT A SCALE OF 1" = 20'. THE BOUNDARY SHOWN HEREON IS NOT A COMPLETE BOUNDARY SURVEY AND IS BASED ON THE RECORD DATA ONLY BASE ON MINIMAL TIES TO THE BOUNDARY. IN ORDER TO MAXIMIZE THE SETBACKS OR BUILDABLE AREA A COMPLETE BOUNDARY SURVEY SHOULD BE COMPLETED. THE RIGHT OF WAY OF THE NOTHERLY SIDE OF THE 101 FREEWAY IS BASED UPON THE RETRACED PARCEL MAP AND NO RIGHT OF WAY MONUMENTS WERE TIED OUT. THE RIGHT OF WAY WAS NOT RETRACED OR CONFIRMED DURING THIS SURVEY.

NO OPINIONS OF UNWRITTEN RIGHTS HAVE BEEN SHOWN OR EXPRESSED HEREON.

BASIS OF BEARINGS: THE BASIS OF BEARINGS FOR THIS SURVEY ARE THE FOUND MONUMENTS ALONG THE NORTHERLY PROPERTY LINE OF SOUTH 64°35'58" EAST AS SHOWN ON A PARCEL MAP NO. 25114 RECORDED IN BOOK 39, PAGES 15 THRU 16 OF PARCEL MAPS.

VERTICAL DATUM AND PROJECT BENCHMARK: THE VERTICAL DATUM FOR THIS SURVEY IS NAVD'88 BASED UPON GPS TIES TO NGS BENCHMARK WITH A PID OF "EW9491" BEING A STEEL ROD SET INSIDE A HANDHOLE, HAVING AN ELEVATION OF13.45' (U.S. SURVEY FEET).

ALL ELEVATIONS AND DISTANCES SHOWN HEREON ARE IN U.S. SURVEY FEET.

PARCEL INFORMATION

ADDRESS:	4110 VIA REAL, CARPENTERIA 93013
APN	004-017-022
AREA:	2.62 ACRES GROSS & NET
ZONING:	CPD/R (COMMERCIAL PLANNED DEVELOPMENT / RESIDENTIAL OVERLAY

LEGAL DESCRIPTION:

PARCEL C OF PARCEL MAP NO. 25114 IN THE CITY OF CARPINTERIA, COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, AS SHOWN ON MAP FILED IN BOOK 39, PAGES 15 THROUGH 16 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

UTILITY COMPANIES:

PHONE	VERIZON TELEPHONE COMPANY
WATER	CARPINTERIA VALLEY WATER DISTRICT
ELECTRIC	SCE
GAS	SOUTHERN CALIFORNIA GAS COMPANY (SCG)
CABLE	COX CABLE/VERIZON
SEWER	CARPINTERIA VALLEY WATER DISTRICT

REFERENCES

R1 = PARCEL MAP NO. 25114 BOOK 39, PAGES 15 and 16
R2 = TRACT MAP NO. 25070 BOOK 97, PAGES 72

EASEMENT NOTES:

EASEMENT NOTES SHOWN ON SHEET C2.

NOTE:
NO NEW EASEMENTS ARE PROPOSED FOR THIS PROJECT.

AGRICULTURAL RUNOFF DITCH NOTE:

THE LINE OF EXISTING AGRICULTURAL RUNOFF DITCH SHOWN ALONG THE WESTERLY SITE AREA IN THE NORTH-SOUTH DIRECTION AND THE 50 FT SETBACK LINE WERE DEFINED BY MR. MANJUNATH VENKAT, A CONSULTING BIOLOGIST IN A LETTER FROM MR. VENKAT TO MR. KUSH NATHU SUBJECT: TECHNICAL MEMO - CREEK SETBACK, VIA REAL HOTEL DEVELOPMENT PROJECT, DAED MARCH 28, 2018.

811 Know what's **below.** **Call** before you dig.

SCALE: 1"=20'
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ARCHITECT:
nKLOSURES, Inc.
Tel: 323.309.7334
Email:info@nKLOSURES.com

RAM HOTELS
P.O.BOX 52098
AMARILLO, TX 79159

VIA REAL HOTELS
4110 VIA REAL, CARPINTERIA
SEPTEMBER 6, 2016

REGISTERED PROFESSIONAL ENGINEER
GABRIEL DO-REYNOSO
NO 81090
CIVIL
STATE OF CALIFORNIA

SITE TOPOGRAPHIC MAP

C1

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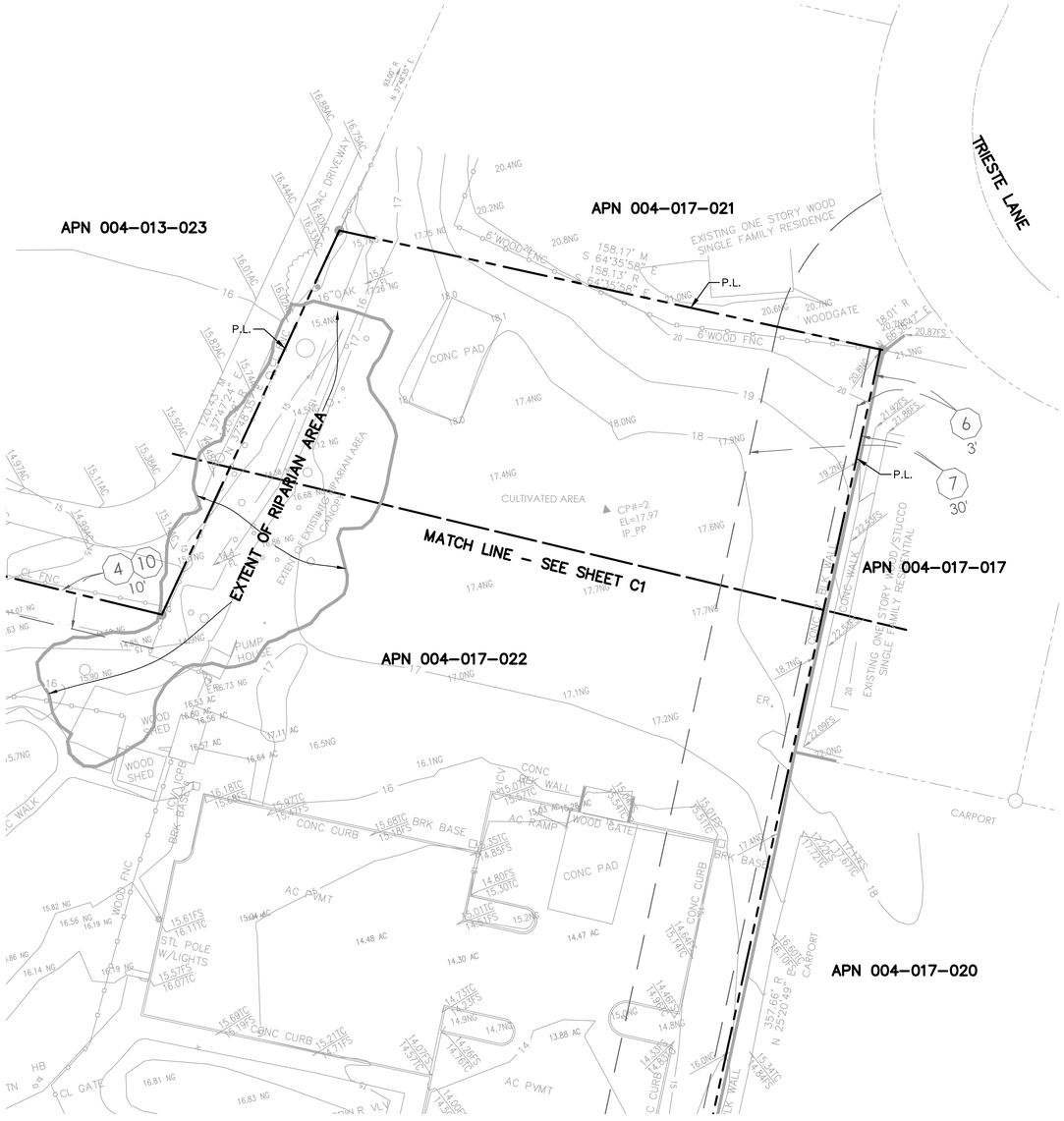

Page 1 of 2		Date: June 12, 2019	Case No.: 19-09-1415A	LOMR-F

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION BASED ON FILL DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF CARPINTERIA, SANTA BARBARA COUNTY, CALIFORNIA	Lot 20, Tract 25,070, as shown on the Plat recorded in Book 97, Pages 71 through 73, in the Office of the Recorder, Santa Barbara County, California
	COMMUNITY NO.: 060332	
AFFECTED MAP PANEL	NUMBER: 06083C1418H	
	DATE: 9/28/2018	
FLOODING SOURCE: EL ESTERO LAGOON TRIBUTARY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY:34.405269, -119.533578 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
20	--	Tract 25,070	4140 Via Real	Structure (Bldg. B)	X (unshaded)	--	16.1 feet	--

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

DETERMINATION TABLE (CONTINUED)
PORTIONS REMAIN IN THE SFHA
ZONE A

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Revision based on Fill for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document revises the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Page 2 of 2		Date: June 12, 2019	Case No.: 19-09-1415A	LOMR-F

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION BASED ON FILL DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

DETERMINATION TABLE (CONTINUED)

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
20	--	Tract 25,070	4140 Via Real	Structure (Bldg. C)	X (unshaded)	--	15.7 feet	--
20	--	Tract 25,070	4140 Via Real	Structure (Bldg. A)	X (unshaded)	--	16.2 feet	--

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 3 Properties.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

ZONE A (This Additional Consideration applies to the preceding 3 Properties.)

The National Flood Insurance Program map affecting this property depicts a Special Flood Hazard Area that was determined using the best flood hazard data available to FEMA, but without performing a detailed engineering analysis. The flood elevation used to make this determination is based on approximate methods and has not been formalized through the standard process for establishing base flood elevations published in the Flood Insurance Study. This flood elevation is subject to change.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

EASEMENT NOTES:

1. THE EASEMENTS SHOWN HEREON ARE BASED ON A TITLE REPORT POLICY No. 190852-AO DATED MARCH 3, 2013. GROMATICI LAND SURVEYING CANNOT WARRANT OR GUARANTEE THE ACCURACY OR COMPLETENESS OF SAID REPORT.
2. A 25 FOOT WIDE EASEMENT FOR COUNTY ROAD PURPOSES RECORDED DECEMBER 30 1927 AS INST. NO. 11614 IN BK 31 PG 166 OF OFFICIAL RECORDS. (ITEM 2) (NOT LOCATABLE)
3. A EASEMENT FOR INGRESS EGRESS PURPOSES IN FAVOR OF WALTER S. WOODWARD RECORDED DECEMBER 24, 1937 OF OFFICIAL RECORDS. (ITEM 3) (NOT LOCATABLE)
4. A 10 AND 20 FOOT WIDE EASEMENT FOR ROAD PURPOSES IN FAVOR OF A.E. PRUNER, RECORDED OCTOBER 7, 1960 IN BK 1786, PG 516 OF OFFICIAL RECORDS. (ITEM 4)
5. A 10 FOOT WIDE EASEMENT FOR SEWER PURPOSES AS DISCLOSED IN AN EASEMENT MAINTENANCE AGREEMENT RECORDED SEPTEMBER 21, 1967 IN BK 2205 PG 761 OF OFFICIAL RECORDS. (ITEM 5)
6. A 3 FOOT WIDE EASEMENT FOR PUBLIC UTILTY PURPOSES IN FAVOR OF GENERAL TELEPHONE COMPANY RECORDED MAY 29, 1980 AS INSTRUMENT NO. 80-21343 OF OFFICIAL RECORDS. (ITEM 6)
7. EASEMENTS FOR WATER PIPELINE PURPOSES IN FAVOR OF CARPINTERIA COUNTY WATER DISTRICT RECORDED SEPTEMBER 16, 1980 AS INSTRUMENT NO. 80-36623 OF OFFICIAL RECORDS. (ITEM 7)
8. DENIAL OF RIGHTS OF ACCESS TO HIGHWAY OR FREEWAY PER PARCEL MAP 25114 RECORDED IN BOOK 39, PAGE 15 AND 16 OF PARFCEL MAPS. (ITEM 8)
9. A 10 FOOT WIDE EASEMENT FOR DRAINAGE AND FLOOD CONTROL PURPOSES PER PARCEL MAP 25114 RECORDED IN BOOK 39, PAGE 15 AND 16 OF PARFCEL MAPSS. (ITEM 9)
10. A 10 AND 20 FOOT WIDE EASEMENT FOR ROAD PURPOSES IN FAVOR OF STEPHEN D. BUNTING AND LYNN H. BUNTING RECORDED JULY 12, 1988 AS INSTRUMENT NO. 80-042180 OF OFFICIAL RECORDS. (ITEM 10)
11. AN EASEMENT OF VARIABLE WIDTH FOR PUBLIC UTILITY PURPOSES GRANTED TO SOUTHERN CALIFORNIA EDISON COMPANY RECORDED ON MARCH 8, 1962 AS INSTRUMENT No. 8965, IN BOOK 1908, PAGE 490 OF OFFICIAL RECORDS.

NOTE:
NO NEW EASEMENTS ARE PROPOSED FOR THIS PROJECT.

FLOOD ELEVATION NOTES:

1. THE LOWEST ADJACENT FLOOD ELEVATION IS 16.2 FEET.
2. THE FINISHED FLOOR ELEVATION 17.5 FEET.

Know what's below. Call before you dig.

SCALE: 1"=20'
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ARCHITECT:
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AMARILLO, TX 79159

VIA REAL HOTELS
4110 VIA REAL, CARPINTERIA
SEPTEMBER 6, 2016

REGISTERED PROFESSIONAL ENGINEER
GABRIEL DO-REYNOSO
NO 81090
CIVIL
STATE OF CALIFORNIA

SITE TOPOGRAPHIC MAP

C2

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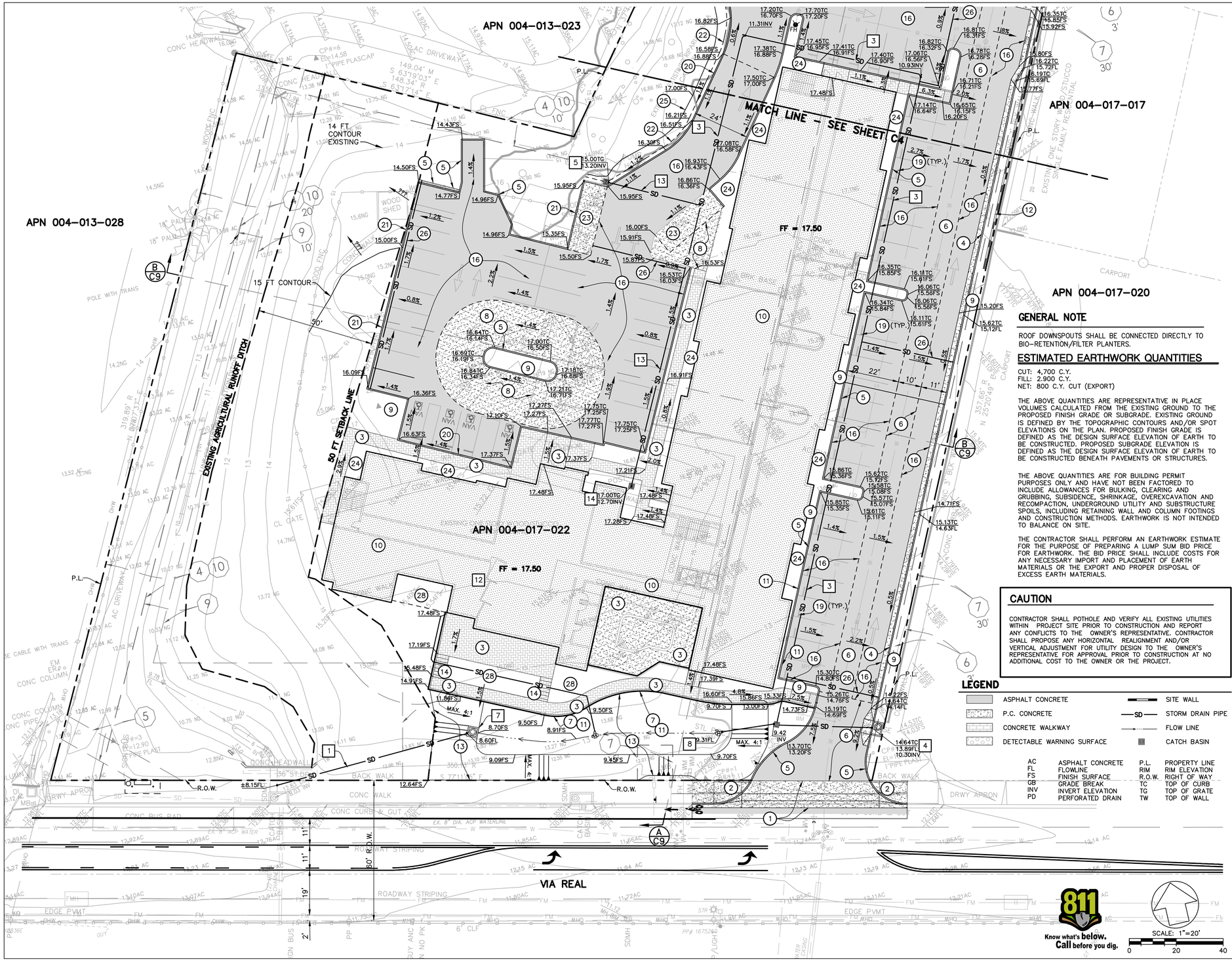

GENERAL NOTE

ROOF DOWNSPOUTS SHALL BE CONNECTED DIRECTLY TO BIO-RETENTION/FILTER PLANTERS.

ESTIMATED EARTHWORK QUANTITIES

CUT: 4,700 C.Y.
FILL: 2,900 C.Y.
NET: 800 C.Y. CUT (EXPORT)

THE ABOVE QUANTITIES ARE REPRESENTATIVE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISH GRADE OR SUBGRADE. EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE IS DEFINED AS THE DESIGN SURFACE ELEVATION OF EARTH TO BE CONSTRUCTED. PROPOSED SUBGRADE ELEVATION IS DEFINED AS THE DESIGN SURFACE ELEVATION OF EARTH TO BE CONSTRUCTED BENEATH PAVEMENTS OR STRUCTURES.

THE ABOVE QUANTITIES ARE FOR BUILDING PERMIT PURPOSES ONLY AND HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVEREXCAVATION AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS, INCLUDING RETAINING WALL AND COLUMN FOOTINGS AND CONSTRUCTION METHODS. EARTHWORK IS NOT INTENDED TO BALANCE ON SITE.

THE CONTRACTOR SHALL PERFORM AN EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING A LUMP SUM BID PRICE FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS EARTH MATERIALS.

CAUTION

CONTRACTOR SHALL POTHOLE AND VERIFY ALL EXISTING UTILITIES WITHIN PROJECT SITE PRIOR TO CONSTRUCTION AND REPORT ANY CONFLICTS TO THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PROPOSE ANY HORIZONTAL REALIGNMENT AND/OR VERTICAL ADJUSTMENT FOR UTILITY DESIGN TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER OR THE PROJECT.

LEGEND

- ASPHALT CONCRETE
- P.C. CONCRETE
- CONCRETE WALKWAY
- DETECTABLE WARNING SURFACE
- SITE WALL
- SD — STORM DRAIN PIPE
- FLOW LINE
- CATCH BASIN

AC	ASPHALT CONCRETE	P.L.	PROPERTY LINE
FL	FLOWLINE	RIM	RIM ELEVATION
FS	FINISH SURFACE	R.O.W.	RIGHT OF WAY
GB	GRADE BREAK	TC	TOP OF CURB
INV	INVERT ELEVATION	TG	TOP OF GRATE
PD	PERFORATED DRAIN	TW	TOP OF WALL

GRADING CONSTRUCTION NOTES:

1. CONSTRUCT 8" THICK CONCRETE SPANDREL AND CROSS GUTTER PER SANTA BARBARA COUNTY DEPT. OF PUBLIC WORKS (COUNTY) STANDARD DETAILS, 4% GUTTER CROSS SLOPE.
2. CONSTRUCT 4" THICK CONCRETE CURB RAMP PER CALTRANS STANDARD PLAN RSP A88A (2010) -CASE C, WITH DETECTABLE WARNING SURFACE.
3. CONSTRUCT MINIMUM 4" THICK CONCRETE WALKWAY PER COUNTY STANDARD DETAILS 5-010, 5-040, AND 5-045, MODIFIED AS FOLLOWS:
   A. COMPACT TOP 12" OF SUBGRADE TO 90% MINIMUM COMPACTION.
   B. SURFACE TREATMENT AND COLOR PER ARCHITECTURAL OR LANDSCAPE PLANS.
   C. #4 REBAR AT 18" ON CENTER, BOTH WAYS.
4. CONSTRUCT 6" CONCRETE CURB (TYPE A) AND 18" CONCRETE GUTTER PER SANTA BARBARA COUNTY DEPT. OF PUBLIC WORKS (COUNTY) STANDARD DETAILS 4-010 AND 4-030, 4% GUTTER CROSS SLOPE.
5. CONSTRUCT 6" CONCRETE CURB PER COUNTY STANDARD DETAILS 4-010 AND 4-030, TYPE A CURB.
6. CONSTRUCT MIN. 4" THICK ASPHALT CONCRETE OVER MINIMUM 6" THICK CLASS 2 AGGREGATE BASE COMPACTED TO MINIMUM 95% RELATIVE COMPACTION.
7. CONSTRUCT 6" DIA. OPENINGS AT 10' ON CENTER THROUGH WALL OR FENCE FOR DRAINAGE.
8. CONSTRUCT MIN. 6" THICK CONCRETE SLAB WITH #4 REBAR AT 18" ON CENTER, BOTH WAYS, OVER MINIMUM 6" THICK CLASS 2 AGGREGATE BASE.
9. LANDSCAPE/OPEN SPACE AREA, SEE LANDSCAPE PLAN.
10. CONSTRUCT BUILDING PER ARCHITECTURAL PLANS.
11. CONSTRUCT CONCRETE BLOCK RETAINING WALL WITH RAILING ON TOP PER SECTION "2" ON SHEET C11. HEIGHT OF WALL AND FENCE VARIES.
12. CONSTRUCT CONCRETE BLOCK SCREEN WALL, PARTIALLY RETAINING PER SECTION "1" ON SHEET C11.
13. CONSTRUCT STORM WATER TREATMENT BASIN WITH 6' HIGH WROUGHT IRON FENCING AROUND BASIN.
14. CONSTRUCT CONCRETE STEPS PER ARCHITECTURAL PLANS.
15. CONSTRUCT 8" THICK, 36" WIDE CONCRETE RIBBON GUTTER.
16. CONSTRUCT 6" THICK PERVIOUS ASPHALT CONCRETE OVER MIN. 1.5' THICK DRAIN ROCK WITH 40% VOIDS PER DETAIL "A" ON SHEET C12.
17. CONSTRUCT TRASH ENCLOSURE PER ARCHITECTURAL PLANS.
18. CONSTRUCT RETENTION BASIN PER DETAIL "B" ON SHEET C11.
19. CONSTRUCT 4' LONG CONCRETE WHEELSTOP.
20. CONSTRUCT 0" HIGH CONCRETE CURB
21. CONSTRUCT 6" CONCRETE CURB WITH 12" OPENING AT 10' O.C.
22. CONSTRUCT VEGETATED SWALE.
23. CONSTRUCT 8" THICK CONCRETE SLAB WITH #4 REBAR AT 18" ON CENTER, BOTH WAYS, OVER MINIMUM 6" THICK CLASS 2 AGGREGATE BASE COMPACTED TO MINIMUM 95% RELATIVE COMPACTION.
24. CONSTRUCT BIO-FILTER PLANTER PER DETAIL "C" ON SHEET C11.
25. DAYLIGHT TO MATCH EXISTING GROUND
26. INSTALL 4" PERFORATED PIPE PER DETAIL "A" ON SHEET C11.
27. INSTALL 12" WIDE BY 12" DEEP GRAVEL STRIP.
28. CONSTRUCT BIO-RETENTION PLANTER PER DETAIL "D" ON SHEET C11.

DRAINAGE CONSTRUCTION NOTES:

1. CONSTRUCT 18" DIA. HIGH DENSITY POLYETHYLENE (HDPE) STORM DRAIN PIPE, HANCOR SURE-LOK WT OR EQUAL. CONNECT TO EXISTING OR PROPOSED CATCH BASINS OR STORM DRAIN PIPES WITH WYE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS. PIPES NOTED (OFF-SITE) ARE FOR CONVEYING OFF-SITE RUNOFF (TYP. FOR THIS PROJECT).
2. CONSTRUCT 18" DIA. HDPE STORM DRAIN PIPE, HANCOR SURE-LOK WT OR EQUAL. CONNECT TO EXISTING OR PROPOSED CATCH BASINS OR STORM DRAIN PIPES WITH WYE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS.
3. CONSTRUCT 12" DIA. HDPE STORM DRAIN PIPE, HANCOR SURE-LOK WT OR EQUAL. CONNECT TO EXISTING OR PROPOSED CATCH BASINS OR STORM DRAIN PIPES WITH WYE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS.
4. CONSTRUCT OPEN CURB DROP INLET PER COUNTY STANDARD DETAILS 3-010 AND 3-020. W=5'. CONSTRUCT FLOGARD TRASH AND DEBRIS GUARD ALONG OPENING OF INLET WITH FOSSIL ROCK POUCH.
5. CONSTRUCT 24"X24" CONCRETE CATCH BASIN WITH TRAFFIC RATED GRATE AND FRAME, BROOKS PRODUCT OR EQUAL. PAINT STORM DRAIN STENCIL.
6. CONSTRUCT CURBSIDE GRATING CATCH BASIN TRAFFIC RATED GRATE AND FRAME, PER STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC)(GREENBOOK 2012) STANDARD PLAN 303-3 WITH 1 GRATE. PAINT STORM DRAIN STENCIL.
7. CONSTRUCT CONCRETE OUTLET STRUCTURE FOR STORM WATER TREATMENT BASIN. PAINT STORM DRAIN STENCIL.
8. CONSTRUCT PVC FLARED END SECTION, J&J DRAINAGE PRODUCT OR EQUAL. CONSTRUCT 5'X5' ROCK RIP RAP, MIN. 6" DIA. ROCK TO MAX. 12" DIA. ROCK, NO GROUT.
9. CONSTRUCT 4' DIA. CONCRETE STORM DRAIN MANHOLE, MID-STATE CONCRETE PRODUCT OR EQUAL.
10. CORE HOLE INTO EXISTING CONCRETE DROP INLET AND CONNECT PROPOSED STORM DRAIN TO EXISTING DROP INLET, AND GROUT IN PLACE.
11. CONSTRUCT STORM DRAIN CLEANOUT.
12. CONSTRUCT 4" DIA. HDPE STORM DRAIN PIPE, HANCOR SURE-LOK WT OR EQUAL. CONNECT TO ROOF DRAIN PER PLUMBING PLANS AND CONNECT TO STORM DRAIN SYSTEM WITH WYE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS.
13. CONSTRUCT 8" DIA. HDPE STORM DRAIN PIPE, HANCOR SURE-LOK WT OR EQUAL. CONNECT TO EXISTING OR PROPOSED CATCH BASINS OR STORM DRAIN PIPES WITH WYE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS.
14. CONSTRUCT 12" BY 12" CATCH BASIN.

Know what's below. Call before you dig. 811

ARCHITECT:
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Email:info@nKLOSURES.com

RAM HOTELS
P.O.BOX 52098
AMARILLO, TX 79159

VIA REAL HOTELS
4110 VIA REAL, CARPINTERIA
SEPTEMBER 6, 2016

REGISTERED PROFESSIONAL ENGINEER — GABRIEL DO-REYMOSO — NO 81090 — CIVIL — STATE OF CALIFORNIA

Stantec
111 East Victoria Street, Santa Barbara, CA 93101
Phone: (805) 963-9532 Fax: (805) 966-9801

PRELIMINARY GRADING AND DRAINAGE PLAN

C3

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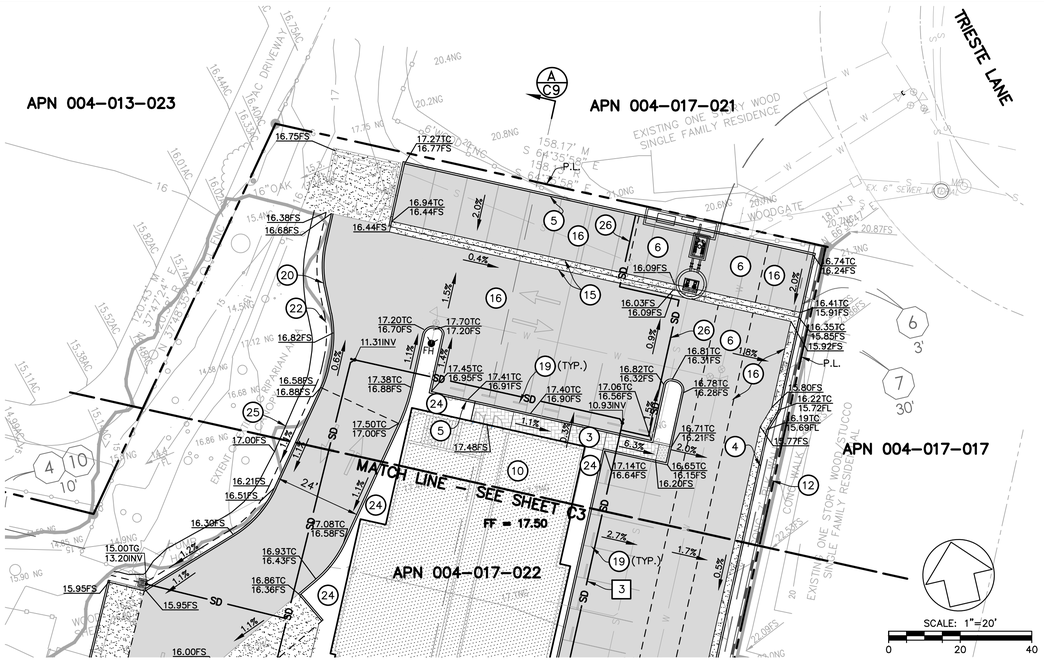

GENERAL NOTE

ROOF DOWNSPOUTS SHALL BE CONNECTED DIRECTLY TO BIO-RETENTION/FILTER PLANTERS.

LEGEND

	ASPHALT CONCRETE		SITE WALL
	P.C. CONCRETE	SD	STORM DRAIN PIPE
	CONCRETE WALKWAY		FLOW LINE
	DETECTABLE WARNING SURFACE		CATCH BASIN

AC	ASPHALT CONCRETE	P.L.	PROPERTY LINE
FL	FLOWLINE	RIM	RIM ELEVATION
FS	FINISH SURFACE	R.O.W.	RIGHT OF WAY
GB	GRADE BREAK	TC	TOP OF CURB
INV	INVERT ELEVATION	TG	TOP OF GRATE
PD	PERFORATED DRAIN	TW	TOP OF WALL

CAUTION

CONTRACTOR SHALL POTHOLE AND VERIFY ALL EXISTING UTILITIES WITHIN PROJECT SITE PRIOR TO CONSTRUCTION AND REPORT ANY CONFLICTS TO THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PROPOSE ANY HORIZONTAL REALIGNMENT AND/OR VERTICAL ADJUSTMENT FOR UTILITY DESIGN TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER OR THE PROJECT.

811 Know what's **below.** **Call** before you dig.

GRADING CONSTRUCTION NOTES:

1. CONSTRUCT 8" THICK CONCRETE SPANDREL AND CROSS GUTTER PER SANTA BARBARA COUNTY DEPT. OF PUBLIC WORKS (COUNTY) STANDARD DETAILS, 4% GUTTER CROSS SLOPE.
2. CONSTRUCT 4" THICK CONCRETE CURB RAMP PER CALTRANS STANDARD PLAN RSP A88A (2010) -CASE C, WITH DETECTABLE WARNING SURFACE.
3. CONSTRUCT MINIMUM 4" THICK CONCRETE WALKWAY PER COUNTY STANDARD DETAILS 5-010, 5-040, AND 5-045, MODIFIED AS FOLLOWS:
   A. COMPACT TOP 12" OF SUBGRADE TO 90% MINIMUM COMPACTION.
   B. SURFACE TREATMENT AND COLOR PER ARCHITECTURAL OR LANDSCAPE PLANS.
   C. #4 REBAR AT 18" ON CENTER, BOTH WAYS.
4. CONSTRUCT 6" CONCRETE CURB (TYPE A) AND 18" CONCRETE GUTTER PER SANTA BARBARA COUNTY DEPT. OF PUBLIC WORKS (COUNTY) STANDARD DETAILS 4-010 AND 4-030, 4% GUTTER CROSS SLOPE.
5. CONSTRUCT 6" CONCRETE CURB PER COUNTY STANDARD DETAILS 4-010 AND 4-030, TYPE A CURB.
6. CONSTRUCT MIN. 4" THICK ASPHALT CONCRETE OVER MINIMUM 6" THICK CLASS 2 AGGREGATE BASE COMPACTED TO MINIMUM 95% RELATIVE COMPACTION.
7. CONSTRUCT 6" DIA. OPENINGS AT 10' ON CENTER THROUGH WALL OR FENCE FOR DRAINAGE.
8. CONSTRUCT MIN. 6" THICK CONCRETE SLAB WITH #4 REBAR AT 18" ON CENTER, BOTH WAYS, OVER MINIMUM 6" THICK CLASS 2 AGGREGATE BASE.
9. LANDSCAPE/OPEN SPACE AREA, SEE LANDSCAPE PLAN.
10. CONSTRUCT BUILDING PER ARCHITECTURAL PLANS.
11. CONSTRUCT CONCRETE BLOCK RETAINING WALL WITH RAILING ON TOP PER SECTION "2" ON SHEET C11. HEIGHT OF WALL AND FENCE VARIES.
12. CONSTRUCT CONCRETE BLOCK SCREEN WALL, PARTIALLY RETAINING PER SECTION "1" ON SHEET C11.
13. CONSTRUCT STORM WATER TREATMENT BASIN WITH 6' HIGH WROUGHT IRON FENCING AROUND BASIN.
14. CONSTRUCT CONCRETE STEPS PER ARCHITECTURAL PLANS.
15. CONSTRUCT 8" THICK, 36" WIDE CONCRETE RIBBON GUTTER.
16. CONSTRUCT 6" THICK PERVIOUS ASPHALT CONCRETE OVER MIN. 1.5' THICK DRAIN ROCK WITH 40% VOIDS PER DETAIL "A" ON SHEET C12.
17. CONSTRUCT TRASH ENCLOSURE PER ARCHITECTURAL PLANS.
18. CONSTRUCT RETENTION BASIN PER DETAIL "B" ON SHEET C11.
19. CONSTRUCT 4' LONG CONCRETE WHEELSTOP.
20. CONSTRUCT 0" HIGH CONCRETE CURB
21. CONSTRUCT 6" CONCRETE CURB WITH 12" OPENING AT 10' O.C.
22. CONSTRUCT VEGETATED SWALE.
23. CONSTRUCT 8" THICK CONCRETE SLAB WITH #4 REBAR AT 18" ON CENTER, BOTH WAYS, OVER MINIMUM 6" THICK CLASS 2 AGGREGATE BASE COMPACTED TO MINIMUM 95% RELATIVE COMPACTION.
24. CONSTRUCT BIO-FILTER PLANTER PER DETAIL "C" ON SHEET C11.
25. DAYLIGHT TO MATCH EXISTING GROUND
26. INSTALL 4" PERFORATED PIPE PER DETAIL "A" ON SHEET C11.
27. INSTALL 12" WIDE BY 12" DEEP GRAVEL STRIP.
28. CONSTRUCT BIO-RETENTION PLANTER PER DETAIL "D" ON SHEET C11.

DRAINAGE CONSTRUCTION NOTES:

1. CONSTRUCT 18" DIA. HIGH DENSITY POLYETHYLENE (HDPE) STORM DRAIN PIPE, HANCOR SURE-LOK WT OR EQUAL. CONNECT TO EXISTING OR PROPOSED CATCH BASINS OR STORM DRAIN PIPES WITH WYE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS. PIPES NOTED (OFF-SITE) ARE FOR CONVEYING OFF-SITE RUNOFF (TYP. FOR THIS PROJECT).
2. CONSTRUCT 18" DIA. HDPE STORM DRAIN PIPE, HANCOR SURE-LOK WT OR EQUAL. CONNECT TO EXISTING OR PROPOSED CATCH BASINS OR STORM DRAIN PIPES WITH WYE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS.
3. CONSTRUCT 12" DIA. HDPE STORM DRAIN PIPE, HANCOR SURE-LOK WT OR EQUAL. CONNECT TO EXISTING OR PROPOSED CATCH BASINS OR STORM DRAIN PIPES WITH WYE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS.
4. CONSTRUCT OPEN CURB DROP INLET PER COUNTY STANDARD DETAILS 3-010 AND 3-020. W=5'. CONSTRUCT FLOGARD TRASH AND DEBRIS GUARD ALONG OPENING OF INLET WITH FOSSIL ROCK POUCH.
5. CONSTRUCT 24"X24" CONCRETE CATCH BASIN WITH TRAFFIC RATED GRATE AND FRAME, BROOKS PRODUCT OR EQUAL. PAINT STORM DRAIN STENCIL.
6. CONSTRUCT CURBSIDE GRATING CATCH BASIN TRAFFIC RATED GRATE AND FRAME, PER STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC)(GREENBOOK 2012) STANDARD PLAN 303-3 WITH 1 GRATE. PAINT STORM DRAIN STENCIL.
7. CONSTRUCT CONCRETE OUTLET STRUCTURE FOR STORM WATER TREATMENT BASIN. PAINT STORM DRAIN STENCIL.
8. CONSTRUCT PVC FLARED END SECTION, J&J DRAINAGE PRODUCT OR EQUAL. CONSTRUCT 5'X5' ROCK RIP RAP, MIN. 6" DIA. ROCK TO MAX. 12" DIA. ROCK, NO GROUT.
9. CONSTRUCT 4' DIA. CONCRETE STORM DRAIN MANHOLE, MID-STATE CONCRETE PRODUCT OR EQUAL.
10. CORE HOLE INTO EXISTING CONCRETE DROP INLET AND CONNECT PROPOSED STORM DRAIN TO EXISTING DROP INLET, AND GROUT IN PLACE.
11. CONSTRUCT STORM DRAIN CLEANOUT.
12. CONSTRUCT 4" DIA. HDPE STORM DRAIN PIPE, HANCOR SURE-LOK WT OR EQUAL. CONNECT TO ROOF DRAIN PER PLUMBING PLANS AND CONNECT TO STORM DRAIN SYSTEM WITH WYE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS.
13. CONSTRUCT 8" DIA. HDPE STORM DRAIN PIPE, HANCOR SURE-LOK WT OR EQUAL. CONNECT TO EXISTING OR PROPOSED CATCH BASINS OR STORM DRAIN PIPES WITH WYE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS.
14. CONSTRUCT 12" BY 12" CATCH BASIN.

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PRELIMINARY GRADING AND DRAINAGE PLAN

C4

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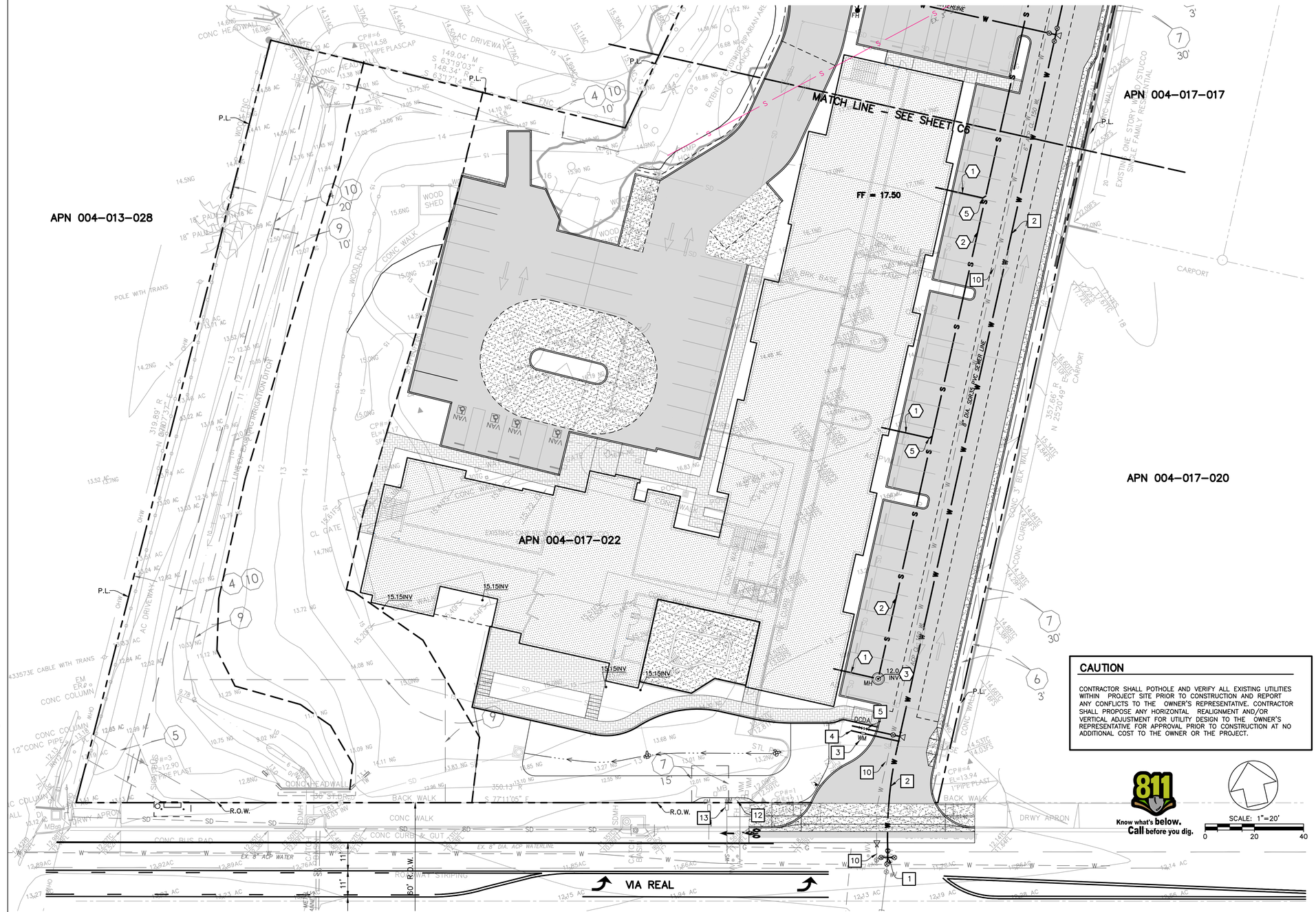
APN 004-013-023
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APN 004-017-017
APN 004-017-020
APN 004-017-022
MATCH LINE - SEE SHEET C6
FF = 17.50
VIA REAL
CONC HEADWALL
CONC WALK
BACK WALK
CONC CURB & GUT
DRWY APRON
CARPORT
EXISTING ONE STORY WOOD STUCCO SINGLE FAMILY RESIDENTIAL
EXISTING 3" DIA. SDR35 PVC SEWER LINE
EXISTING 8" ACP WATER
EXISTING 6" DIA. DRAINAGE INLET
EXISTING 12" CONC PIPE
EXISTING 18" PALAPA
EXISTING 18" PALM TREE
EXISTING 12" PALM TREE
EXISTING 24" PALM TREE
EXISTING 30" PALM TREE
EXISTING 36" PALM TREE
EXISTING 42" PALM TREE
EXISTING 48" PALM TREE
EXISTING 60" PALM TREE
EXISTING 72" PALM TREE
EXISTING 84" PALM TREE
EXISTING 96" PALM TREE
EXISTING 108" PALM TREE
EXISTING 120" PALM TREE
EXISTING 132" PALM TREE
EXISTING 144" PALM TREE
EXISTING 156" PALM TREE
EXISTING



SANITARY SEWER CONSTRUCTION NOTES:

1. CONSTRUCT 6" DIA. SDR35 PVC SEWER LINE. CONNECT TO BUILDING SANITARY SERVICE PER PLUMBING PLANS.
2. CONSTRUCT 8" DIA. SDR35 PVC SEWER LINE.
3. CONSTRUCT 4' DIA. SEWER MANHOLE PER CARPINTERIA SANITARY DISTRICT STANDARD PLATE 101.
4. CONSTRUCT 4' DIA. SEWER MANHOLE PER CARPINTERIA SANITARY DISTRICT STANDARD PLATE 101. CONNECT TO EXISTING SEWER MAIN. VERIFY PIPE SIZE AND INVERT ELEVATION PRIOR TO CONSTRUCTION.
5. CONSTRUCT WYE CONNECTION PER MANUFACTURER'S SPECIFICATIONS.
6. CONSTRUCT SEWER PUMP STATION WITH PUMP VAULT, WET WELL, ELECTRICAL PANEL AND BACKUP GENERATOR. DESIGN AND CONSTRUCT BY ROMTEC UTILITIES COMPANY (541-496-9687) OR EQUAL.
7. CONSTRUCT 4" DIA. SEWER FORCE MAIN FROM PUMP STATION TO SEWER MANHOLE.
8. REMOVE EXISTING PUMP HOUSE, 3" SEWER FORCE MAIN, AND SEWER JUNCTION BOX COMPLETE, LEGALLY DISPOSE OF OFF-SITE, AND BACKFILL WITH NATIVE MATERIAL AND COMPACT TO MIN. 90% COMPACTION.
9. CONSTRUCT SEWER CLEANOUT.
10. CONSTRUCT 4" DIA. SDR35 PVC SEWER LINE.
11. CONSTRUCT 6" DIA. DRAINAGE INLET WITH TRAFFIC RATED GRATE, NYLOPLAST PRODUCT OR EQUAL, AND CONNECT TO 4" DIA. SEWER PIPE.

WATER LINE CONSTRUCTION NOTES:

1. REMOVE EXISTING 8" TEE AND CONCRETE THRUST BLOCK IN VIA REAL AND CONSTRUCT 8" FLG. CROSS AND CONNECT EXISTING WATER MAINS PER CARPINTERIA VALLEY WATER DISTRICT STANDARDS. CONSTRUCT (4)-8" GATE VALVES AND VALVE CANS PER CARPINTERIA VALLEY WATER DISTRICT STANDARDS. CONSTRUCT GATE VALVES PER CVWD STD. DETAIL C-106 WITH PARKSON NO. 114 VALVE BOX (TYP.) PLACE VALVES AT LOCATIONS SHOWN PER PLAN. CONNECTION TO EXISTING 8" WATER MAIN IN VIA REAL TO BE CONSTRUCTED BY CVWD AFTER CONTRACTOR COMPLETES AWWA WATERLINE DISINFECTION AND PRESSURE TESTING, OBSERVED BY CVWD.
2. CONSTRUCT 8" DIA. CL. 305 C905 PVC WATERLINE PER CARPINTERIA VALLEY WATER DISTRICT (CVWD) STANDARD DETAILS C-101 AND C-101-A.
3. CONSTRUCT 3" WATER SERVICE PER CVWD STANDARD DETAILS, INCLUDING WATER METER AND METER BOX.
4. CONSTRUCT 3" WATER SERVICE PER CVWD STANDARD DETAILS TO BUILDING SERVICE PER PLUMBING PLANS.
5. CONSTRUCT 6" DIA. CL. 305 C905 PVC FIRE WATERLINE PER CVWD STD. DETAILS C-101, C101-A, AND CM-102, TO SERVE BUILDING SPRINKLER SYSTEM, INCLUDING 6" DOUBLE DETECTOR CHECK VALVE BACKFLOW ASSEMBLY WITH OS&Y, WILKINS MODEL 350DA, AND SIAMESE FIRE DEPARTMENT CONNECTION ON BUILDING SIDE OF BACKFLOW ASSEMBLY. (NOTE: OWNER TO SUPPLY CVWD WITH CALCULATIONS FROM FIRE SPRINKLER ENGINEER TO VERIFY DDCV SIZE)
6. CONSTRUCT (1)-6" DIA. GATE VALVE, (2)-8" GATE VALVES, 8"X8"X6" TEE, AND CONCRETE THRUST BLOCK. CONSTRUCT GATE VALVE PER CVWD STANDARD DETAIL C-106 WITH PARKSON NO. 114 VALVE BOXES (TYP.).
7. CONSTRUCT 6" DIA. CL. 305 C905 PVC FIRE WATERLINE PER CVWD STD. DETAILS C-101, C101-A, AND CM-102
8. CONSTRUCT FIRE HYDRANT ASSEMBLY COMPLETE PER CVWD STD. DETAIL C-104.
9. REMOVE PORTION OF EXISTING 8" DIA. WATER MAIN AND CONSTRUCT 8"X8"X8" FLG. TEE, (3)-8" FLxM/J GATE VALVES, AND CONCRETE THRUST BLOCK. CONSTRUCT GATE VALVE PER CVWD STD. DETAIL C-106 WITH PARKSON NO. 114 VALVE BOX (TYP.) PLACE VALVES AT LOCATIONS SHOWN PER PLAN.
10. CAP AND ABANDON EXISTING 6" DIA. WATER MAIN IN PLACE.
11. CONSTRUCT 5/8" WATER METER SERVICE TO EXISTING BUILDING AND CONNECT TO EXISTING WATER MAIN.
12. PROTECT EXISTING FIRE HYDRANT IN PLACE.
13. REMOVE AND REPLACE EXISTING 2" WATER METER WITH 1" IRRIGATION WATER METER.

LEGEND

	ASPHALT CONCRETE		BACKFLOW PREVENTER
	P.C. CONCRETE	SD	STORM DRAIN PIPE
⊗	WATER VALVE	W	WATER LINE
	CONCRETE THRUST BLOCK	FW	FIRE WATER LINE
MH	CONCRETE MANHOLE	S	SEWER LINE

AC	ASPHALT CONCRETE	P.L.	PROPERTY LINE
FL	FLOWLINE	RIM	RIM ELEVATION
FS	FINISH SURFACE	R.O.W.	RIGHT OF WAY
GB	GRADE BREAK	TC	TOP OF CURB
INV	INVERT ELEVATION	TG	TOP OF GRATE
PD	PERFORATED DRAIN		

CAUTION

CONTRACTOR SHALL POTHOLE AND VERIFY ALL EXISTING UTILITIES WITHIN PROJECT SITE PRIOR TO CONSTRUCTION AND REPORT ANY CONFLICTS TO THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PROPOSE ANY HORIZONTAL REALIGNMENT AND/OR VERTICAL ADJUSTMENT FOR UTILITY DESIGN TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER OR THE PROJECT.

811 Know what's **below.** **Call** before you dig.

SCALE: 1"=20'
0 20 40

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PRELIMINARY WATER AND SEWER PLAN

C6

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LEGEND

- ROCK BAG PROTECTION
- FIBER ROLL
- CONCRETE WASH-OFF AREA
- STABILIZED ENTRANCE

GENERAL NOTES

1. THE CONTRACTOR SHALL UTILIZE THIS PLAN ONLY AS A GUIDE TO FULFILL ALL REGULATORY AND PRACTICAL REQUIREMENTS RELATED TO EROSION CONTROL AND STORM WATER POLLUTION PREVENTION.
2. CONTRACTOR SHALL REVIEW AND PERFORM ALL STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS, WHICH MAY NOT BE LIMITED TO THE FEATURES DEPICTED ON THIS SHEET.
3. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON (NOVEMBER 1 TO APRIL 15). NECESSARY MATERIALS SHALL BE AVAILABLE ON-SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF EMERGENCY DEVICES WHEN RAIN IS IMMINENT.
4. EROSION CONTROL DEVICES MAY BE REMOVED WHEN APPROVED BY THE OWNER'S REPRESENTATIVE IF THE GRADING OPERATIONS HAVE PROGRESSED TO THE POINT WHERE THEY ARE NO LONGER REQUIRED.
5. EARTHEN AREAS ADJACENT TO THE PUBLIC RIGHT OF WAY SHALL DRAIN AWAY FROM THE PUBLIC RIGHT OF WAY AT THE CONCLUSION OF EACH WORKING DAY.
6. ALL SILT AND DEBRIS SHALL BE REMOVED FROM ALL DEVICES WITHIN 24 HOURS AFTER EACH RAINSTORM.
7. EXCEPT AS OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE, ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY OR WEEKENDS WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
8. ALL LOOSE SOIL AND DEBRIS, WHICH MAY CREATE A POTENTIAL HAZARD TO OFF-SITE PROPERTY, SHALL BE REMOVED FROM THE SITE AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
9. THE PLACEMENT OF ADDITIONAL DEVICES TO REDUCE EROSION AND/OR RUNOFF DAMAGE WITHIN THE SITE SHALL BE AT THE DISCRETION OF THE OWNER'S REPRESENTATIVE.
10. EROSION CONTROL DEVICES SHALL NOT BE MODIFIED WITHOUT THE APPROVAL OF THE OWNER'S REPRESENTATIVE. REVISED PLANS SHALL BE SUBMITTED FOR APPROVAL.
11. THE CONTRACTOR SHALL HIRE A CERTIFIED QUALIFIED SWPPP PRACTITIONER (QSP) TO MONITOR EROSION CONTROL WORK IN ACCORDANCE WITH THE APPROVED PLANS. THE WORK ALSO INCLUDES, BUT IS NOT LIMITED TO, INSPECTION OF EROSION CONTROL MEASURES BEFORE EACH RAINSTORM AND 5-DAY PROBABILITY RAIN FORECAST, AS WELL AS WEEKLY AND QUARTERLY MONITORING, AND FILE ANNUAL REPORTS AND NOTICE OF TERMINATION AFTER THE PROJECT COMPLETION.
12. IF RAIN IS FORECAST OR THREATENING, ALL STOCKPILED MATERIALS SHALL BE TARPED TO PREVENT EROSION. TARP SHALL BE ANCHORED WITH GRAVEL FILLED BAGS AT 8' INTERVALS.
13. WHENEVER SEDIMENT-LADEN WATER MUST BE REMOVED FROM THE CONSTRUCTION SITE, A DEWATERING PUMP, A FILTER BOX, PORTABLE SEDIMENT TANK, OR SOME FORM OF FILTERING MEDIA IS TO BE USED PRIOR TO OR DURING DISCHARGE.

EROSION CONTROL CONSTRUCTION NOTES

1. CONSTRUCT FIBER ROLL. FIBER ROLL SPACING SHALL NOT EXCEED 20' SPACING FOR SLOPES 4:1 AND FLATTER, 15' FOR SLOPES BETWEEN 2:1 AND 4:1, AND 10' FOR SLOPES 2:1 AND GREATER (U.N.O.).
2. CONSTRUCT DRAIN INLET PROTECTION FOR USE DURING PROJECT CONSTRUCTION.
3. CONSTRUCT CONCRETE WASH-OUT AREA.
4. CONSTRUCT STABILIZED ENTRANCE TO FULL WIDTH OF DRIVEWAY (A MINIMUM 20 FEET LONG BY FULL CONSTRUCTION ENTRANCE ROADWAY WIDTH METAL RUMBLE STRIP) AT ALL ACCESS POINTS FROM THE JOB SITE TO PREVENT TRACKING OF MUD ONTO PUBLIC ROADS, UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.

CAUTION

CONTRACTOR SHALL POTHOLE AND VERIFY ALL EXISTING UTILITIES WITHIN PROJECT SITE PRIOR TO CONSTRUCTION AND REPORT ANY CONFLICTS TO THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PROPOSE ANY HORIZONTAL REALIGNMENT AND/OR VERTICAL ADJUSTMENT FOR UTILITY DESIGN TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER OR THE PROJECT.

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PRELIMINARY EROSION CONTROL PLAN

C7

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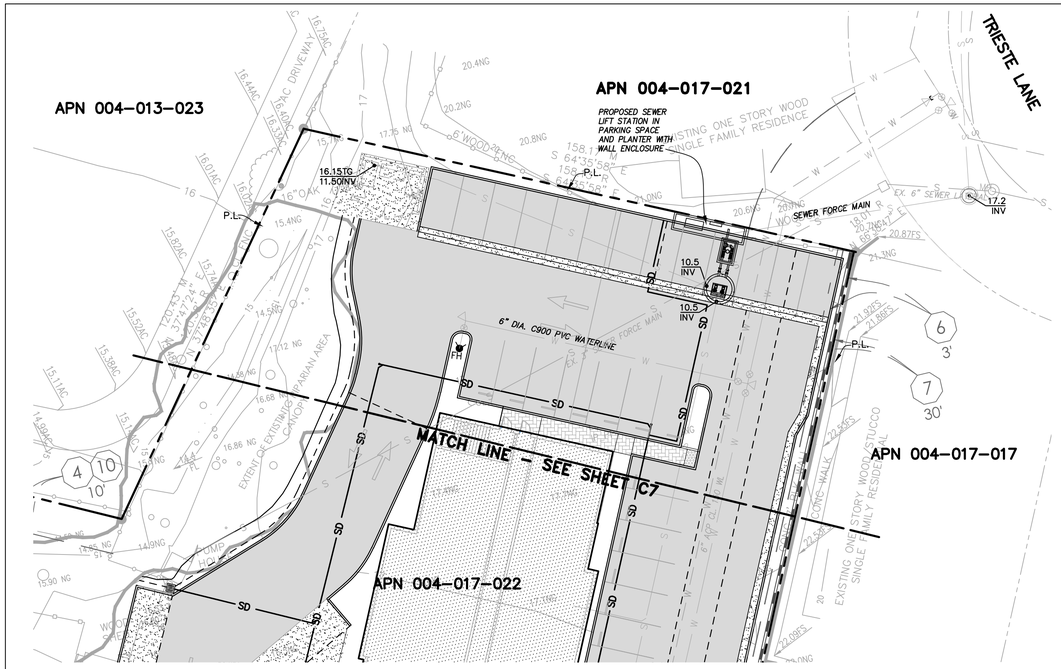

LEGEND

- ROCK BAG PROTECTION
- FIBER ROLL
- CONCRETE WASH-OFF AREA
- STABILIZED ENTRANCE

GENERAL NOTES

1. THE CONTRACTOR SHALL UTILIZE THIS PLAN ONLY AS A GUIDE TO FULFILL ALL REGULATORY AND PRACTICAL REQUIREMENTS RELATED TO EROSION CONTROL AND STORM WATER POLLUTION PREVENTION.
2. CONTRACTOR SHALL REVIEW AND PERFORM ALL STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS, WHICH MAY NOT BE LIMITED TO THE FEATURES DEPICTED ON THIS SHEET.
3. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON (NOVEMBER 1 TO APRIL 15). NECESSARY MATERIALS SHALL BE AVAILABLE ON-SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF EMERGENCY DEVICES WHEN RAIN IS IMMINENT.
4. EROSION CONTROL DEVICES MAY BE REMOVED WHEN APPROVED BY THE OWNER'S REPRESENTATIVE IF THE GRADING OPERATIONS HAVE PROGRESSED TO THE POINT WHERE THEY ARE NO LONGER REQUIRED.
5. EARTHEN AREAS ADJACENT TO THE PUBLIC RIGHT OF WAY SHALL DRAIN AWAY FROM THE PUBLIC RIGHT OF WAY AT THE CONCLUSION OF EACH WORKING DAY.
6. ALL SILT AND DEBRIS SHALL BE REMOVED FROM ALL DEVICES WITHIN 24 HOURS AFTER EACH RAINSTORM.
7. EXCEPT AS OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE, ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY OR WEEKENDS WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
8. ALL LOOSE SOIL AND DEBRIS, WHICH MAY CREATE A POTENTIAL HAZARD TO OFF-SITE PROPERTY, SHALL BE REMOVED FROM THE SITE AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
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12. IF RAIN IS FORECAST OR THREATENING, ALL STOCKPILED MATERIALS SHALL BE TARPED TO PREVENT EROSION. TARP SHALL BE ANCHORED WITH GRAVEL FILLED BAGS AT 8' INTERVALS.
13. WHENEVER SEDIMENT-LADEN WATER MUST BE REMOVED FROM THE CONSTRUCTION SITE, A DEWATERING PUMP, A FILTER BOX, PORTABLE SEDIMENT TANK, OR SOME FORM OF FILTERING MEDIA IS TO BE USED PRIOR TO OR DURING DISCHARGE.

EROSION CONTROL CONSTRUCTION NOTES

1. CONSTRUCT FIBER ROLL. FIBER ROLL SPACING SHALL NOT EXCEED 20' SPACING FOR SLOPES 4:1 AND FLATTER, 15' FOR SLOPES BETWEEN 2:1 AND 4:1, AND 10' FOR SLOPES 2:1 AND GREATER (U.N.O.).
2. CONSTRUCT DRAIN INLET PROTECTION FOR USE DURING PROJECT CONSTRUCTION.
3. CONSTRUCT CONCRETE WASH-OUT AREA.
4. CONSTRUCT STABILIZED ENTRANCE TO FULL WIDTH OF DRIVEWAY (A MINIMUM 20 FEET LONG BY FULL CONSTRUCTION ENTRANCE ROADWAY WIDTH METAL RUMBLE STRIP) AT ALL ACCESS POINTS FROM THE JOB SITE TO PREVENT TRACKING OF MUD ONTO PUBLIC ROADS, UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.

CAUTION

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PRELIMINARY EROSION CONTROL PLAN

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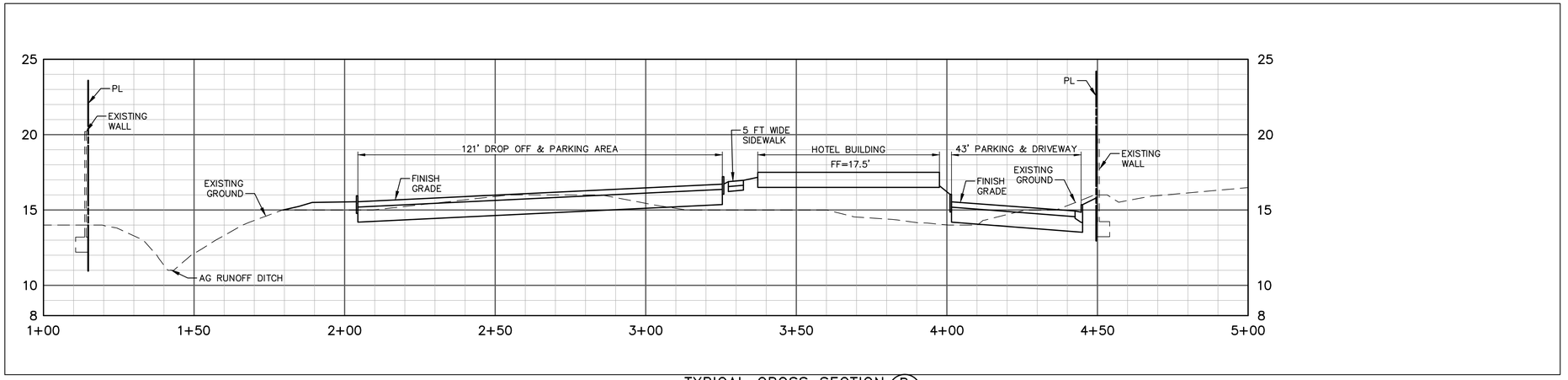
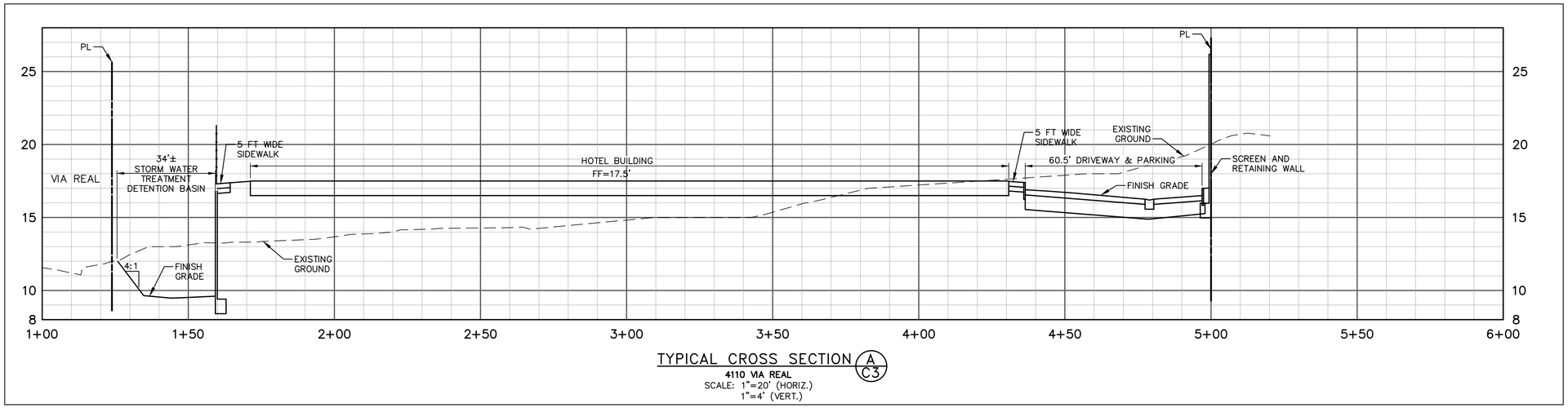


TYPICAL CROSS SECTION (B / C3)

4110 VIA REAL

SCALE: 1"=20' (HORIZ.)
1"=4' (VERT.)



TYPICAL CROSS SECTION (A / C3)

4110 VIA REAL

SCALE: 1"=20' (HORIZ.)
1"=4' (VERT.)

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RAM HOTELS

P.O.BOX 52098
AMARILLO, TX 79159

VIA REAL HOTELS

4110 VIA REAL, CARPINTERIA
SEPTEMBER 6, 2016

REGISTERED PROFESSIONAL ENGINEER
GABRIEL DO-REYNOSO
NO 81090
CIVIL
STATE OF CALIFORNIA

Stantec
111 East Victoria Street, Santa Barbara, CA 93101
Phone: (805) 963-9532 Fax: (805) 966-9801

SECTIONS

C9

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SIGNING AND STRIPING GENERAL NOTES

1. ALL SIGNING AND STRIPING SHALL BE ACCORDING TO THE CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL (CAMUTCD), 2012 EDITION. ALL PAVEMENT DELINEATION WORK AND ROADSIDE SIGN WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CALTRANS STANDARD SPECIFICATIONS AND STANDARD PLANS DATED 2010, AND THE CONTRACT SPECIAL PROVISIONS.
2. THE CONTRACTOR SHALL REMOVE BY WET SANDBLASTING ALL EXISTING STRIPING AND PAVEMENT MARKINGS WHICH CONFLICT WITH NEW WORK SHOWN ON THE PLANS. SANDBLAST AREAS FOR PAVEMENT MARKING LEGENDS AND ARROWS SHALL BE RECTANGULAR. ALL SANDBLASTED AREAS SHALL BE FOG SEALED WITH AN SSI EMULSION.
3. ALL CONSTRUCTION MATERIALS FOR ROADSIDE SIGN AND PAVEMENT DELINEATION WORK SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
4. THE EXACT LOCATIONS OF ALL NEW ROADSIDE SIGNS AND PAVEMENT DELINEATION SHALL BE MARKED IN THE FIELD BY THE CONTRACTOR. SIGNING AND STRIPING SHALL BE CAT TRACKED FOR REVIEW AND APPROVAL BY CITY ENGINEER PRIOR TO FINAL SIGN AND STRIPING INSTALLATION.
5. ALL STRIPING AND PAVEMENT MARKINGS SHALL BE PAINTS. LANE WIDTHS SHOWN ON THE PLAN ARE DIMENSIONED FROM FACE OF CURB TO CENTER OF STRIPE, OR BETWEEN CENTERS OF STRIPES.
6. THIS PLAN IS ACCURATE FOR SIGNING AND STRIPING WORK ONLY.

PAVEMENT DELINEATION LEGEND

- (XX) INSTALL TRAFFIC STRIPE PER CALTRANS STANDARD PLAN NOS. A20A, A20B, A20C, AND A20D AS NOTED.
- INSTALL TYPE IV(L) WHITE ARROW CENTERED IN LANE AS SHOWN.
- INSTALL WHITE "BIKE LANE" LEGEND WITH ARROW AS SHOWN.
- [1] INSTALL SIGN AND POLE AS NOTED.

ROADSIDE SIGN LEGEND



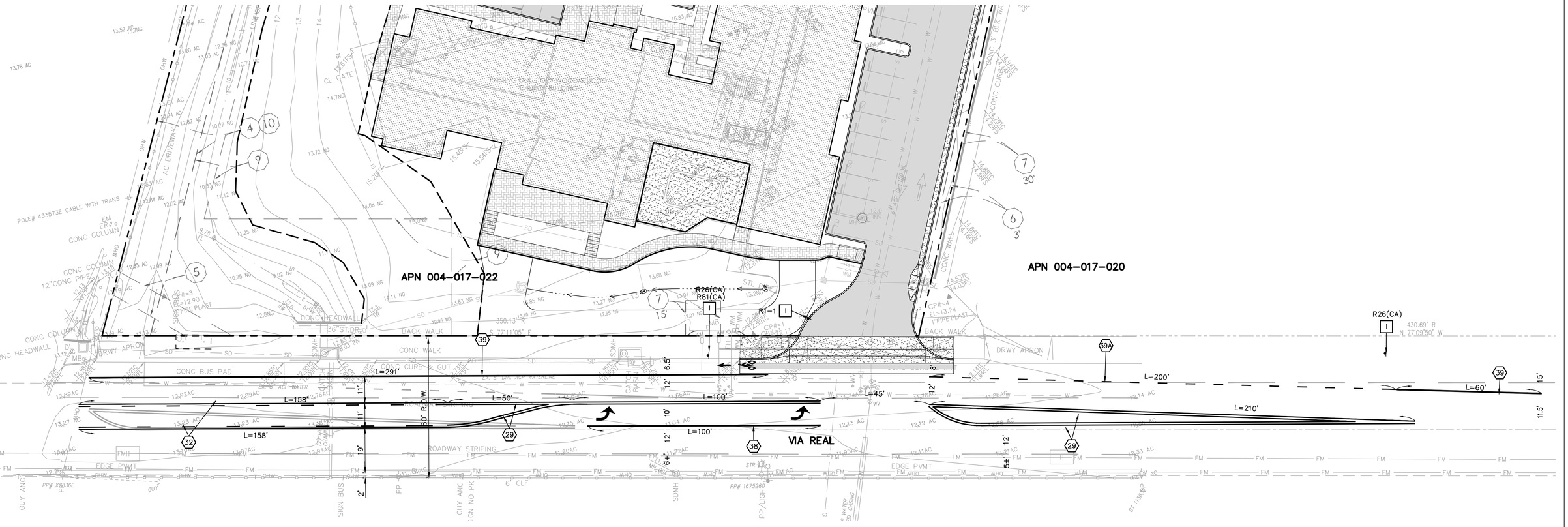
R1-1



R26(S) (CA)



R81(CA)



ARCHITECT: **nKLOSURES, Inc.** Tel: 323.309.7334 Email:info@nKLOSURES.com	**RAM HOTELS** P.O.BOX 52098 AMARILLO, TX 79159	**VIA REAL HOTELS** 4110 VIA REAL, CARPINTERIA SEPTEMBER 6, 2016	REGISTERED PROFESSIONAL ENGINEER GABRIEL DO-RE'NOSO NO 81090 CIVIL STATE OF CALIFORNIA Stantec 111 East Victoria Street, Santa Barbara, CA 93101 Phone: (805) 963-9532 Fax: (805) 966-9801	**PRELIMINARY SIGNING AND STRIPING PLAN** C10

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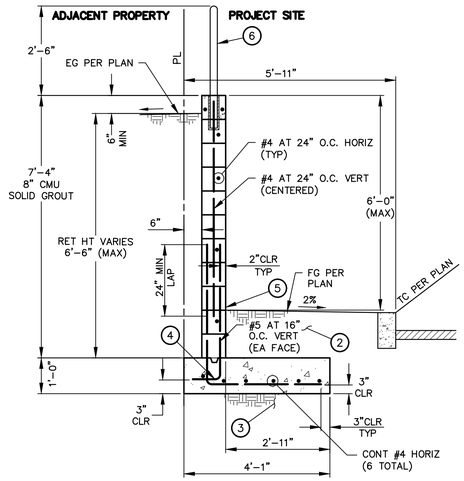
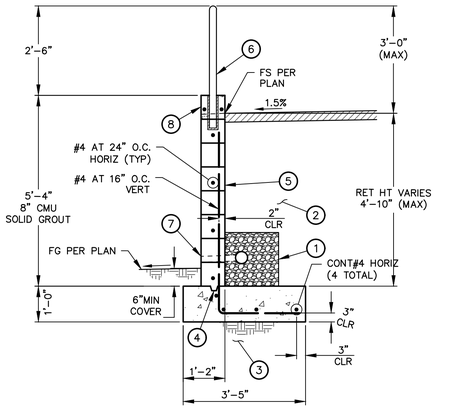


PERIMETER WALL

SCALE: 1"=2'

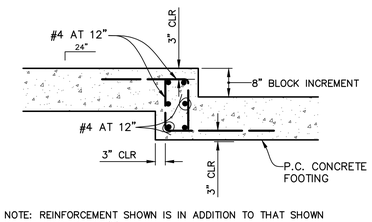


STORM WATER BASIN WALL

SCALE: 1"=2'

WALL CONSTRUCTION NOTES

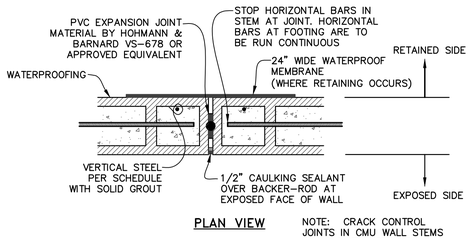
1. CONSTRUCT 18" SQUARE GRAVEL WRAPPED WITH FABRIC WITH CONTINUOUS 4-INCH PERFORATED PIPE AT TOP OF FOOTING AND CAP ENDS.
2. CONSTRUCT GRANULAR NON-EXPANSIVE BACKFILL COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION UNDER ROADWAY AND MINIMUM 90% RELATIVE COMPACTION ELSEWHERE (UNLESS NOTED OTHERWISE) AT A 1:1 SLOPE FROM BOTTOM OF WALL STEM.
3. SUB-GRADE AT MINIMUM 90% RELATIVE COMPACTION, AS APPROVED BY PROJECT GEOTECHNICAL ENGINEER.
4. CONSTRUCT 2x KEYWAY AT CONCRETE/MASONRY CONSTRUCTION JOINTS AS NOTED.
5. CONSTRUCT SONOSHEILD HLM 5000 WATERPROOFING BY BASF OR APPROVED EQUIVALENT. WATERPROOFING SHALL BE CONTINUOUS AT RETAINED SOIL.
6. CONSTRUCT 3'-6" HIGH WROUGHT IRON FENCE WITH POSTS PER ARCHITECTURAL OR LANDSCAPE PLANS. SEE POST EMBEDMENT DETAIL "5", THIS SHEET.
7. CONSTRUCT 2-INCH WEEP HOLE DRAINS AT MAXIMUM 10-FEET ON CENTER. OUTLET 2" ABOVE FINISH GRADE.
8. CONSTRUCT 6" DIA. OPENINGS AT 10' O.C. THROUGH WALL FOR DRAINAGE.



NOTE: REINFORCEMENT SHOWN IS IN ADDITION TO THAT SHOWN IN THE WALL DETAIL(S).

STEP FOOTING DETAIL

SCALE: 1"=1'

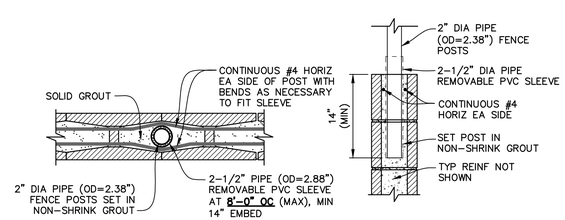


PLAN VIEW

NOTE: CRACK CONTROL JOINTS IN CMU WALL STEMS SHALL NOT EXCEED 24 L.F.

CMU WALL STEM EXPANSION JOINT DETAIL

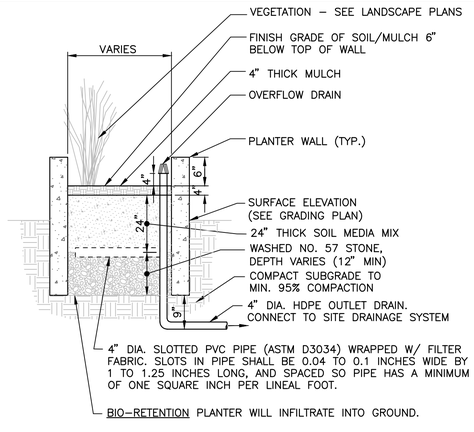
SCALE: 1"=1'



PLAN VIEW SECTION VIEW

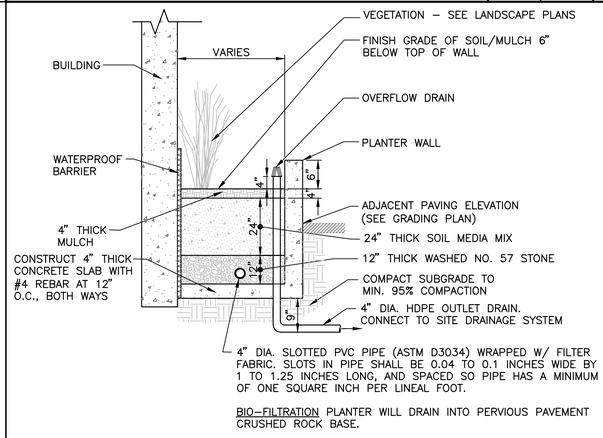
POST EMBEDMENT DETAIL

SCALE: N.T.S.



BIO-RETENTION PLANTER

NOT TO SCALE | D



BIO-FILTRATION PLANTER

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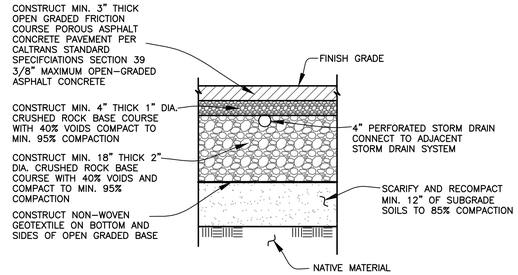
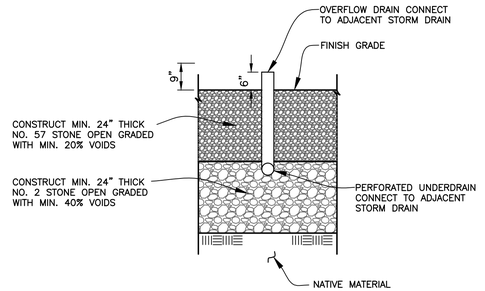


NOTES:

1. OVEREXCAVATE EXISTING SUBGRADE MATERIAL TO MIN. 12" BELOW EXISTING GROUND OR MIN. 12" BELOW DESIGN SECTION, WHICHEVER IS GREATER.

PERVIOUS ASPHALT PAVEMENT STRUCTURAL SECTION

NOT TO SCALE | A



STORM WATER BASIN

NOT TO SCALE | B

Know what's below. Call before you dig.

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DETAILS

C11

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PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

EAST ELEVATION

1/8" = 1'-0"

2



PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

SOUTH ELEVATION (FROM VIA REAL)

1/8" = 1'-0"

1

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AMARILLO, TX 79124

VIA REAL HOTEL
4110 VIA REAL, CARPINTERIA
NOVEMBER 21, 2019

0' 8'
4' 16'
SCALE: 1/8" = 1'-0"

EXTERIOR ELEVATIONS

EXHIBIT
OP-1A

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PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

WEST ELEVATION
1/8" = 1'-0"

2



PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

NORTH ELEVATION (MAIN ENTRY)
1/8" = 1'-0"

1

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4110 VIA REAL, CARPINTERIA
NOVEMBER 21, 2019

0' 8'
4' 16'
SCALE: 1/8" = 1'-0"

EXTERIOR ELEVATIONS

EXHIBIT
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VIEW OF BUILDING FROM VIA REAL 1

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VIA REAL HOTEL
4110 VIA REAL, CARPINTERIA
NOVEMBER 21, 2019

EXTERIOR RENDERING

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VIEW OF MAIN ENTRANCE 1

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NOVEMBER 21, 2019

EXTERIOR RENDERING

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PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

EAST ELEVATION

1/8" = 1'-0"

2



PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

SOUTH ELEVATION (FROM VIA REAL)

1/8" = 1'-0"

1

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RAM HOTELS
21 PRESTWICK LANE,
AMARILLO, TX 79124

VIA REAL HOTEL
4110 VIA REAL, CARPINTERIA
NOVEMBER 21, 2019

0' 8'
4' 16'
SCALE: 1/8" = 1'-0"

EXTERIOR ELEVATIONS

EXHIBIT
OP-2A

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PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

WEST ELEVATION
1/8" = 1'-0"

2



PROPOSED LEVEL 01 FINISH FLOOR EL. 17.50

NORTH ELEVATION (MAIN ENTRY)
1/8" = 1'-0"

1

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4110 VIA REAL, CARPINTERIA
NOVEMBER 21, 2019

0' 8'
4' 16'
SCALE: 1/8" = 1'-0"

EXTERIOR ELEVATIONS

EXHIBIT
OP-2B

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VIEW OF BUILDING FROM VIA REAL (1)

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VIA REAL HOTEL
4110 VIA REAL, CARPINTERIA
NOVEMBER 21, 2019

EXTERIOR RENDERING

EXHIBIT
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VIEW OF MAIN ENTRANCE 1

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AMARILLO, TX 79124

VIA REAL HOTEL
4110 VIA REAL, CARPINTERIA
NOVEMBER 21, 2019

EXTERIOR RENDERING

EXHIBIT
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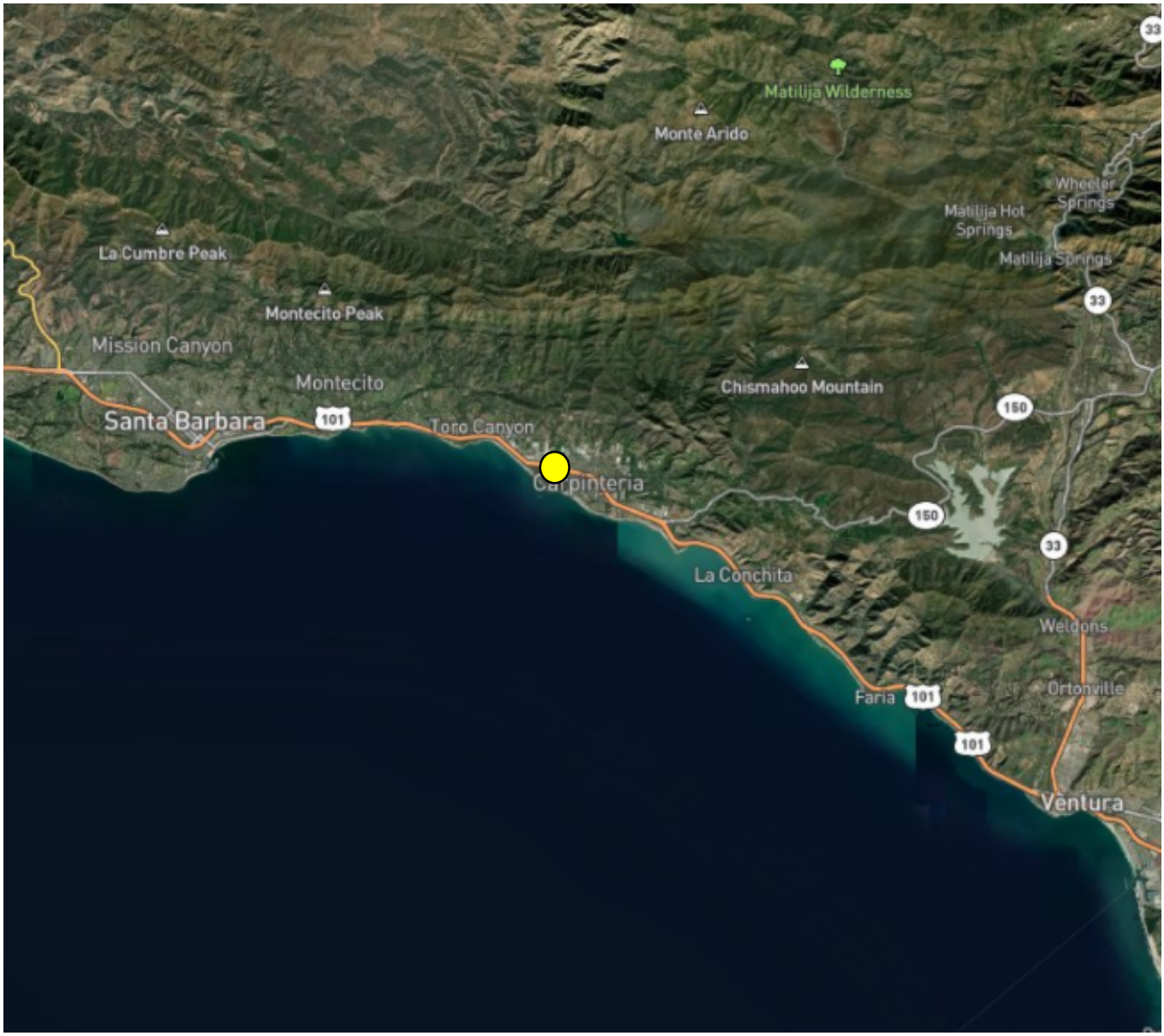
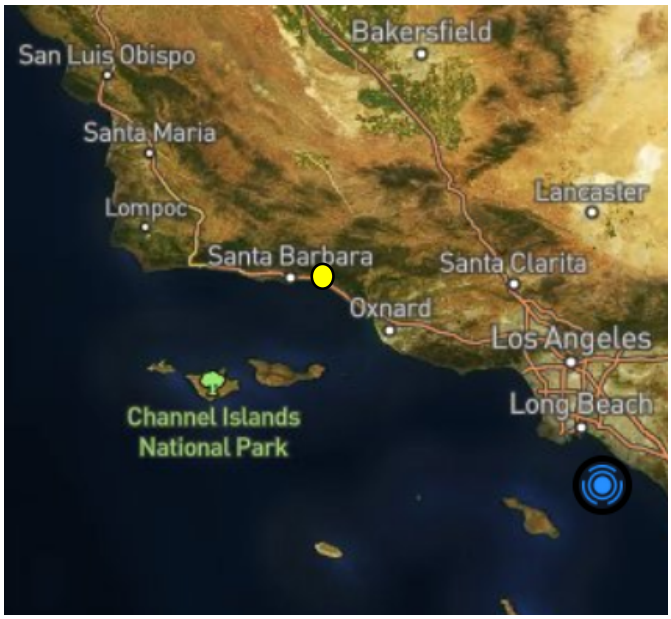
APPENDIX B



Project Location



N

ELEVATED ENTITLEMENTS

Figure 1

Vicinity Map

4110 Via Real, Carpinteria, CA 93013

APPENDIX C

WOLF ENVIRONMENTAL, INC

Carpinteria, CA
Air Quality and Greenhouse Gas Assessment

Hotel Development Project

December 8, 2021



WOLF ENVIRONMENTAL, INC

1.0 Introduction

The Project Applicant is proposing to develop a 105 or 106 room hotel in the City of Carpinteria (project). For this analysis, the higher figure of 106 rooms was used. The project is proposed at 4110 Via Real on APN 004-017-022.

1.1 Air District

This Air Quality & Greenhouse Gas Impact Assessment has been prepared for the purpose of identifying potential project-specific or site-specific air quality impacts that may result from the Project.

Santa Barbara County (County) is located in the South Central Coast Air Basin and the local agency management of the Santa Barbara County Air Pollution Control District (SBCAPCD or, air district). The air district is the agency responsible for monitoring and regulating air pollutant emissions from stationary, area, and indirect sources within the County. The air district also has responsibility for monitoring air quality and setting and enforcing limits for source emissions.

1.2 Regulatory

Air quality within the Project area is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policymaking, education, and a variety of programs. The agencies primarily responsible for improving the air quality within the project area are discussed below along with their individual responsibilities.

1.2.1 *Federal Agencies*

- ✓ **U.S. Environmental Protection Agency (EPA)**

  The Federal Clean Air Bill first adopted in 1967 and periodically amended since then, established federal ambient air quality standards. A 1987 amendment to the Bill set a deadline for the attainment of these standards. That deadline has since passed. The other Clean Air Act (CAA) Bill Amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources. The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the 1990 amendments.

  The CAA and the national ambient air quality standards identify levels of air quality for six "criteria" pollutants, which are considered the maximum levels of ambient air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, particulate matter, and lead.

  CAA Section 176(c) (42 U.S.C. 7506(c)) and EPA transportation conformity regulations (40 CFR

93 Subpart A) require that each new RTP and Transportation Improvement Program (TIP) be demonstrated to conform to the State Implementation Plan (SIP) before the RTP and TIP are approved by the Metropolitan planning organization (MPO) or accepted by the U.S. Department of Transportation (DOT). The conformity analysis is a federal requirement designed to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS). However, because the State Implementation Plan (SIP) for particulate matter 10 microns or less in diameter (PM10), particulate matter 2.5 microns or less in diameter (PM2.5), and Ozone address attainment of both the State and federal standards, for these pollutants, demonstrating conformity to the federal standards is also an indication of progress toward attainment of the State standards. Compliance with the State air quality standards is provided on the pages following this federal conformity discussion. The County is located in a nonattainment area for the 8-hour ozone standard and PM10 standard but complies with federal standards.

1.2.2 *Federal Regulations*

✓ **State Implementation Plan (SIP)/ Air Quality Management Plans (AQMPs)**

To ensure compliance with the NAAQS, EPA requires states to adopt SIP aimed at improving air quality in areas of nonattainment or a Maintenance Plan aimed at maintaining air quality in areas that have attained a given standard. New and previously submitted plans, programs, district rules, state regulations, and federal controls are included in the SIPs. Amendments made in 1990 to the federal CAA established deadlines for attainment based on an area's current air pollution levels. States must enact additional regulatory programs for nonattainment's areas in order to adhere with the CAA Section 172. In California, the SIPs must adhere to both the NAAQS and the California Ambient Air Quality Standards (CAAQS).

To ensure that State and federal air quality regulations are being met, Air Quality Management Plans (AQMPs) are required. AQMPs present scientific information and use analytical tools to identify a pathway towards attainment of NAAQS and CAAQS. The Santa Barbara County Air Pollution Control District (SBCAPCD) develops the AQMPs for the region where the Santa Barbara Council of Governments (SBCOG) operates. The regional air districts begin the SIP process by submitting their AQMPs to the California Air Resources Board (CARB). CARB is responsible for revising the SIP and submitting it to EPA for approval. EPA then acts on the SIP in the Federal Register. The items included in the California SIP are listed in the Code of Federal Regulations Title 40, Chapter 1, Part 52, Subpart 7, Section 52.220.

✓ **Transportation Control Measures**

One particular aspect of the SIP development process is the assessment of available transportation control measures (TCMs) as a part of making progress towards clean air goals. TCMs are defined in Section 108(f)(1) of the CAA and are strategies designed to reduce vehicle miles traveled, vehicle idling, and associated air pollution. These goals are generally achieved by developing attractive and convenient alternatives to single-occupant vehicle use.

Examples of TCMs include ridesharing programs, transportation infrastructure improvements such as adding bicycle and carpool lanes, and expansion of public transit.

✓ **Energy Policy Act of 1992 (EPAct)**

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of alternative fueled vehicles (AFVs). States are also required by the act to consider a variety of incentive programs to help promote AFVs.

1.2.3 *State Agencies*

✓ **California Air Resources Board (CARB)**

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing its own air quality legislation called the California Clean Air Act (CCAA), adopted in 1988. CARB was created in 1967 from the merging of the California Motor Vehicle Pollution Control Board and the Bureau of Air Sanitation and its Laboratory.

CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA. Whereas CARB has primary responsibility and produces a major part of the SIP for pollution sources that are statewide in scope, it relies on the local air districts to provide additional strategies for sources under their jurisdiction. CARB combines its data with all local district data and submits the completed SIP to the EPA. The SIP consists of the emissions standards for vehicular sources and consumer products set by CARB, and attainment plans adopted by the Air Pollution Control Districts (APCDs) and Air Quality Management District's (AQMDs) and approved by CARB.

States may establish their own standards, provided the State standards are at least as stringent as the NAAQS. California has established California Ambient Air Quality Standards (CAAQS) pursuant to California Health and Safety Code (CH&SC) [§39606(b)] and its predecessor statutes.

The CH&SC [§39608] requires CARB to "identify" and "classify" each air basin in the State on a pollutant-by-pollutant basis. Subsequently, CARB designated areas in California as nonattainment based on violations of the CAAQSs. Designations and classifications specific to the SJVAB can be found in the next section of this document. Areas in the State were also

classified based on severity of air pollution problems. For each nonattainment class, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment categories, attainment plans are required to demonstrate a five percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. In addition, air districts in violation of CAAQS are required to prepare an Air Quality Attainment Plan (AQAP) that lays out a program to attain and maintain the CCAA mandates.

CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035.

Other CARB duties include monitoring air quality. CARB has established and maintains, in conjunction with local APCDs and AQMDs, a network of sampling stations (called the State and Local Air Monitoring [SLAMS] network), which monitor the present pollutant levels in the ambient air.

Federal and State standards for criteria pollutants are provided in Table 1.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3) [8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10) [9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		--		
Fine Particulate Matter (PM2.5) [9]	24 Hour	--	--	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	--	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	--	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		--	--	
Nitrogen Dioxide (NO_2) [10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	--	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2) [11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	--	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	--		--	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for cetain areas) [11]	--	
	Annual Arithmetic Mean	--		0.030 ppm (for cetain areas) [11]	--	
Lead [12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m^3 (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-Month Average	--		0.15 µg/m^3		
Visibility Reducing Particles [14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride [12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

Footnotes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3, as was the annual secondary standard of 15 µg/m3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

1.2.4 *State Regulations*

✓ **CARB Mobile-Source Regulation**

The State of California is responsible for controlling emissions from the operation of motor vehicles in the State. Rather than mandating the use of specific technology or the reliance on a specific fuel, CARB's motor vehicle standards specify the allowable grams of pollutant per mile driven. In other words, the regulations focus on the reductions needed rather than on the manner in which they are achieved.

✓ **California Clean Air Act**

The CCAA was first signed into law in 1988. The CCAA provides a comprehensive framework for air quality planning and regulation, and spells out, in statute, the state's air quality goals, planning and regulatory strategies, and performance. The CCAA establishes more stringent ambient air quality standards than those included in the Federal CAA. CARB is the agency responsible for administering the CCAA. CARB established ambient air quality standards pursuant to the CH&SC [§39606(b)], which are similar to the federal standards.

✓ **Tanner Air Toxics Act**

California regulates Toxic Air Contaminants (TACs) primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and has adopted EPA's list of Hazardous Air Pollutants (HAPs) as TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

These rules and standards provide for:

- More stringent emission standards for some new urban bus engines, beginning with 2002 model year engines.
- Zero-emission bus demonstration and purchase requirements applicable to transit

agencies
- Reporting requirements under which transit agencies must demonstrate compliance with the urban transit bus fleet rule.

✓ **AB 1493 (Pavley)**

AB 1493 (Pavley) enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB would apply to 2009 and later model year vehicles. CARB estimated that the regulation would reduce climate change emissions from light duty passenger vehicles by an estimated 18 percent in 2020 and by 27 percent in 2030 [Association of Environmental Professionals (AEP) 2007)]. In 2005, the CARB requested a waiver from U.S. EPA to enforce the regulation, as required under the CAA. Despite the fact that no waiver had ever been denied over a 40-year period, the then Administrator of the EPA sent Governor Schwarzenegger a letter in December 2007, indicating he had denied the waiver. On March 6, 2008, the waiver denial was formally issued in the Federal Register. Governor Schwarzenegger and several other states immediately filed suit against the federal government to reverse that decision. On January 21, 2009, CARB requested that EPA reconsider denial of the waiver. EPA scheduled a re-hearing on March 5, 2009. On June 30, 2009, EPA granted a waiver of CAA preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year.

✓ **Assembly Bill 32 (California Global Warming Solutions Act of 2006)**

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. December 31, 2020, is the deadline for achieving the 2020 GHG emissions cap. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has

discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions.

CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan adopted in December of 2008. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit.

✓ **Senate Bill 375**

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035.

This law also extends the minimum time period for the regional housing needs allocation cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

✓ **Executive Order B-30-15**

Executive Order B-30-15, which was signed by Governor Brown in 2016, establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

✓ **California Global Warming Solutions Act of 2006: emissions limit, or SB 32**

SB 32 is a California Senate bill expanding upon AB 32 to reduce greenhouse gas (GHG) emissions. The lead author is Senator Fran Pavley, and the principal co-author is Assembly member Eduardo Garcia. SB 32 was signed into law on September 8, 2016, by Governor Brown. SB 32 sets into law the mandated reduction target in GHG emissions as written into Executive Order B-30-15. SB 32 requires that there be a reduction in GHG emissions to 40% below the 1990 levels by 2030. Greenhouse gas emissions include carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. The California

Air Resources Board (CARB) is responsible for ensuring that California meets this goal. The provisions of SB 32 were added to Section 38566 of the Health and Safety Code subsequent to the bill's approval. The bill went into effect January 1, 2017. SB 32 builds onto Assembly Bill (AB) 32 written by Senator Fran Pavley and Assembly Speaker Fabian Nunez passed into law on September 27, 2006. AB 32 required California to reduce greenhouse gas emissions to 1990 levels by 2020 and SB 32 continues that timeline to reach the targets set in Executive Order B-30-15. SB 32 provides another intermediate target between the 2020 and 2050 targets set in Executive Order S-3-05.

1.2.5 *Regional Agencies*

✓ **Santa Barbara County Air Pollution Control District**

The air district is the agency responsible for monitoring and regulating air pollutant emissions from stationary, area, and indirect sources within the County. The air district also has responsibility for monitoring air quality and setting and enforcing limits for source emissions. CARB is the agency with the legal responsibility for regulating mobile source emissions. The air district is precluded from such activities under State law.

Activities of the air district include the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the FCAA and CCAA.

1.2.6 *Local Plans*

✓ **City of Carpinteria General Plan**

California State Law requires every city and county to adopt a comprehensive General Plan to guide its future development. The General Plan essentially serves as a "constitution for development"— the document that serves as the foundation for all land use decisions. The City's General Plan Update includes various elements, including air quality and greenhouse gases, which address local concerns and provides goals and policies to achieve its development goals.

2.0 Environmental Setting

2.1 Climate Conditions

The City of Carpinteria and Santa Barbara County are located in the South Central Coast Air Basin (Basin), composed of Ventura County, Santa Barbara County and San Luis Obispo County; development activities potentially impacting the Basin are under the jurisdiction of the Santa Barbara County Air Pollution Control District (SBCAPCD).

2.2 Anthropogenic (Man-made) Sources

In addition to climatic conditions (wind, lack of rain, etc.), air pollution can be caused by anthropogenic or man-made sources. Air pollution in the air district can be directly attributed to human activities, which cause air pollutant emissions. Human causes of air pollution in the Valley consist of population growth, urbanization (gas-fired appliances, residential wood heaters, etc.), mobile sources (i.e., cars, trucks, airplanes, trains, etc.), oil production, agriculture, and other socioeconomic activities.

Carbon monoxide emissions come from mobile sources in the County. Motor vehicles account for significant portions of regional gaseous and particulate emissions. Local large employers such as industrial plants can also generate substantial regional gaseous and particulate emissions. In addition, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.).

Ozone is the result of a photochemical reaction between oxides of nitrogen (NOx) and Reactive Organic Gases (ROG). Mobile sources contribute the majority of all NOx emitted from anthropogenic sources in the County.

The principal factors that affect air quality in Santa Barbara County are:

1. Automobile and truck travel
2. Increases in mobile and stationary pollutants generated by local urban growth

Automobiles, trucks, buses, and other vehicles using hydrocarbon (HC) fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters; animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants.

2.2.1 Motor Vehicles

Automobiles, trucks, buses, and other vehicles using hydrocarbon fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

2.2.2 Agricultural and Other Miscellaneous Activities

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters, animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants.

2.2.3 Industrial Plants

Industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions.

2.3 Air Basin Monitoring

The air district and the CARB maintain numerous air quality monitoring sites throughout each County in the Air Basin to measure ozone, PM2.5, and PM10. It is important to note that the federal ozone 1-hour standard was revoked by the EPA and is no longer applicable for federal standards.

Table 2 identifies the County's attainment status.

Table 2
Santa Barbara County Attainment Status

Pollutant	Federal Standards	State Standards
Ozone – 1 Hour	Revoked in 2005	Nonattainment
Ozone – 8 Hour	-	Nonattainment
PM10	Unclassified	Nonattainment
PM2.5	Unclassified/Attainment	Unclassified
Carbon Monoxide	Unclassified/Attainment	Attainment
Nitrogen Dioxide	-	Attainment
Sulfur Dioxide	-	Attainment

2.4 Air Quality Standards

The FCAA, first adopted in 1963, and periodically amended since then, established National Ambient Air Quality Standards (NAAQS). A set of 1977 amendments determined a deadline for the attainment of these standards. That deadline has since passed. Other CAA amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources.

In 1988, the State of California passed the CCAA (State 1988 Statutes, Chapter 568), which set forth a program for achieving more stringent California Ambient Air Quality Standards. The CARB implements State ambient air quality standards, as required in the CCAA, and cooperates with the federal government in implementing pertinent sections of the FCAA Amendments (FCAAA). Further, CARB regulates vehicular emissions throughout the State. The SBCAPCD regulates stationary sources, as well as some mobile sources. Attainment of the more stringent State PM10 Air Quality Standards is not currently required.

The EPA uses six "criteria pollutants" as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called the NAAQS.

The air district operates regional air quality monitoring networks that provide information on average concentrations of pollutants for which State or federal agencies have established ambient air quality standards. Descriptions of nine pollutants of importance in the County follow.

2.4.1 Ozone (1-hour and 8-hour)

The most severe air quality problem in the Air Basin is the high level of ozone. Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. Here, ground level, or "bad" ozone, is an air pollutant that damages human health, vegetation, and many common materials. It is a key ingredient of urban smog. The troposphere extends to a level about 10 miles up, where it meets the second layer, the stratosphere. The stratospheric, or "good" ozone layer, extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is what is known as a photochemical pollutant. It needs reactive organic gases (ROG), NOx, and sunlight. ROG and NOx are emitted from various sources throughout Tulare County. In order to reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors.

Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Ozone is a regional air pollutant. It is generated over a large area and is transported and spread by wind. Ozone, the primary constituent of smog, is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, ozone is not emitted directly into the air by specific sources. Ozone is created by sunlight acting on other air pollutants (called precursors), specifically NOx and ROG. Sources of precursor gases to the photochemical reaction that form ozone number in the thousands. Common sources include consumer products, gasoline vapors, chemical solvents, and combustion products of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place in another location, catalyzed by sunlight and heat. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins. Approximately 50 million people lived in counties with air quality levels above the EPA's health-based national air quality standard in 1994. The highest levels of ozone were recorded in Los Angeles, closely followed by the San Joaquin Valley. High levels also persist in other heavily populated areas, including the Texas Gulf Coast and much of the Northeast.

While the ozone in the upper atmosphere absorbs harmful ultraviolet light, ground-level ozone is damaging to the tissues of plants, animals, and humans, as well as to a wide variety of inanimate materials such as plastics, metals, fabrics, rubber, and paints. Societal costs from ozone damage include increased medical costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

- ***Health Effects***

  While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems, such as: forests and foothill communities; agricultural crops; and some man-made materials, such as rubber, paint, and plastic. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Ozone accelerates aging and exacerbates pre-existing asthma and bronchitis and, in cases with high concentrations, can lead to the development of asthma in active children. Active people, both children and adults, appear to be more at risk from ozone exposure than those with a low level of activity. Additionally, the elderly and those with respiratory disease are also considered sensitive populations for ozone.

  People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities. Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than adults. Teenagers spend at least twice as much time as adults in active sports and outdoor activities. In addition, children inhale more air per pound of body weight than adults, and they breathe more rapidly than

adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures.

Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing inflammation and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard leads to lung inflammation and lung tissue damage and a reduction in the amount of air inhaled into the lungs.

2.4.2 Suspended PM (PM10 and PM2.5)

Particulate matter pollution consists of very small liquid and solid particles that remain suspended in the air for long periods. Some particles are large or concentrated enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. Particulate matter is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter is emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processes; wood-burning stoves and fireplaces; wildfires; dust from roads, construction, landfills, and agriculture; and fugitive windblown dust. PM10 refers to particles less than or equal to 10 microns in aerodynamic diameter. PM2.5 refers to particles less than or equal to 2.5 microns in aerodynamic diameter and are a subset of PM10. Particulates of concern are those that are 10 microns or less in diameter. These are small enough to be inhaled, pass through the respiratory system and lodge in the lungs, possibly leading to adverse health effects.

In the western United States, there are sources of PM10 in both urban and rural areas. Because particles originate from a variety of sources, their chemical and physical compositions vary widely. The composition of PM10 and PM2.5 can also vary greatly with time, location, the sources of the material and meteorological conditions. Dust, sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes are the main components of PM10 and PM2.5. In addition to those listed previously, secondary particles can also be formed as precipitates from chemical and photochemical reactions of gaseous sulfur dioxide (SO2) and NOx in the atmosphere to create sulfates (SO4) and nitrates (NO3). Secondary particles are of greatest concern during the winter months where low inversion layers tend to trap the precursors of secondary particulates.

- ✓ ***Health Effects***

PM10 and PM2.5 particles are small enough—about one-seventh the thickness of a human hair, or smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses. Health problems begin as the body reacts to these

foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health-related effects include reduced visibility and soiling of buildings. PM10 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections PM10 and PM2.5 can aggravate respiratory disease and cause lung damage, cancer, and premature death.

Although particulate matter can cause health problems for everyone, certain people are especially vulnerable to adverse health effects of PM10. These "sensitive populations" include children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis. Of greatest concern are recent studies that link PM10 exposure to the premature death of people who already have heart and lung disease, especially the elderly. Acidic PM10 can also damage manmade materials and is a major cause of reduced visibility in many parts of the United States.

2.4.3 Carbon Monoxide (CO)

Carbon monoxide (CO) is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive. CO is a byproduct of motor vehicle exhaust, contributes more than two thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO.

✓ ***Health Effects***

CO enters the bloodstream and binds more readily to hemoglobin than oxygen, reducing the oxygen-carrying capacity of blood and thus reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and in prolonged, enclosed exposure, death.

The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to the concentration of carboxyhemoglobin (COHb) in the blood. Health

effects observed may include an early onset of cardiovascular disease; behavioral impairment; decreased exercise performance of young, healthy men; reduced birth weight; sudden infant death syndrome (SIDS); and increased daily mortality rate.

Most of the studies evaluating adverse health effects of CO on the central nervous system examine high-level poisoning. Such poisoning results in symptoms ranging from common flu and cold symptoms (shortness of breath on mild exertion, mild headaches, and nausea) to unconsciousness and death.

2.4.4 Nitrogen Dioxide (NO2)

Nitrogen oxides (NOx) is a family of highly reactive gases that are primary precursors to the formation of ground-level ozone and react in the atmosphere to form acid rain. NOx is emitted from combustion processes in which fuel is burned at high temperatures, principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A brownish gas, NOx is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates. EPA regulates only nitrogen dioxide (NO2) as a surrogate for this family of compounds because it is the most prevalent form of NOx in the atmosphere that is generated by anthropogenic (human) activities.[1]

✓ ***Health Effects***

NOx is an ozone precursor that combines with Reactive Organic Gases (ROG) to form ozone. See the ozone section above for a discussion of the health effects of ozone.

Direct inhalation of NOx can also cause a wide range of health effects. NOx can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of nitrogen dioxide (NO2) may lead to changes in airway responsiveness and lung function in individuals with preexisting respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO2 may lead to increased susceptibility to respiratory infection and may cause irreversible alterations in lung structure. Other health effects associated with NOx are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NOx can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of particulate nitrates. Airborne NOx can also impair visibility. NOx is a major component of acid deposition in California. NOx may affect both terrestrial and aquatic ecosystems. NOx in the air is a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and

1 United States Environmental Protection Agency (EPA), Nitrogen Oxides (NOx). Why and How They Are Controlled, 456/F-99-006R, November 2019

other animal life.

NO2 is toxic to various animals as well as to humans. Its toxicity relates to its ability to combine with water to form nitric acid in the eye, lung, mucus membranes, and skin. Studies of the health impacts of NO2 include experimental studies on animals, controlled laboratory studies on humans, and observational studies.

In animals, long-term exposure to NOx increases susceptibility to respiratory infections, lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO2, can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO2 concentrations and daily mortality from respiratory and cardiovascular causes as well as hospital admissions for respiratory conditions.

NOx contributes to a wide range of environmental effects both directly and when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication as discussed above. Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms.

2.4.5 Sulfur Dioxide (SO2)

The major source of sulfur dioxide (SO2) is the combustion of high-sulfur fuels for electricity generation, petroleum refining and shipping. High concentrations of SO2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of asthmatic individuals to elevated SO2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer-term exposures to high concentrations of SO2, in conjunction with high levels of PM, include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. SO2 also is a major precursor to PM2.5, which is a significant health concern and a main contributor to poor visibility. In humid atmospheres, sulfur oxides can react with vapor to produce sulfuric acid, a component of acid rain.

2.4.6 Lead (Pb)

Lead, a naturally occurring metal, can be a constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used until recently to increase the octane rating in automobile fuel. Since the 1980s, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and

banned or limited in consumer products. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels; however, the use of leaded fuel has been mostly phased out. Since this has occurred the ambient concentrations of lead have dropped dramatically.

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children. Effects on the nervous systems of children are one of the primary health risk concerns from lead. In high concentrations, children can even suffer irreversible brain damage and death. Children 6 years old and under are most at risk, because their bodies are growing quickly.

2.4.7 Toxic Air Contaminants (TACs)

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TAC) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TAC is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination. The ten TAC are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). Caltrans' guidance for transportation studies references the Federal Highway Administration (FHWA) memorandum titled "Interim Guidance on Air Toxic Analysis in NEPA Documents" which discusses emissions quantification of six "priority" compounds of 21 Mobile Source Air Toxics (MSAT) identified by the United States Environmental Protection Agency (USEPA). The six "priority" compounds are diesel exhaust (particulate matter and organic gases), benzene, 1,3-butadiene, acetaldehyde, formaldehyde, and acrolein.

Some studies indicate that diesel PM poses the greatest health risk among the TAC listed above. A 10-year research program (California Air Resources Board 1998) demonstrated that diesel PM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to diesel PM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TAC in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Unlike the other TAC, however, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. The CARB has made preliminary concentration estimates based on a diesel PM exposure method. This method uses the CARB emissions inventory's PM10 database, ambient PM10 monitoring data, and the results from several studies to estimate concentrations of diesel PM. Table 4 depicts the CARB Handbook's recommended buffer distances associated with various types of common sources.

Existing air quality concerns within the air basin are related to increases of regional criteria air pollutants (e.g., ozone and particulate matter), exposure to toxic air contaminants, odors, and increases in greenhouse gas emissions contributing to climate change. The primary source of ozone (smog) pollution is motor vehicles. Particulate matter is caused by dust, primarily dust generated from construction and grading activities, and smoke which is emitted from fireplaces, wood-burning stoves, and agricultural burning.

2.4.8 Odors

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The Project does not propose any uses that would be potential odor sources.

2.4.9 Naturally Occurring Asbestos (NOA)

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Asbestos is commonly found in ultramafic rock and near fault zones. The amount of asbestos that is typically present in these rocks' ranges from less than 1% up to approximately 25% and sometimes more. It is released from ultramafic rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways, which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. Asbestos is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time. Asbestos is hazardous and can cause lung disease and cancer dependent upon the level of exposure. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem.

The proposed Project's construction phase may cause asbestos to become airborne due to the construction activities that will occur on site. The Project would likely be required to submit a Dust Control Plan.

2.4.10 Greenhouse Gas Emissions

Gases that trap heat in the atmosphere are often called greenhouse gases. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are:

- ✓ **Carbon Dioxide (CO2):** Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement, asphalt paving, truck trips). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- ✓ **Methane (CH4):** Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- ✓ **Nitrous Oxide (N2O):** Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- ✓ **Fluorinated Gases:** Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes.

Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (i.e., CFCs, HCFCs, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases").

3.0 Air-Quality Impacts

3.1 Methodology

The impact assessment for air quality focuses on potential effects the Project might have on air quality within the region. The air district has established thresholds of significance for determining environmental significance. These thresholds separate a project's short-term emissions from its long-term emissions. The short-term emissions are mainly related to the construction phase of a project, which are recognized to be short in duration. The long-term emissions are primarily related to the activities that will occur indefinitely as a result of Project operations. Impacts will be evaluated both on the basis of California Environmental Quality Act (CEQA) Appendix G criteria and SBCAPCD significance criteria. The impacts to be evaluated will be those involving construction and operational emissions of criteria pollutants.

3.1.1 *CalEEMod*

The California Emissions Estimator Model (CalEEMod) is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The model is an accurate and comprehensive tool for quantifying air quality impacts from land use projects throughout California. The model can be used for a variety of situations where an air quality analysis is necessary or desirable such as CEQA and NEPA documents, pre-project planning, compliance with local air quality rules and regulations, etc.

3.2 Environmental Thresholds

Air quality impacts are evaluated on both a short-term and long-term basis. Short-term impacts are generally considered to occur during project construction while long-term impacts are associated with project operation.

Air quality threshold criteria are developed and applied using federal, state, and local data and methodologies including computerized modeling techniques. State CEQA Guidelines state in Appendix G, that for air quality, a project will ordinarily have a significant effect on the environment if it will:

- Violate any ambient State or Federal air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial

pollutant concentrations.

In addition, the SBCAPCD has prepared criteria and thresholds for determining significance under CEQA. According to the SBCAPCD's Scope and Content of Air Quality Sections in Environmental Documents (SBCAPCD 2011a), a project would have a significant air quality effect on the environment if operation of the project would:

- Emit (from all project sources, both stationary and mobile) more than the daily trigger for offsets or air quality impact analysis set in the SBCAPCD New Source Review Rule, for any pollutant;
- Emit 25 pounds per day or more of NOX or ROC from motor vehicle trips only;
- Cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone);
- Exceed the SBCAPCD health risk public notification thresholds adopted by the SBCAPCD Board for non-cancer risk;
- Be inconsistent with the latest adopted federal and state air quality plans for Santa Barbara County; or
- Expose new or existing receptors to objectionable odors.

Table 3
Project Construction Emissions (tons/year)

Summary Report	CO	NOx	ROG	SOx	PM10	PM2.5	CO2e
Project Construction Emissions	1.34	1.29	1.93	2.67e-003	0.17	0.10	240.28

Due to the relatively low background ambient CO levels in Santa Barbara County, localized CO impacts associated with congested intersections are not expected to exceed the CO health related air quality standards. Therefore, CO "hotspots" analyses are not required.

Quantitative thresholds of significance are not currently in place for short-term or construction emissions; however, the SBCAPCD uses 25 tons per year for ROG or NOX as a guideline for determining the significance of construction impacts. Under SBCAPCD Rule 202 D.16, if the combined emissions from all construction equipment used to construct a stationary source that requires an Authority to Construct permit will have the potential to exceed 25 tons of any pollutant, except CO, in a 12-month period, the owner of the stationary source shall provide offsets under the provisions of Rule 804 and shall demonstrate that no ambient air quality standard would be violated (APCD 2011a). Please note that this project is not a stationary source, and this latter threshold is not applicable.

Although quantitative thresholds of significance are not currently in place for short-term emissions, CEQA requires that short-term impacts such as exhaust emissions from construction

equipment and fugitive dust generation during grading be discussed in the environmental document. In the interest of public disclosure, the SBCAPCD recommends that construction-related NOX, ROC, PM10 and PM2.5 emissions from diesel and gasoline powered equipment, paving and other activities, be quantified.

Standard dust control measures must be implemented for any discretionary project involving earth-moving activities. Some projects have the potential for construction-related dust to cause a nuisance. Because Santa Barbara County is currently in nonattainment for the state PM10 standard, dust mitigation measures are required for all discretionary construction activities (regardless of the significance of the fugitive dust impacts) based on policies within the 1979 Air Quality Attainment Plan (APCD 2011a).

Due to the temporary, short-term nature of construction emissions, the SBCAPCD does not apply the quantitative operational emissions thresholds of 25 pounds per day for ROC and NOX to construction activities. As no quantitative emissions thresholds for maximum daily construction emissions are established, and the proposed project is under those thresholds in any event, the proposed project air quality impacts in relation to construction activity would be less than significant.

3.3 Long-Term Emissions

Long-Term emissions from the Project would be generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as lawn maintenance equipment.

3.3.1 *Localized Operational Emissions*

Significance criteria have been established for criteria pollutant emissions as documented above would apply to the project regarding NOX or ROC emissions. Operational emissions have been estimated for the Project using the CalEEMod Model and detailed results are included in Appendix A of this report.

Results of the CalEEMod analysis are shown in Table 4. Results indicate that the annual operational emissions from the Project will be less than the air district emissions thresholds for criteria pollutants noted above.

Table 4
Project Operational Emissions (tons/year)

Summary Report	CO	NOx	ROG	SOx	PM10	PM2.5	CO2e
Project Operational Emissions	3.03	0.67	1.19	6.15e-003	0.48	0.14	989.59

3.3.2 *Localized Operational Emissions*

✓ **Odors**

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the air district. Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact.

Air districts generally require that an analysis of potential odor impacts be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and
- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The Project will not generate odorous emissions given the nature or characteristics of the Project. The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions.

✓ **Naturally Occurring Asbestos (NOA)**

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Construction of the Project may cause asbestos to become airborne

due to the construction activities that will occur on site. The Project could be required to submit a Dust Control Plan to limit fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities associated with the Project.

✓ **Greenhouse Gas Emissions**

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). This approach is consistent with that recommended by the California Natural Resource Agency, which noted in its Public Notice for the proposed CEQA amendments that the evidence before it indicates that in most cases, the impact of GHG emissions should be considered in the context of a cumulative impact, rather than a project-level impact (CNRA 2009a). Similarly, the Final Statement of Reasons for Regulatory Action for amendments to the CEQA Guidelines confirms that an EIR or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA 2009b).

OPR's Technical Advisory titled CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2008, p. 4). Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact', individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice" (OPR 2008, p. 6).

In May 2015, the County of Santa Barbara Board of Supervisors adopted the Energy and Climate Action Plan (ECAP) (County of Santa Barbara Long Range Planning Division, 2015) and certified the accompanying EIR (SCH# 20144021021) (PMC, 2015). The ECAP includes a greenhouse gas emissions forecast for unincorporated Santa Barbara County to 2035 and otherwise meets the criteria in CEQA Guidelines Section 15183.5(b) for a "plan to reduce greenhouse gas emissions." The ECAP commits the County to reduce community-wide greenhouse gas emissions by 15 percent below 2007 levels by 2020 consistent with the California Global Warming Solutions Act of 2006 (AB 32) and the related Climate Change Scoping Plan (California Air Resources Board, 2008). The ECAP concludes that the County can meet this emission reduction target by implementing 53 existing and new County projects, policies, and programs ("emission reduction measures"), such as an energy checklist for residential building permits (BE 2), energy efficiency education and outreach programs (BE 4), and additional opportunities to recycle cardboard, glass, paper, and plastic products (WR



2). As a result, specific projects included in the ECAP's emission forecast are not currently required to incorporate emission reduction measures listed in the ECAP or any other mitigation measures to reduce greenhouse gas emissions. Concurrent with the ECAP, the Board of Supervisors also adopted an amendment to the Energy Element of the Comprehensive Plan that requires the County to monitor progress meeting the emission reduction target and, as necessary, update the ECAP.

The growth estimates used in the ECAP's greenhouse gas emissions forecast were based on the Santa Barbara County Regional Growth Forecast 2005-2040 (Santa Barbara County Association of Governments, 2007) and the 2010 U.S. Census. The growth estimates were based on factors such as population projections, vehicle trends, and planned land uses. The sources of greenhouse gas emissions included various sectors, such as transportation, residential energy, commercial energy, off-road, solid waste, agriculture, water and wastewater, industrial energy, and aircraft. As a result, most residential and commercial projects that are consistent with the County's zoning (in 2007) were included in the forecast, as were parks and recreation resources at levels to maintain adopted policies regarding ratios of recreation acreage to resident population. However, certain projects were not included in the emissions forecast, such as stationary source projects (e.g., large boilers, gas stations, auto body shops, dry cleaners, oil and gas production facilities, and water treatment facilities), Comprehensive Plan amendments, and community plans that exceed the County's projected population and job growth. A proposed project that was included in the ECAP's emissions forecast may tier from the ECAP's EIR for its CEQA analysis of greenhouse gas emissions. A project that tiers from the ECAP's EIR is considered to be in compliance with the requirements in the ECAP and, therefore, its incremental contribution to a cumulative effect is not cumulatively considerable (Class III).

Construction GHG Emissions

The County's approach to evaluating potential project impacts related to GHG emissions under CEQA is based on consistency with the ECAP, which does not require a quantitative evaluation of project generated GHG emissions. Nonetheless, GHG emissions resulting from construction of the project were estimated and included herein for disclosure purposes. Project-generated GHG emissions are estimated using CalEEMod consistent with the SBCAPCD recommendations for project-level review because CalEEMod has the ability to quantify indirect GHG emissions and GHG mitigation (SBCAPCD 2015a). Construction of the proposed project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. GHG emissions associated with temporary construction activity were quantified using the CalEEMod. On-site sources of GHG emissions include off-road equipment, and off-site sources include hauling and vendor trucks and worker vehicles.

Operational GHG Emissions

Because the proposed project is consistent with the City of Carpinteria General Plan Land Use Map for the hotel use proposed on the site, and specific GHG operational impact thresholds have not been set by either SBCAPCD or the City of Carpinteria, operational GHG emissions would be less than significant.

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG threshold may be used to determine impacts. In December 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 3,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC 2015)[2]. Though the Project is under SBCAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 5 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is significantly less than the threshold identified by the SCAQMD.

Table 5
Project Operational Greenhouse Gas Emissions

Summary	CO2e
Project Operational Emissions Per Year (plus amortized construction emissions)	997.59 MT/yr.

2 California Public Utilities Commission (CPUC). 2015. Section 4.7, "Greenhouse Gases." Final Environmental Impact Report for the Santa Barbara County Reliability Project. May 2015. Accessed January 18, 2018. http://www.cpuc.ca.gov/environment/info/ene/sbcrp/SBCRP_FEIR.html.

5.0 Impact Determinations and Recommended Mitigation*

In accordance with CEQA, when a proposed project is consistent with a General Plan for which an EIR has been certified, the effects of that project are evaluated to determine if they will result in project-specific significant adverse impacts on the environment. The criteria used to determine the significance of an air quality or greenhouse gas impact are based on the following thresholds of significance. Accordingly, air quality or greenhouse gas impacts resulting from the Project are considered significant if the Project would:

Air Quality

a) Conflict with or obstruct implementation of the applicable air quality plan?
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
c) Expose sensitive receptors to substantial pollutant concentrations?
d) Result in other emissions such as those leading to odors adversely affecting a substantial number of people?

Greenhouse Gas Emissions

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

5.1 Air Quality

5.1.1 *Conflict with or obstruct implementation of the applicable air quality plan*

The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the City's General Plan Update. The Project is consistent with the currently adopted General Plan for the County as well as the County's CAP and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

5.1.2 *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard*

Construction of the project would result in emissions of ozone precursors including reactive organic gasses (ROG), nitrous oxides (NOx), and fugitive dust emissions (PM10). During operation, the project would result in emissions of ozone precursors associated with mobile source emissions and other stationary sources. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed above, the Project is consistent with the currently adopted General Plan for the City and is therefore consistent with the population growth and VMT applied in the plan.

Project specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable federal or state ambient air quality standards. It should be noted that a project is not characterized as cumulatively insignificant when project emissions fall below thresholds of significance.

As discussed above, results of the analysis show that emissions generated from construction and operation of the Project will be less than the applicable air district emission thresholds for criteria pollutants. Therefore, no mitigation is required.

5.1.3 *Expose sensitive receptors to substantial pollutant concentrations*

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities.

Although the Project site is adjacent to residential uses, the fact that no SBCAPCD criteria pollutant thresholds or GHG emissions thresholds would be exceeded as a result of either project construction or operations ensures this impact is less than significant and no mitigation is required. ***Although it is possible that the SBCAPCD may require a Toxic Air Contaminant (TAC) analysis due to the Project site being located directly adjacent to US Highway 101, that is not a***

part of the scope of this report.

5.1.4 *Result in other emissions such as those leading to odors adversely affecting a substantial number of people*

CEQA requires that an analysis of potential odor impacts be conducted for the following two situations:

- ✓ Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and

- ✓ Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. Air districts throughout the state have identified some common types of facilities that have been known to produce odors. The types of facilities that are known to produce odors are typically associated with heavy industry or agriculture. The Project will not generate odorous emissions given the nature or characteristics of the Project. Therefore, no mitigation is required.

5.2 Greenhouse Gas Emissions

5.2.1 *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment*

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG threshold may be used to determine impacts. In December 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 3,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. Though the Project is under SBCAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. The tables above show the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is significantly less that SCAQMD thresholds.

There would be no increase in severity to the greenhouse gas impacts, and implementation of the Project will not result in Project-specific or site-specific significant adverse impacts from greenhouse gas emissions within the Project study area. Therefore, no mitigation measures are needed.

5.2.2 *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases*

California passed the California Global Warming Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. Under AB 32, CARB must adopt regulations by January 1, 2011, to achieve reductions in GHGs to meet the 1990 emission cap by 2020. On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan.

SB 375 requires MPOs to adopt a SCS or APS that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035.

Executive Order B-30-15 establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth.

The Project is consistent with the currently adopted General Plan for the City and the adopted SBCOG RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP.

CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit. Below is a list of applicable strategies in the Scoping Plan and the Project's consistency with those strategies.

- ✓ California Light-Duty Vehicle GHG Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs for long-term climate change goals.
    - The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to light-duty vehicles that

would access the Project. The Project would not conflict or obstruct this reduction measure.

- ✓ Energy Efficiency – Pursuit of comparable investment in energy efficiency from all retail providers of electricity in California. Maximize energy efficiency building and appliance standards.
  - The Project is consistent with this reduction measure. Though this measure applies to the State to increase its energy standards, the Project would comply with this measure through existing regulation. The Project would not conflict or obstruct this reduction measure.
- ✓ Low Carbon Fuel – Development and adoption of the low carbon fuel standard.
  - The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to the fuel used by vehicles that would access the Project. The Project would not conflict or obstruct this reduction measure.

Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, any impacts would be less than significant, and no mitigation would be required.



APPENDIX A

CalEEMod Output Files

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Carpinteria Hotel Project

Santa Barbara County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	106.00	Room	3.53	153,912.00	0
Parking Lot	113.00	Space	1.02	45,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	8			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - test

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True

2.0 Emissions Summary

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1413	1.2915	1.2408	2.4600e-003	0.1139	0.0609	0.1748	0.0489	0.0570	0.1058	0.0000	217.9060	217.9060	0.0449	5.2400e-003	220.5920
2023	1.9322	1.1566	1.3486	2.6700e-003	0.0490	0.0515	0.1005	0.0133	0.0485	0.0618	0.0000	237.1693	237.1693	0.0439	6.7700e-003	240.2850
Maximum	**1.9322**	**1.2915**	**1.3486**	**2.6700e-003**	**0.1139**	**0.0609**	**0.1748**	**0.0489**	**0.0570**	**0.1058**	**0.0000**	**237.1693**	**237.1693**	**0.0449**	**6.7700e-003**	**240.2850**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1413	1.2915	1.2408	2.4600e-003	0.0651	0.0609	0.1260	0.0243	0.0570	0.0813	0.0000	217.9058	217.9058	0.0449	5.2400e-003	220.5918
2023	1.9322	1.1566	1.3486	2.6700e-003	0.0490	0.0515	0.1005	0.0133	0.0485	0.0618	0.0000	237.1691	237.1691	0.0439	6.7700e-003	240.2848
Maximum	**1.9322**	**1.2915**	**1.3486**	**2.6700e-003**	**0.0651**	**0.0609**	**0.1260**	**0.0243**	**0.0570**	**0.0813**	**0.0000**	**237.1691**	**237.1691**	**0.0449**	**6.7700e-003**	**240.2848**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**29.95**	**0.00**	**17.72**	**39.47**	**0.00**	**14.63**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2022**	**9-30-2022**	0.7886	0.7886
2	**10-1-2022**	**12-31-2022**	0.6481	0.6481
3	**1-1-2023**	**3-31-2023**	0.5780	0.5780
4	**4-1-2023**	**6-30-2023**	0.5817	0.5817
5	**7-1-2023**	**9-30-2023**	1.9816	1.9816
		Highest	1.9816	1.9816

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7841	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9100e-003	3.9100e-003	1.0000e-005	0.0000	4.1700e-003
Energy	0.0282	0.2561	0.2152	1.5400e-003		0.0195	0.0195		0.0195	0.0195	0.0000	520.4847	520.4847	0.0257	7.5800e-003	523.3884
Mobile	0.3780	0.4138	2.8142	4.6100e-003	0.4624	3.9800e-003	0.4664	0.1239	3.7200e-003	0.1276	0.0000	425.7622	425.7622	0.0403	0.0269	434.7843
Waste						0.0000	0.0000		0.0000	0.0000	12.0507	0.0000	12.0507	0.5976	0.0000	26.9896
Water						0.0000	0.0000		0.0000	0.0000	0.9513	2.7657	3.7171	3.5100e-003	2.1000e-003	4.4297
Total	**1.1903**	**0.6700**	**3.0314**	**6.1500e-003**	**0.4624**	**0.0235**	**0.4859**	**0.1239**	**0.0232**	**0.1471**	**13.0020**	**949.0165**	**962.0186**	**0.6671**	**0.0366**	**989.5961**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7392	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9100e-003	3.9100e-003	1.0000e-005	0.0000	4.1700e-003
Energy	0.0282	0.2561	0.2152	1.5400e-003		0.0195	0.0195		0.0195	0.0195	0.0000	520.4847	520.4847	0.0257	7.5800e-003	523.3884
Mobile	0.3780	0.4138	2.8142	4.6100e-003	0.4624	3.9800e-003	0.4664	0.1239	3.7200e-003	0.1276	0.0000	425.7622	425.7622	0.0403	0.0269	434.7843
Waste						0.0000	0.0000		0.0000	0.0000	12.0507	0.0000	12.0507	0.5976	0.0000	26.9896
Water						0.0000	0.0000		0.0000	0.0000	0.9513	2.7657	3.7171	3.5100e-003	2.1000e-003	4.4297
Total	**1.1454**	**0.6700**	**3.0314**	**6.1500e-003**	**0.4624**	**0.0235**	**0.4859**	**0.1239**	**0.0232**	**0.1471**	**13.0020**	**949.0165**	**962.0186**	**0.6671**	**0.0366**	**989.5961**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**3.78**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2022	7/28/2022	5	20	
2	Site Preparation	Site Preparation	7/29/2022	8/4/2022	5	5	
3	Grading	Grading	8/5/2022	8/16/2022	5	8	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Building Construction	Building Construction	8/17/2022	7/4/2023	5	230	
5	Paving	Paving	7/5/2023	7/28/2023	5	18	
6	Architectural Coating	Architectural Coating	7/29/2023	8/23/2023	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 1.02

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 230,868; Non-Residential Outdoor: 76,956; Striped Parking Area: 2,712 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	84.00	33.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	17.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	**0.0264**	**0.2572**	**0.2059**	**3.9000e-004**		**0.0124**	**0.0124**		**0.0116**	**0.0116**	**0.0000**	**33.9902**	**33.9902**	**9.5500e-003**	**0.0000**	**34.2289**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	3.1000e-004	3.1800e-003	1.0000e-005	9.3000e-004	0.0000	9.3000e-004	2.5000e-004	0.0000	2.5000e-004	0.0000	0.7276	0.7276	3.0000e-005	3.0000e-005	0.7362
Total	**4.1000e-004**	**3.1000e-004**	**3.1800e-003**	**1.0000e-005**	**9.3000e-004**	**0.0000**	**9.3000e-004**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**0.7276**	**0.7276**	**3.0000e-005**	**3.0000e-005**	**0.7362**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	**0.0264**	**0.2572**	**0.2059**	**3.9000e-004**		**0.0124**	**0.0124**		**0.0116**	**0.0116**	**0.0000**	**33.9902**	**33.9902**	**9.5500e-003**	**0.0000**	**34.2289**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	3.1000e-004	3.1800e-003	1.0000e-005	9.3000e-004	0.0000	9.3000e-004	2.5000e-004	0.0000	2.5000e-004	0.0000	0.7276	0.7276	3.0000e-005	3.0000e-005	0.7362
Total	**4.1000e-004**	**3.1000e-004**	**3.1800e-003**	**1.0000e-005**	**9.3000e-004**	**0.0000**	**9.3000e-004**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**0.7276**	**0.7276**	**3.0000e-005**	**3.0000e-005**	**0.7362**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9300e-003	0.0827	0.0492	1.0000e-004		4.0300e-003	4.0300e-003		3.7100e-003	3.7100e-003	0.0000	8.3599	8.3599	2.7000e-003	0.0000	8.4274
Total	**7.9300e-003**	**0.0827**	**0.0492**	**1.0000e-004**	**0.0491**	**4.0300e-003**	**0.0532**	**0.0253**	**3.7100e-003**	**0.0290**	**0.0000**	**8.3599**	**8.3599**	**2.7000e-003**	**0.0000**	**8.4274**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	9.0000e-005	9.5000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2183	0.2183	1.0000e-005	1.0000e-005	0.2209
Total	**1.2000e-004**	**9.0000e-005**	**9.5000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2183**	**0.2183**	**1.0000e-005**	**1.0000e-005**	**0.2209**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0182	0.0000	0.0182	9.3600e-003	0.0000	9.3600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9300e-003	0.0827	0.0492	1.0000e-004		4.0300e-003	4.0300e-003		3.7100e-003	3.7100e-003	0.0000	8.3598	8.3598	2.7000e-003	0.0000	8.4274
Total	**7.9300e-003**	**0.0827**	**0.0492**	**1.0000e-004**	**0.0182**	**4.0300e-003**	**0.0222**	**9.3600e-003**	**3.7100e-003**	**0.0131**	**0.0000**	**8.3598**	**8.3598**	**2.7000e-003**	**0.0000**	**8.4274**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	9.0000e-005	9.5000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2183	0.2183	1.0000e-005	1.0000e-005	0.2209
Total	**1.2000e-004**	**9.0000e-005**	**9.5000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2183**	**0.2183**	**1.0000e-005**	**1.0000e-005**	**0.2209**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0283	0.0000	0.0283	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7900e-003	0.0834	0.0611	1.2000e-004		3.7600e-003	3.7600e-003		3.4600e-003	3.4600e-003	0.0000	10.4219	10.4219	3.3700e-003	0.0000	10.5062
Total	**7.7900e-003**	**0.0834**	**0.0611**	**1.2000e-004**	**0.0283**	**3.7600e-003**	**0.0321**	**0.0137**	**3.4600e-003**	**0.0172**	**0.0000**	**10.4219**	**10.4219**	**3.3700e-003**	**0.0000**	**10.5062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.2000e-004	1.2700e-003	0.0000	3.7000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2910	0.2910	1.0000e-005	1.0000e-005	0.2945
Total	**1.7000e-004**	**1.2000e-004**	**1.2700e-003**	**0.0000**	**3.7000e-004**	**0.0000**	**3.7000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2910**	**0.2910**	**1.0000e-005**	**1.0000e-005**	**0.2945**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0105	0.0000	0.0105	5.0800e-003	0.0000	5.0800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7900e-003	0.0834	0.0611	1.2000e-004		3.7600e-003	3.7600e-003		3.4600e-003	3.4600e-003	0.0000	10.4219	10.4219	3.3700e-003	0.0000	10.5062
Total	**7.7900e-003**	**0.0834**	**0.0611**	**1.2000e-004**	**0.0105**	**3.7600e-003**	**0.0143**	**5.0800e-003**	**3.4600e-003**	**8.5400e-003**	**0.0000**	**10.4219**	**10.4219**	**3.3700e-003**	**0.0000**	**10.5062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.2000e-004	1.2700e-003	0.0000	3.7000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2910	0.2910	1.0000e-005	1.0000e-005	0.2945
Total	**1.7000e-004**	**1.2000e-004**	**1.2700e-003**	**0.0000**	**3.7000e-004**	**0.0000**	**3.7000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2910**	**0.2910**	**1.0000e-005**	**1.0000e-005**	**0.2945**

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3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0836	0.7652	0.8018	1.3200e-003		0.0396	0.0396		0.0373	0.0373	0.0000	113.5454	113.5454	0.0272	0.0000	114.2254
Total	**0.0836**	**0.7652**	**0.8018**	**1.3200e-003**		**0.0396**	**0.0396**		**0.0373**	**0.0373**	**0.0000**	**113.5454**	**113.5454**	**0.0272**	**0.0000**	**114.2254**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.4500e-003	0.0939	0.0300	3.1000e-004	9.4100e-003	8.8000e-004	0.0103	2.7200e-003	8.4000e-004	3.5600e-003	0.0000	30.3874	30.3874	1.2300e-003	4.4700e-003	31.7506
Worker	0.0114	8.5600e-003	0.0873	2.2000e-004	0.0254	1.3000e-004	0.0256	6.7600e-003	1.2000e-004	6.8800e-003	0.0000	19.9643	19.9643	8.4000e-004	7.3000e-004	20.2018
Total	**0.0148**	**0.1025**	**0.1173**	**5.3000e-004**	**0.0348**	**1.0100e-003**	**0.0359**	**9.4800e-003**	**9.6000e-004**	**0.0104**	**0.0000**	**50.3518**	**50.3518**	**2.0700e-003**	**5.2000e-003**	**51.9524**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0836	0.7652	0.8018	1.3200e-003		0.0396	0.0396		0.0373	0.0373	0.0000	113.5452	113.5452	0.0272	0.0000	114.2253
Total	**0.0836**	**0.7652**	**0.8018**	**1.3200e-003**		**0.0396**	**0.0396**		**0.0373**	**0.0373**	**0.0000**	**113.5452**	**113.5452**	**0.0272**	**0.0000**	**114.2253**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.4500e-003	0.0939	0.0300	3.1000e-004	9.4100e-003	8.8000e-004	0.0103	2.7200e-003	8.4000e-004	3.5600e-003	0.0000	30.3874	30.3874	1.2300e-003	4.4700e-003	31.7506
Worker	0.0114	8.5600e-003	0.0873	2.2000e-004	0.0254	1.3000e-004	0.0256	6.7600e-003	1.2000e-004	6.8800e-003	0.0000	19.9643	19.9643	8.4000e-004	7.3000e-004	20.2018
Total	**0.0148**	**0.1025**	**0.1173**	**5.3000e-004**	**0.0348**	**1.0100e-003**	**0.0359**	**9.4800e-003**	**9.6000e-004**	**0.0104**	**0.0000**	**50.3518**	**50.3518**	**2.0700e-003**	**5.2000e-003**	**51.9524**

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3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1038	0.9494	1.0721	1.7800e-003		0.0462	0.0462		0.0435	0.0435	0.0000	152.9911	152.9911	0.0364	0.0000	153.9010
Total	**0.1038**	**0.9494**	**1.0721**	**1.7800e-003**		**0.0462**	**0.0462**		**0.0435**	**0.0435**	**0.0000**	**152.9911**	**152.9911**	**0.0364**	**0.0000**	**153.9010**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7600e-003	0.1056	0.0357	4.0000e-004	0.0127	6.1000e-004	0.0133	3.6600e-003	5.8000e-004	4.2400e-003	0.0000	39.5023	39.5023	1.6400e-003	5.8200e-003	41.2762
Worker	0.0143	0.0102	0.1083	2.8000e-004	0.0342	1.7000e-004	0.0344	9.1000e-003	1.6000e-004	9.2600e-003	0.0000	26.0713	26.0713	1.0200e-003	9.0000e-004	26.3663
Total	**0.0170**	**0.1158**	**0.1440**	**6.8000e-004**	**0.0469**	**7.8000e-004**	**0.0477**	**0.0128**	**7.4000e-004**	**0.0135**	**0.0000**	**65.5736**	**65.5736**	**2.6600e-003**	**6.7200e-003**	**67.6425**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1038	0.9494	1.0721	1.7800e-003		0.0462	0.0462		0.0435	0.0435	0.0000	152.9910	152.9910	0.0364	0.0000	153.9008
Total	**0.1038**	**0.9494**	**1.0721**	**1.7800e-003**		**0.0462**	**0.0462**		**0.0435**	**0.0435**	**0.0000**	**152.9910**	**152.9910**	**0.0364**	**0.0000**	**153.9008**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7600e-003	0.1056	0.0357	4.0000e-004	0.0127	6.1000e-004	0.0133	3.6600e-003	5.8000e-004	4.2400e-003	0.0000	39.5023	39.5023	1.6400e-003	5.8200e-003	41.2762
Worker	0.0143	0.0102	0.1083	2.8000e-004	0.0342	1.7000e-004	0.0344	9.1000e-003	1.6000e-004	9.2600e-003	0.0000	26.0713	26.0713	1.0200e-003	9.0000e-004	26.3663
Total	**0.0170**	**0.1158**	**0.1440**	**6.8000e-004**	**0.0469**	**7.8000e-004**	**0.0477**	**0.0128**	**7.4000e-004**	**0.0135**	**0.0000**	**65.5736**	**65.5736**	**2.6600e-003**	**6.7200e-003**	**67.6425**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2600e-003	0.0791	0.1097	1.7000e-004		3.9200e-003	3.9200e-003		3.6200e-003	3.6200e-003	0.0000	14.7407	14.7407	4.6300e-003	0.0000	14.8565
Paving	1.3400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.6000e-003**	**0.0791**	**0.1097**	**1.7000e-004**		**3.9200e-003**	**3.9200e-003**		**3.6200e-003**	**3.6200e-003**	**0.0000**	**14.7407**	**14.7407**	**4.6300e-003**	**0.0000**	**14.8565**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.3000e-004	3.5200e-003	1.0000e-005	1.1100e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8465	0.8465	3.0000e-005	3.0000e-005	0.8561
Total	**4.6000e-004**	**3.3000e-004**	**3.5200e-003**	**1.0000e-005**	**1.1100e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.8465**	**0.8465**	**3.0000e-005**	**3.0000e-005**	**0.8561**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2600e-003	0.0791	0.1097	1.7000e-004		3.9200e-003	3.9200e-003		3.6200e-003	3.6200e-003	0.0000	14.7407	14.7407	4.6300e-003	0.0000	14.8565
Paving	1.3400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.6000e-003**	**0.0791**	**0.1097**	**1.7000e-004**		**3.9200e-003**	**3.9200e-003**		**3.6200e-003**	**3.6200e-003**	**0.0000**	**14.7407**	**14.7407**	**4.6300e-003**	**0.0000**	**14.8565**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.3000e-004	3.5200e-003	1.0000e-005	1.1100e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8465	0.8465	3.0000e-005	3.0000e-005	0.8561
Total	**4.6000e-004**	**3.3000e-004**	**3.5200e-003**	**1.0000e-005**	**1.1100e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.8465**	**0.8465**	**3.0000e-005**	**3.0000e-005**	**0.8561**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.7992					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7200e-003	0.0117	0.0163	3.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	2.2979	2.2979	1.4000e-004	0.0000	2.3014
Total	**1.8009**	**0.0117**	**0.0163**	**3.0000e-005**		**6.4000e-004**	**6.4000e-004**		**6.4000e-004**	**6.4000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.4000e-004**	**0.0000**	**2.3014**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.8000e-004	2.9900e-003	1.0000e-005	9.4000e-004	0.0000	9.5000e-004	2.5000e-004	0.0000	2.6000e-004	0.0000	0.7195	0.7195	3.0000e-005	2.0000e-005	0.7276
Total	**3.9000e-004**	**2.8000e-004**	**2.9900e-003**	**1.0000e-005**	**9.4000e-004**	**0.0000**	**9.5000e-004**	**2.5000e-004**	**0.0000**	**2.6000e-004**	**0.0000**	**0.7195**	**0.7195**	**3.0000e-005**	**2.0000e-005**	**0.7276**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.7992					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7200e-003	0.0117	0.0163	3.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	2.2979	2.2979	1.4000e-004	0.0000	2.3014
Total	**1.8009**	**0.0117**	**0.0163**	**3.0000e-005**		**6.4000e-004**	**6.4000e-004**		**6.4000e-004**	**6.4000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.4000e-004**	**0.0000**	**2.3014**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.8000e-004	2.9900e-003	1.0000e-005	9.4000e-004	0.0000	9.5000e-004	2.5000e-004	0.0000	2.6000e-004	0.0000	0.7195	0.7195	3.0000e-005	2.0000e-005	0.7276
Total	**3.9000e-004**	**2.8000e-004**	**2.9900e-003**	**1.0000e-005**	**9.4000e-004**	**0.0000**	**9.5000e-004**	**2.5000e-004**	**0.0000**	**2.6000e-004**	**0.0000**	**0.7195**	**0.7195**	**3.0000e-005**	**2.0000e-005**	**0.7276**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3780	0.4138	2.8142	4.6100e-003	0.4624	3.9800e-003	0.4664	0.1239	3.7200e-003	0.1276	0.0000	425.7622	425.7622	0.0403	0.0269	434.7843
Unmitigated	0.3780	0.4138	2.8142	4.6100e-003	0.4624	3.9800e-003	0.4664	0.1239	3.7200e-003	0.1276	0.0000	425.7622	425.7622	0.0403	0.0269	434.7843

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	886.16	868.14	630.70	1,225,956	1,225,956
Parking Lot	0.00	0.00	0.00		
Total	886.16	868.14	630.70	1,225,956	1,225,956

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hotel	6.60	5.50	6.40	19.40	61.60	19.00	58	38	4
Parking Lot	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	0.492113	0.052876	0.208088	0.152800	0.029700	0.007146	0.010959	0.006131	0.000966	0.000597	0.030829	0.003523	0.004272
Parking Lot	0.492113	0.052876	0.208088	0.152800	0.029700	0.007146	0.010959	0.006131	0.000966	0.000597	0.030829	0.003523	0.004272

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	241.6422	241.6422	0.0204	2.4700e-003	242.8888
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	241.6422	241.6422	0.0204	2.4700e-003	242.8888
NaturalGas Mitigated	0.0282	0.2561	0.2152	1.5400e-003		0.0195	0.0195		0.0195	0.0195	0.0000	278.8426	278.8426	5.3400e-003	5.1100e-003	280.4996
NaturalGas Unmitigated	0.0282	0.2561	0.2152	1.5400e-003		0.0195	0.0195		0.0195	0.0195	0.0000	278.8426	278.8426	5.3400e-003	5.1100e-003	280.4996

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	5.22531e+006	0.0282	0.2561	0.2152	1.5400e-003		0.0195	0.0195		0.0195	0.0195	0.0000	278.8426	278.8426	5.3400e-003	5.1100e-003	280.4996
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0282**	**0.2561**	**0.2152**	**1.5400e-003**		**0.0195**	**0.0195**		**0.0195**	**0.0195**	**0.0000**	**278.8426**	**278.8426**	**5.3400e-003**	**5.1100e-003**	**280.4996**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	5.22531e+006	0.0282	0.2561	0.2152	1.5400e-003		0.0195	0.0195		0.0195	0.0195	0.0000	278.8426	278.8426	5.3400e-003	5.1100e-003	280.4996
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0282**	**0.2561**	**0.2152**	**1.5400e-003**		**0.0195**	**0.0195**		**0.0195**	**0.0195**	**0.0000**	**278.8426**	**278.8426**	**5.3400e-003**	**5.1100e-003**	**280.4996**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	1.34673e+006	238.8366	0.0202	2.4400e-003	240.0687
Parking Lot	15820	2.8056	2.4000e-004	3.0000e-005	2.8201
Total		**241.6422**	**0.0204**	**2.4700e-003**	**242.8888**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	1.34673e+006	238.8366	0.0202	2.4400e-003	240.0687
Parking Lot	15820	2.8056	2.4000e-004	3.0000e-005	2.8201
Total		**241.6422**	**0.0204**	**2.4700e-003**	**242.8888**

6.0 Area Detail

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7392	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9100e-003	3.9100e-003	1.0000e-005	0.0000	4.1700e-003
Unmitigated	0.7841	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9100e-003	3.9100e-003	1.0000e-005	0.0000	4.1700e-003

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1799					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6040					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9100e-003	3.9100e-003	1.0000e-005	0.0000	4.1700e-003
Total	**0.7841**	**2.0000e-005**	**2.0100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.9100e-003**	**3.9100e-003**	**1.0000e-005**	**0.0000**	**4.1700e-003**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1799					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5591					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9100e-003	3.9100e-003	1.0000e-005	0.0000	4.1700e-003
Total	**0.7392**	**2.0000e-005**	**2.0100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.9100e-003**	**3.9100e-003**	**1.0000e-005**	**0.0000**	**4.1700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.7171	3.5100e-003	2.1000e-003	4.4297
Unmitigated	3.7171	3.5100e-003	2.1000e-003	4.4297

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	2.68888 / 0.298764	3.7171	3.5100e-003	2.1000e-003	4.4297
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**3.7171**	**3.5100e-003**	**2.1000e-003**	**4.4297**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	2.68888 / 0.298764	3.7171	3.5100e-003	2.1000e-003	4.4297
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**3.7171**	**3.5100e-003**	**2.1000e-003**	**4.4297**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	12.0507	0.5976	0.0000	26.9896
Unmitigated	12.0507	0.5976	0.0000	26.9896

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	58.03	12.0507	0.5976	0.0000	26.9896
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**12.0507**	**0.5976**	**0.0000**	**26.9896**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	58.03	12.0507	0.5976	0.0000	26.9896
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**12.0507**	**0.5976**	**0.0000**	**26.9896**

9.0 Operational Offroad

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Santa Barbara County APCD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Cement and Mortar Mixers	Diesel	No Change	0	2	No Change	0.00
Concrete/Industrial Saws	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	3	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00
Pavers	Diesel	No Change	0	1	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	6	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	11	No Change	0.00
Excavators	Diesel	No Change	0	4	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Paving Equipment	Diesel	No Change	0	2	No Change	0.00
Welders	Diesel	No Change	0	1	No Change	0.00

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	1.72000E-003	1.17300E-002	1.63000E-002	3.00000E-005	6.40000E-004	6.40000E-004	0.00000E+000	2.29793E+000	2.29793E+000	1.40000E-004	0.00000E+000	2.30137E+000
Cement and Mortar Mixers	7.90000E-004	4.97000E-003	4.16000E-003	1.00000E-005	1.90000E-004	1.90000E-004	0.00000E+000	6.18670E-001	6.18670E-001	6.00000E-005	0.00000E+000	6.20280E-001
Concrete/Industrial Saws	3.58000E-003	2.80100E-002	3.66500E-002	6.00000E-005	1.50000E-003	1.50000E-003	0.00000E+000	5.37656E+000	5.37656E+000	2.90000E-004	0.00000E+000	5.38390E+000
Cranes	3.62900E-002	3.99750E-001	1.87070E-001	5.80000E-004	1.66500E-002	1.53200E-002	0.00000E+000	5.10125E+001	5.10125E+001	1.65000E-002	0.00000E+000	5.14250E+001
Excavators	6.88000E-003	6.04200E-002	1.10670E-001	1.80000E-004	2.92000E-003	2.69000E-003	0.00000E+000	1.54226E+001	1.54226E+001	4.99000E-003	0.00000E+000	1.55473E+001
Forklifts	3.70000E-002	3.45090E-001	3.96270E-001	5.30000E-004	2.20100E-002	2.02500E-002	0.00000E+000	4.63305E+001	4.63305E+001	1.49800E-002	0.00000E+000	4.67051E+001
Generator Sets	3.63600E-002	3.22710E-001	4.22300E-001	7.60000E-004	1.56600E-002	1.56600E-002	0.00000E+000	6.49989E+001	6.49989E+001	2.96000E-003	0.00000E+000	6.50728E+001
Graders	1.66000E-003	2.10300E-002	6.89000E-003	3.00000E-005	6.70000E-004	6.20000E-004	0.00000E+000	2.32703E+000	2.32703E+000	7.50000E-004	0.00000E+000	2.34585E+000
Pavers	1.73000E-003	1.69500E-002	2.59500E-002	4.00000E-005	8.00000E-004	7.30000E-004	0.00000E+000	3.71670E+000	3.71670E+000	1.20000E-003	0.00000E+000	3.74675E+000
Paving Equipment	2.30000E-003	2.16400E-002	3.45200E-002	6.00000E-005	1.05000E-003	9.70000E-004	0.00000E+000	4.83104E+000	4.83104E+000	1.56000E-003	0.00000E+000	4.87010E+000
Rollers	2.08000E-003	2.17400E-002	2.50100E-002	4.00000E-005	1.20000E-003	1.10000E-003	0.00000E+000	3.11206E+000	3.11206E+000	1.01000E-003	0.00000E+000	3.13722E+000
Rubber Tired Dozers	2.63700E-002	2.77000E-001	1.12830E-001	2.70000E-004	1.31500E-002	1.21000E-002	0.00000E+000	2.36336E+001	2.36336E+001	7.64000E-003	0.00000E+000	2.38247E+001
Tractors/Loaders/Backhoes	5.23900E-002	5.32270E-001	7.43750E-001	1.04000E-003	2.73900E-002	2.52000E-002	0.00000E+000	9.10237E+001	9.10237E+001	2.94400E-002	0.00000E+000	9.17597E+001
Welders	3.03500E-002	1.65440E-001	1.93840E-001	2.90000E-004	6.77000E-003	6.77000E-003	0.00000E+000	2.16454E+001	2.16454E+001	2.46000E-003	0.00000E+000	2.17068E+001

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	1.72000E-003	1.17300E-002	1.63000E-002	3.00000E-005	6.40000E-004	6.40000E-004	0.00000E+000	2.29793E+000	2.29793E+000	1.40000E-004	0.00000E+000	2.30136E+000
Cement and Mortar Mixers	7.90000E-004	4.97000E-003	4.16000E-003	1.00000E-005	1.90000E-004	1.90000E-004	0.00000E+000	6.18670E-001	6.18670E-001	6.00000E-005	0.00000E+000	6.20280E-001
Concrete/Industrial Saws	3.58000E-003	2.80100E-002	3.66500E-002	6.00000E-005	1.50000E-003	1.50000E-003	0.00000E+000	5.37656E+000	5.37656E+000	2.90000E-004	0.00000E+000	5.38389E+000
Cranes	3.62900E-002	3.99750E-001	1.87070E-001	5.80000E-004	1.66500E-002	1.53200E-002	0.00000E+000	5.10125E+001	5.10125E+001	1.65000E-002	0.00000E+000	5.14249E+001
Excavators	6.88000E-003	6.04200E-002	1.10670E-001	1.80000E-004	2.92000E-003	2.69000E-003	0.00000E+000	1.54226E+001	1.54226E+001	4.99000E-003	0.00000E+000	1.55473E+001
Forklifts	3.70000E-002	3.45090E-001	3.96270E-001	5.30000E-004	2.20100E-002	2.02500E-002	0.00000E+000	4.63305E+001	4.63305E+001	1.49800E-002	0.00000E+000	4.67051E+001
Generator Sets	3.63600E-002	3.22710E-001	4.22300E-001	7.60000E-004	1.56600E-002	1.56600E-002	0.00000E+000	6.49988E+001	6.49988E+001	2.96000E-003	0.00000E+000	6.50727E+001
Graders	1.66000E-003	2.10300E-002	6.89000E-003	3.00000E-005	6.70000E-004	6.20000E-004	0.00000E+000	2.32703E+000	2.32703E+000	7.50000E-004	0.00000E+000	2.34585E+000
Pavers	1.73000E-003	1.69500E-002	2.59500E-002	4.00000E-005	8.00000E-004	7.30000E-004	0.00000E+000	3.71669E+000	3.71669E+000	1.20000E-003	0.00000E+000	3.74674E+000
Paving Equipment	2.30000E-003	2.16400E-002	3.45200E-002	6.00000E-005	1.05000E-003	9.70000E-004	0.00000E+000	4.83103E+000	4.83103E+000	1.56000E-003	0.00000E+000	4.87009E+000
Rollers	2.08000E-003	2.17400E-002	2.50100E-002	4.00000E-005	1.20000E-003	1.10000E-003	0.00000E+000	3.11205E+000	3.11205E+000	1.01000E-003	0.00000E+000	3.13721E+000
Rubber Tired Dozers	2.63700E-002	2.77000E-001	1.12830E-001	2.70000E-004	1.31500E-002	1.21000E-002	0.00000E+000	2.36336E+001	2.36336E+001	7.64000E-003	0.00000E+000	2.38247E+001
Tractors/Loaders/Backhoes	5.23900E-002	5.32270E-001	7.43750E-001	1.04000E-003	2.73900E-002	2.52000E-002	0.00000E+000	9.10236E+001	9.10236E+001	2.94400E-002	0.00000E+000	9.17595E+001
Welders	3.03500E-002	1.65440E-001	1.93840E-001	2.90000E-004	6.77000E-003	6.77000E-003	0.00000E+000	2.16454E+001	2.16454E+001	2.46000E-003	0.00000E+000	2.17068E+001

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	4.34524E-006
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.85739E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17618E-006	1.17618E-006	0.00000E+000	0.00000E+000	1.16675E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.29680E-006	1.29680E-006	0.00000E+000	0.00000E+000	1.28640E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.07920E-006	1.07920E-006	0.00000E+000	0.00000E+000	1.28466E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.23079E-006	1.23079E-006	0.00000E+000	0.00000E+000	1.22939E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.69056E-006	2.69056E-006	0.00000E+000	0.00000E+000	2.66898E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.06995E-006	2.06995E-006	0.00000E+000	0.00000E+000	2.05335E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	3.21331E-006	3.21331E-006	0.00000E+000	0.00000E+000	3.18754E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.26938E-006	1.26938E-006	0.00000E+000	0.00000E+000	1.25920E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20848E-006	1.20848E-006	0.00000E+000	0.00000E+000	1.19878E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	9.23985E-007	9.23985E-007	0.00000E+000	0.00000E+000	9.21369E-007

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input	Mitigation Input	Mitigation Input

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Yes	Soil Stabilizer for unpaved Roads	PM10 Reduction	15.00	PM2.5 Reduction	15.00		
Yes	Replace Ground Cover of Area Disturbed	PM10 Reduction	5.00	PM2.5 Reduction	5.00		
Yes	Water Exposed Area	PM10 Reduction	61.00	PM2.5 Reduction	61.00	Frequency (per day)	3.00
No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.08	0.02	0.08	0.02	0.00	0.00
Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.03	0.01	0.01	0.01	0.63	0.63
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.05	0.03	0.02	0.01	0.63	0.63
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	7.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.05	0.24		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			
No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
Yes	No Hearth	
Yes	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	50.00
No	Use Low VOC Paint (Residential Exterior)	100.00
Yes	Use Low VOC Paint (Non-residential Interior)	250.00
Yes	Use Low VOC Paint (Non-residential Exterior)	250.00
Yes	Use Low VOC Paint (Parking)	250.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	

Carpinteria Hotel Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Carpinteria Hotel Project

Santa Barbara County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	106.00	Room	3.53	153,912.00	0
Parking Lot	113.00	Space	1.02	45,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	8			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - test

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True

2.0 Emissions Summary

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2193	33.1171	20.9084	0.0396	19.7707	1.6132	21.3839	10.1326	1.4841	11.6167	0.0000	3,828.5692	3,828.5692	1.1959	0.1157	3,855.7687
2023	200.1424	16.0691	18.3963	0.0374	0.7261	0.7115	1.4377	0.1970	0.6696	0.8667	0.0000	3,658.6598	3,658.6598	0.6513	0.1110	3,708.0323
Maximum	**200.1424**	**33.1171**	**20.9084**	**0.0396**	**19.7707**	**1.6132**	**21.3839**	**10.1326**	**1.4841**	**11.6167**	**0.0000**	**3,828.5692**	**3,828.5692**	**1.1959**	**0.1157**	**3,855.7687**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2193	33.1171	20.9084	0.0396	7.3966	1.6132	9.0098	3.7731	1.4841	5.2572	0.0000	3,828.5692	3,828.5692	1.1959	0.1157	3,855.7687
2023	200.1424	16.0691	18.3963	0.0374	0.7261	0.7115	1.4377	0.1970	0.6696	0.8667	0.0000	3,658.6598	3,658.6598	0.6513	0.1110	3,708.0323
Maximum	**200.1424**	**33.1171**	**20.9084**	**0.0396**	**7.3966**	**1.6132**	**9.0098**	**3.7731**	**1.4841**	**5.2572**	**0.0000**	**3,828.5692**	**3,828.5692**	**1.1959**	**0.1157**	**3,855.7687**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.37	0.00	54.22	61.57	0.00	50.94	0.00	0.00	0.00	0.00	0.00	0.00

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.2976	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511
Energy	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349
Mobile	2.2326	2.2150	15.2289	0.0269	2.7169	0.0229	2.7398	0.7265	0.0214	0.7479		2,738.2933	2,738.2933	0.2389	0.1626	2,792.7143
Total	**6.6846**	**3.6187**	**16.4303**	**0.0353**	**2.7169**	**0.1297**	**2.8465**	**0.7265**	**0.1282**	**0.8547**		**4,422.5677**	**4,422.5677**	**0.2713**	**0.1935**	**4,487.0003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0514	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511
Energy	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349
Mobile	2.2326	2.2150	15.2289	0.0269	2.7169	0.0229	2.7398	0.7265	0.0214	0.7479		2,738.2933	2,738.2933	0.2389	0.1626	2,792.7143
Total	**6.4384**	**3.6187**	**16.4303**	**0.0353**	**2.7169**	**0.1297**	**2.8465**	**0.7265**	**0.1282**	**0.8547**		**4,422.5677**	**4,422.5677**	**0.2713**	**0.1935**	**4,487.0003**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	3.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2022	7/28/2022	5	20	
2	Site Preparation	Site Preparation	7/29/2022	8/4/2022	5	5	
3	Grading	Grading	8/5/2022	8/16/2022	5	8	
4	Building Construction	Building Construction	8/17/2022	7/4/2023	5	230	
5	Paving	Paving	7/5/2023	7/28/2023	5	18	
6	Architectural Coating	Architectural Coating	7/29/2023	8/23/2023	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 1.02

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 230,868; Non-Residential Outdoor: 76,956; Striped Parking Area: 2,712 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	84.00	33.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	17.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Replace Ground Cover

Water Exposed Area

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**		**1.2427**	**1.2427**		**1.1553**	**1.1553**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0409	0.0280	0.3144	8.1000e-004	0.0947	4.9000e-004	0.0952	0.0251	4.5000e-004	0.0256		81.7880	81.7880	3.1500e-003	2.7200e-003	82.6766
Total	**0.0409**	**0.0280**	**0.3144**	**8.1000e-004**	**0.0947**	**4.9000e-004**	**0.0952**	**0.0251**	**4.5000e-004**	**0.0256**		**81.7880**	**81.7880**	**3.1500e-003**	**2.7200e-003**	**82.6766**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**		**1.2427**	**1.2427**		**1.1553**	**1.1553**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0409	0.0280	0.3144	8.1000e-004	0.0947	4.9000e-004	0.0952	0.0251	4.5000e-004	0.0256		81.7880	81.7880	3.1500e-003	2.7200e-003	82.6766
Total	**0.0409**	**0.0280**	**0.3144**	**8.1000e-004**	**0.0947**	**4.9000e-004**	**0.0952**	**0.0251**	**4.5000e-004**	**0.0256**		**81.7880**	**81.7880**	**3.1500e-003**	**2.7200e-003**	**82.6766**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**19.6570**	**1.6126**	**21.2696**	**10.1025**	**1.4836**	**11.5860**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0491	0.0336	0.3772	9.7000e-004	0.1137	5.9000e-004	0.1143	0.0302	5.4000e-004	0.0307		98.1456	98.1456	3.7900e-003	3.2600e-003	99.2120
Total	**0.0491**	**0.0336**	**0.3772**	**9.7000e-004**	**0.1137**	**5.9000e-004**	**0.1143**	**0.0302**	**5.4000e-004**	**0.0307**		**98.1456**	**98.1456**	**3.7900e-003**	**3.2600e-003**	**99.2120**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.2829	0.0000	7.2829	3.7430	0.0000	3.7430			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**7.2829**	**1.6126**	**8.8955**	**3.7430**	**1.4836**	**5.2265**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0491	0.0336	0.3772	9.7000e-004	0.1137	5.9000e-004	0.1143	0.0302	5.4000e-004	0.0307		98.1456	98.1456	3.7900e-003	3.2600e-003	99.2120
Total	**0.0491**	**0.0336**	**0.3772**	**9.7000e-004**	**0.1137**	**5.9000e-004**	**0.1143**	**0.0302**	**5.4000e-004**	**0.0307**		**98.1456**	**98.1456**	**3.7900e-003**	**3.2600e-003**	**99.2120**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**7.0826**	**0.9409**	**8.0234**	**3.4247**	**0.8656**	**4.2903**		**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0409	0.0280	0.3144	8.1000e-004	0.0947	4.9000e-004	0.0952	0.0251	4.5000e-004	0.0256		81.7880	81.7880	3.1500e-003	2.7200e-003	82.6766
Total	**0.0409**	**0.0280**	**0.3144**	**8.1000e-004**	**0.0947**	**4.9000e-004**	**0.0952**	**0.0251**	**4.5000e-004**	**0.0256**		**81.7880**	**81.7880**	**3.1500e-003**	**2.7200e-003**	**82.6766**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6241	0.0000	2.6241	1.2689	0.0000	1.2689			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656	0.0000	2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**2.6241**	**0.9409**	**3.5650**	**1.2689**	**0.8656**	**2.1344**	**0.0000**	**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0409	0.0280	0.3144	8.1000e-004	0.0947	4.9000e-004	0.0952	0.0251	4.5000e-004	0.0256		81.7880	81.7880	3.1500e-003	2.7200e-003	82.6766
Total	**0.0409**	**0.0280**	**0.3144**	**8.1000e-004**	**0.0947**	**4.9000e-004**	**0.0952**	**0.0251**	**4.5000e-004**	**0.0256**		**81.7880**	**81.7880**	**3.1500e-003**	**2.7200e-003**	**82.6766**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0707	1.8522	0.6042	6.2500e-003	0.1957	0.0180	0.2136	0.0563	0.0172	0.0735		683.4909	683.4909	0.0276	0.1005	714.1223
Worker	0.2292	0.1568	1.7604	4.5300e-003	0.5305	2.7500e-003	0.5333	0.1407	2.5300e-003	0.1433		458.0127	458.0127	0.0177	0.0152	462.9892
Total	**0.2999**	**2.0090**	**2.3647**	**0.0108**	**0.7262**	**0.0207**	**0.7469**	**0.1971**	**0.0197**	**0.2168**		**1,141.5036**	**1,141.5036**	**0.0453**	**0.1157**	**1,177.1115**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0707	1.8522	0.6042	6.2500e-003	0.1957	0.0180	0.2136	0.0563	0.0172	0.0735		683.4909	683.4909	0.0276	0.1005	714.1223
Worker	0.2292	0.1568	1.7604	4.5300e-003	0.5305	2.7500e-003	0.5333	0.1407	2.5300e-003	0.1433		458.0127	458.0127	0.0177	0.0152	462.9892
Total	**0.2999**	**2.0090**	**2.3647**	**0.0108**	**0.7262**	**0.0207**	**0.7469**	**0.1971**	**0.0197**	**0.2168**		**1,141.5036**	**1,141.5036**	**0.0453**	**0.1157**	**1,177.1115**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0421	1.5454	0.5333	6.0200e-003	0.1956	9.2000e-003	0.2049	0.0563	8.8000e-003	0.0651		659.4219	659.4219	0.0274	0.0970	689.0077
Worker	0.2134	0.1388	1.6190	4.3900e-003	0.5305	2.5900e-003	0.5331	0.1407	2.3900e-003	0.1431		444.0279	444.0279	0.0160	0.0141	448.6186
Total	**0.2555**	**1.6842**	**2.1523**	**0.0104**	**0.7261**	**0.0118**	**0.7379**	**0.1970**	**0.0112**	**0.2082**		**1,103.4499**	**1,103.4499**	**0.0434**	**0.1110**	**1,137.6263**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0421	1.5454	0.5333	6.0200e-003	0.1956	9.2000e-003	0.2049	0.0563	8.8000e-003	0.0651		659.4219	659.4219	0.0274	0.0970	689.0077
Worker	0.2134	0.1388	1.6190	4.3900e-003	0.5305	2.5900e-003	0.5331	0.1407	2.3900e-003	0.1431		444.0279	444.0279	0.0160	0.0141	448.6186
Total	**0.2555**	**1.6842**	**2.1523**	**0.0104**	**0.7261**	**0.0118**	**0.7379**	**0.1970**	**0.0112**	**0.2082**		**1,103.4499**	**1,103.4499**	**0.0434**	**0.1110**	**1,137.6263**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025		1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.1485					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0666**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**		**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0508	0.0330	0.3855	1.0500e-003	0.1263	6.2000e-004	0.1269	0.0335	5.7000e-004	0.0341		105.7209	105.7209	3.8100e-003	3.3500e-003	106.8140
Total	**0.0508**	**0.0330**	**0.3855**	**1.0500e-003**	**0.1263**	**6.2000e-004**	**0.1269**	**0.0335**	**5.7000e-004**	**0.0341**		**105.7209**	**105.7209**	**3.8100e-003**	**3.3500e-003**	**106.8140**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025	0.0000	1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.1485					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0666**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**	**0.0000**	**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0508	0.0330	0.3855	1.0500e-003	0.1263	6.2000e-004	0.1269	0.0335	5.7000e-004	0.0341		105.7209	105.7209	3.8100e-003	3.3500e-003	106.8140
Total	**0.0508**	**0.0330**	**0.3855**	**1.0500e-003**	**0.1263**	**6.2000e-004**	**0.1269**	**0.0335**	**5.7000e-004**	**0.0341**		**105.7209**	**105.7209**	**3.8100e-003**	**3.3500e-003**	**106.8140**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	199.9076					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**200.0992**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0432	0.0281	0.3277	8.9000e-004	0.1074	5.2000e-004	0.1079	0.0285	4.8000e-004	0.0290		89.8628	89.8628	3.2300e-003	2.8500e-003	90.7919
Total	**0.0432**	**0.0281**	**0.3277**	**8.9000e-004**	**0.1074**	**5.2000e-004**	**0.1079**	**0.0285**	**4.8000e-004**	**0.0290**		**89.8628**	**89.8628**	**3.2300e-003**	**2.8500e-003**	**90.7919**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	199.9076					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**200.0992**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0432	0.0281	0.3277	8.9000e-004	0.1074	5.2000e-004	0.1079	0.0285	4.8000e-004	0.0290		89.8628	89.8628	3.2300e-003	2.8500e-003	90.7919
Total	**0.0432**	**0.0281**	**0.3277**	**8.9000e-004**	**0.1074**	**5.2000e-004**	**0.1079**	**0.0285**	**4.8000e-004**	**0.0290**		**89.8628**	**89.8628**	**3.2300e-003**	**2.8500e-003**	**90.7919**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2326	2.2150	15.2289	0.0269	2.7169	0.0229	2.7398	0.7265	0.0214	0.7479		2,738.2933	2,738.2933	0.2389	0.1626	2,792.7143
Unmitigated	2.2326	2.2150	15.2289	0.0269	2.7169	0.0229	2.7398	0.7265	0.0214	0.7479		2,738.2933	2,738.2933	0.2389	0.1626	2,792.7143

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	886.16	868.14	630.70	1,225,956	1,225,956
Parking Lot	0.00	0.00	0.00		
Total	886.16	868.14	630.70	1,225,956	1,225,956

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hotel	6.60	5.50	6.40	19.40	61.60	19.00	58	38	4
Parking Lot	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	0.492113	0.052876	0.208088	0.152800	0.029700	0.007146	0.010959	0.006131	0.000966	0.000597	0.030829	0.003523	0.004272
Parking Lot	0.492113	0.052876	0.208088	0.152800	0.029700	0.007146	0.010959	0.006131	0.000966	0.000597	0.030829	0.003523	0.004272

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349
NaturalGas Unmitigated	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	14315.9	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1544**	**1.4035**	**1.1790**	**8.4200e-003**		**0.1067**	**0.1067**		**0.1067**	**0.1067**		**1,684.2264**	**1,684.2264**	**0.0323**	**0.0309**	**1,694.2349**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	14.3159	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1544**	**1.4035**	**1.1790**	**8.4200e-003**		**0.1067**	**0.1067**		**0.1067**	**0.1067**		**1,684.2264**	**1,684.2264**	**0.0323**	**0.0309**	**1,694.2349**

6.0 Area Detail

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0514	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511
Unmitigated	4.2976	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.9859					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.3097					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0700e-003	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511
Total	**4.2977**	**2.0000e-004**	**0.0224**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0479**	**0.0479**	**1.3000e-004**		**0.0511**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.9859					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.0635					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0700e-003	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511
Total	**4.0514**	**2.0000e-004**	**0.0224**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0479**	**0.0479**	**1.3000e-004**		**0.0511**

7.0 Water Detail

7.1 Mitigation Measures Water

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Carpinteria Hotel Project

Santa Barbara County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	106.00	Room	3.53	153,912.00	0
Parking Lot	113.00	Space	1.02	45,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	8			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - test

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True

2.0 Emissions Summary

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2234	33.1219	20.9203	0.0396	19.7707	1.6132	21.3839	10.1326	1.4841	11.6167	0.0000	3,826.8978	3,826.8978	1.1963	0.1173	3,854.1826
2023	200.1462	16.1369	18.4771	0.0373	0.7261	0.7116	1.4377	0.1970	0.6697	0.8667	0.0000	3,650.4154	3,650.4154	0.6529	0.1126	3,700.2914
Maximum	**200.1462**	**33.1219**	**20.9203**	**0.0396**	**19.7707**	**1.6132**	**21.3839**	**10.1326**	**1.4841**	**11.6167**	**0.0000**	**3,826.8978**	**3,826.8978**	**1.1963**	**0.1173**	**3,854.1826**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2234	33.1219	20.9203	0.0396	7.3966	1.6132	9.0098	3.7731	1.4841	5.2572	0.0000	3,826.8978	3,826.8978	1.1963	0.1173	3,854.1826
2023	200.1462	16.1369	18.4771	0.0373	0.7261	0.7116	1.4377	0.1970	0.6697	0.8667	0.0000	3,650.4154	3,650.4154	0.6529	0.1126	3,700.2914
Maximum	**200.1462**	**33.1219**	**20.9203**	**0.0396**	**7.3966**	**1.6132**	**9.0098**	**3.7731**	**1.4841**	**5.2572**	**0.0000**	**3,826.8978**	**3,826.8978**	**1.1963**	**0.1173**	**3,854.1826**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.37	0.00	54.22	61.57	0.00	50.94	0.00	0.00	0.00	0.00	0.00	0.00

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.2976	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511
Energy	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349
Mobile	2.1896	2.4074	16.9160	0.0265	2.7169	0.0229	2.7398	0.7265	0.0215	0.7479		2,699.8000	2,699.8000	0.2657	0.1732	2,758.0674
Total	**6.6416**	**3.8111**	**18.1173**	**0.0349**	**2.7169**	**0.1297**	**2.8466**	**0.7265**	**0.1282**	**0.8547**		**4,384.0743**	**4,384.0743**	**0.2981**	**0.2041**	**4,452.3533**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0514	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511
Energy	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349
Mobile	2.1896	2.4074	16.9160	0.0265	2.7169	0.0229	2.7398	0.7265	0.0215	0.7479		2,699.8000	2,699.8000	0.2657	0.1732	2,758.0674
Total	**6.3953**	**3.8111**	**18.1173**	**0.0349**	**2.7169**	**0.1297**	**2.8466**	**0.7265**	**0.1282**	**0.8547**		**4,384.0743**	**4,384.0743**	**0.2981**	**0.2041**	**4,452.3533**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	3.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2022	7/28/2022	5	20	
2	Site Preparation	Site Preparation	7/29/2022	8/4/2022	5	5	
3	Grading	Grading	8/5/2022	8/16/2022	5	8	
4	Building Construction	Building Construction	8/17/2022	7/4/2023	5	230	
5	Paving	Paving	7/5/2023	7/28/2023	5	18	
6	Architectural Coating	Architectural Coating	7/29/2023	8/23/2023	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 1.02

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 230,868; Non-Residential Outdoor: 76,956; Striped Parking Area: 2,712 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	84.00	33.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	17.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Replace Ground Cover

Water Exposed Area

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**		**1.2427**	**1.2427**		**1.1553**	**1.1553**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0444	0.0320	0.3263	7.9000e-004	0.0947	4.9000e-004	0.0952	0.0251	4.5000e-004	0.0256		80.1166	80.1166	3.4800e-003	2.9800e-003	81.0906
Total	**0.0444**	**0.0320**	**0.3263**	**7.9000e-004**	**0.0947**	**4.9000e-004**	**0.0952**	**0.0251**	**4.5000e-004**	**0.0256**		**80.1166**	**80.1166**	**3.4800e-003**	**2.9800e-003**	**81.0906**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**		**1.2427**	**1.2427**		**1.1553**	**1.1553**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0444	0.0320	0.3263	7.9000e-004	0.0947	4.9000e-004	0.0952	0.0251	4.5000e-004	0.0256		80.1166	80.1166	3.4800e-003	2.9800e-003	81.0906
Total	**0.0444**	**0.0320**	**0.3263**	**7.9000e-004**	**0.0947**	**4.9000e-004**	**0.0952**	**0.0251**	**4.5000e-004**	**0.0256**		**80.1166**	**80.1166**	**3.4800e-003**	**2.9800e-003**	**81.0906**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**19.6570**	**1.6126**	**21.2696**	**10.1025**	**1.4836**	**11.5860**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0533	0.0384	0.3915	9.5000e-004	0.1137	5.9000e-004	0.1143	0.0302	5.4000e-004	0.0307		96.1400	96.1400	4.1800e-003	3.5700e-003	97.3087
Total	**0.0533**	**0.0384**	**0.3915**	**9.5000e-004**	**0.1137**	**5.9000e-004**	**0.1143**	**0.0302**	**5.4000e-004**	**0.0307**		**96.1400**	**96.1400**	**4.1800e-003**	**3.5700e-003**	**97.3087**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.2829	0.0000	7.2829	3.7430	0.0000	3.7430			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**7.2829**	**1.6126**	**8.8955**	**3.7430**	**1.4836**	**5.2265**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0533	0.0384	0.3915	9.5000e-004	0.1137	5.9000e-004	0.1143	0.0302	5.4000e-004	0.0307		96.1400	96.1400	4.1800e-003	3.5700e-003	97.3087
Total	**0.0533**	**0.0384**	**0.3915**	**9.5000e-004**	**0.1137**	**5.9000e-004**	**0.1143**	**0.0302**	**5.4000e-004**	**0.0307**		**96.1400**	**96.1400**	**4.1800e-003**	**3.5700e-003**	**97.3087**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**7.0826**	**0.9409**	**8.0234**	**3.4247**	**0.8656**	**4.2903**		**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0444	0.0320	0.3263	7.9000e-004	0.0947	4.9000e-004	0.0952	0.0251	4.5000e-004	0.0256		80.1166	80.1166	3.4800e-003	2.9800e-003	81.0906
Total	**0.0444**	**0.0320**	**0.3263**	**7.9000e-004**	**0.0947**	**4.9000e-004**	**0.0952**	**0.0251**	**4.5000e-004**	**0.0256**		**80.1166**	**80.1166**	**3.4800e-003**	**2.9800e-003**	**81.0906**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6241	0.0000	2.6241	1.2689	0.0000	1.2689			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656	0.0000	2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**2.6241**	**0.9409**	**3.5650**	**1.2689**	**0.8656**	**2.1344**	**0.0000**	**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0444	0.0320	0.3263	7.9000e-004	0.0947	4.9000e-004	0.0952	0.0251	4.5000e-004	0.0256		80.1166	80.1166	3.4800e-003	2.9800e-003	81.0906
Total	**0.0444**	**0.0320**	**0.3263**	**7.9000e-004**	**0.0947**	**4.9000e-004**	**0.0952**	**0.0251**	**4.5000e-004**	**0.0256**		**80.1166**	**80.1166**	**3.4800e-003**	**2.9800e-003**	**81.0906**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0705	1.9034	0.6210	6.2600e-003	0.1957	0.0181	0.2137	0.0563	0.0173	0.0736		683.7615	683.7615	0.0275	0.1006	714.4356
Worker	0.2487	0.1792	1.8271	4.4400e-003	0.5305	2.7500e-003	0.5333	0.1407	2.5300e-003	0.1433		448.6532	448.6532	0.0195	0.0167	454.1071
Total	**0.3192**	**2.0826**	**2.4481**	**0.0107**	**0.7262**	**0.0208**	**0.7470**	**0.1971**	**0.0198**	**0.2169**		**1,132.4146**	**1,132.4146**	**0.0470**	**0.1173**	**1,168.5427**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0705	1.9034	0.6210	6.2600e-003	0.1957	0.0181	0.2137	0.0563	0.0173	0.0736		683.7615	683.7615	0.0275	0.1006	714.4356
Worker	0.2487	0.1792	1.8271	4.4400e-003	0.5305	2.7500e-003	0.5333	0.1407	2.5300e-003	0.1433		448.6532	448.6532	0.0195	0.0167	454.1071
Total	**0.3192**	**2.0826**	**2.4481**	**0.0107**	**0.7262**	**0.0208**	**0.7470**	**0.1971**	**0.0198**	**0.2169**		**1,132.4146**	**1,132.4146**	**0.0470**	**0.1173**	**1,168.5427**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0416	1.5934	0.5479	6.0200e-003	0.1956	9.2500e-003	0.2049	0.0563	8.8500e-003	0.0652		660.2249	660.2249	0.0273	0.0972	689.8739
Worker	0.2320	0.1587	1.6851	4.3000e-003	0.5305	2.5900e-003	0.5331	0.1407	2.3900e-003	0.1431		434.9806	434.9806	0.0177	0.0154	440.0114
Total	**0.2736**	**1.7520**	**2.2331**	**0.0103**	**0.7261**	**0.0118**	**0.7380**	**0.1970**	**0.0112**	**0.2083**		**1,095.2055**	**1,095.2055**	**0.0450**	**0.1126**	**1,129.8854**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0416	1.5934	0.5479	6.0200e-003	0.1956	9.2500e-003	0.2049	0.0563	8.8500e-003	0.0652		660.2249	660.2249	0.0273	0.0972	689.8739
Worker	0.2320	0.1587	1.6851	4.3000e-003	0.5305	2.5900e-003	0.5331	0.1407	2.3900e-003	0.1431		434.9806	434.9806	0.0177	0.0154	440.0114
Total	**0.2736**	**1.7520**	**2.2331**	**0.0103**	**0.7261**	**0.0118**	**0.7380**	**0.1970**	**0.0112**	**0.2083**		**1,095.2055**	**1,095.2055**	**0.0450**	**0.1126**	**1,129.8854**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025		1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.1485					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0666**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**		**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0553	0.0378	0.4012	1.0200e-003	0.1263	6.2000e-004	0.1269	0.0335	5.7000e-004	0.0341		103.5668	103.5668	4.2100e-003	3.6700e-003	104.7646
Total	**0.0553**	**0.0378**	**0.4012**	**1.0200e-003**	**0.1263**	**6.2000e-004**	**0.1269**	**0.0335**	**5.7000e-004**	**0.0341**		**103.5668**	**103.5668**	**4.2100e-003**	**3.6700e-003**	**104.7646**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025	0.0000	1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.1485					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0666**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**	**0.0000**	**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0553	0.0378	0.4012	1.0200e-003	0.1263	6.2000e-004	0.1269	0.0335	5.7000e-004	0.0341		103.5668	103.5668	4.2100e-003	3.6700e-003	104.7646
Total	**0.0553**	**0.0378**	**0.4012**	**1.0200e-003**	**0.1263**	**6.2000e-004**	**0.1269**	**0.0335**	**5.7000e-004**	**0.0341**		**103.5668**	**103.5668**	**4.2100e-003**	**3.6700e-003**	**104.7646**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	199.9076					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**200.0992**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0470	0.0321	0.3410	8.7000e-004	0.1074	5.2000e-004	0.1079	0.0285	4.8000e-004	0.0290		88.0318	88.0318	3.5800e-003	3.1200e-003	89.0499
Total	**0.0470**	**0.0321**	**0.3410**	**8.7000e-004**	**0.1074**	**5.2000e-004**	**0.1079**	**0.0285**	**4.8000e-004**	**0.0290**		**88.0318**	**88.0318**	**3.5800e-003**	**3.1200e-003**	**89.0499**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	199.9076					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**200.0992**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0470	0.0321	0.3410	8.7000e-004	0.1074	5.2000e-004	0.1079	0.0285	4.8000e-004	0.0290		88.0318	88.0318	3.5800e-003	3.1200e-003	89.0499
Total	**0.0470**	**0.0321**	**0.3410**	**8.7000e-004**	**0.1074**	**5.2000e-004**	**0.1079**	**0.0285**	**4.8000e-004**	**0.0290**		**88.0318**	**88.0318**	**3.5800e-003**	**3.1200e-003**	**89.0499**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1896	2.4074	16.9160	0.0265	2.7169	0.0229	2.7398	0.7265	0.0215	0.7479		2,699.8000	2,699.8000	0.2657	0.1732	2,758.0674
Unmitigated	2.1896	2.4074	16.9160	0.0265	2.7169	0.0229	2.7398	0.7265	0.0215	0.7479		2,699.8000	2,699.8000	0.2657	0.1732	2,758.0674

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	886.16	868.14	630.70	1,225,956	1,225,956
Parking Lot	0.00	0.00	0.00		
Total	886.16	868.14	630.70	1,225,956	1,225,956

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hotel	6.60	5.50	6.40	19.40	61.60	19.00	58	38	4
Parking Lot	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	0.492113	0.052876	0.208088	0.152800	0.029700	0.007146	0.010959	0.006131	0.000966	0.000597	0.030829	0.003523	0.004272
Parking Lot	0.492113	0.052876	0.208088	0.152800	0.029700	0.007146	0.010959	0.006131	0.000966	0.000597	0.030829	0.003523	0.004272

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349
NaturalGas Unmitigated	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	14315.9	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1544**	**1.4035**	**1.1790**	**8.4200e-003**		**0.1067**	**0.1067**		**0.1067**	**0.1067**		**1,684.2264**	**1,684.2264**	**0.0323**	**0.0309**	**1,694.2349**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	14.3159	0.1544	1.4035	1.1790	8.4200e-003		0.1067	0.1067		0.1067	0.1067		1,684.2264	1,684.2264	0.0323	0.0309	1,694.2349
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1544**	**1.4035**	**1.1790**	**8.4200e-003**		**0.1067**	**0.1067**		**0.1067**	**0.1067**		**1,684.2264**	**1,684.2264**	**0.0323**	**0.0309**	**1,694.2349**

6.0 Area Detail

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0514	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511
Unmitigated	4.2976	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.9859					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.3097					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0700e-003	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511
Total	**4.2977**	**2.0000e-004**	**0.0224**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0479**	**0.0479**	**1.3000e-004**		**0.0511**

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.9859					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.0635					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0700e-003	2.0000e-004	0.0224	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0479	0.0479	1.3000e-004		0.0511
Total	**4.0514**	**2.0000e-004**	**0.0224**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0479**	**0.0479**	**1.3000e-004**		**0.0511**

7.0 Water Detail

7.1 Mitigation Measures Water

Carpinteria Hotel Project - Santa Barbara County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX D

3/28/2018

From:
Manjunath Venkat
Consulting Biologist
Oak Park, California 91377

To:
Mr. Kush Nath
Ram Hotels
P.O. Box 52098
Amarillo, TX 79159

Subject: Technical Memo - Creek Setback, Via Real Hotel Development Project

Background

Ram Hotels proposes to build a 2-story Hotel on a parcel located at 4110 Via Real, in the City of Carpintaria, Santa Barbara County, California. In September of 2017, Stantec Consulting Services, Inc. (Stantec), conducted a Delineation of potential Jurisdictional Waters at the project site (Stantec report dated September 19, 2017). Soil pit sampling conducted during the delineation indicated that one sampling point within the unnamed drainage course along the western boundary of the site, termed Swale "A" in the Stantec report, marginally exhibited primary hydrology indicator in the form of oxidized root channels. This drainage receives storm water and irrigation runoff from north of the drainage and eventually outlets south through the existing culvert under Via Real and Hwy 101.

Although no hydric soils were detected within this sampling point or any other sampling points taken within this drainage and Swale "B"; based on the oxidized root channels, the drainage along the western boundary of the site is potentially subject to California Coastal Commission regulations. Therefore, based on City of Carpinteria Local Coastal Plan (LCP) Implementation Policy No. 12; a 100-foot setback from this drainage would be applicable, within which development is precluded.

A 100-foot setback from the drainage ("Swale A") would greatly constrain the development of the project. At the request of Ram Hotels, Mr. Manjunath Venkat, Biologist (representing Stantec at that time) and Mr. Craig Steward, Engineer, Stantec, met with City of Carpinteria staff Mr. Nick Bobroff and Mr. Steve Goggia. The meeting was held on October 4, 2017. The purpose of the meeting was to discuss the project in general, site hydrology and the applicable setback from the drainage. After evaluation of the potential jurisdictional waters delineation results, consideration of the existing functions and values of the drainage and potential constraints to development from a 100-foot buffer, City planners indicated that further assessment of the hydrological conditions of the drainage following heavy rains would be warranted. City staffs indicated that if there is evidence of flows within the drainage and if the drainage functions as a creek with flowing water, rather than a wetland with

standing water, a case can be made that the drainage in question is a creek and therefore a 50-foot setback would be applicable, in accordance with LCP Implementation Policy #25.

Results & Discussion

In February and March of this year, heavy precipitation events occurred in the Carpinteria area. Between March 21 4:35 AM and March 22 11:30 PM the rain gauge at the Carpinteria Fire Station (22140) recorded 3.23 inches of rainfall. During and after the rainfall events, photographs and video of flows within the drainage were obtained. The photos are included in this Memo. The photos indicate fairly robust flows through the drainage, indicating the drainage functions as a creek in the manner of its conveyance of water.

In addition to the photographs, included with this Technical Memo is a portion of the Drainage Study prepared by Stantec (Courtesy of Mr. Craig Steward). The water that flows into the drainage (Swale A) is from the watershed indicated as "DD" in the drainage map. The tributary area from DD is approximately 9 acres The 1" runoff from DD is 0.69 Cubic Feet/Second (cfs) or approximately 310 Gallons/Minute (gpm) and a 2-year runoff from DD watershed is 7.04 cfs =or approximately 3160 gpm. This indicates that although the watershed is small, there is sufficient water being conveyed through the drainage.

These results indicate that the drainage in question along the western boundary of the site, functions as a creek. Following marginal precipitation, the drainage may support some standing water intermittently, which may contribute to the development of some wetlands indicators within the drainage. However, with substantial rainfall and flows being conveyed through the channel of the drainage, retention of water within the drainage sufficient to develop strong wetland conditions does not exist within the drainage. With these findings, a 50-foot setback from this waterbody would be applicable, in accordance with City of Carpinteria LCP Implementation Policy #25. It is recommended that Ram Hotels request a meeting with the City Planners and present this new information so that a 50-foot buffer (setback) from the drainage may be granted by the City.

Representative Photographs of the Drainage Course Showing Flowing Waters



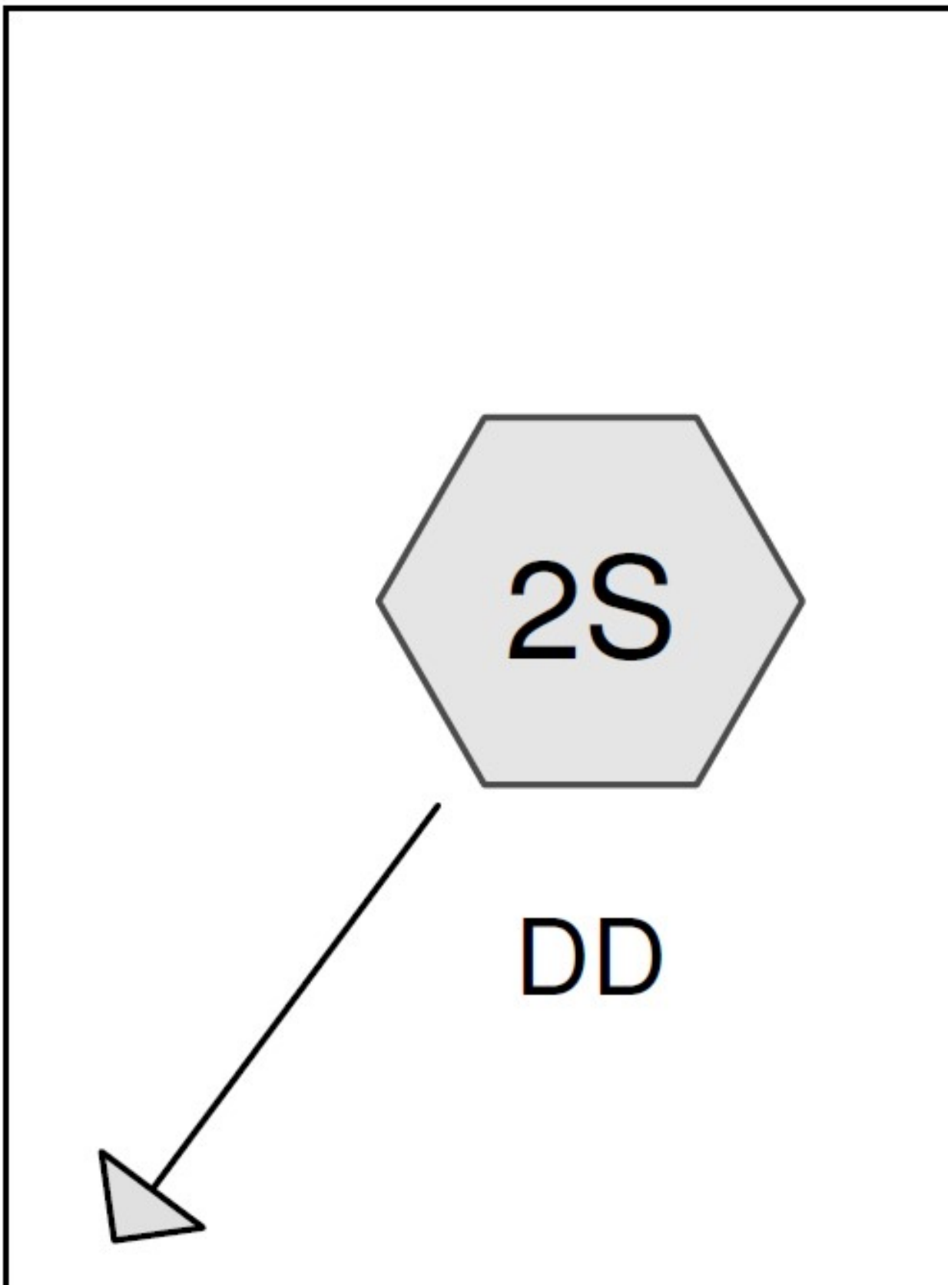
Photo 1. View of the drainage along the western boundary of the Project Site, looking north from Via Real Road. Photo taken on March 27, 2018, 5 days after rainfall.



Photo 1. View of the drainage along the western boundary of the Project Site, looking north from Via Real Road. Photo taken on March 27, 2018.

Hydrology Study, Stantec




2S
DD

Summary for Subcatchment 2S: DD

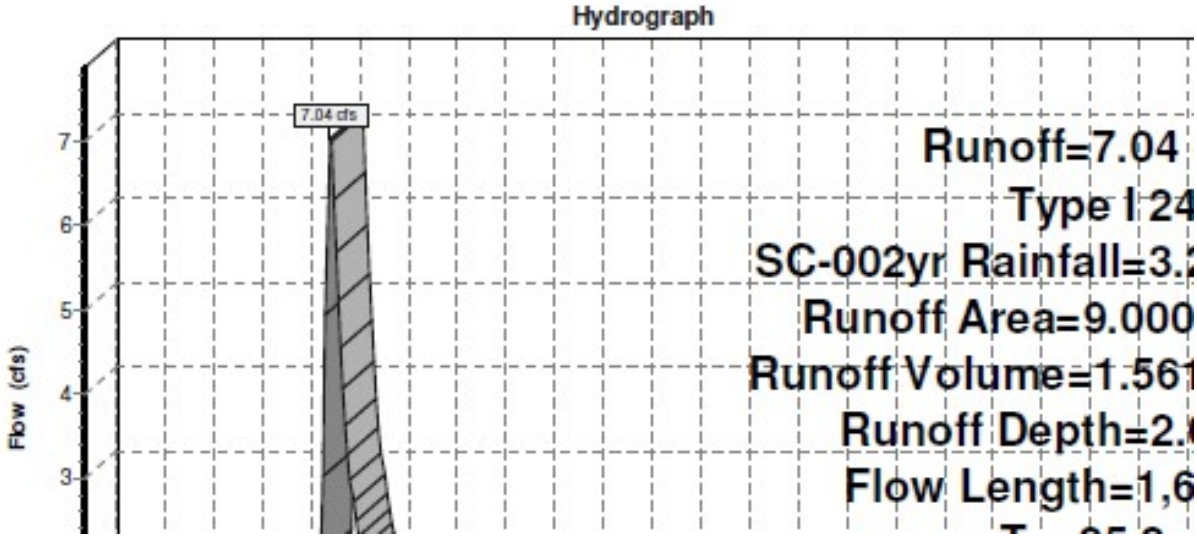
Runoff = 7.04 cfs @ 10.07 hrs, Volume= 1.561 af, Depth= 2.08"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.10 h
Type I 24-hr SC-002yr Rainfall=3.20"

Area (ac)	CN	Description
9.000	89	<50% Grass cover, Poor, HSG D
9.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	300	0.0250	0.45		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060
12.7	845	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	540	0.0200	6.52	143.55	**Trap/Vee/Rect Channel Flow,** Bot.W=20.00' D=1.00' Z= 2.0 '/' Top. n= 0.030
25.2	1,685	Total			

Subcatchment 2S: DD



Summary for Subcatchment 2S: DD

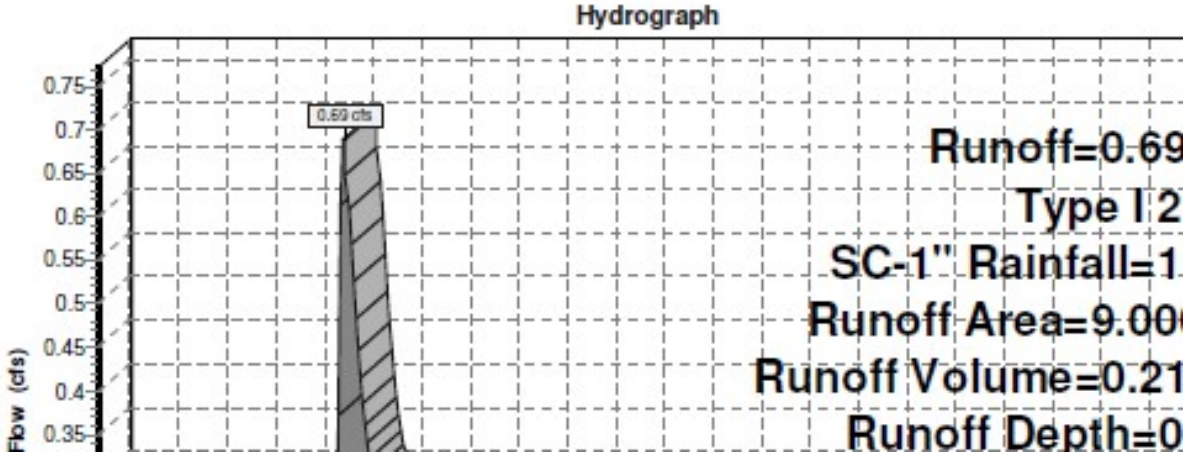
Runoff = 0.69 cfs @ 10.12 hrs, Volume= 0.214 af, Depth= 0.28"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.10
Type I 24-hr SC-1" Rainfall=1.00"

Area (ac)	CN	Description
9.000	89	<50% Grass cover, Poor, HSG D
9.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	300	0.0250	0.45		**Sheet Flow,** Cultivated: Residue<=20% n= 0.06
12.7	845	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	540	0.0200	6.52	143.55	**Trap/Vee/Rect Channel Flow,** Bot.W=20.00' D=1.00' Z= 2.0 '/' To n= 0.030
25.2	1,685	Total			

Subcatchment 2S: DD



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ENVIRONMENTAL
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WETLAND DELINEATION AND JURISDICTIONAL DETERMINATION REPORT

FOR THE

VIA REAL HOTEL DEVELOPMENT PROJECT, CARPINTERIA, CALIFORNIA



Prepared for:
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Amarillo, TX 79159

Prepared By:
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2565 Puesta Del Sol Road #3
Santa Barbara, California 93105

April 2017

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Appendix A – Site Photographs

Appendix B – Wetland Data Forms

1.0 INTRODUCTION

On behalf of Ram Hotels (Applicant), Storrer Environmental Services, LLC (SES) identified and delineated the current geographic extent of waters of the U.S., including wetlands, for the proposed Via Real Hotel Development Project (Project).

The following wetland delineation and jurisdictional determination report (Report) provides an assessment and delineation of U.S. Army Corps of Engineers (USACE) jurisdictional waters, including wetlands, California Department of Fish and Wildlife (CDFW) jurisdictional streambeds, and coastal wetlands as defined by the California Coastal Commission (Coastal Commission). This Report has been developed using (a) current Los Angeles District of the USACE and U.S. Environmental Protection Agency (EPA) guidance pertaining to jurisdictional delineations, and (b) a combination of 2017 field-based observations of site conditions and review of information available in the public domain (e.g., U.S. Geological Survey (USGS) 7.5' topographic quadrangle maps, the Natural Resources Conservation Service (NRCS) Soil Surveys, and aerial photographs from various sources). The results and recommendations offered in this Report are subject to final review and approval by the USACE.

1.1 PROJECT LOCATION AND DESCRIPTION

The Project is located within of the City of Carpinteria (City) at 4110 Via Real (APN 004-017-022), Santa Barbara County, California (Figure 1 – Project Vicinity Map). The Project Area includes the entire parcel, which contains an existing church building, storage sheds, outdoor playground, parking lot, and irrigation ditch (Figure 2 – Project Area Map). The Project Area is bounded by Via Real to the south, residential development to the east and along approximately half of the northern boundary, agricultural fields along the remainder of the northern boundary, and an agricultural road to the west. This Report focuses on the potential jurisdictional waters, including wetlands (i.e., irrigation ditch) along the western boundary of the Project Area adjacent to the agricultural road.

The Project includes construction of a 2-story hotel, associated parking lots, a vegetated stormwater treatment swale, three vegetated bioretention basins, and general landscaping. Irrigation tail-water from offsite sources will be directed via drop inlets to a subsurface storm drain (SD) that will convey irrigation and stormwater runoff to an existing culvert along Via Real. Runoff from the adjacent properties will be channeled through the project site via the SD, thus preventing comingling of off-site, untreated stormwater (Stantec 2007). (Figures 3a and 3b – Stormwater Quality Plan).

2.0 EXISTING CONDITIONS

The Project Area is approximately 2.61 acres and includes an existing church building, three storage sheds, outdoor playground, 0.75-acre parking lot, and ornamental landscaping (see Appendix A – Site Photographs). A culverted irrigation ditch extends along the western boundary of the Project Area. The irrigation ditch conveys agricultural runoff from the fields to the north to an existing concrete headwall and 36-inch culvert that crosses under Via Real and U.S. Highway 101 to the south. A second ditch is present in the northwest corner of the Project Area adjacent to an agricultural road. This roadside ditch appears to receive some agricultural runoff from the adjacent fields, but does not

convey flow to the irrigation ditch along the western Project Area boundary. The runoff received by the roadside ditch supports a stand of native and non-native trees present in the ditch.

The Project Area is nearly flat and slopes slightly from the north to south at a 0.5 percent fall. As a result, stormwater and irrigation runoff collects in the irrigation ditch along the southern edge of the property before outletting through the existing culvert under Via Real and Hwy 101 (Stantec 2017) (see Appendix A – Site Photographs).

The vegetation surrounding the existing church and parking lot is dominated by weedy, non-native plant species and ornamental trees. Dominant ground cover vegetation includes greenstem filaree (*Erodium moschatum*), cheeseweed (*Malva parviflora*), cut leaved geranium (*Geranium dissectum*), prickly sow thistle (*Sonchus asper* ssp. *asper*), English plantain (*Plantago lanceolata*), scarlet pimpernel (*Lysimachia arvensis*), and annual grasses such as ripgut brome (*Bromus diandrus*), rescue grass (*Bromus catharticus* var *catharticus*), wild oat (*Avea fatua*), kikuyu grass (*Pennisetum clandestinum*), and hare barley (*Hordeum murinum* ssp. *leporinum*). Ornamental trees planted throughout the Project Area include Ngaio tree (*Myoporum laetum*), Italian stone pine (*Pinus pinea*), Chinese juniper (*Juniperus chinensis*), European fan palm (*Chamerops humilis*), Mexican fan palm (*Washingtonia robusta*), and Queen palm (*Syagrus romanzoffiana*) (see Appendix A – Site Photographs).

The culverted irrigation ditch extends approximately 315 feet along the western boundary of the Project Area (see Appendix A – Site Photographs). The ditch turns slightly to the east at its southern end and conveys runoff into a culvert that leads under Via Real and Hwy 101 before discharging into the Carpinteria Salt Marsh (Figure 4 – Connectivity Map). Vegetation within the irrigation ditch is comprised primarily of non-native plant species including wild oat, rescue grass, cut leaved geranium, English plantain, pampas grass (*Cortaderia jubata*), and curly dock (*Rumex crispus*). One native plant species, arroyo willow (*Salix lasiolepis*) was observed in the irrigation ditch. Approximately 25 arroyo willow seedlings (1 to 3 feet in height) are located 50 feet from the culvert at the northern end of the irrigation ditch (see Appendix A – Photograph 14). The vegetation in the Project Area appears to be regularly mowed/maintained, including the vegetation within the irrigation ditch. All of the pampas grass plants were cut to the bases at the time of the survey and it appears that the arroyo willows may have also been cut back in the past during landscape maintenance.

The roadside ditch extends approximately 125 feet along the agricultural road in the northern-most corner of the Project Area (Figure 2 – Project Area Map). This ditch contains a dense stand of Ngaio trees, four large pampas grass plants, Canary Island date palm (*Phoenix canariensis*), and castor bean (*Ricinus molle*). It also contains several mature native trees including two large coast live oaks (*Quercus agrifolia*), one large red willow (*Salix laevigata*), and several mature arroyo willows (see Appendix A – Site Photographs). The understory vegetation in the roadside ditch is sparse and consists of non-native species such as English ivy (*Hedera helix*) and annual grasses (e.g., ripgut brome, wild oat, etc.).

3.0 REGULATORY FRAMEWORK

Wetlands and other waters in the Project Area are potentially subject to a variety of federal, state, and local regulations, including the federal Clean Water Act (CWA), California Fish and Game Code, California Coastal Act, and the City of Carpinteria (City) General Plan/Local Coastal Land

Use Plan (LCP/LUP). The federal, state, and local regulations applicable to the Project Area are described below.

3.1 FEDERAL

3.1.1 Clean Water Act – Section 404

Section 404 of the CWA regulates the discharge of dredged and/or fill material into waters of the U.S., including wetlands. Section 404 of the CWA is jointly administered and enforced by the USACE and the U.S. Environmental Protection Agency (EPA). Activities in waters of the U.S. regulated under Section 404 include dredge or fill for development, water resources projects (i.e., dams and levees), infrastructure development (i.e., highways and airports), and mining projects. With the exception of certain farming and forestry activities that are exempt from Section 404 regulation, a Section 404 permit is required before any dredged or fill material may be discharged into waters of the U.S.

The Section 404 program prohibits discharge of dredged or fill material if waters of the U.S. would be significantly degraded or a practical alternative exists that is less damaging to the aquatic environment. For the Project region, a Section 404 permit would be obtained from the Los Angeles District of the USACE.

3.1.1.1 Waters of the U.S.

The limit of USACE's jurisdiction in non-tidal waters extends to the ordinary high water mark (OHWM) and includes all adjacent wetlands.

Waters of the U.S. are defined as:

> *"All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; including all interstate waters including interstate wetlands, all other waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce."*

U.S. Supreme Court decisions (i.e., Solid Waste Agency of Northern Cook County [SWANCC] v. USACE [531 U.S. 159, 2001] January 9, 2001 and Rapanos *et ux., et al.* v. United States, June 19, 2006) have led to the development of federal guidance that requires a careful examination and documentation of the physical location(s) and hydrologic connections among waters and wetlands. To determine federal jurisdiction, particular focus is given to (1) surface hydrologic connections between a wetland and "navigable waters in fact," (2) "adjacency" of a wetland to traditionally navigable waters, and thus (3) a "significant nexus" to interstate commerce. In addition, waters and wetlands features can be determined to be under federal jurisdiction by the USACE if a "significant nexus" can be shown between the wetland feature in question and its contribution to the maintenance or restoration of the physical, chemical, or biological integrity of downstream waters that are traditionally navigable.

3.1.1.2 USACE Jurisdictional Wetlands

Wetlands subject to Section 404 of the CWA are defined as:

> *"…those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."*

The *Corps of Engineers Wetland Delineation Manual* (1987 Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Arid West Supplement) (Environmental Laboratory 2008) provide technical guidance for identifying and delineating wetlands that may be subject to regulatory jurisdiction. The Arid West Supplement provides wetland indicators and additional guidance for delineation specific to the southwestern U.S. The delineation methods outlined in the 1987 Manual and the Arid West Supplement are based on a three-factor approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. The USACE requires that a positive wetland indicator be present for all three parameters. Wetland indictors are described in further detail below.

Hydrophytic Vegetation. Hydrophytic plant species are those that can tolerate prolonged inundation or soil saturation during the growing season. The hydrophytic vegetation indicator is considered to be present when 50 percent or greater of the dominant plant species within the sample plot are classified as Obligate, Facultative Wetland, or Facultative according to the National Wetland Plant List (Lichvar et al. 2014, USACE 2014). The hydrophytic vegetation indicator can also be determined using the "Prevalence Index" when hydric soils and wetland hydrology are present but vegetation fails to meet the "Dominance Test".

Hydric Soils. Hydric soils are defined as soils "that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (Federal Register 1994). The technical criteria can be satisfied using a combination of published soils information and field indicators. Field indicators for determining whether a soil satisfies the hydric soil definition and the technical criteria for hydric soils are listed in the *Field Indicators of Hydric Soils in the United States* (USDA-NRCS 2010).

Wetland Hydrology. Wetland hydrology can be determined by evaluating a variety of direct and indirect field indicators. Direct indicators include aerial photography, stream gauge or well data, and historic records pertaining to the region. Indirect field indicators include, but are not limited to visual observation of inundation and/or saturation, sediment deposition, drainage patterns in wetlands, hydric soil characteristics, watermarks, drift lines, oxidized channels (i.e., rhizospheres) associated with living roots and rhizomes, and water stained leaves (Environmental Laboratory 1987). The Arid West Supplement provides a technical standard for wetland hydrology that requires 14 or more consecutive days of flooding or ponding, or a water table 12 inches or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10 (Environmental Laboratory 2008).

3.1.1.3 Section 404(f)(1)(C) Statutory Exemptions for Drainage Ditch Maintenance

Under Section 404(f)(1)(C) of the CWA, discharges of dredged or fill material associated with construction or maintenance of irrigation ditches, or the maintenance (but not construction) of drainage ditches, are not prohibited by or otherwise subject to regulation under Section 404 of the CWA (i.e., these activities are exempt from the need to obtain a Section 404 permit from the USACE) (USACE

2007). Per the USACE Regulatory Guidance Letter (RGL) No. 07-02 dated July 4, 2007, an irrigation ditch is defined as:

> *"…a man-made feature and/or an upland swale that either conveys water to an ultimate irrigation use or place of use, or that moves and/or conveys irrigation water (e.g., "run-off" from irrigation) away from irrigated lands. If a ditch carries only irrigation water, irrigation return flows, and overland flow (precipitation and/or snowmelt) that moves from an irrigated field either to or away from an area subject to irrigated agriculture (e.g., an irrigated field), that ditch would be considered an irrigation ditch, not a drainage ditch."*

For the purposes of RGL No. 07-02, ditch construction generally includes, but is not limited to, the following:

- Ditch relocation.
- Ditch conversion into pipe.
- Lining, which means placing impervious material such as concrete, clay, or geotextile within the flow perimeter of an open canal, lateral, or ditch with the intent of reducing seepage losses and improving conveyance efficiency. All new lining of ditches, where the ditch had not previously been lined, is considered construction.
- Placement of new control structures.

3.1.2 Clean Water Act – Section 401

The CWA Section 401 Water Quality Certification (Section 401 Certification) provides states and authorized tribes an opportunity to address the aquatic resource impacts of federally issued permits and licenses, to help protect water quality. Under Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity that may result in any discharge into waters of the U.S. must obtain a Section 401 Certification from the State Water Resources Control Board (SWRCB) that the proposed activity will comply with state water quality standards. In California, Section 401 Certifications are issued by Regional Water Quality Control Boards (RWQCB) located throughout the state. The Central Coast RWQCB issues Section 401 Certifications for projects in the County. The federal CWA Section 404 permit is dependent on and subject to the terms of the Section 401 Certification. Therefore, under Section 401, a federal agency cannot issue a permit or license for an activity that may result in discharge into waters of the U.S. until the RWQCB has granted or waived the Section 410 Certification. Section 401 Certification is limited to federally jurisdictional waters and wetlands.

3.2 STATE

3.2.1 California Fish and Game Code

Under Sections 1600-1616 of the California Fish and Game Code, the CDFW regulates all activity that may substantially divert or obstruct the natural flow of any river, stream, or lake; change or use any material from the bed, channel or bank of any river, stream, or lake; or, deposit debris, waste or other materials that could pass into any river, stream or lake. Notification of Lake or Streambed Alteration must be submitted to CDFW for such activities. CDFW defines a stream as:

> "*…a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation.*"

CDFW jurisdiction typically includes all portions of the bed, banks, and channel of a stream, including intermittent and ephemeral streams, and extends outward to the upland edge of the riparian vegetation.

3.2.2 California Coastal Act

The Coastal Commission was established in 1972 to regulate coastal development and its impact on public access and coastal resources. The Coastal Commission was made permanent by the State Legislature through adoption of the California Coastal Act of 1976 (California Public Resource Code Sections 30000 *et seq.*). The California Coastal Act (Coastal Act) outlines standards for development within the Coastal Zone, which extends along 1,100 miles of the California coastline and encompasses 1.5 million acres of land. The Coastal Act encourages local governments to create LCPs that govern decisions regarding short-term and long-term conservation and use of coastal resources. Development within the Coastal Zone requires a Coastal Development Permit (CDP) issued by the Coastal Commission or by a local government with a Coastal Commission-certified LCP. The City has a certified LCP and has land use jurisdiction over the Project Area. Therefore, the City has the authority to issue a CDP for the Project. However, all City-issued CDPs are appealable to the Coastal Commission.

Coastal wetlands are afforded substantial protection under the Coastal Act. The Coastal Act Section 30231 defines a wetland as:

> *"…lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens."*

The Coastal Commission's regulations (California Code of Regulations Title 14) establish a "one parameter definition" which only requires evidence of a single parameter to establish wetland conditions:

> *"Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats. (14 CCR Section 13577)."*

The Coastal Commission's regulations also specify general field rules for delineating the upland boundary wetlands:

> *"Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands of deep water habitats. For the purposes of determining the boundaries of appeals jurisdiction, the upland limit of a wetland shall be defined as:*

a. The boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover;

b. The boundary between soil that is predominantly hydric and soil that is predominantly nonhydric; or

c. In the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation, and land that is not. (14 CCR Section 13577)."

The "one parameter" definition adopted by the Coastal Commission is based on the general definition used by the U.S. Fish and Wildlife (USFWS) and CDFW from the USFWS wetlands classification system first published in 1979 (Cowardin et al. 1979):

"Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year."

The Coastal Act definition of a wetland does not distinguish between wetlands based on their quality. Therefore, under the Coastal Act, poorly functioning or degraded areas that meet the definition of wetlands are subject to wetland protection policies.

3.3 LOCAL

3.3.1 City of Carpinteria General Plan/Local Coastal Land Use Plan

The policies of the General Plan/LCP/LUP for the City's coastal zone are intended to meet the requirements of and implement the provisions of the Coastal Act at a local level (City 2003). To ensure consistency with the Coastal Act, the City has adopted many of the Coastal Commission's regulations and policies regarding protection of coastal wetlands and streams. The City LCP/LUP land use objectives and wetland policies that are applicable to the Project are listed below.

Objective LU-1a
The policies of the Coastal Act (Public Resources Code Section 30210 through 30263) are hereby incorporated by reference (and shall be effective as if included in full herein) as the guiding policies of the land use plan.

Objective LU-1c
Where policies in the Land Use Element overlap, the policy that is most protective of resources (e.g., land, water, air, etc.) shall take precedence.

Objective OSC-1a
Protect Environmentally Sensitive Habitat Area(s) (ESHA) from development and maintain them as natural open space or passive recreational areas.

Objective OSC-1f
Protect and restore degraded wetlands, butterfly habitat, native plant communities, and sensitive, rare, threatened or endangered species habitat on City-owned land to the maximum extent feasible.

Objective OSC-3a
Wetland delineations shall be based on the definitions contained in Section 13577 (b) of Title 14 of the California Code of Regulations.

Objective OSC-3b
The upland limit of a wetland is defined as:

a) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover;
b) the boundary between soil that is predominantly hydric and soil that is predominantly non-hydric;
c) in the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation, and land that is not.

Implementation Policy No. 12
Maintain a minimum 100-foot setback/buffer strip in a natural condition along the upland limits of all wetlands. No structures other than those required to support light recreational, scientific and educational uses shall be permitted within the setback, where such structures are consistent with all other wetland development policies and where all feasible measures have been taken to prevent adverse impacts. The minimum setback may be adjusted upward to account for site-specific conditions affecting avoidance of adverse impacts.

4.0 METHODS

The geographic extent of waters of the U.S., including wetlands, CDFW-jurisdictional streambeds, and coastal wetlands within the Project Area were delineated using a combination background literature review, applied field methods, and ArcGIS analysis. Wetland delineation field methods were consistent with the federal, state, and local policies and definitions described in Section 2.0 above.

As required by the Coastal Commission, this Report was prepared to document the current extent of jurisdictional waters of the U.S., including wetlands, as well as wetlands that meet the Coastal Commission criteria within the Project Area. The wetland delineation was conducted on March 24, 2016, by SES botanist, Jessica Peak and biologist, Justine Cooper.

4.1 REVIEW OF BACKGROUND MATERIALS

Prior to the field delineation, SES reviewed available public domain information including the NRCS Web Soil Survey of Santa Barbara County, California, South Coastal Part (NRCS 2017), USGS Santa Barbara, CA 7.5-minute quadrangle map, the National Hydrography Dataset (NHD) (USGS 2017), National Wetlands Inventory (USFWS 2017), and weather data. SES also reviewed the following documents previously prepared for the Project:

- Preliminary Drainage Report, Evaluation of BMPs and Drainage Improvements at 4110 Via Real in Carpinteria (Stantec 2017).

- Landscape and Irrigation Design Narrative (Charles Trowbridge & Associates 2017).

4.2 DELINEATION OF WATERS OF THE U.S., INCLUDING WETLANDS

4.2.1 Waters of the U.S.

Pursuant to Section 401 of the CWA, the limit of USACE jurisdiction in non-tidal waters extends to the OHWM and includes all adjacent wetlands. The OHWM is an element used to identify the lateral limits of non-wetland waters based on stream geomorphology and vegetation response to the dominant stream discharge (Lichvar and McColley 2008). The OHWM was established along drainages in the Project Area using drainage patterns and debris wracking as a boundary. The width of the channel at the OHWM was estimated in the field and approximate length, width, and jurisdictional acreages were calculated using aerial imagery and ArcGIS.

SES adhered to existing federal guidance for determination of federal jurisdiction in waters and wetlands in the Project Area. To start, we recognized that the irrigation ditch is ephemeral and only holds water during and following rain events, and as a result of irrigation runoff from the agricultural fields to the north. Consequently, the ditch is infrequently connected to the Carpinteria Salt Marsh downstream of the Project Area, which discharges into the "traditionally navigable waters" of the Pacific Ocean.

4.2.2 Federal Wetlands

Delineation of the USACE-jurisdictional wetlands within the Project Area was consistent with "Routine" procedures detailed in the 1987 Manual (Environmental Laboratory 1987) and the Arid West Supplement (Environmental Laboratory 2008).

The extent of the wetland features was determined by topographic changes in the terrain and the limits of drainage patterns and standing water or soil saturation. Soil test pits were excavated within the irrigation ditch to confirm the presence/absence of hydric soils (see Appendix B – Wetland Data Forms). The soil test pits (sampling points) and limits of federal wetlands were mapped by using a Garmin GPSmap 60CSx handheld Global Positioning System (GPS) unit. The radii of sample plots were typically constrained by the banks of the irrigation ditch. Therefore, sampling boundaries ranged in size from an approximately 5-foot radius to 10-foot radius around the soil pit excavated at each sampling point. USACE-jurisdictional wetlands were determined to be present if evidence of all three federal criteria were observed (hydrophytic vegetation, hydric soils, and wetland hydrology).

4.2.2.1 Vegetation

Presence of hydrophytic vegetation was determined by identifying all plant species within an approximate 5-foot to 10-foot radius at each sampling point and assigning the indicator status, as listed in *The National Wetland Plant List*: *2014 Update of Wetland Ratings* (Lichvar et al. 2014) and the *National Wetland Plant List (NWPL) Website* (USACE 2014). The indicator status refers the relative frequency with which a plant species occurs in jurisdictional wetlands versus non-wetlands and are described as follows:

- **OBL** = Hydrophyte; obligate wetland plants that almost always occur in wetlands.

- **FACW** = Hydrophyte; facultative wetland plants that usually occur in wetlands, but may occur in non-wetlands.
- **FAC** = Hydrophyte; facultative plants that occur in wetlands and non-wetlands.
- **FACU** = Non-hydrophyte; facultative upland plants that usually occur in non-wetlands, but may occur in wetlands.
- **UPL** = Non-hydrophyte; obligate upland plants that almost never occur in wetlands.

Plant species not listed on the NWPL are considered UPL for wetland delineation purposes (Lichvar et al. 2014). The percent cover of all species in each of four strata (tree, sapling/shrub, herb, and woody vine) was determined within each sampling plot. Species identifications and taxonomic nomenclature follow *The Jepson Manual, Second Edition* (Baldwin et al. 2012) and *A Flora of the Santa Barbara Region, California, Second Edition* (Smith 1998). Dominant species were determined using the dominance test and/or prevalence index, when necessary, as recommended in the Arid West Supplement (Environmental Laboratory 2008).

4.2.2.2 Soils

The NRCS Web Soil Survey tool (NRCS 2017) was used to review soil types within the Project Area. The presence of hydric soil indicators was determined in the field based on the criteria outlined in the 1987 Manual (Environmental Laboratory 1987) and information provided in the Arid West Supplement (Environmental Laboratory 2008) and the *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils* (USDA-NRCS 2010). Soil tests pits were excavated within the irrigation ditch to determine the presence or absence of hydric soils and wetland hydrology (i.e., sample points). Soil pits were dug to a maximum 12 inches, or until a restrictive layer prevented further excavation. A Munsell® Soil Color Chart (Munsell 2000) was used to identify the color of the soil matrix and redox features, if present. If positive wetland parameters were established, additional soil pits were excavated, as necessary, to determine the outer limits of each wetland feature.

4.2.2.3 Hydrology

Observations of wetland hydrology were conducted along the length of the irrigation ditch. Consistent with the 1987 Manual (Environmental Laboratory 1987) protocols in the Arid West Supplement (Environmental Laboratory 2008), each sampling point was evaluated for primary and secondary indicators of wetland hydrology. The presence or absence of indicators such as surface water, sediment deposits, drainage patterns, inundation or saturated soil conditions, and hydrogen sulfide odor were used to determine wetland hydrology.

4.3 CDFW JURISDICTIONAL STREAMBEDS AND WETLANDS

Pursuant to Section 1600 *et seq*. of the California Fish and Game code, the extent of CDFW jurisdiction along the irrigation ditch was determined based on presence of a defined physical bed, bank, and channel. The extent of CDFW-defined one parameter wetlands corresponds to coastal wetlands discussed below. The approximate length, width, and jurisdictional acreages were calculated using aerial imagery and ArcGIS.

4.4 COASTAL WETLANDS AND STREAMS

The extent of coastal wetlands was determined concurrently with field delineation of federal wetlands. As defined by the Coastal Act, coastal wetlands were determined to be present if evidence of one of the three federal wetland criteria were observed (hydrophytic vegetation, hydric soils, or wetland hydrology). The extent of coastal wetlands was determined in the field by topographic changes in the terrain and drainage patterns and extent of standing water or soil saturation. The limits of coastal wetlands were mapped by using Garmin GPSmap 60CSx handheld GPS unit. Approximate jurisdictional acreages were calculated using ArcGIS.

The entire Project Area is located within the Coastal Zone. Therefore, any areas exhibiting one of the three wetland criteria within the Project Area are considered coastal wetlands, per the City's LCP/LUP.

5.0 RESULTS

The following sections provide a summary of environmental conditions in the Project Area including climate, current land uses, soils, hydrology, and jurisdictional areas documented during the wetland delineation and field reconnaissance. Representative photographs of environmental conditions and jurisdictional waters and wetlands present the Project Area are provided in Appendix A.

5.1 CLIMATE AND HYDROLOGY

Carpinteria has a mild, Mediterranean climate with warm, dry summers and wetter, cooler winters. The average maximum temperature (by month) ranges from 64° Fahrenheit (F) in January to 77° F in August. Average minimum temperatures range between 43° F in December and January and 58° F in August (Santa Barbara Station No. 047902) (WRCC 2017). In this coastal area, the majority of precipitation comes as rainfall during the winter months (November–April). Average annual precipitation is 17.73 inches (WRCC 2017). According to the NHD watershed boundary dataset, the Project Area is within the Arroyo Paredon watershed (Hydrologic Unit Code [HUC] 180600130205) and Santa Barbara County Subbasin (USGS 2017).

The irrigation ditch contains water periodically due to a combination of irrigation runoff from of the agricultural fields to the north and winter stormwater. The irrigation ditch conveys surface flows, through a culvert under Via Real and Hwy 101, to the Carpinteria Salt Marsh. Two (2) to four (4) inches of standing water was present in several locations within the irrigation ditch at the time of the survey, but the entire ditch did not contain water.

The roadside ditch was also examined for the presence of wetland indicators. No wetland hydrology indicators or evidence of flow was present in the roadside ditch. The roadside ditch does not have culverts and is not connected to the irrigation ditch along the western property boundary. Any irrigation and/or stormwater runoff that the roadside ditch receives supports a stand of native and non-native trees.

5.2 SOILS

The presence of hydric soils was determined using a combination of direct field observations and review of the Web Soil Survey of Santa Barbara County, California, South Coastal Part (NRCS 2017).

Based on the Web Soil Survey, one mapped soil unit, Camarillo, variant, fine sandy loam (Cb), has been identified in the Project Area. Camarillo variant (Cb) are hydric soils that are comprised of stratified loamy sand and clay loam. These soils are poorly drained and in nearly flat (0 to 2 percent slope) flood plains, at elevations from 10 to 50 feet above msl.

5.3 JURISDICTIONAL DRAINAGES AND WETLANDS

Soils pits were excavated and data were collected at three sampling points within the irrigation ditch (see Appendix B – Wetland Data Forms, Figure 5 – Jurisdictional Delineation Map). The plot size at each sampling point was limited by the banks of the irrigation ditch at all three Sample Points (SP01-SP03). Waters/wetlands in the Project Area are depicted in Figure 5 and described in detail below.

5.3.1 Waters of the U.S., Including Wetlands

The irrigation ditch is approximately 315 feet in length and 3 to 8 feet wide at the OHWM (0.04-acre). It has gradual sloping banks that range from 2 feet to 6 feet in height. All of the Sample Points (SP01-SP03) were within the defined channel of the irrigation ditch (see Appendix A – Site Photographs).

Although some hydrophytic vegetation was present, it was limited to scattered occurrences of English plantain (FAC), prickly sow thistle (FAC), curly dock (FACW), and the arroyo willow (FACW) seedlings. Hydrophytic vegetation was not dominant at any of the Sample Points, nor throughout the irrigation ditch (see Appendix B – Wetland Data Forms).

Soils at the Sample Points consisted of sand loam, with high moderate to high clay content. The soil matrix color was black (Munsell [2000] Colors 10 YR 2/2). Soils met the hydric soil indicator hydrogen sulfide at SP-02. No hydric soil indicators were observed at SP-01 or SP-03.

One primary indicator of wetland hydrology, saturation, was observed at all three Sample Points Surface water and a slight hydrogen sulfide odor was present at SP-02.

None of the Sample Points met all three wetland criteria. Therefore, no federal-defined wetlands are present within the Project Area.

Although the irrigation ditch is periodically connected to the Carpinteria Salt Marsh, it is not considered to be jurisdictional under current federal guidance. Per the RGL No. 07-02 dated July 4, 2007, discharges of dredged or fill material associated with construction or maintenance of irrigation ditches are exempt from the need to obtain a Section 404 permit from the USACE (USACE 2007).

5.3.2 CDFW Jurisdictional Streambeds and Wetlands

The extent of CDFW jurisdiction along the irrigation ditch was determined based on presence of a defined physical bed and bank. No riparian vegetation was present along the banks of the irrigation ditch. Therefore, the top of the bank (TOB) was considered the upland limit of CDFW jurisdiction (Figure 5 – Jurisdictional Delineation Map). The width of CDFW-jurisdiction at the TOB of the irrigation ditch ranges between 15 and 20 feet.

5.3.3 Coastal Wetlands

Primary indicators of wetland hydrology were observed at all of the Sample Points within the irrigation ditch. In addition, hydric soil indicator was observed at SP-02. Therefore, the irrigation ditch meets the Coastal Commission definition of coastal wetlands. Because there is no riparian vegetation along the banks of the irrigation ditch, the lateral extent of coastal wetlands extends to the OHWM within the ditch (0.04-acre).

6.0 SUMMARY OF REGULATORY AGENCY JURISDICTION

The irrigation ditch is exempt from the need to obtain a Section 404 permit from the USACE. It does, however, meet the Coastal Commission definition of a (one parameter) coastal wetland. In addition, the irrigation ditch is also considered a CDFW-jurisdictional streambed/wetland. The total acreages of waters/wetlands on-site that are subject to the permitting authority of the CDFW, Coastal Commission, and City are summarized in Table 1 below.

Table 1 – Jurisdictional Acreages within the Project Area

Project Area	Waters of the U.S.		CDFW-Jurisdictional Streambeds/Wetlands (Acres)[1]	Coastal Wetlands (Acres)
	Non-wetland Waters (Acres)	USACE-defined Wetlands (Acres)		
Irrigation Ditch	Exempt	0	0.12	0.04
Totals:	**0**		**0.12**	**0.04**

[1] Acreage for CDFW-jurisdictional areas includes coastal wetlands.

6.1 U.S. ARMY CORPS OF ENGINEERS

As reported above, there are no USACE-jurisdictional waters/wetlands within the Project Area. The irrigation ditch is exempt from the need to obtain a Section 404 permit from the USACE, per RGL No. 07-02. Under Section 404(f)(1)(C) of the CWA, discharges of dredged or fill material associated with construction or maintenance of irrigation ditches are not prohibited by or otherwise subject to regulation under Section 404 of the CWA (USACE 2007). For the purposes of RGL No. 07-02, construction generally includes ditch conversion into pipe, as the Project proposes.

This delineation is conditional upon a field review and final jurisdictional determination by the USACE. USACE-defined waters/wetlands are also subject to the permitting authority of the Coastal Commission and City under the LCP/LUP.

6.2 CDFW JURISDICTIONAL STREAMS

Approximately 0.12-acre of CDFW jurisdictional streambed/wetlands were identified and mapped within the Project Area. Because no riparian vegetation is present along the banks of the ditch, the limits of CDFW-jurisdictional extends to the TOB on either side of the irrigation ditch.

The CDFW administers Streambed Alteration Agreements under Sections 1600-1607 of the Fish & Game Code. Sections 1600-1607 address any project that will "(1) divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake designated by the department [California Fish and Wildlife] in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit, (2) use materials from the streambeds designated by the department, or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass in to any river, stream, or lake designated by the department" (Section 1601) . A Streambed Alteration Agreement is required for any work occurring within a water or wetland with defined bed and bank features.

6.3 CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD

The irrigation ditch periodically discharges irrigation and stormwater runoff into the Carpinteria Salt Marsh. The Central Coast RWQCB regulates work involving discharge of pollutants into waters/wetlands under Section 402 of the CWA and the National Pollutant Discharge Elimination System permit (NPDES) program. Under the NPDES program, projects involving discharge of pollutants into waters/wetlands must have a Stormwater Pollution Prevention Plan (SWPPP), which is reviewed and approved by the Central Coast RWQCB and the City.

6.4 CITY OF CARPINTERIA

The Project Area contains 0.04-acre of one parameter coastal wetlands that are subject to the permitting authority of the City and Coastal Commission under the LCP/LUP. Any Project-related impacts to coastal wetlands must be mitigated or avoided, consistent with Coastal Commission policies protecting streams and wetlands.

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FIGURES

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Terra Solutions 777 Mutsuhito Avenue San Luis Obispo, CA. 93401 (805) 782-0969	Storrer Environmental Services 2565 Puesta del Sol #3 Santa Barbara, CA. 93105 (805) 682-2065 www.storrerenvironmental.com	**Project Vicinity Map** **Via Real Hotel** **Wetland Delineation and Jurisdictional Determination Report** **Carpinteria, California**	**Figure 1**	April 13, 2017

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Project Area Map
Via Real Hotel
Wetland Delineation and Jurisdictional Determination Report
Carpinteria, California

Figure 2

April 12, 2017

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ARCHITECT: nKLOSURES, Inc. Tel: 323.309.7334 Email:info@nKLOSURES.com	RAM HOTELS P.O.BOX 52098 AMARILLO, TX 79159	VIA REAL HOTELS 4110 VIA REAL, CARPINTERIA SEPTEMBER 6, 2016	REGISTERED PROFESSIONAL ENGINEER WAYNE F. FITCH NO 60864 CIVIL STATE OF CALIFORNIA	STORM WATER QUALITY PLAN BASED ON PRELIMINARY GRADING AND DRAINAGE PLAN	C3

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Figure 3A

April 11, 2017

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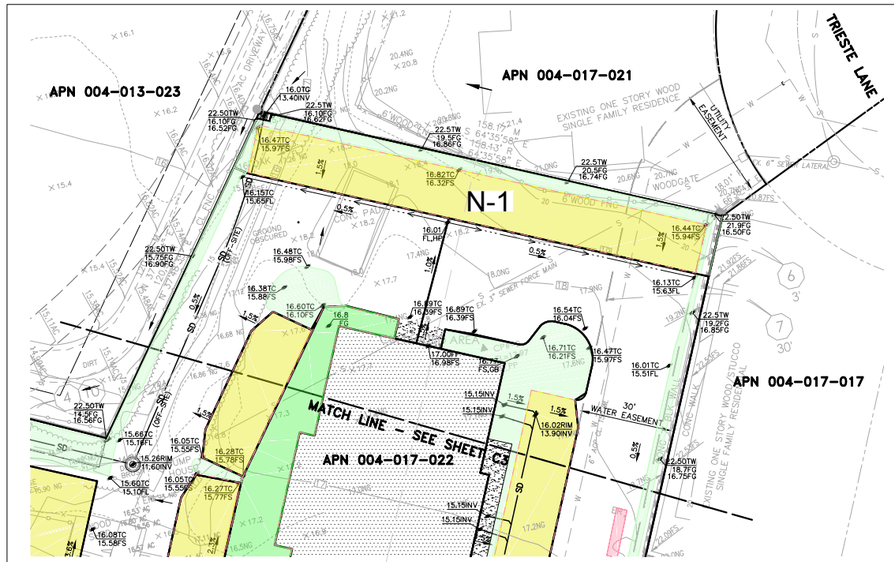

LEGEND

SCM LOCATION

- POROUS ASPHALT CONCRETE
- BIORETENTION BASIN
- TREATMENT SWALE
- INFILTRATION GALLERY
- LANDSCAPING
- DMA EXTENT
- L-1 DMA NAME AND ASSOCIATED SCM

- SITE WALL
- SD STORM DRAIN PIPE
- FLOW LINE
- CATCH BASIN

AC	ASPHALT CONCRETE
FL	FLOWLINE
FS	FINISH SURFACE
GB	GRADE BREAK
INV	INVERT ELEVATION
PD	PERFORATED DRAIN

SCALE: 1"=20'
0 20 40 60

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ARCHITECT:
nKLOSURES, Inc.
Tel: 323.309.7334
Email:info@nKLOSURES.com

RAM HOTELS
P.O.BOX 52098
AMARILLO, TX 79159

VIA REAL HOTELS
4110 VIA REAL, CARPINTERIA
SEPTEMBER 6, 2016

REGISTERED PROFESSIONAL ENGINEER WAYNE F. FITCH NO 60864 CIVIL STATE OF CALIFORNIA

STORM WATER QUALITY PLAN BASED ON PRELIMINARY GRADING AND DRAINAGE PLAN

C4

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Stormwater Quality Plan
Via Real Hotel
Wetland Delineation and Jurisdictional Determination Report
Carpinteria, California

Figure 3B

April 11, 2017

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Connectivity Map
Via Real Hotel
Wetland Delineation and Jurisdictional Determination Report
Carpinteria, California

Figure 4

April 11, 2017

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Jurisdictional Determination Map
Via Real Hotel
Wetland Delineation and Jurisdictional Determination Report
Carpinteria, California

Figure 5

April 11, 2017

APPENDIX A
SITE PHOTOGRAPHS



Photo 1. View of Project Area and existing church from southwest corner of site (Aspect: Northeast). Photo taken March 24, 2017.



Photo 2. View of the northern portion of the Project Area, behind the church (Aspect: Northeast). Photo taken March 24, 2017.



Photo 3. View of the eastern portion of the Project Area and existing parking lot (Aspect: North). Photo taken March 24, 2017.



Photo 4. Existing headwall and 36-inch culvert at the south end of the irrigation ditch that conveys runoff under Via Real and Hwy 101 to the Carpinteria Salt Marsh (Aspect: Southeast). Photo taken March 24, 2017.



Photo 5. Irrigation ditch along the western boundary of the Project Area (Aspect: North). Photo taken March 24, 2017.



Photo 6. Existing culvert at north end of irrigation ditch and agricultural fields north of the Project Area (Aspect: Northwest). Photo taken March 24, 2017.



Photo 7. Irrigation ditch and agricultural road along western boundary of Project Area (Aspect: South). Photo taken April 7, 2017.



Photo 8. Existing playground and storage sheds behind the church (Aspect: West). Photo taken April 7, 2017.



Photo 9. Stand of trees along the roadside ditch in the northern portion of the Project Area (Aspect: West). Red willow and arroyo willows are in the center and a coast live oak on the far right. Photo taken April 7, 2017.



Photo 10. Roadside ditch in northern portion of the Project Area (Aspect: North). No wetland indicators were observed and the understory is sparse and comprised of upland plant species. Photo taken March 24, 2017.



Photo 11. Sampling Point (SP-01) at the southern end of the irrigation ditch (Aspect: Southeast). Photo taken March 24, 2017.



Photo 12. Sampling Point (SP-02) in the middle of the irrigation ditch (Aspect: North). SP-02 was the only location where hydric soil indictors were observed (hydrogen sulfide odor). Photo taken March 24, 2017.



Photo 13. Hydric soil excavated from SP-02. Soil color was consistent (10YR 2/2) at all three Sampling Points. Photo taken March 24, 2017.



Photo 14. Sampling Point (SP-03) at the north end of the irrigation ditch (Aspect: North). The arroyo willow seedlings are visible in the foreground and background. Photo taken March 24, 2017.

APPENDIX B
WETLAND DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Via Real Hotel - 4110 Via Real | City/County: Carpinteria/Santa Barbara | Sampling Date: 03/24/2017

Applicant/Owner: RAM Hotels | State: CA | Sampling Point: SP01

Investigator(s): Jessica Peak, Justine Cooper | Section, Township, Range: _____

Landform (hillslope, terrace, etc.): irrigation ditch | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR C | Lat: 34.40539 N | Long: 119.53523 W | Datum: NAD 83

Soil Map Unit Name: Camarillo, variant, fine sandy loam (Cb) | NWI classification: Hydric

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: Soil test pit within defined channel, adjacent to existing 36-inch culvert that leads under Via Real and Hwy 101 to the Carpinteria Salt Marsh. Matted vegetation in irrigation ditch channel due to recent stormwater flows. Dried algae on soil surface indicating recent standing water.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size:8ft x 10ft)			
1. *Avena fatua*	40	yes	UPL
2. *Bromus diandrus*	20	yes	UPL
3. *Gerranium dissectum*	1	no	UPL
4. *Conium maculatum*	2	no	FACW
5. *Chenopodium murale*	1	no	FACU
6. *Sochus asper*	1	no	FAC
7. _____			
8. _____			
50% = _____, 20% = _____	65	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____			
2. _____			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 40	% Cover of Biotic Crust 5		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:
OBL species	_____	x1 = _____
FACW species	_____	x2 = _____
FAC species	_____	x3 = _____
FACU species	_____	x4 = _____
UPL species	_____	x5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Sample plot dominated by upland, non-native grasses. Size of sample plot constrained by width of the irrigation ditch (approx. 8 feet wide). The irrigation ditch appears to be mnaintained, pamaps grass plants along the ditch have bee cut to base/mowed.

Project Site: Via Real Hotel

SOIL Sampling Point: SP01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/2	100	n/a				sandy loam	moderate clay content

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Soil color uniform throughout sample. Soil in test pit saturated. Moderate clay content on soil, ribbons 2-2.5 inches. No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 4

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil saturated in test pit. Drainage patterns evident and dried algae on soil surface indicating recent standing water.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Via Real Hotel - 4110 Via Real | City/County: Carpinteria/Santa Barbara | Sampling Date: 03/24/2017

Applicant/Owner: RAM Hotels | State: CA | Sampling Point: SP02

Investigator(s): Jessica Peak, Justine Cooper | Section, Township, Range: _____

Landform (hillslope, terrace, etc.): irrigation ditch | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR C | Lat: 34.40561 N | Long: 119.53527 W | Datum: NAD 83

Soil Map Unit Name: Camarillo, variant, fine sandy loam (Cb) | NWI classification: Hydric

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: Soil test pit within defined channel in approximately 4 inches of standing water. Numerous tree frog tadpoles present and algae on the water surface.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size:6ft x 20ft)			
1. *Cortaderia jubata*	30	yes	FACU
2. *Avena fatua*	15	yes	UPL
3. *Plantago lanceolata*	15	yes	FAC
4. *Gerranium dissectum*	5	no	UPL
5. *Pennisetum clandestinum*	5	no	UPL
6. *Sochus asper*	1	no	FAC
7. *Rumex crispus*	1	no	FACW
8. *Bromus catharticus*	1	no	UPL
50% = _____, 20% = _____	73	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 40 standing water | % Cover of Biotic Crust _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of :	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Size of sample plot constrained by width of the irrigation ditch (approx. 6 feet wide). Approximately 40 percent of the sample plot was standing water. Some hydrophytic plant species present, but not dominant within the sample plot or adjacent channel. The irrigation ditch appears to be mnaintained, pamaps grass plants along the ditch have bee cut to base/mowed.

Project Site: Via Real Hotel

SOIL

Sampling Point: SP02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]		
0-8	10YR 2/2	100	n/a				sandy loam	moderate clay content

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan/rock

Depth (Inches): 8"

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Soil color uniform throughout sample. Restrictive layer hit at 8 inches. Soil test pit in standing water - hydrogen sulfide odor present. 0.5 inch black organic matter a top of soil column.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	4"
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	0

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water 4 inches deep prior to digging test pit. Chorus forg tadpoles present and algae developed on water surface. Drainage patterns evident along edges of irrigation ditch channel. Hydrogen sulfide odor present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Via Real Hotel - 4110 Via Real | City/County: Carpinteria/Santa Barbara | Sampling Date: 03/24/2017

Applicant/Owner: RAM Hotels | State: CA | Sampling Point: SP03

Investigator(s): Jessica Peak, Justine Cooper | Section, Township, Range: _____

Landform (hillslope, terrace, etc.): irrigation ditch | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR C | Lat: 34.40561 N | Long: 119.53527 W | Datum: NAD 83

Soil Map Unit Name: Camarillo, variant, fine sandy loam (Cb) | NWI classification: Hydric

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: Soil test pit within defined channel, approximately 50 ft from culvert at north end of drainage. Matted vegetation in irrigation ditch channel due to recent stormwater flows. Arroyo willow seedings present in sample plot and directly upstream.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:5ft x 20ft)			
1. *Salix lasiolepis*	5	yes	FACW
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____	5	= Total Cover	
Herb Stratum (Plot size:5ft x 20ft)			
1. *Cortaderia jubata*	60	yes	FACU
2. *Avena fatua*	5	no	UPL
3. *Gerranium dissectum*	1	no	UPL
4. *Pennisetum clandestinum*	1	no	UPL
5. *Plantago lanceolata*	1	no	FAC
6. _____			
7. _____			
8. _____			
50% = _____, 20% = _____	73	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____			
2. _____			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 30 including thatch		% Cover of Biotic Crust _____	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	0	x1 =	0
FACW species	5	x2 =	10
FAC species	1	x3 =	3
FACU species	60	x4 =	240
UPL species	7	x5 =	35
Column Totals:	73 (A)		288 (B)

Prevalence Index = B/A = 3.9

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Size of sample plot constrained by width of the irrigation ditch (approx. 5 feet wide). The irrigation ditch appears to be mnaintained, pamaps grass plants along the ditch have bee cut to base/mowed. Approximately 25 arroyo willow seedlings in and adjacent to the sample plot in the ditch.

Project Site: Via Real Hotel

SOIL

Sampling Point: SP03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	100	n/a				sandy loam	high clay content

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Soil color uniform throughout sample. Soil saturated in test pit, but no hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil saturated at surface. High water table present, 2 inches of standing water after digging test pit. Drainage patterns evident in the channel of the irrigation ditch.

TREE INVENTORY SPREADSHEET

Tag #	Common name	*Botanical Name*	DBH (in.)	Circumference (	GPS Point No.	Photo No.	Approximate height class (0-5 feet, 5-10, 11-15, 16-20, etc.)	Vigor (A= excellent, B=average, C-fair, D=poor, F=dead or dying)	Foilage Condition & Crown Density	Evidence of Pests?	Other Tree Defects: unbalanced crown, dead branches or twigs, cankars, galls, burls, missing bark, sap ooze, root damage, evidence of drought, etc.	Comments (single/multi trunk),
A	Arroyo willow	Salix lasiolepis		15, 13	T1		11-15	A	Good	No	Multi-trunk	Heavy cover of pampas grass and castor bean in riparian zone understory
B	Arroyo willow	Salix lasiolepis		6.0	T2		11-15	A	Good	No		Heavy cover of pampas grass and castor bean in riparian zone understory
	omitted				T3							
C	Black willow	Salix gooddingii		9, 11	T4		11-15	A	Good	No	Multi-trunk	
2800	Coast live oak	Quercus agrifolia		63.0	T5		26-30	C	Good	No	Heavy lean away from fence line, possibly cut back from neighboring property. Dense pampas grass and castor bean in understory	
D	Red willow	Salix laevigata		16.0	T6		11-15	B	Fair	Red galls (1)	Some foilage dieback	
E	Red willow	Salix laevigata		14.0	T7		20-25	A	Fair	Red galls (1)		
F	Red willow	Salix laevigata		10.0	T8		20-25	B	Fair	Red galls (1)		Large downed branch
G	Coast live oak	Quercus agrifolia		5.5	T9		5-10	B	Good	No		Leaning due to riparian canopy
H	Coast live oak	Quercus agrifolia		1.5*	T10		1-5	B	Fair	No		Heavily shaded sapling
2799	Canary island date palm	Phoenix canariensis		24*	T11		11-15	A	Good	No		
I	Coast live oak	Quercus agrifolia		8.0	T12		5-10	C	Low	No		Canary island palm is leaning on it
J	Red willow	Salix laevigata		22.0	T13		20-25	C	Fair	No		Tree leans heavily
K	Coast live oak	Quercus agrifolia		7.0	T14		10-15	C	Fair	No	fungal or algal growth on the trunk	Branch dieback
L1	Coast live oak	Quercus agrifolia		2.0	T15		5-10	B	Good	No		Small saplings
L2	Coast live oak	Quercus agrifolia		2.0	T15		5-10	A	Good	No		Small saplings
L3	Coast live oak	Quercus agrifolia		1.5	T15		5-10	B	Good	No		Small saplings
L4	Coast live oak	Quercus agrifolia		1.0	T15		5-10	B	Fair	No		Small saplings
L5	Coast live oak	Quercus agrifolia		1.5	T15		5-10	A	Good	No		Small saplings
L6	Coast live oak	Quercus agrifolia		1.5	T15		5-10	A	Good	No		Small saplings
2798	Ngaio tree	Myoporum laetum		5, 11, 19, 21, 25	T16		20-25	A	Good	No		Multi-trunk, tree leans slightly on fence
M	Coast live oak	Quercus agrifolia		1.3	T17		0-5	C	Low	No		
2797	Ngaio tree	Myoporum laetum		12, 17, 18	T18		20-25	C	Low	No		Multitrunk, canopy dieback, tree leans
2796	Red willow	Salix laevigata		12, 15,16,22, 26,	T19		35-40	A	Good	Red galls (1)		Multitrunk
2795	Coast live oak	Quercus agrifolia		31.0	T20		20-25	A	Good	No		Nearby myoporum leaning on tree
2794	Ngaio tree	Myoporum laetum		9, 10, 16	T21		20-25	C	Low	No		Multitrunk, myoporum leaning on tree heavily, sparse foilage
N	Ngaio tree	Myoporum laetum		11, 12, 19, 20, 22	T22		11-15	D	Low	No		Heavily leaning, multitrunk
2793	Ngaio tree	Myoporum laetum		12*, 14*	T23		15-20	D	Low	No	Spotted bark	Foilage dieback, multitrunk
2791	Ngaio tree	Myoporum laetum		4, 6, 9	T24		11-15	C	Low	No	Leaf and branch dieback	Multitrunk
2792	Ngaio tree	Myoporum laetum		22.5, 25.5	T25		20-25	B	Good	No	Minor branch dieback	Multitrunk
2790	Ngaio tree	Myoporum laetum		4, 9, 12	T26		15-20	D	Low	No		Multitrunk, spare canopy cover
2789	Ngaio tree	Myoporum laetum		13, 15	T27		11-15	D	Low	No	Tree heavily leans, branch dieback	Multitrunk
2788	Ngaio tree	Myoporum laetum		7, 9, 9, 16	T28		15-20	D	Low	No	Substantial low branch dieback	Multitrunk
2787	Ngaio tree	Myoporum laetum		10.5	T29		11-15	D	Low	No	Branch and foilage dieback, leans heavily	
O	Ngaio tree	Myoporum laetum			T30		11-15	F	Dead	No	Dead	
2786	Ngaio tree	Myoporum laetum		5, 6, 6, 7, 9, 12	T31		15-20	D	Low	No	Branch dieback	Multitrunk
2785	Ngaio tree	Myoporum laetum		14, 27	T32		15-20	D	Low	No	Foilage dieback	Multitrunk
2784	Ngaio tree	Myoporum laetum		7, 9, 10	T33		5-10	D	Fair	No	Tree heavily leans, branch dieback	Multitrunk
P	Ngaio tree	Myoporum laetum			T34		5-10	F	Dead			
2783	Ngaio tree	Myoporum laetum		18.0	T35		11-15	D	Low	No	Branch and foilage dieback	
2782	Ngaio tree	Myoporum laetum		11, 15, 23, 29	T36		15-20	C	Low	No	Low trunks	Multitrunk
2781	Ngaio tree	Myoporum laetum		34, 34, 37	T37		15-20	B	Fair	No		Multitrunk
2780	Ngaio tree	Myoporum laetum		24-40inches (8)	T38		11-15	B	Good	No		Multitrunk
2779	Ngaio tree	Myoporum laetum		28.0	T39		11-15	B	Good	No		
2778	Ngaio tree	Myoporum laetum		24, 36	T40		5-10	D	Low	No	Moss growth, no foilage, possibly dead	Multitrunk

(1) Red galls are likely evidence of sawfly larvae; however this is not particularly harmful to the plant.
* Small stature and/or atypical growth pattern resulted in DBH measurements to occur at a lower height

APPENDIX E

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PRELIMINARY GEOTECHNICAL INVESTIGATION

Proposed Hotel Development

4110 Via Real

City of Carpinteria

California

CLIENT
RAM Hotels
c/o Kush Nathu and Mina Patel
21 Prestwick Lane
Amarillo, TX 79124

October 23, 2014
Lab No: 106224-2
File No: 14-14026-2

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INTRODUCTION

This report presents the results of a preliminary geotechnical investigation performed at 4110 Via Real, in the City of Carpinteria, California. Existing at the site is a church building and paved parking lot. It is proposed to remove the existing building and redevelop the site with two hotel structures. A subterranean parking garage will be built below a portion of each building. The site is approximately level and the surface vegetation consists of a manicured lawn. The north end of the property has been cultivated with a vegetable garden.

SCOPE OF WORK

It is the purpose of this investigation to classify the soil disclosed by the exploratory borings and excavations by observation and tests on selected samples. In addition, this study includes laboratory tests to evaluate soil strength, the effect of moisture variation on the soil-bearing capacity, compressibility, liquefaction, and expansiveness. Based upon this information, we will provide preliminary grading and foundation recommendations for the proposed hotel development.

The scope of this investigation does not include the analysis of the corrosive potential of the soil, previous site construction, or analysis of geologic structures and their associated features, such as faults, fractures, bedding planes, strike and dip angles, ancient landslides, potential for earth movement in undisturbed or natural soil formations sloped or level, or other sources of potential instability which relate to the geologic conditions, as these items should be addressed by a qualified Engineering Geologist.

This exploration was conducted in accordance with presently accepted geotechnical engineering procedures currently applied in the local community in order to provide the appropriate geotechnical design characteristics of the foundations soils and of the proposed fill soils in order to properly evaluate the proposed structure with respect to differential settlement based upon the anticipated soil characteristics at the time of construction.

LIMITATIONS

This Laboratory's basic assumption is that the soil borings presented herein are representative of the entire footprint of the proposed development, however, no warranty is implied. If, during the course of construction, soil conditions are encountered which vary from those presented herein, please contact this Laboratory immediately so appropriate field modifications may be expeditiously proposed.

It is your responsibility to contact our office, providing at least 48 hours of notice for grading or footing excavation observations and testing. The observation of excavations during the construction phase represents an opportunity by our firm to either confirm soil conditions estimated by the exploratory borings or to discover soil conditions which have not been addressed. When such undisclosed conditions are encountered, opinions and recommendations addressing these conditions will be rendered at that time.

This report is considered preliminary and no person should consider the recommendations or soil conditions described herein as conclusive. The recommendations and conclusions of this report are considered preliminary until all excavations have been observed during the construction phase, after which a final report will be issued stating that the grading and foundation works accomplished and installed are appropriate for the soil conditions encountered.

FIELD INVESTIGATION

The subsurface soil conditions were explored by three truck-mounted auger borings, which were drilled to depths of up to 50 feet. Three (3) Cone Penetrometer Test Soundings (CPT) were advanced to depths of up to 86.29 feet. The CPT soundings were performed in conformance with ASTM D-3441. The locations of the borings were selected as appropriate and representative. Representative relatively "undisturbed" tube soil samples were obtained during the drilling operation by the Modified California Sampler Method. Laboratory tests and analysis of representative soil samples, obtained during the drilling operation, were performed to estimate the engineering properties and determine the soil classification. The locations of the borings are shown on Plate 1; these locations are approximate and have not been located by surveyed measurements. The boring log data is presented in Appendix A, "Field Investigation", while the results of the laboratory tests are provided in Appendix B, "Laboratory Tests".

The CPT soundings were accomplished by placing a cylindrical cone tipped probe into the soil deposit while simultaneously recording the resulting penetration resistance. The probe is attached to the end of a string of steel pipe segments, each 1 meter long, and pushed into the ground by means of heavy hydraulic rams, mounted inside the rear compartment of a three-axle truck. The weight of the truck provides the reaction force. Each downward stroke of the hydraulic ram pushes the string down one pipe length at a time, during which a constant penetration rate of 2 centimeters per second is maintained. A pause of a few seconds is necessary after each stroke to add a new section of pipe and raise the rams for the next downward push. An electric cable, which is strung through all of the steel segments in advance, connects the CPT probe to a computer controlled data acquisition system located inside the CPT rig.

The recorded soundings are presented graphically in Appendix C. The results of these soundings have been correlated to estimate engineering properties of the soils, including soil behavior type, Standard Penetration Test (SPT), equivalent relative density, undrained shear strength and internal angle of friction. These values accompany each graphic depiction of the soundings and are contained in Appendix C.

SOIL CONDITIONS

1. The free groundwater table varied from 8 to 10 feet. It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use, and climatic conditions as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

2. Compressible clay layers were encountered in the subsurface exploration at depths ranging from 3 to 13 feet below the existing ground surface.

3. The supporting soils were found to have a low potential for expansion.

4. On the average, the soil profile at this site is judged to be stiff soil corresponding to a Site Class D as defined by Table 1613.5.2 of the California Building Code (CBC). This estimate is based on CPT soundings, which measured equivalent Standard Penetration Resistance in blow counts averaging above 15.

5. The potential for liquefaction is considered high.

LIQUEFACTION ANALYSIS

Liquefaction is a phenomenon that occurs in a specific soil condition when disturbed by ground motions. The specific soil condition conducive to liquefaction is loose sands and silty sands below the water table and typically within the top 50 feet of the ground surface. Ground motions are typically the result of a seismic event. Soils, which have the potential to liquefy, were encountered at this site between the depths of 6 to 45 feet below the present grade.

A liquefaction analysis was performed based on the evaluation method presented in Reference No. 3 (NCEER, 1997 Method). The "Liquefaction Analyses and Summary" is presented in Appendix C. The data for these analyses was a correlation between the CPT results and the probable ground motions for the site. The computation was performed utilizing the computer program "Liquefy2". The last column in the Liquefaction Analyses Summary indicates the Factor of Safety for liquefaction to occur. It should be noted the potential for liquefaction to occur is considered low to non-existent for Factors of Safety of 1.2 to 1.5. The results of the analyses for the on-site soils indicate the Liquefaction Factor of Safety to be from 0.47 and 0.80 in selected layers between the depths of 6 to 45 feet.

Due to the topography of the building site, the potential mode of seismically induced settlement is anticipated to be the result of volumetric compression. An estimate of the potential settlement due to volumetric compression has been tabulated in Table A below and is based on procedures proposed by Tokimatsu & Seed, Reference No. 2. The calculation is also based on the soil profile as discovered in the CPT soundings. The CPT soundings were converted to N_1 Values in accordance with the methods referenced above.

TABLE A

Possible Settlement Due to Liquefaction

LOCATION	SOIL LAYERS DEPTH (FT) FROM	TO	STRATA THICKNESS (inches)	CORRECTED SPT $(N_1)_{60}$ VALUE	CSR_{eq}	ESTIMATED VOLUMETRIC STRAIN (percent)*	ANTICIPATED STRATA SETTLEMENT (inches)
CPT-1	5.0	5.5	6.0	29.8	0.71	0.9	0.1
	8.0	8.5	6.0	24.0	0.71	1.1	0.1
	15.0	15.5	6.0	24.4	0.71	1.1	0.1
	16.0	16.5	6.0	27.9	0.70	1.0	0.1
	26.0	26.5	6.0	27.0	0.69	1.0	0.1
	28.5	29.0	6.0	22.1	0.68	1.2	0.1
	29.0	29.5	6.0	26.2	0.68	1.0	0.1
	29.5	30.5	12.0	23.6	0.68	1.1	0.1
	30.5	31.0	6.0	28.5	0.67	1.0	0.1
	32.0	32.5	6.0	17.7	0.66	1.4	0.1
	33.0	33.5	6.0	17.5	0.66	1.4	0.1
	41.5	42.0	6.0	14.0	0.61	1.7	0.1
	44.5	45.0	6.0	27.4	0.59	1.0	0.1
						Total CPT-1	1.3
CPT-2	5.5	6.0	6.0	17.5	0.73	1.4	0.1
	6.0	7.0	12.0	14.7	0.74	1.6	0.2
	8.0	8.5	6.0	18.4	0.75	1.4	0.1
	9.0	9.5	6.0	28.4	0.74	1.0	0.1
	13.0	13.5	6.0	14.3	0.73	1.6	0.1
	19.5	20.0	6.0	25.2	0.72	1.1	0.1
	24.0	24.5	6.0	27.3	0.70	1.0	0.1
	32.0	32.5	6.0	23.4	0.67	1.1	0.1
	33.0	33.5	6.0	27.4	0.67	1.0	0.1
	47.0	47.5	6.0	23.2	0.58	1.1	0.1
						Total CPT-2	1.1
CPT-3	7.5	8.0	6.0	15.2	0.72	1.6	0.1
	16.5	17.0	6.0	26.1	0.71	1.0	0.1
	17.0	17.5	6.0	27.4	0.71	1.0	0.1
	28.5	29.0	6.0	29.9	0.68	0.9	0.1
	29.5	30.0	6.0	21.4	0.68	1.2	0.1
	30.5	31.0	6.0	23.7	0.68	1.1	0.1
	37.5	38.0	6.0	29.8	0.64	0.9	0.1
	38.0	38.5	6.0	28.0	0.63	1.0	0.1
	38.5	39.5	12.0	27.9	0.63	1.0	0.1
	41.5	42.0	6.0	26.7	0.61	1.0	0.1
	46.5	47.0	6.0	25.2	0.58	1.1	0.1
	47.5	48.0	6.0	27.6	0.57	1.0	0.1
	48.0	48.5	6.0	27.7	0.57	1.0	0.1
	49.0	49.5	6.0	19.8	0.57	1.3	0.1
	49.5	50.0	6.0	23.5	0.56	1.1	0.1
						Total CPT-3	1.5

* Based upon Figure 9 in Tokimatsu & Seed (August 1987 Geotechnical Journal)

The total maximum anticipated settlement of 1.5 inches due to volumetric compression as shown in Table A is estimated to potentially contribute a differential settlement of 0.75 inches to the proposed structure in a seismic event. Cosmetic damage to the building due to the settlement will require repair and the floor system may require re-leveling, however, risk to the human occupancy is considered extremely low to unlikely provided the recommendations contained in this report are implemented into the design and construction.

SOFT CLAY LAYERS

Soft clay layers were encountered in the soil profile between the depths of 3 to 13 feet. Soil samples obtained from the clay layers were tested for consolidation, the results of which are provided in Appendix B. Based upon the consolidation characteristics of the clay, differential settlements from static loads are anticipated to exceed 1 inch between the basement foundation and the adjacent foundation at the ground floor elevation. It is for this reason a pile foundation is specified. Differential settlements from both static and seismic loading will be difficult to mitigate in this soil condition and with the proposed structure which places part of the building over a basement and the other part over the ground level elevation.

PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

It is the opinion of this Laboratory the proposed construction is feasible from a soil-engineering perspective provided the recommendations contained in this soil engineering report are incorporated into the design and implemented during construction.

In order to prevent the foundation from experiencing excessive settlement from both static load and ground motions, and to prevent differential settlement between the two different foundation elevations, the proposed footings will need to be a deep pile foundation. To avoid a pile foundation system, the entire structure would need to be supported over a full basement. At this point, the design doe not specify a full basement below the entire structure and, therefore, a pile foundation system has been specified.

It is the understanding of this Laboratory the proposed hotel buildings will be three- and/or four-story structures built partially over a subterranean basement parking structure. Based upon this understanding, we present the following preliminary recommendations:

GRADING

1. The proposed building will be supported by piles to prevent differential settling. The improvements surrounding the buildings (such as, but not limited to, retaining walls and pavements) may experience the adverse effects of liquefaction, including, but not limited to, settlement of improvements supported at grade as well as the floating to the surface of below grade improvements. The grading recommended below is for the preparation of the surface soils to support the proposed improvements under static loading conditions.

2. The areas to be graded shall be cleared of surface vegetation, including roots and root structures. All manmade items shall be removed and the cavities resulting from the removal shall be observed by the Project Geotechnical Engineer.

3. If, during the removal and scarification process, excessive root structures are encountered, these areas shall be deep ripped in two directions to the depth of the root structure after which the disturbed soils and the roots shall be completely removed and the resulting cavities shall be scarified and processed to receive fill in accordance with recommendations contained in this section.

4. In the areas to be graded, the loose topsoil and compressible surface soils shall be removed and observed by a representative of our firm. Upon approval of excavation, the exposed ground surface shall be scarified an additional 6 to 8 inches, moistened or dried to near the optimum moisture content, and compacted to 90% of the relative compaction. We anticipate the depth of the surface soil removal to be from 18 to 24 inches below the existing grade in areas that were previously gardened or landscaped. The over-excavation shall extend at least 12 inches below the bottom of the proposed swimming pool and site improvements. The depth of the fill soil below the swimming pool and site improvements must be equal at all locations below the swimming pool and site improvements, and the over-excavation shall extend at least 5 horizontal feet beyond the perimeter of the swimming pool and site improvements.

5. The excavation for the basement will extend below the groundwater table. See the section TEMPORATORY DEWATERING on Page 14 of this document.

6. If pumping soils or otherwise unstable soil is encountered, stabilization will be required prior to placing of compacted soil or of Class 2 aggregate base. Stabilization can be accomplished by either drying the soils or by placing lifts of gabion rock over a woven geo-fabric, such as Mirafi^{TM} 600X or equivalent. Gabion rock from Bee Rock Quarry is an acceptable gravel source meeting this requirement. The rock should be 3 to 6 inches in size. The woven geo-fabric shall be placed in conformance with the manufacturer's specifications over the unstable area. The rock layer is increased until stabilization is achieved. Typically, a 12-inch layer is sufficient. The rock is then covered with a nonwoven filter fabric, such as Mirafi^{TM} 140N or equivalent. The compaction equipment shall not travel directly on top of the fabrics. A layer of soil shall be spread in front of the equipment to ensure no wheel or track to fabric contact. Unit prices should be obtained from the Contractor in advance when this soil condition is anticipated.

7. The removed surface soils and/or imported approved fill may then be placed in loose lifts of approximately 6 inches, thoroughly mixed, moistened or dried to near optimum moisture content, and compacted to a minimum of 90% relative compaction. The compaction shall be 95% for all soil surrounding and supporting the swimming pool, and at the soil subgrades and aggregate bases supporting pavements.

8. Rocks greater than 6 inches in size shall be removed from the soil being spread for compaction.

9. All fill slopes which are created during the grading operation shall be properly shaped to a maximum slope angle of 2 horizontal to 1 vertical, and compacted by rolling the sheepsfoot roller or similar compaction equipment over the slope face at vertical lift intervals of 30 inches or less.

10. Import soils, if required for structural fill, shall be granular, non-expansive soils which are equal to or superior in quality to the on-site soils as determined by this Laboratory prior to importation of the fill material to the site.

11. The compaction standard shall be the latest adoption of the ASTM D-1557 method of compaction.

12. Positive surface drainage shall direct water away from all slopes and away from the foundation system of the proposed structure.

DRIVEN PILE FOUNDATIONS

1. The structure shall be supported by 14-inch-square piles driven to a minimum pile tip elevation of 55 feet below existing grade. For portions of the building not located in the basement, the pile length will be about 52 to 55 feet, depending on the depth of the grade beams and the final pad elevation, in order to have a tip elevation at a depth of 55 feet below existing natural grade. For piles below the basement, the pile length may be about 42 to 45 feet depending on the depth of the basement.

2. All roof, walls, and floor loads of the proposed structure shall be transmitted into the driven piles.

3. Based on previous pile driving records for a similar project in similar soil conditions in the Santa Barbara area, 14-inch-square concrete pre-cast piles with tips driven to an elevation of 55 feet below the original ground surface may assume an allowable vertical load capacity of 100 kips.

4. For uplift resistance, you may assume a value of one-half the vertical load pile capacity.

5. For lateral load resistance at less than 0.25-inch lateral deflection, the maximum lateral point load at the top of a 42- to 55-foot-deep piles is given below:

Pile Width (inches):	14
Lateral Load (kips):	20
Maximum Bending Moment (ft-kips):	30

This assumes the compressive strength of the concrete is a minimum of 4,000 psi. The maximum bending movement occurs 8.0 feet below grade for the horizontal load of 8 kips applied at the ground surface.

6. A passive resistance of the natural soil may be assumed to be equal to the pressure developed by a fluid whose weight is 250 pcf.

PILE INSTALLATION

1. Prior to pile production, it is recommended that indicator piles be driven at the site to verify pile capacity verses depth. The number of indicator piles should be at least 5% to 10% of the total amount of piles required for the project. Piles 5 to 10 feet longer than specified should be used as the indicator piles.

2. Piles shall be installed using proper equipment operated by personnel who are expert at the installation of such piles.

3. A proper-fitting driving cap with cushion block is to be used.

4. Fixed leads are to be used to ensure alignment and steadiness of the pile during driving.

5. The driving hammer shall be capable of developing a driving energy of a minimum of 15, 000 ft./lbs.

6. Pile spacing shall be a minimum of 3 pile widths, edge to edge between adjacent piles.

OBSERVATION

1. All piles shall be installed under continuous observation by a representative of this Laboratory.

2. Records shall be kept for the driving of each pile. This record shall include date of driving, type, size, length, deviation from design location alignment, type of hammer used, type and condition of cushion, blows per foot for each foot of penetration for full length of pile.

RESISTANCE TO LATERAL LOADS

Resistance to lateral loading can be provided by sliding friction acting on the base of concrete slab floor and grade beams combined with passive pressure acting on the sides of the grade beams. A coefficient of 0.35 for resistance to lateral forces may be assumed. For resistance to lateral load, we recommend using a value of 250 pcf, equivalent fluid weight, for passive resistance acting on the sides of foundations, with concrete placed neat against compacted materials or cut original ground. A one-third increase in passive value can be used when considering short-term wind or seismic loads.

WATERPROOFING

Based on the high groundwater table encountered in the exploratory borings, waterproofing shall be incorporated into the foundation design as specified in CBC Section 1805.

RETAINING WALLS

Cantilevered - For cantilevered retaining walls, such as site walls and garden walls, which do not form part of the structure, we recommend the following:

1. The cantilevered retaining wall shall be designed assuming an active soil pressure equivalent to a fluid (E.F.P.) whose weight is 35 pcf for level backfill conditions and 52 pcf for backfill slopes, which are constructed at an angle of up to 27 degrees. These values are based on Coulomb's Equation and the following assumed backfill soil values: internal angle of friction equal to 34 degrees, cohesion equal to 0, and a total unit weight of soil equal to 125 pcf. The E.F.P. value does not include surcharge loads and is based on a free-draining condition. The free-draining condition must be created by placing the backfill specified in this section of the report.

2. Retaining walls may be designed using pseudostatic analyses based on a modified[1] Seed Whitman (1970) approach. The need to apply the lateral seismic load is to be determined by the Project Structural Engineer or by the building code. We have estimated the seismic earth pressures using the modified Seed Whitman (1970) method, assuming a horizontal peak ground acceleration of 1.093g, and assuming drained backfill conditions. The peak horizontal ground acceleration (PGA) was determined in accordance with Section 1803.5.12 of the 2013 CBC, Paragraph 2.2. The seismic earth pressure (ΔP_{AE}), resulting from seismic loads acting on retaining walls, may be estimated as ΔP_{AE} $33H^2$, in pounds per lineal foot of wall, for a triangular pressure distribution (analogous to that used to represent static earth pressures) with the resultant force acting 0.33H above the base of the wall[2].

3. The bottom of the retaining wall footing shall be supported by the pile foundation.

4. A passive soil pressure equivalent to a fluid whose weight is 350 pcf and a coefficient of friction against sliding of 0.35 may be assumed for the footing excavation described in the recommendation above.

5. The use of equipment to compact soil within the wedge of backfill defined by a 1:1 line projected up from behind the retaining wall to the surface shall be limited to handheld rammer plate compactors, such as a Wacker BS 45Y. A string line

[1] Marshal Lew and Nicolas Sitar, et al, "Seismic Earth Pressures on Deep Building Basements", SEAOC 2010 Convention Proceedings

[2] Linda Al Atik, M. ASCE and Nicholas Sitar, M. ASCE, "Seismic Earth Pressures on Cantilever Retaining Structures", Journal of Geotechnical and Geoenvironmental Engineering, October 2010

shall be placed along the top of the wall to monitor possible rotation of the wall due to the compaction surcharge. If the wall begins to bow or lean away from the backfilling operations, the compaction process shall stop and the Geotechnical Engineer shall be notified immediately such that modified compaction recommendations can be given at that time.

6. The finish covering on the face of the wall, such as stucco or paint, may be adversely affected by moisture intrusion from the backfill through the back of the wall. To prevent this, you should consider waterproofing the back of the wall and footing. All waterproofing and application of waterproofing shall be in accordance with the specifications of the product supplier.

7. Retaining wall backfill shall be a clean coarse sand or gravel wrapped in a filter fabric. The gravel shall be separated from adjacent native soil by a filter fabric, such as Mirafi 140N™. The retaining wall shall be serviced by appropriately placed weep holes or a perforated drain. This drainage feature must include at least 2 cubic feet of gravel wrapped in filter fabric. Lower quality native backfill material may be utilized outside the triangular wedge which extends upwards from the inside edge of the retaining wall and is a minimum width of 60% of the wall height at ground surface. The sand between the wall and native soil shall have a Sand Equivalent of 20 or greater and an Expansion Index equal to 0. To avoid excessive amounts of sand and gravel backfill, do not allow the excavation contractor to cut a vertical excavation 2 to 4 feet beyond the back of the retaining wall footing or stem. Cut only to the point needed to install the drainpipe and slope the excavation back as specified.

8. It is assumed that the rough grade excavation behind the retaining wall is to be cut at a temporary slope angle of 1 horizontal to 1 vertical in order to comply with Cal-OSHA safety requirements.

9. All soil backfill shall be compacted to a minimum of 90% relative compaction. It should be noted retaining walls designed assuming active soil conditions are anticipated to deflect seasonally. In addition, surface features which obtain their support from retaining wall backfill materials are anticipated to express differential movement with respect to the retaining wall as the wall may be resting upon a thinner depth of fill or undisturbed original ground and the surface features may be resting upon a considerable thickness of compacted fill which has settlement characteristics differing from that of original ground. The differential movement between the wall and slab patio may be undesirable. In order to hide or prevent such differential movement, an alternate design may be required, such as but not limited to placing a planter between the wall and slab or connecting the slab to the wall, creating a retaining wall which is pinned at the top, not cantilevered.

Partially Restrained - For restrained or partially restrained retaining walls or cantilevered retaining walls which form a portion of the foundation system of the structure, we recommend the wall be designed as a braced wall utilizing at-rest pressures in accordance with the following recommendations:

1. The retaining wall shall be designed assuming an at-rest soil pressure equivalent to a fluid (E.F.P.) whose weight is 60 pcf for level backfill conditions and 73 pcf for backfill slopes, which are constructed at an angle of up to 27 degrees. These values are based on the same assumed conditions stated in Recommendation No. 1 under the Cantilevered section. The at-rest condition for a level backfill is based on the following equation: E.F.P.=$K_{0\gamma}$ where K_0=1-sin ϕ, γ is the total unit weight of soil, and ϕ is the internal angle of friction. For undrained retaining walls, the E.F.P. shall be 95 pcf.

2. Retaining walls may be designed using pseudostatic analyses based on the Seed Whitman (1970) approach modified by the footnotes for Recommendation No. 2 for RETAINING WALLS Cantilevered. The need to apply the lateral seismic load is to be determined by the Project Structural Engineer or by the building code. We have estimated the seismic earth pressures using the modified Seed Whitman method, assuming a peak horizontal ground acceleration of 1.093g, and assuming drained backfill conditions. The peak horizontal ground acceleration (PGA) was determined in accordance with Section 1803.5.12 of the 2013 CBC, Paragraph 2.2. The seismic earth pressure (ΔP_{AE}), resulting from seismic loads acting on retaining walls, may be estimated as $\Delta P_{AE} = 33H^2$, in pounds per lineal foot of wall, for a triangular pressure distribution (analogous to that used to represent static earth pressures) with the resultant force acting 0.33H above the base of the wall.

3. The retaining wall footing shall conform to the PILE FOUNDATIONS recommendations.

4. The retaining wall shall be serviced by a perforated drain which is located a minimum of 12 inches below top of the adjacent interior concrete slab-on-grade floor.

5. Walls, foundations, and connections between walls and foundations forming interior finished rooms of the structure shall be waterproofed by the proper application of a moisture barrier. All waterproofing products should be applied in strict conformance with the manufacturer's recommendations. The selection of a waterproofing product and the observation of proper installation will not involve Pacific Materials Laboratory. We recognize the need for waterproofing; however, it is not in our purview to know the optimum product for application to the retaining wall or to confirm proper installation.

6. It is assumed that the rough grade excavation behind the retaining wall is to be cut at a temporary slope angle of 1 horizontal to 1 vertical in order to comply with Cal-OSHA safety requirements or shall be properly shored.

7. Unless designed as an undrained wall, retaining wall backfill shall include 2 cubic feet per linear foot of wall of 3/8- to 1-inch gravel placed around a 4-inch perforated rigid PVC drainpipe. The perforations of the pipe shall be placed down at the positions of 5 and 7 o'clock. A filter fabric shall separate the gravel from the other backfill soils.

8. Retaining wall backfill shall be a clean coarse sand or gravel, creating an inverted triangular wedge. Lower quality native backfill material may be utilized outside the triangular wedge that extends upwards from the outside edge of the base of the retaining wall and is a minimum width of 60% of the wall height at ground surface. Coarse clean sand is acceptable when the Sand Equivalent is greater than 20 and the Expansion Index equals 0. To avoid excessive amounts of sand and gravel backfill, do not allow the excavation contractor to cut a vertical excavation 2 to 4 feet beyond the back of the retaining wall footing or stem.

9. The use of equipment to compact soil within the wedge of backfill defined by a 1:1 line projected up from behind the retaining wall to the surface shall be limited to handheld rammer plate compactors, such as a Wacker BS 45Y. A string line shall be placed along the top of the wall to monitor possible rotation of the wall due to the compaction surcharge. If the wall begins to bow or lean away from the backfilling operations, the compaction process shall stop and the Geotechnical Engineer shall be notified immediately such that modified compaction recommendations can be given at that time.

10. The engineer designing the retaining wall shall address the following conditions:

    A. When a retaining wall is backfilled without a top restraint, such as a wood floor diaphragm, the stem of the retaining wall acts as a cantilever.

    B. Depending on the rigidity of the top restraint, the wall may act as a beam spanning between the top and bottom points, reversing the tension side of the stem to the front of the wall as opposed to the back as in the case of a cantilever condition.

    C. Structure members deflect when loaded. The users guide to the widely used computer program RetainPro recommends the deflection of the wall be checked because the program does not calculate deflection. Refer to Section 9 titled "Related Design Considerations" in the manual titled "Basics of Retaining Wall Design", Page 50. As an estimate, the Concrete Reinforcing Steel Institute (CRSI) manual estimates concrete reinforced stems of cantilevered retaining walls will deflect a horizontal distance at the top of the wall equal to the height of the wall divided by 240. We recommend the appropriate deflection equation and values corresponding to load, condition, and material be employed to determine the deflection corresponding to the lateral loads recommended herein such that appropriate connections, tiebacks, bracing, or construction joints can be placed within the structural design to properly account for the deflection. The total deflection may not occur during the backfilling operation, but rather sometime after the frame structure is built over and adjacent to the retaining wall.

PAVEMENT

1. In the areas to be paved, we recommend the top loose surface soils be removed from below the proposed final soil subgrade elevation, moistened or dried to at or near the optimum moisture content and compacted to 90% relative compaction, the top 9 inches being compacted to 95% relative compaction where pavement will be subject to vehicle travel or parking. The subgrade area shall be check rolled in order to detect isolated soft spots. Any areas found to be yielding under the wheel loads of the equipment shall be stabilized by removal and compaction.

2. The Class 2 aggregate base shall be recompacted to a minimum of 95% relative compaction in accordance with the ASTM D-1557 test method. Asphalt concrete shall be placed only after the Class 2 aggregate base has been demonstrated to be firm and unyielding.

3. If pumping soils or otherwise unstable soils are encountered, stabilization will be required. Stabilization can be accomplished by placing gabion rock over a woven geo-fabric, such as Mirafi™ 600X or an equivalent. The woven geo-fabric shall be placed in conformance with the manufacturer's specifications over the unstable area. The gabion rock is placed until stabilization is achieved. The gabion rock layer shall be a minimum thickness of 12 inches. The gabion rock is then covered with a non-woven filter fabric, such as Mirafi™ 140N or an equivalent. The compaction equipment shall not travel directly on top of the fabrics. A pile of gabion rock or soil shall be pushed and spread in front of the equipment to ensure no wheel or track to fabric contact.

4. If asphalt pavement is selected for the finished pavement surface, we recommend an R-Value of the subgrade soil be performed by this Laboratory in order to provide appropriate thickness of Class 2 aggregate base and asphalt concrete.

5. Maintenance to assist in reducing the potential for rapid deterioration of the asphalt paved areas shall include surface treatment approximately six months to one year after construction and approximately three years from the first treatment. Pavement conditions should be reviewed at least once a year for cracks, puddling of surface water, and overall appearance. If possible, this review should be done in the fall such that cracks may be repaired which may otherwise allow moisture to pass through the pavement and weaken the subgrade.

6. For concrete pavement, it is recommended the concrete slab be 6 inches thick and be reinforced with No. 3 rebar spaced at 24 inches on center each way. The concrete slab shall be supported by a minimum 4-inch-thick layer of Class 2 aggregate base compacted to 95% relative compaction.

ADJACENT LOADS

Where footings are placed at varying elevations, the effect of adjacent loads may be calculated using the widely published Formulas for Stresses in Semi-infinite Elastic Foundations or the Boussinesq figures and equations for both vertical and horizontal surcharge loads.

TEMPORARY EXCAVATIONS

All temporary excavations, including over-excavations and utility trench excavations should comply with OSHA, Cal OSHA, and any other applicable regulatory agency requirements. Excavations deeper than 5 feet should be shored or laid back at a 1 horizontal to 1 vertical, or flatter, to about 7 feet below the adjacent grade. Excavations deeper than 7 feet will have a high probability of encountering groundwater and will require shoring. Where available space or site logistics prohibit constructing temporary excavation side slopes, shoring will be required.

TEMPORARY DEWATERING

As discussed earlier, there is a potential for the excavations for the subterranean parking area to encounter groundwater. Site dewatering will be necessary to reduce the effects of groundwater upon the excavation and construction operation. The contractor should provide an effective dewatering system. The dewatering system should be designed to effectively reduce and maintain the groundwater level at least 2 feet below the bottom of the excavation or to the depth necessary to support equipment, whichever is deeper. Dewatering might be performed by using the following techniques alone or in combination:

1. Well points placed within the area of construction.

2. Cut-off walls or medium that reduces water infiltration into construction area.

3. Sumps or pits in which a pump can be installed.

Several problems related to working or grading near or below groundwater level should be considered by the grading contractor. Such difficulties may include the following:

1. Saturated excavation bottoms may pump and may not support conventional construction and/or grading equipment.

2. Excavation materials may be wet and may require drying to slightly above the optimum moisture content before placement of fill.

The effectiveness of the dewatering system may not be consistent throughout the site. A grading technique may be needed to stabilize wet excavations. Stabilizing the bottom of the excavation may be accomplished by placing 1 to 2 feet of gabion rock (3- to 6-inch size) between filter fabric. The Mirafi™ 600X fabric should be placed below the rock and the Mirafi™ 140N should be placed above the rock. Construction dewatering may require permits and monitoring of dewatering discharge to ensure compliance with Regional Water Quality Control

Board requirements. Dewatering systems should be designed, installed, and maintained by experienced contractors.

SHORING

General

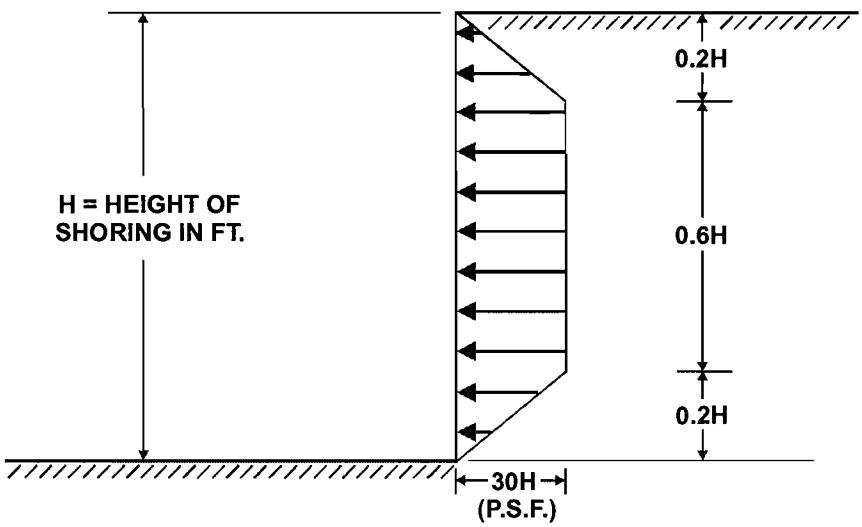
Several methods of shoring can be considered. Lagging may be used with soldier piles cantilevered or tied back with earth anchors. Some difficulty may be encountered in drilling of the soldier piles and the anchors because of caving of sandy deposits and water seepage. Also, special techniques and measures will be necessary in some areas to permit the proper installation of tieback anchors. The soldier pile diameters should be at least 2 feet (24 inches). Typically, where excavations are less than 15 feet in height, cantilevered shoring is feasible; however, this should be determined by the Shoring Design Engineer. Additional geotechnical recommendations for the design and construction of soldier piles and lagging are provided below. An experienced Shoring Design Engineer should be retained to design the shoring system.

Cantilevered Soldier Pile

For design of cantilevered shoring, a lateral earth pressure equivalent to a fluid (EFP) having a density of 35 pcf may be assumed for retained soil with a relatively level surface behind the cantilevered shoring. This will produce a triangular pressure distribution behind soldier piles. Where shoring extends below the groundwater table, the unit weight of water shall be added to the EFP.

Tied-Back or Braced Shoring

For the design of tied-back or braced shoring, a trapezoidal lateral pressure distribution may be used. The recommended pressure distribution in the case where the grade is level behind the shoring is illustrated in the following diagram with the maximum pressure equal to 30H psf, where H is the height of the shoring.



Surcharge Pressure

The upper 15 feet of shoring adjacent to the streets and vehicular traffic areas should be designed to resist a uniform lateral pressure of 100 psf, acting as a result of an assumed 300-psf surcharge behind the shoring due to normal street traffic. This surcharge pressure should be considered in addition to the earth pressures discussed above. However, if the traffic is kept at least 15 feet from the shoring, the traffic surcharge may be neglected.

The shoring system should also be designed to support the lateral surcharge pressures imposed by concrete trucks and other heavy construction equipment located near the shoring system. The lateral surcharge pressure from these trucks and equipment may be determined when additional information regarding the load values and load distributions associated with this equipment are available and authorized.

Lateral Resistance

Soldier piles that are placed at least 2.5 diameters on center and extend to competent bedrock below the excavation level may be designed for a passive earth pressure equivalent to a fluid having a density of 600 pcf, up to a maximum pressure of 6,000 psf. A firm contact between the soldier pile and the surrounding soil is necessary for the development of the recommended passive earth pressure. Normally, a lean-mix concrete is used for the construction of soldier piles; however, a concrete with sufficient strength should be used for the portion of the pile extending below bottom of the excavation.

Lagging

Continuous lagging should be provided between soldier piles. The soldier piles and anchors (if used should be designed for the full anticipated lateral pressure). However, the pressure on the lagging is expected to be less due to arching in the soils. For clear spans of up to 5 feet, we recommend that the lagging be designed for a triangular distribution of earth pressure where the maximum pressure is 600 psf at the mid-span between soldier piles, and 0 psf at the soldier pile.

Slurry mix or mortar should be used to fill the gap between the lagging and the supported materials.

Tieback/Anchor Design and Installation

If considered, tieback friction anchors may be used to resist lateral loads. For design purposes, it may be assumed that the active wedge adjacent to the shoring is defined by a plane drawn at 35 degrees with the vertical through the bottom of the excavation. The anchors should extend at least 15 feet beyond the potential active wedge and to a greater length, if necessary, to develop the desired capacities. Only the frictional resistance developed beyond the active wedge would be effective in resisting lateral loads. If the anchors are spaced at least 6 feet on center, no reduction in the capacity of the anchors needs to be considered due to group action.

The capacities of anchors should be determined by testing of the initial anchors. Anchor testing may be as specified by the Project Structural Engineer and/or the Post-Tension Institute Method for tieback testing. The estimated frictional resistance for tieback anchors based on the bonded length of the anchor is 600 psf. If post-grouted anchors are utilized, we anticipate that the anchors will develop resistance on the order of three times the estimated value.

The anchors may be installed at angles of 15 to 40 degrees below the horizontal. Caving of the anchor holes might be anticipated and provisions should be made to minimize such caving. The anchors should be filled with concrete placed by pumping from the tip out, and the concrete should extend from the tip of the anchor to the active wedge. To minimize the possibility of caving, we suggest that the portion of the anchor shaft within the active wedge be backfilled with sand before testing the anchor. This portion of the shaft should be filled tightly and flush with the face of the excavation.

The sand backfill may contain a small amount of cement to allow the sand to be placed by pumping. For post-grouted anchors of 8-inch diameter or less, the anchor may be filled with concrete to the surface of the shoring.

Deflection

The shoring system will experience some deflection due to applied forces. The amount of deflection depends on several factors, including applied forces, depth of the cantilevered part, and stiffness of the shoring system elements. It is difficult to accurately predict the amount of deflection of shored ground. Where deflection is critical to protect existing adjacent structures, the Shoring Structural Engineer shall provide a rigid design to limit deleterious deflection.

Construction Observation

Shoring recommendations have been developed based on geologic conditions interpreted from the field exploration. Selected pile excavations should be logged by a representative of the Project Geotechnical Engineer during construction to verify preliminary interpretations.

SETTLEMENT FROM STATIC LOADS

It is the intent of the recommendations contained in this report to achieve angular distortions[3] of approximately 1/480. A total settlement from static loads of approximately 1 inch or less is anticipated in the undisturbed native soil and approximately 1% of the fill height is the anticipated total settlement at areas where compacted fill soil is placed in accordance with the GRADING recommendations provided in this soil engineering report. Movement from seismic motion was previously discussed in this document under the heading of LIQUEFACTION ANALYSIS on Page 3. The soil bearing values and estimated settlements

[3] Angular distortion is the ratio of the vertical differential settlement divided by the horizontal distance over which the vertical differential is measured.

contained in this report are preliminary and may need to be modified after the foundation and grading plans are substantially complete.

PLAN REVIEW

We request the grading and foundation plans be submitted to our office for a general review to verify substantial compliance to the recommendations contained in this report.

CLOSURE

The recommendations contained herein are for the sole use of our client and are based upon this Laboratory's understanding of the project which has been described herein. If the project scope, location, or conceptual design is subsequently altered, this Laboratory shall be requested to modify, as necessary, the recommendations contained herein as is appropriate for the new development concept. If the recommendations of this report are not implemented within one year, we recommend an update and review of the contents of this report be performed by this Laboratory.

The recommendations contained herein are based upon the assumption that Pacific Materials Laboratory shall be requested to perform the testing and observation services which will be required during the grading and foundation operations in order to verify that the actual soil conditions encountered and the construction procedures are consistent with the recommendations contained herein. If this service is performed by others, only the technical correctness of the actual analytical soil tests described here is attested to by this Laboratory.

Thank you for the opportunity of providing this service. If you have any questions regarding this matter, please do not hesitate to call.

Respectfully submitted,

PACIFIC MATERIALS LABORATORY, INC.



Ronald J. Pike
Geotechnical Engineer, G. E. 2291

RJP:vlh

cc: Addressee (3)
nKLOSURES, Inc., Attn: Nikhil Kamat, Email: nkihil@nklosures.com

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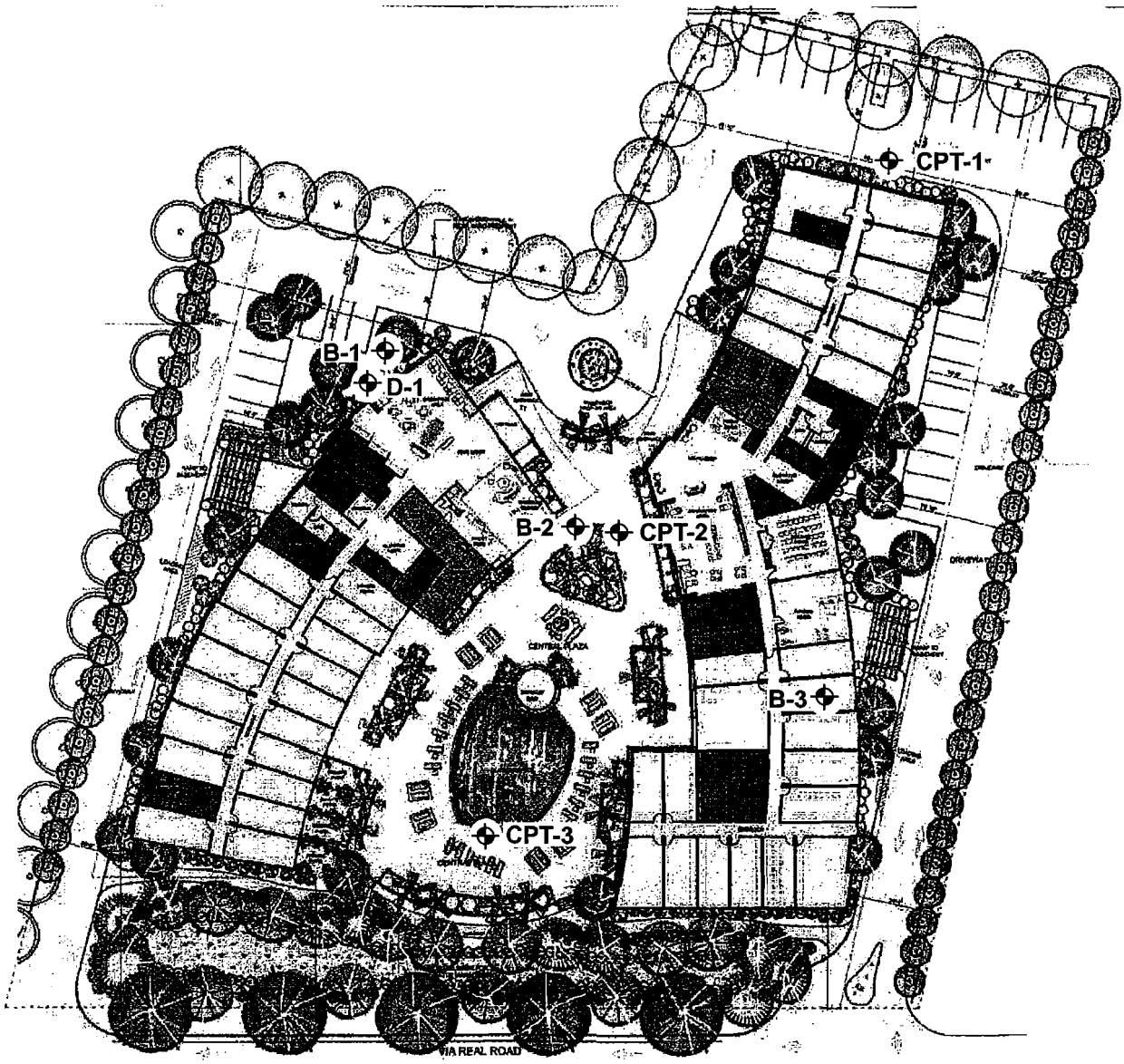


LEGEND

- B-1 – BORING LOCATION
- CPT-1 – CONE PENETROMETER TEST LOCATION
- D-1 – FIELD DENSITY TEST LOCATION

SITE PLAN

4110 Via Real
Carpinteria, California

Scale: none	Plate 1 Lab No: 106224-2 File No: 14-14026-2 October 23, 2014

Pacific Materials Laboratory, Inc.

APPENDIX A

FIELD INVESTIGATION

October 23, 2014

Lab No: 106224-2

File No: 14-14026-2

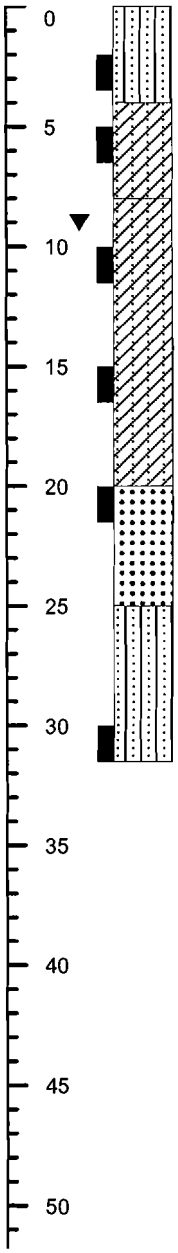
Lab No: 106224-2
File No: 14-14026-2

BORING LOG DATA

BORING NO. B-1

Field Technician: Kump Date Drilled: 10/16/14

Blow Counts	Dry Density (pcf)	Moisture Content (%)	Depth (ft)	Soil Log	Soil Description
45	117.1	8.5	0		SM-SW Brown silty SAND, dry
8	112.5	21.3	5		OH Dark brown-black sandy CLAY, moist
4	113.9	23.0	10		SC Brown clayey SAND, saturated
11	116.9	20.6	15		
21	114.9	17.7	20		SW Brown coarse SAND
			25		SM-SW Brown silty SAND
38	113.3	21.1	30		
			35		
			40		
			45		
			50		



LEGEND

■ - Modified California Sample

NOTE: Groundwater encountered at 9 feet

Lab No: 106224-2
File No: 14-14026-2

BORING LOG DATA

BORING NO. B-2

Field Technician: Kump Date Drilled: 10/16/14

Blow Counts	Dry Density (pcf)	Moisture Content (%)	Depth (ft)	Soil Log	Soil Description
			0		ASPHALT CONCRETE (1.0 inches) over CONCRETE (4 inches)
75	115.1	19.5			CL Brown sandy CLAY, moist
					OH-PT Black sandy CLAY, organic peat
			5		
44	115.5	19.5			
		21.7			CL Brown sandy CLAY
			10▼		
6	114.4	21.8			OH-PT Black sandy CLAY, organic peat, saturated
					SC Brown clayey SAND
7	117.0	19.5	15		
23	116.8	18.6	20		SW Brown SAND
			25		SC Brown clayey SAND
					OH Black sandy CLAY, organics
24	106.8	27.6	30		
					SM-SW Brown silty SAND
		26.9	35		
					OH Black sandy CLAY, organics
32	125.9	15.5	40		
			45		
					SC Gray-brown clayey SAND
36	125.2	18.3	50		

LEGEND

■ - Modified California Sample

NOTE: Groundwater encountered at 10 feet

Lab No: 106224-2
File No: 14-14026-2

BORING LOG DATA

BORING NO. B-3

Field Technician: Kump Date Drilled: 10/16/14

Blow Counts	Dry Density (pcf)	Moisture Content (%)	Depth (ft)	Soil Log	Soil Description
		20.5	0		MH Gray-green silty CLAY
14	118.6	18.6			OH-PT Black sandy CLAY, organic peat, moist
6	114.8	20.3	5		CL Brown sandy CLAY
2	106.2	26.3	10		SW-GW Brown SAND with gravel
12	121.4	19.5	15		CL Brown sandy CLAY
28	116.4	18.2	20		SW Brown coarse SAND
27	121.6	18.8	25		
			30		
			35		
			40		
			45		
			50		

LEGEND

■ - Modified California Sample

NOTE: Groundwater encountered at 8 feet

APPENDIX B

LABORATORY TESTS

October 23, 2014

Lab No: 106224-2

File No: 14-14026-2

MOISTURE DENSITY DETERMINATIONS (ASTM D 1557)

Maximum Density-Optimum Moisture data were determined in the laboratory from soil samples using the ASTM D-1557 Method of Compaction. The results of the Maximum Density-Optimum Moisture tests are tabulated below:

SOIL TYPE	SOIL DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)
I	Brown silty SAND	119.5	11.0

Curve Points: (115.1 @ 8.0) (119.5 @ 11.0) (115.1 @ 14.0)

FIELD DENSITY SUMMARY (Sand Cone Method ASTM D 1556)

SAMPLE LOCATION	DEPTH (in.)	SOIL TYPE	FIELD MOIST. CONTENT (%)	DRY DENSITY (pcf)	% OF MAX. DRY DENSITY
D-1	12	I	8.0	97.1	81.2

MECHANICAL ANALYSES (Values in Percent Passing ASTM D 422)

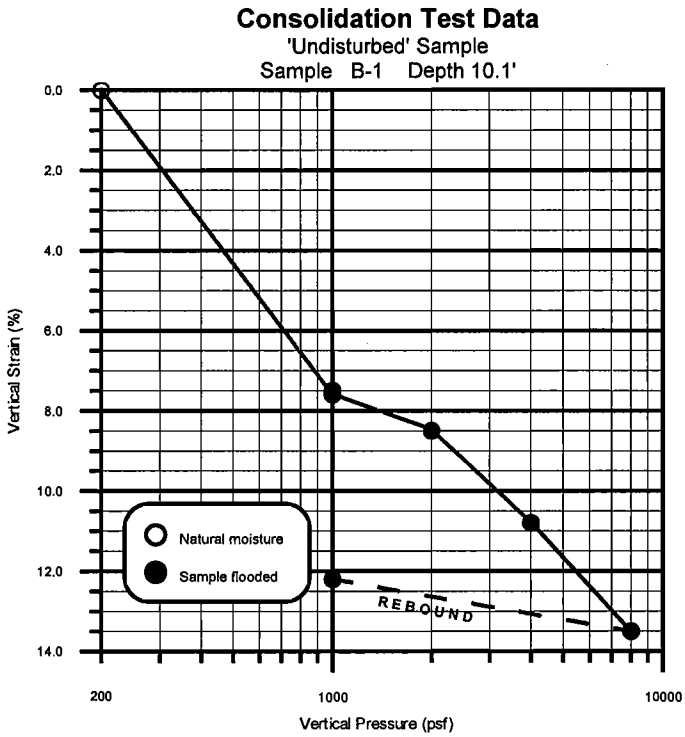
SIEVE SIZE	B-2 @ 6'	B-3 @ 1'
1 Inch	100.0	100.0
3/4 Inch	100.0	97.8
1/2 Inch	100.0	97.8
3/8 Inch	100.0	97.8
No. 4	99.1	97.4
No. 8	98.1	96.8
No. 16	96.7	95.9
No. 30	93.7	94.7
No. 50	83.2	90.7
No. 100	65.8	80.2
No. 200	50.6	58.4

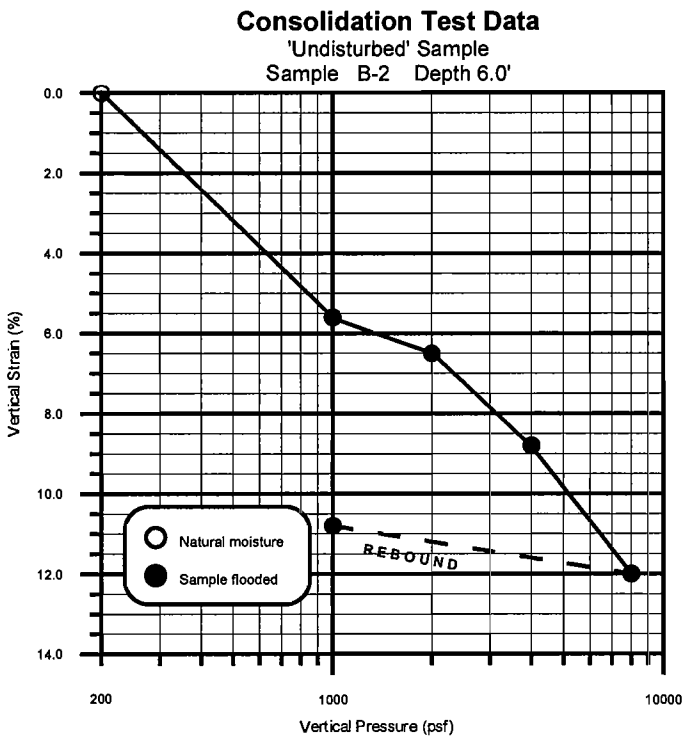
SAND-SILT-CLAY (By Hydrometer ASTM D 422)

SAMPLE LOCATION	DEPTH (ft.)	SAND %	SILT %	CLAY %	SOIL DESCRIPTION
B-2	6	58	16	26	Clayey SAND
B-3	1	48	22	30	Sandy CLAY

CONSOLIDATION TESTS (ASTM D 2435)

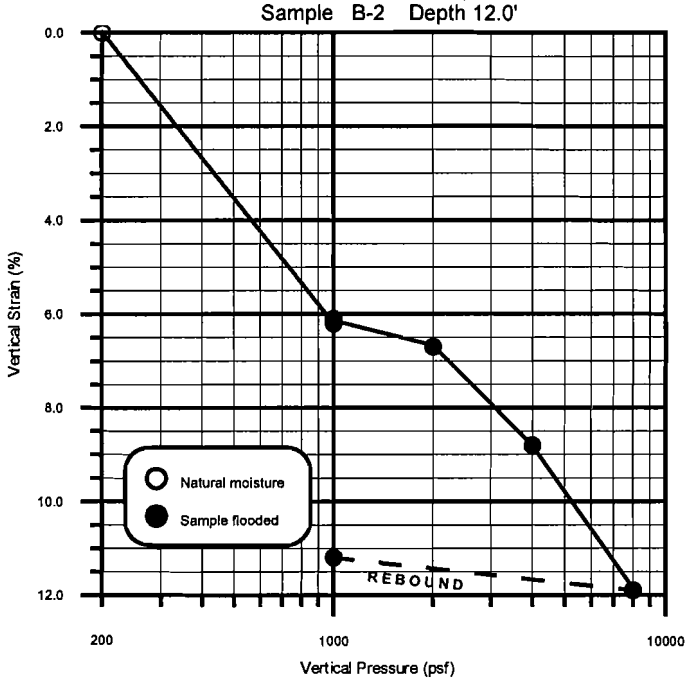
Four consolidation tests were performed on representative in-place tube soil samples in both the natural field and at increased moisture contents. The results of the consolidation tests are presented graphically below.





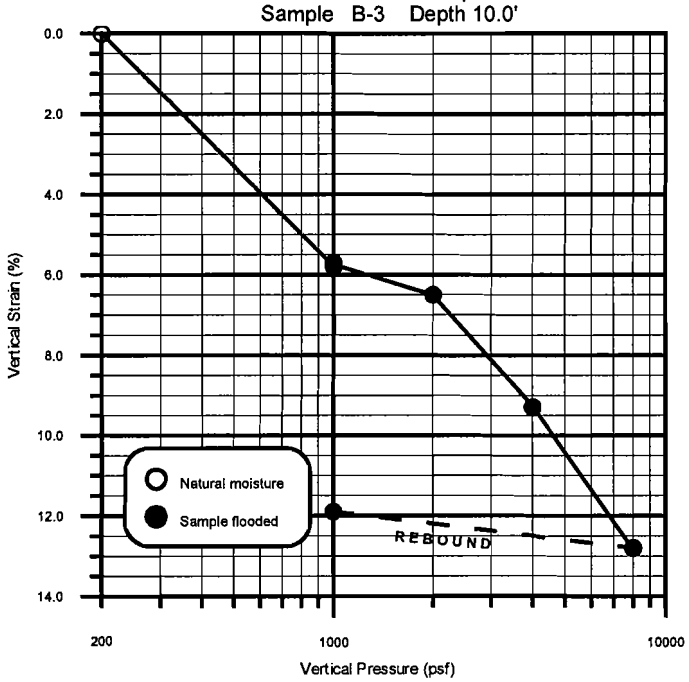
Consolidation Test Data

'Undisturbed' Sample
Sample B-2 Depth 12.0'



Consolidation Test Data

'Undisturbed' Sample
Sample B-3 Depth 10.0'



EXPANSION TESTS (ASTM D 4829)

The Expansive Soil Index was determined by the present ASTM D 4829 Expansion Test Method. The results are tabulated below:

SAMPLE LOCATION	DEPTH (ft.)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	EXPANSION INDEX	POTENTIAL FOR EXPANSION
B-3	1	115.7	8.8	34	Low

ATTERBERG LIMITS (ASTM D 4318)

SAMPLE LOCATION	DEPTH (ft.)	SOIL TYPE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	DEGREE OF EXPANSION
B-2	6	CL	24	16	8	Very low
B-3	1	CL	28	15	13	Very low

APPENDIX C

CONE PENETROMETER TESTS

October 23, 2014

Lab No: 106224-2

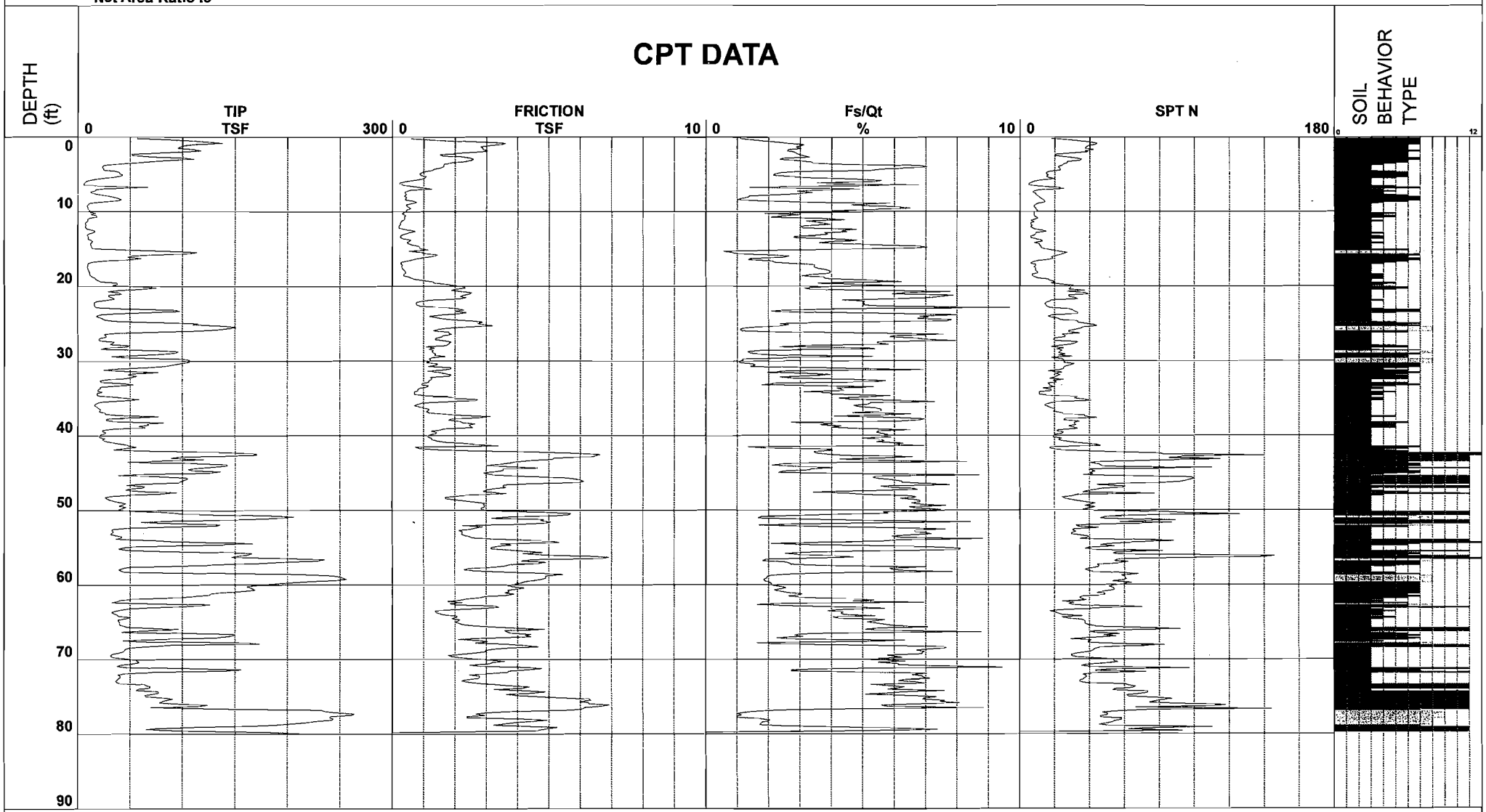
File No: 14-14026-2

Pacific Materials Laboratory

Project	Carpentaria Hotel	Operator	DG-BH	Filename	SDF(291).cpt
Job Number	Carpentaria Hotel	Cone Number	DDG1268	GPS	
Hole Number	CPT-01	Date and Time	10/10/2014 1:56:34 PM	Maximum Depth	79.89 ft
EST GW Depth During Test		8.00 ft			

Net Area Ratio .8

CPT DATA



- 1 - sensitive fine grained
- 2 - organic material
- 3 - clay
- 4 - silty clay to clay
- 5 - clayey silt to silty clay
- 6 - sandy silt to clayey silt
- 7 - silty sand to sandy silt
- 8 - sand to silty sand
- 9 - sand
- 10 - gravelly sand to sand
- 11 - very stiff fine grained (*)
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Carpentaria Hotel

Project ID: Pacific Materials Laboratory
Data File: SDF(291).cpt
CPT Date: 10/10/2014 1:56:34 PM
GW During Test: 8 ft

Sounding ID: CPT-01
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
0.33	81.9	159.4	81.9	1.2	-0.3	1.4	6	clean SAND to silty SAND	125	5.0	16	26	76	48	-	-	11	1.93	16	N/A	N/A
0.49	103.8	202.5	103.8	1.8	-0.2	1.8	6	clean SAND to silty SAND	125	5.0	21	33	84	48	-	-	11	1.93	16	N/A	N/A
0.66	125.7	254.2	125.7	2.9	-0.4	2.3	5	silty SAND to sandy SILT	120	4.0	31	50	90	48	-	-	12	1.97	16	N/A	N/A
0.82	137.5	283.4	137.5	3.6	-0.8	2.6	5	silty SAND to sandy SILT	120	4.0	34	55	93	48	-	-	13	1.99	16	N/A	N/A
0.98	111.8	261.6	111.8	3.5	-0.6	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.4	9.9	16	2.10	16	N/A	N/A
1.15	101.7	241.5	101.6	3.1	-0.5	3.0	5	silty SAND to sandy SILT	120	4.0	25	41	83	48	-	-	16	2.11	16	N/A	N/A
1.31	98.3	230.7	98.3	2.8	-0.1	2.9	5	silty SAND to sandy SILT	120	4.0	25	39	82	48	-	-	16	2.10	16	N/A	N/A
1.48	95.3	232.0	95.3	2.9	-0.1	3.0	5	silty SAND to sandy SILT	120	4.0	24	38	81	48	-	-	17	2.13	16	N/A	N/A
1.64	109.5	240.1	109.5	2.9	-0.2	2.6	5	silty SAND to sandy SILT	120	4.0	27	44	86	48	-	-	14	2.05	16	N/A	N/A
1.80	117.3	250.7	117.3	3.0	0.2	2.6	5	silty SAND to sandy SILT	120	4.0	29	47	88	48	-	-	14	2.02	16	N/A	N/A
1.97	102.0	234.9	102.0	2.9	0.3	2.8	5	silty SAND to sandy SILT	120	4.0	25	41	83	48	-	-	16	2.09	16	N/A	N/A
2.13	74.6	194.5	74.6	2.2	0.3	2.9	5	silty SAND to sandy SILT	120	4.0	19	30	73	48	-	-	18	2.18	16	N/A	N/A
2.30	50.9	159.9	50.9	1.5	0.2	3.0	5	silty SAND to sandy SILT	120	4.0	13	20	60	47	-	-	23	2.30	16	N/A	N/A
2.46	51.8	164.9	51.8	1.6	0.0	3.1	5	silty SAND to sandy SILT	120	4.0	13	21	61	47	-	-	23	2.31	16	N/A	N/A
2.62	68.5	197.9	68.5	2.3	0.0	3.3	5	silty SAND to sandy SILT	120	4.0	17	27	70	48	-	-	21	2.25	16	N/A	N/A
2.79	101.4	221.1	101.4	2.5	-0.3	2.4	5	silty SAND to sandy SILT	120	4.0	25	41	83	48	-	-	14	2.04	16	N/A	N/A
2.95	110.3	231.5	110.3	2.6	-0.4	2.3	5	silty SAND to sandy SILT	120	4.0	28	44	86	48	-	-	13	2.01	16	N/A	N/A
3.12	88.3	215.2	88.3	2.5	-0.4	2.9	5	silty SAND to sandy SILT	120	4.0	22	35	78	48	-	-	17	2.13	16	N/A	N/A
3.28	69.4	200.7	69.4	2.3	-0.6	3.3	5	silty SAND to sandy SILT	120	4.0	17	28	71	47	-	-	21	2.25	16	N/A	N/A
3.45	55.5	180.2	55.5	1.9	-0.6	3.4	5	silty SAND to sandy SILT	120	4.0	14	22	63	45	-	-	23	2.32	16	N/A	N/A
3.61	39.9	170.6	39.9	1.6	-0.6	4.1	4	clayy SILT to silty CLAY	115	2.0	20	32	-	-	2.8	9.9	30	2.48	15	N/A	N/A
3.77	25.0	-	25.0	1.6	-0.4	6.6	3	silty CLAY to CLAY	115	1.5	17	27	-	-	1.8	9.9	44	2.77	15	N/A	N/A
3.94	23.2	-	23.2	1.6	-1.4	7.1	3	silty CLAY to CLAY	115	1.5	15	25	-	-	1.6	9.9	47	2.81	15	N/A	N/A
4.10	22.6	-	22.6	1.5	-0.4	6.9	3	silty CLAY to CLAY	115	1.5	15	24	-	-	1.6	9.9	47	2.81	15	N/A	N/A
4.27	24.3	-	24.3	1.4	-1.5	5.6	3	silty CLAY to CLAY	115	1.5	16	26	-	-	1.7	9.9	42	2.73	15	N/A	N/A
4.43	24.3	-	24.3	1.3	-0.4	5.3	3	silty CLAY to CLAY	115	1.5	16	26	-	-	1.7	9.9	41	2.71	15	N/A	N/A
4.59	35.7	134.4	35.7	1.0	-2.1	3.0	4	clayy SILT to silty CLAY	115	2.0	18	29	-	-	2.5	9.9	27	2.41	15	N/A	N/A
4.76	39.1	125.8	39.1	0.9	-1.2	2.4	5	silty SAND to sandy SILT	120	4.0	10	16	52	42	-	-	23	2.32	16	N/A	N/A
4.92	39.8	121.3	39.8	0.9	-0.9	2.2	5	silty SAND to sandy SILT	120	4.0	10	16	52	42	-	-	22	2.29	16	N/A	N/A
5.09	42.5	124.4	42.5	0.9	-0.7	2.2	5	silty SAND to sandy SILT	120	4.0	11	17	54	42	-	-	21	2.26	16	N/A	N/A
5.25	40.0	135.4	40.0	1.1	-0.8	2.7	5	silty SAND to sandy SILT	120	4.0	10	16	52	42	-	-	24	2.35	16	N/A	N/A
5.41	33.1	135.9	33.1	1.0	-0.8	3.2	4	clayy SILT to silty CLAY	115	2.0	17	27	-	-	2.3	9.9	29	2.46	15	N/A	N/A
5.58	21.3	-	21.3	1.0	-0.9	4.6	3	silty CLAY to CLAY	115	1.5	14	23	-	-	1.5	9.9	41	2.71	15	N/A	N/A
5.74	12.6	-	12.5	0.7	-4.1	5.8	3	silty CLAY to CLAY	115	1.5	8	14	-	-	0.9	9.9	55	2.94	15	N/A	N/A
5.91	7.9	-	7.9	0.4	-4.8	5.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	7.1	65	3.09	15	N/A	N/A
6.07	6.5	-	6.4	0.2	-4.5	3.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	5.7	62	3.05	15	N/A	N/A
6.23	5.6	-	5.5	0.2	-4.4	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	4.6	69	3.15	15	N/A	N/A
6.40	5.3	-	5.2	0.4	-4.4	7.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	4.3	82	3.31	15	N/A	N/A
6.56	23.5	109.3	23.4	0.7	-4.6	2.8	4	clayy SILT to silty CLAY	115	2.0	12	18	-	-	1.6	9.9	33	2.54	15	N/A	N/A
6.73	66.5	133.1	66.5	0.9	-3.0	1.4	6	clean SAND to silty SAND	125	5.0	13	20	68	43	-	-	13	2.00	16	N/A	N/A
6.89	25.8	-	25.7	1.3	-1.1	5.0	3	silty CLAY to CLAY	115	1.5	17	28	-	-	1.8	9.9	39	2.67	15	N/A	N/A
7.05	16.7	-	16.7	0.6	-0.4	3.6	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	9.9	41	2.72	15	N/A	N/A
7.22	16.4	-	16.3	0.5	-1.4	3.0	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	9.9	39	2.67	15	N/A	N/A
7.38	11.2	-	11.2	0.4	-1.7	3.5	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.8	8.2	49	2.85	15	N/A	N/A
7.55	14.2	-	14.2	0.4	-1.5	3.0	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.0	9.9	42	2.73	15	N/A	N/A
7.71	19.9	89.7	19.8	0.4	-4.8	2.3	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.4	9.9	34	2.57	15	N/A	N/A
7.87	27.4	79.9	27.3	0.4	-7.3	1.4	5	silty SAND to sandy SILT	120	4.0	7	10	36	38	-	-	24	2.33	16	N/A	N/A
8.04	33.4	85.3	33.2	0.4	-8.1	1.4	5	silty SAND to sandy SILT	120	4.0	8	12	42	39	-	-	21	2.25	16	2.66	47.3
8.20	38.1	84.9	37.9	0.4	-8.9	1.1	5	silty SAND to sandy SILT	120	4.0	10	13	47	39	-	-	18	2.16	16	2.67	40.1
8.37	41.4	84.2	41.2	0.4	-9.5	1.0	5	silty SAND to sandy SILT	120	4.0	10	15	49	40	-	-	16	2.10	16	2.69	35.7
8.53	37.4	101.0	37.3	0.7	-9.4	1.8	5	silty SAND to sandy SILT	120	4.0	9	13	46	39	-	-	22	2.29	16	2.32	41.6
8.69	21.5	-	21.4	0.8	-8.9	3.7	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	1.5	9.9	37	2.64	15	-	-
8.86	10.4	-	10.2	0.6	-8.7	6.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	6.6	61	3.03	15	-	-
9.02	9.8	-	9.7	0.5	-7.7	4.9	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	6.2	58	2.99	15	-	-
9.19	8.5	-	8.4	0.4	-7.6	5.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	5.2	64	3.08	15	-	-
9.35	8.8	-	8.6	0.5	-7.6	6.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	5.4	66	3.11	15	-	-
9.51	9.0	-	8.9	0.6	-7.6	6.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.5	67	3.12	15	-	-
9.68	9.1	-	9.0	0.5	-7.5	5.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.5	62	3.06	15	-	-
9.84	11.0	-	10.9	0.4	-7.6	4.2	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.7	6.7	52	2.91	15	-	-
10.01	8.3	-	8.2	0.4	-7.6	5.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.9	63	3.07	15	-	-
10.17	16.6	80.0	16.4	0.3	-8.1	1.9	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	9.9	34	2.57	15	2.81	51.2
10.34	12.2	-	12.1	0.4	-8.7	3.1	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	0.8	7.2	45	2.79	15	-	-
10.50	16.9	-	16.8	0.4	-8.5	2.6	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.2	9.9	37	2.62	15	-	-
10.66	18.1	86.0	17.9	0.4	-8.8	2.1	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.2	9.9	34	2.57	15	2.64	51.2
10.83	10.9	-	10.7	0.4	-8.7	3.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.7	6.2	51	2.89	15	-	-
10.99	8.8	-	8.7	0.4	-8.6	4.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.9	60	3.02	15	-	-
11.16	9.5	-	9.4	0.3	-8.5	3.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.3	52	2.91	15	-	-
11.32	8.3	-	8.2	0.3	-8.6	3.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.5	4.5	57	2.98	15	-	-
11.48	6.7	-	6.6	0.3	-8.5	4.1	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.6	65	3.09	15	-	-
11.65	6.8	-	6.6	0.3	-8.4	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.4	3.6	65	3.10	15	-	-
11.81	7.4	-	7.2	0.2	-8.4	3.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.9	59	3.01	15	-	-
11.98	6.6	-	6.4	0.2	-8.3	3.4	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.4	62	3.05	15	-	-
12.14	6.9	-	6.8	0.2	-8.3	3.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.4	3.5	61	3.03	15	-	-
12.30	8.1	-	8.0	0.4	-8.3	5.3	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.5	4.2	64	3.08	15	-	-
12.47	13.9	-	13.8	0.6	-7.8	4.6	3	silty CLAY to CLAY	115	1.5	9	15	-	-	0.9	7.4	49	2.85	15	-	-
12.63	16.1	-	16.0	0.7	-7.7	4.7	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	8.6	47	2.81	15	-	-
12.80	14.3	-	14.1	0.5	-7.7	4.0	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	7.5	46	2.80	15	-	-
12.96	9.7	-	9.5	0.4	-7.7	4.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.9	56	2.96	15	-	-
13.12	8.2	-	8.0	0.3	-7.6	3.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.5	4.1	58	2.99	15	-	-
13.29	9.2	-	9.0	0.3	-7.5	3.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.5	52	2.90	15	-	-
13.45	9.7	-	9.5	0.3	-7.5	3.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.8	50	2.87	15	-	-
13.62	9.0	-	8.9	0.4	-7.4	4.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.4	59	3.01	15	-	-
13.78	12.1	-	12.0	0.6	-7.4	5.2	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	6.0	54	2.94	15	-	-
13.94	13.5	-	13.3	0.5	-7.3	4.3	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.7	49	2.85	15	-	-
14.11	13.0	-	12.8	0.5	-7.3	3.8	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.3	48	2.83	15	-	-
14.27	11.3	-	11.1	0.5	-7.3	5.0	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	5.4	56	2.96	15	-	-
14.44	12.0	-	11.8	0.6	-7.2	5.7	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	5.7	57	2.98	15	-	-
14.60	12.4	-	12.3	0.8	-7.2	7.2	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	5.9	61	3.04	15	-	-
14.76	12.5	-	12.4	0.9	-7.2	7.6	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	5.9	62	3.05	15	-	-
14.93	13.5	-	13.4	0.9	-7.2	6.9	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.4	58	3.00	15	-	-
15.09	47.4	122.7	47.3	1.2	-7.3	2.5	5	silty SAND to sandy SILT	120	4.0	12	14	48	39	-	-	25	2.36	16	1.68	31.1
15.26	92.6	117.0	92.4	0.5	-8.9	0.6	6	clean SAND to silty SAND	125	5.0	19	22	70	42	-	-	7	1.73	16	1.99	9.8
15.42	113.9	146.2	113.7	0.9	-9.3	0.8	6	clean SAND to silty SAND	125	5.0	23	27	77	43	-	-	7	1.76	16	0.44	2.6

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Pacific Materials Laboratory
Data File: SDF(291).cpt
CPT Date: 10/10/2014 1:56:34 PM
GW During Test: 8 ft

Sounding ID: CPT-01
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	Ic SBT Indx	Nk - -	Vol Strn %	Cycl SStn %
15.58	106.4	142.3	106.3	1.0	-7.9	1.0	6	clean SAND to silty SAND	125	5.0	21	25	75	43	-	-	9	1.83	16	0.59	3.0
15.75	72.1	136.4	71.9	1.4	-7.6	2.0	5	silty SAND to sandy SILT	120	4.0	18	21	62	41	-	-	18	2.17	16	0.91	4.9
15.91	51.6	132.6	51.4	1.4	-7.6	2.7	5	silty SAND to sandy SILT	120	4.0	13	15	51	39	-	-	25	2.37	16	1.14	10.4
16.08	47.1	122.1	47.0	1.2	-7.5	2.5	5	silty SAND to sandy SILT	120	4.0	12	14	47	38	-	-	25	2.37	16	1.77	37.7
16.24	60.1	106.8	60.0	0.9	-8.3	1.4	5	silty SAND to sandy SILT	120	4.0	15	18	55	40	-	-	17	2.13	16	2.21	28.0
16.40	50.1	95.4	49.9	0.7	-8.5	1.4	5	silty SAND to sandy SILT	120	4.0	13	15	49	39	-	-	19	2.19	16	2.43	35.4
16.57	25.7	89.6	25.6	0.5	-8.6	2.2	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	1.8	9.9	33	2.54	15	2.56	51.2
16.73	13.8	-	13.6	0.3	-8.5	2.3	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	0.9	6.0	42	2.72	15	-	-
16.90	9.5	-	9.3	0.3	-8.3	3.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.0	55	2.94	15	-	-
17.06	9.3	-	9.1	0.3	-8.2	3.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	3.8	59	3.01	15	-	-
17.23	9.0	-	8.8	0.3	-8.2	3.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.7	60	3.02	15	-	-
17.39	8.8	-	8.7	0.3	-8.1	3.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.6	61	3.03	15	-	-
17.55	9.0	-	8.8	0.3	-8.2	4.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.6	61	3.04	15	-	-
17.72	9.5	-	9.3	0.4	-8.1	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	3.8	61	3.04	15	-	-
17.88	10.0	-	9.8	0.4	-8.1	4.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	4.0	60	3.03	15	-	-
18.05	10.6	-	10.5	0.4	-8.1	4.4	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.3	59	3.00	15	-	-
18.21	10.8	-	10.6	0.4	-8.1	4.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.3	58	3.00	15	-	-
18.37	11.1	-	10.9	0.4	-8.1	3.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.4	55	2.95	15	-	-
18.54	11.7	-	11.5	0.4	-8.1	3.4	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.8	4.6	52	2.91	15	-	-
18.70	13.3	-	13.1	0.5	-8.1	4.1	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.3	53	2.91	15	-	-
18.87	16.0	-	15.9	0.6	-7.7	4.0	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.1	6.5	48	2.84	15	-	-
19.03	16.6	-	16.4	0.7	-7.7	4.5	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.1	6.7	50	2.86	15	-	-
19.19	18.2	-	18.1	0.9	-7.6	5.5	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.2	7.3	51	2.89	15	-	-
19.36	20.9	-	20.8	1.3	-7.6	6.6	3	silty CLAY to CLAY	115	1.5	14	18	-	-	1.4	8.4	52	2.90	15	-	-
19.52	36.8	132.3	36.7	1.3	-7.5	3.7	4	clayy SILT to silty CLAY	115	2.0	18	20	-	-	2.5	9.9	35	2.59	15	1.32	51.2
19.69	37.4	-	37.2	1.8	-7.7	4.8	4	clayy SILT to silty CLAY	115	2.0	19	24	-	-	2.6	9.9	37	2.62	15	-	-
19.85	32.6	-	32.5	2.0	-7.6	6.2	3	silty CLAY to CLAY	115	1.5	22	28	-	-	2.2	9.9	43	2.75	15	-	-
20.01	61.3	167.1	61.1	2.3	-7.6	3.8	4	clayy SILT to silty CLAY	115	2.0	31	33	-	-	4.3	9.9	28	2.44	15	0.00	0.0
20.18	74.8	165.9	74.7	2.3	-8.1	3.2	5	silty SAND to sandy SILT	120	4.0	19	20	60	40	-	-	24	2.33	16	0.00	0.0
20.34	58.9	155.4	58.7	2.0	-8.7	3.5	4	clayy SILT to silty CLAY	115	2.0	29	32	-	-	4.1	9.9	28	2.43	15	0.34	1.6
20.51	39.0	-	38.8	1.9	-8.8	5.0	4	clayy SILT to silty CLAY	115	2.0	19	24	-	-	2.7	9.9	37	2.63	15	-	-
20.67	28.5	-	28.3	2.2	-8.7	8.1	3	silty CLAY to CLAY	115	1.5	19	23	-	-	2.0	9.9	51	2.88	15	-	-
20.83	38.9	-	38.7	2.5	-8.6	6.7	3	silty CLAY to CLAY	115	1.5	26	32	-	-	2.7	9.9	42	2.73	15	-	-
21.00	41.3	-	41.1	2.4	-8.7	6.1	3	silty CLAY to CLAY	115	1.5	28	34	-	-	2.9	9.9	39	2.68	15	-	-
21.16	28.8	-	28.7	2.3	-8.8	8.2	3	silty CLAY to CLAY	115	1.5	19	23	-	-	2.0	9.9	51	2.89	15	-	-
21.33	29.1	-	28.9	2.2	-8.6	7.8	3	silty CLAY to CLAY	115	1.5	19	23	-	-	2.0	9.9	50	2.87	15	-	-
21.49	32.5	-	32.4	2.3	-8.6	7.5	3	silty CLAY to CLAY	115	1.5	22	26	-	-	2.2	9.9	47	2.82	15	-	-
21.65	34.6	-	34.5	2.1	-8.5	6.3	3	silty CLAY to CLAY	115	1.5	23	28	-	-	2.4	9.9	43	2.75	15	-	-
21.82	27.7	-	27.5	1.2	-8.5	4.5	3	silty CLAY to CLAY	115	1.5	18	22	-	-	1.9	9.9	42	2.72	15	-	-
21.98	18.3	-	18.1	0.9	-8.5	5.4	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.2	6.6	53	2.92	15	-	-
22.15	15.3	-	15.2	0.8	-7.7	5.5	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.0	5.5	57	2.98	15	-	-
22.31	15.1	-	15.0	0.8	-7.7	5.5	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.0	5.4	58	2.99	15	-	-
22.47	15.5	-	15.4	0.8	-7.7	5.5	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.0	5.5	57	2.98	15	-	-
22.64	15.9	-	15.7	0.9	-7.7	6.1	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.6	59	3.01	15	-	-
22.80	17.7	-	17.5	1.7	-7.7	9.9	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.2	6.2	67	3.12	15	-	-
22.97	43.7	-	43.5	2.1	-7.7	4.9	4	clayy SILT to silty CLAY	115	2.0	22	25	-	-	3.0	9.9	36	2.61	15	-	-
23.13	93.1	160.9	93.0	2.3	-7.9	2.5	5	silty SAND to sandy SILT	120	4.0	23	24	66	41	-	-	19	2.20	16	0.00	0.0
23.30	97.1	152.6	97.0	2.0	-8.8	2.1	5	silty SAND to sandy SILT	120	4.0	24	25	67	41	-	-	17	2.13	16	0.46	2.6
23.46	68.3	165.0	68.1	2.4	-9.2	3.5	4	clayy SILT to silty CLAY	115	2.0	34	35	-	-	4.8	9.9	27	2.41	15	0.00	0.0
23.62	34.6	-	34.5	2.1	-9.6	6.4	3	silty CLAY to CLAY	115	1.5	23	26	-	-	2.4	9.9	45	2.77	15	-	-
23.79	20.4	-	20.2	1.6	-9.8	8.6	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.4	7.0	61	3.04	15	-	-
23.95	17.3	-	17.1	1.2	-9.7	7.4	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.2	5.9	62	3.05	15	-	-
24.12	19.1	-	18.9	1.4	-9.6	7.7	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.3	6.5	60	3.03	15	-	-
24.28	23.0	-	22.9	1.6	-9.6	7.2	3	silty CLAY to CLAY	115	1.5	15	17	-	-	1.6	7.9	55	2.95	15	-	-
24.44	24.4	-	24.2	1.9	-9.6	8.3	3	silty CLAY to CLAY	115	1.5	16	18	-	-	1.7	8.4	57	2.97	15	-	-
24.61	34.1	-	33.9	2.6	-9.5	8.0	3	silty CLAY to CLAY	115	1.5	23	25	-	-	2.3	9.9	49	2.86	15	-	-
24.77	69.4	182.3	69.2	2.9	-9.6	4.2	4	clayy SILT to silty CLAY	115	2.0	35	35	-	-	4.8	9.9	29	2.46	15	0.00	0.0
24.94	114.8	175.9	114.6	2.7	-9.6	2.4	5	silty SAND to sandy SILT	120	4.0	29	29	72	42	-	-	17	2.13	16	0.00	0.0
25.10	109.7	179.6	109.7	2.9	0.1	2.7	5	silty SAND to sandy SILT	120	4.0	27	28	70	41	-	-	18	2.18	16	0.00	0.0
25.26	136.5	195.0	136.5	3.2	-0.2	2.4	5	silty SAND to sandy SILT	120	4.0	34	34	77	43	-	-	15	2.08	16	0.00	0.0
25.43	150.7	181.0	150.5	2.3	-8.5	1.5	6	clean SAND to silty SAND	125	5.0	30	30	81	43	-	-	11	1.91	16	0.00	0.0
25.59	144.9	165.6	144.7	1.7	-7.5	1.2	6	clean SAND to silty SAND	125	5.0	29	29	79	43	-	-	9	1.85	16	0.00	0.0
25.76	135.4	153.8	135.3	1.5	-3.0	1.1	6	clean SAND to silty SAND	125	5.0	27	27	77	42	-	-	9	1.84	16	0.46	2.7
25.92	114.9	137.2	114.8	1.3	-4.1	1.1	6	clean SAND to silty SAND	125	5.0	23	23	71	42	-	-	11	1.91	16	1.21	5.5
26.08	73.1	139.0	73.1	1.8	-3.5	2.5	5	silty SAND to sandy SILT	120	4.0	18	18	56	39	-	-	22	2.29	16	1.12	9.1
26.25	35.7	-	35.7	1.8	-3.0	5.3	3	silty CLAY to CLAY	115	1.5	24	25	-	-	2.5	9.9	42	2.73	15	-	-
26.41	24.9	-	24.8	1.9	-3.0	8.1	3	silty CLAY to CLAY	115	1.5	17	17	-	-	1.7	8.0	57	2.98	15	-	-
26.58	26.9	-	26.8	1.6	-3.0	6.4	3	silty CLAY to CLAY	115	1.5	18	18	-	-	1.8	8.6	51	2.88	15	-	-
26.74	27.0	-	26.9	1.6	-3.0	6.2	3	silty CLAY to CLAY	115	1.5	18	18	-	-	1.8	8.6	50	2.88	15	-	-
26.90	21.1	-	21.1	1.4	-3.1	7.1	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.4	6.6	58	3.00	15	-	-
27.07	19.4	-	19.4	1.4	-3.0	7.7	3	silty CLAY to CLAY	115	1.5	13	13	-	-	1.3	6.0	62	3.05	15	-	-
27.23	20.8	-	20.7	1.7	-3.0	8.6	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.4	6.4	63	3.07	15	-	-
27.40	34.2	-	34.2	1.9	-4.2	5.8	3	silty CLAY to CLAY	115	1.5	23	23	-	-	2.3	9.9	45	2.78	15	-	-
27.56	33.5	-	33.4	1.8	-5.3	5.7	3	silty CLAY to CLAY	115	1.5	22	22	-	-	2.3	9.9	45	2.79	15	-	-
27.72	30.6	-	30.5	1.8	-5.2	6.1	3	silty CLAY to CLAY	115	1.5	20	20	-	-	2.1	9.6	48	2.84	15	-	-
27.89	49.0	139.9	48.9	1.7	-5.4	3.6	4	clayy SILT to silty CLAY	115	2.0	25	24	-	-	3.4	9.9	32	2.53	15	1.10	41.7
28.05	46.5	110.6	46.3	1.1	-6.8	2.4	5	silty SAND to sandy SILT	120	4.0	12	11	41	36	-	-	28	2.43	16	2.15	50.2
28.22	26.1	-	25.9	1.3	-7.6	5.5	3	silty CLAY to CLAY	115	1.5	17	17	-	-	1.8	8.0	50	2.86	15	-	-
28.38	21.8	-	21.7	1.2	-7.6	5.8	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.5	6.5	55	2.94	15	-	-
28.54	74.7	118.6	74.6	1.3	-7.9	1.8	5	silty SAND to sandy SILT	120	4.0	19	18	56	39	-	-	19	2.19	16	2.03	27.2
28.71	96.0	123.0	95.8	1.3	-7.4	1.3	6	clean SAND to silty SAND	125	5.0	19	18	64	40	-	-	14	2.03	16	1.92	18.0
28.87	93.4	123.2	93.2	1.3	-8.1	1.4	5	silty SAND to sandy SILT	120	4.0	23	22	63	40	-	-	14	2.06	16	1.91	19.1
29.04	80.7	121.8	80.5	1.4	-8.3	1.8	5	silty SAND to sandy SILT	120	4.0	20	19	58	39	-	-	18	2.16	16	1.96	24.6
29.20	57.0	120.4	56.9	1.4	-8.5	2.5	5	silty SAND to sandy SILT	120	4.0	14	14	47	37	-	-	25	2.38	16	1.99	39.5
29.36	31.8	-	31.7	1.7	-8.3	5.6	3	silty CLAY to CLAY	115	1.5	21	20	-	-	2.2	9.5	47	2.81	15	-	-
29.53	45.8	119.7	45.7	1.3	-8.2	2.9	4	clayy SILT to silty CLAY	115	2.0	23	22	-	-	3.2	9.9	31	2.50	15	2.01	51.2
29.69	100.2	121.3	100.1	1.2	-8.5	1.2	6	clean SAND to silty SAND	125	5.0	20	19	65	40	-	-	13	1.98	16	1.97	17.5
29.86	106.5	126.0	106.3	1.2	-8.6	1.2	6	clean SAND to silty SAND	125	5.0	21	20	67	41	-	-	12	1.96	16	1.82	13.5
30.02	108.0	124.9	107.9	1.2	-9.2	1.1	6	clean SAND to silty SAND	125	5.0	22	20	68	41	-	-	11	1.94	16	1.86	13.8
30.19	103.9	120.1	103.7	1.1	-10.3	1.1	6	clean SAND to silty SAND	125	5.0	21	20	66	40	-	-	11	1.94	16	2.01	17.2
30.35	95.9	126.5	95.7	1.4	-10.9	1.5	5	silty SAND to sandy SILT	120	4.0	24	22	63	40	-	-	15	2.07	16	1.81	17.3
30.51	89.8	123.4	89.6	1.4	-11.0	1.6	5	silty SAND to sandy SILT	120	4.0	22	21	61	40	-	-	16	2.11	16	1.91	21.4
30.68	81.8	112.1	81.6	1.1	-11.8	1.4	5	silty SAND to sandy SILT	120	4.0	20	19	58	39	-	-	16	2.11	16	2.13	24.9
30.84	64.6	139.6	64.4	1.9	-11.7	3.0	4	clayy SILT to silty CLAY	115	2.0	32	30	-	-	4.5	9.9	27	2.40	15	1.16	13.6

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Pacific Materials Laboratory
Data File: SDF(291).cpt
CPT Date: 10/10/2014 1:56:34 PM
GW During Test: 8 ft

Sounding ID: CPT-01
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
31.01	39.2	-	39.0	1.9	-11.4	5.0	3	silty CLAY to CLAY	115	1.5	26	24	-	-	2.7	9.9	42	2.73	15	-	-
31.17	24.0	-	23.8	1.7	-11.4	7.5	3	silty CLAY to CLAY	115	1.5	16	15	-	-	1.6	6.7	59	3.01	15	-	-
31.33	41.2	113.7	40.9	1.1	-11.3	2.9	4	clayy SILT to silty CLAY	115	2.0	21	19	-	-	2.8	9.9	33	2.54	15	2.10	51.2
31.50	76.8	123.5	76.6	1.5	-11.4	2.0	5	silty SAND to sandy SILT	120	4.0	19	18	56	38	-	-	20	2.23	16	1.92	27.7
31.66	52.6	134.5	52.4	1.7	-10.8	3.3	4	clayy SILT to silty CLAY	115	2.0	26	24	-	-	3.6	9.9	31	2.50	15	1.43	42.7
31.83	47.2	-	47.0	1.9	-10.6	4.1	4	clayy SILT to silty CLAY	115	2.0	24	21	-	-	3.3	9.9	36	2.61	15	-	-
31.99	55.9	139.3	55.7	1.8	-10.8	3.4	4	clayy SILT to silty CLAY	115	2.0	28	26	-	-	3.9	9.9	30	2.49	15	1.18	32.9
32.15	51.2	113.4	51.0	1.2	-10.9	2.4	5	silty SAND to sandy SILT	120	4.0	13	12	42	36	-	-	27	2.43	16	2.11	47.8
32.32	44.7	119.0	44.5	1.3	-10.9	3.0	4	clayy SILT to silty CLAY	115	2.0	22	20	-	-	3.1	9.9	32	2.53	15	2.03	51.2
32.48	26.6	-	26.4	1.2	-10.8	5.0	3	silty CLAY to CLAY	115	1.5	18	16	-	-	1.8	7.2	50	2.87	15	-	-
32.65	20.4	-	20.2	1.2	-10.7	6.3	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.4	61	3.03	15	-	-
32.81	21.9	-	21.7	1.2	-10.7	5.8	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.8	57	2.98	15	-	-
32.97	42.5	103.6	42.3	1.0	-10.8	2.4	4	clayy SILT to silty CLAY	115	2.0	21	19	-	-	2.9	9.9	30	2.48	15	2.27	51.2
33.14	52.8	99.4	52.5	0.9	-10.8	1.8	5	silty SAND to sandy SILT	120	4.0	13	12	43	36	-	-	24	2.34	16	2.35	46.7
33.30	35.7	-	35.5	1.2	-10.7	3.4	4	clayy SILT to silty CLAY	115	2.0	18	15	-	-	2.4	9.6	39	2.67	15	-	-
33.47	20.6	-	20.4	1.1	-10.7	5.9	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.3	59	3.01	15	-	-
33.63	21.0	-	20.8	0.9	-10.7	4.6	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.4	54	2.94	15	-	-
33.79	18.8	-	18.6	0.8	-10.6	4.8	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.2	4.7	58	3.00	15	-	-
33.96	18.5	-	18.2	0.8	-10.6	4.9	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.6	59	3.01	15	-	-
34.12	22.5	-	22.3	0.7	-10.6	3.4	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.8	48	2.83	15	-	-
34.29	17.9	-	17.7	0.7	-10.6	4.5	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.5	58	3.00	15	-	-
34.45	17.5	-	17.3	0.7	-10.6	4.5	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.3	59	3.01	15	-	-
34.61	18.8	-	18.6	1.1	-10.6	6.6	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.2	4.6	65	3.09	15	-	-
34.78	34.6	-	34.3	1.8	-10.7	5.5	3	silty CLAY to CLAY	115	1.5	23	19	-	-	2.4	9.0	48	2.83	15	-	-
34.94	48.2	-	48.0	2.0	-10.7	4.4	4	clayy SILT to silty CLAY	115	2.0	24	20	-	-	3.3	9.9	38	2.65	15	-	-
35.11	58.1	-	57.9	2.7	-10.7	4.9	4	clayy SILT to silty CLAY	115	2.0	29	24	-	-	4.0	9.9	36	2.62	15	-	-
35.27	42.4	-	42.2	2.6	-10.5	6.5	3	silty CLAY to CLAY	115	1.5	28	23	-	-	2.9	9.9	47	2.81	15	-	-
35.43	23.1	-	22.9	1.7	-10.5	8.0	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.7	64	3.08	15	-	-
35.60	18.4	-	18.2	1.0	-10.4	5.9	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.4	64	3.07	15	-	-
35.76	15.8	-	15.5	0.8	-10.4	5.9	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.0	3.7	68	3.14	15	-	-
35.93	15.1	-	14.9	0.7	-10.4	5.4	3	silty CLAY to CLAY	115	1.5	10	8	-	-	1.0	3.5	68	3.13	15	-	-
36.09	17.3	-	17.0	0.8	-10.4	5.5	3	silty CLAY to CLAY	115	1.5	12	9	-	-	1.1	4.1	64	3.08	15	-	-
36.26	19.2	-	19.0	1.0	-10.4	6.0	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.3	4.6	63	3.07	15	-	-
36.42	21.0	-	20.8	1.2	-10.3	6.2	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.4	5.0	62	3.05	15	-	-
36.58	20.8	-	20.6	1.2	-10.4	6.2	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.4	5.0	62	3.05	15	-	-
36.75	19.6	-	19.4	1.1	-10.3	6.3	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.3	4.6	64	3.08	15	-	-
36.91	25.4	-	25.2	1.2	-10.3	5.1	3	silty CLAY to CLAY	115	1.5	17	14	-	-	1.7	6.1	53	2.92	15	-	-
37.08	25.8	-	25.6	1.7	-10.3	7.1	3	silty CLAY to CLAY	115	1.5	17	14	-	-	1.7	6.2	60	3.02	15	-	-
37.24	39.0	-	38.8	2.1	-10.4	5.8	3	silty CLAY to CLAY	115	1.5	26	21	-	-	2.7	9.7	47	2.82	15	-	-
37.40	76.6	176.9	76.3	3.1	-10.4	4.2	4	clayy SILT to silty CLAY	115	2.0	38	33	-	-	5.3	9.9	30	2.48	15	0.00	0.0
37.57	45.6	-	45.4	2.7	-10.5	6.3	3	silty CLAY to CLAY	115	1.5	30	24	-	-	3.1	9.9	46	2.79	15	-	-
37.73	27.1	-	26.9	1.9	-10.5	7.6	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.5	60	3.03	15	-	-
37.90	26.5	-	26.2	1.8	-10.5	7.4	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.3	60	3.03	15	-	-
38.06	35.5	-	35.3	2.2	-10.4	6.5	3	silty CLAY to CLAY	115	1.5	24	18	-	-	2.4	8.6	52	2.89	15	-	-
38.22	81.8	144.6	81.6	2.2	-10.5	2.8	5	silty SAND to sandy SILT	120	4.0	20	18	55	38	-	-	24	2.33	16	0.97	7.9
38.39	65.4	164.2	65.2	2.6	-10.5	4.2	4	clayy SILT to silty CLAY	115	2.0	33	28	-	-	4.5	9.9	32	2.53	15	0.00	0.0
38.55	67.5	156.1	67.3	2.4	-10.3	3.7	4	clayy SILT to silty CLAY	115	2.0	34	29	-	-	4.7	9.9	30	2.49	15	0.48	2.8
38.72	57.7	-	57.5	2.5	-10.3	4.5	4	clayy SILT to silty CLAY	115	2.0	29	22	-	-	4.0	9.9	37	2.62	15	-	-
38.88	64.1	161.3	63.9	2.6	-10.2	4.1	4	clayy SILT to silty CLAY	115	2.0	32	27	-	-	4.4	9.9	32	2.54	15	0.00	0.0
39.04	34.2	-	34.0	1.7	-10.3	5.3	3	silty CLAY to CLAY	115	1.5	23	17	-	-	2.3	8.1	49	2.85	15	-	-
39.21	23.1	-	22.9	1.5	-10.3	7.2	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.5	5.2	64	3.08	15	-	-
39.37	22.6	-	22.4	1.2	-10.2	6.1	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.5	5.1	61	3.04	15	-	-
39.54	26.2	-	26.0	1.4	-10.2	5.9	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.8	6.0	57	2.98	15	-	-
39.70	24.8	-	24.6	1.4	-10.2	6.1	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	5.6	59	3.01	15	-	-
39.86	21.0	-	20.8	1.2	-10.1	6.5	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.4	4.6	65	3.09	15	-	-
40.03	20.0	-	19.8	1.1	-10.1	6.3	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.3	4.4	65	3.10	15	-	-
40.19	19.9	-	19.7	1.2	-10.1	6.7	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.3	4.3	67	3.12	15	-	-
40.36	25.3	-	25.1	1.3	-10.2	5.5	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	5.6	57	2.97	15	-	-
40.52	22.7	-	22.5	1.3	-10.2	6.2	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.5	5.0	62	3.05	15	-	-
40.68	25.0	-	24.8	1.4	-10.2	6.3	3	silty CLAY to CLAY	115	1.5	17	12	-	-	1.7	5.5	60	3.02	15	-	-
40.85	30.5	-	30.3	1.7	-10.2	5.9	3	silty CLAY to CLAY	115	1.5	20	15	-	-	2.1	6.9	54	2.93	15	-	-
41.01	37.0	-	36.8	2.3	-10.2	6.7	3	silty CLAY to CLAY	115	1.5	25	18	-	-	2.5	8.4	52	2.91	15	-	-
41.18	45.8	-	45.6	2.8	-10.3	6.3	3	silty CLAY to CLAY	115	1.5	31	22	-	-	3.1	9.9	47	2.82	15	-	-
41.34	48.6	-	48.4	3.4	-10.2	7.3	3	silty CLAY to CLAY	115	1.5	32	24	-	-	3.3	9.9	49	2.85	15	-	-
41.50	55.3	86.5	55.1	0.7	-10.3	1.4	5	silty SAND to sandy SILT	120	4.0	14	11	41	35	-	-	22	2.28	16	2.63	49.0
41.67	44.7	92.5	44.5	0.8	-10.3	1.9	5	silty SAND to sandy SILT	120	4.0	11	9	34	34	-	-	28	2.44	16	2.49	51.2
41.83	33.7	-	33.5	1.4	-9.4	4.3	3	silty CLAY to CLAY	115	1.5	22	16	-	-	2.3	7.5	47	2.82	15	-	-
42.00	55.9	-	55.7	2.2	-9.4	4.2	4	clayy SILT to silty CLAY	115	2.0	28	20	-	-	3.9	9.9	37	2.63	15	-	-
42.16	131.6	204.1	131.4	4.5	-9.5	3.5	5	silty SAND to sandy SILT	120	4.0	33	27	70	40	-	-	22	2.28	16	0.00	0.0
42.32	166.8	236.2	166.6	5.9	-10.0	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.0	9.9	20	2.22	16	0.00	0.0
42.49	171.3	252.1	171.1	6.6	-10.0	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.3	9.9	21	2.25	16	0.00	0.0
42.65	146.2	248.7	146.0	6.5	-10.7	4.5	9	very stiff fine SOIL	120	2.0	73	60	73	41	-	-	24	2.34	30	0.00	0.0
42.82	97.3	-	97.0	6.4	-11.5	6.7	9	very stiff fine SOIL	120	2.0	49	35	55	38	-	-	37	2.63	30	-	-
42.98	88.5	-	88.3	5.2	-11.3	6.0	4	clayy SILT to silty CLAY	115	2.0	44	31	-	-	6.2	9.9	36	2.61	15	-	-
43.15	119.8	218.6	119.6	5.1	-11.0	4.3	9	very stiff fine SOIL	120	2.0	60	49	66	40	-	-	26	2.38	30	0.00	0.0
43.31	80.5	-	80.3	4.4	-11.0	5.6	4	clayy SILT to silty CLAY	115	2.0	40	28	-	-	5.6	9.9	36	2.62	15	-	-
43.47	47.0	-	46.8	3.9	-11.0	8.8	3	silty CLAY to CLAY	115	1.5	31	22	-	-	3.2	9.9	54	2.93	15	-	-
43.64	104.9	184.9	104.7	3.8	-11.1	3.7	4	clayy SILT to silty CLAY	115	2.0	52	43	-	-	7.3	9.9	25	2.36	15	0.00	0.0
43.80	141.1	176.6	140.9	3.4	-11.2	2.4	5	silty SAND to sandy SILT	120	4.0	35	29	71	40	-	-	17	2.15	16	0.00	0.0
43.97	142.8	167.9	142.6	3.0	-11.3	2.1	5	silty SAND to sandy SILT	120	4.0	36	29	72	40	-	-	16	2.10	16	0.00	0.0
44.13	131.4	181.9	131.1	3.7	-11.5	2.9	5	silty SAND to sandy SILT	120	4.0	33	27	69	40	-	-	20	2.22	16	0.00	0.0
44.29	114.9	206.5	114.7	4.6	-11.7	4.1	4	clayy SILT to silty CLAY	115	2.0	57	46	-	-	8.0	9.9	26	2.38	15	0.00	0.0
44.46	105.0	177.7	104.8	3.5	-11.6	3.4	5	silty SAND to sandy SILT	120	4.0	26	21	61	39	-	-	24	2.34	16	0.00	0.0
44.62	108.2	178.0	108.0	3.5	-11.8	3.4	5	silty SAND to sandy SILT	120	4.0	27	22	62	39	-	-	24	2.33	16	0.00	0.0
44.79	135.9	173.3	135.7	3.3	-12.4	2.5	5	silty SAND to sandy SILT	120	4.0	34	27	70	40	-	-	18	2.17	16	0.00	0.0
44.95	126.1	161.4	125.9	2.9	-12.6	2.4	5	silty SAND to sandy SILT	120	4.0	32	25	67	40	-	-	18	2.17	16	0.00	0.0
45.11	65.5	-	65.2	3.1	-12.4	4.9	4	clayy SILT to silty CLAY	115	2.0	33	22	-	-	4.5	9.9	38	2.65	15	-	-
45.28	38.1	-	37.9	3.3	-12.3	9.4	3	silty CLAY to CLAY	115	1.5	25	17	-	-	2.6	7.9	60	3.03	15	-	-
45.44	75.4	-	75.1	4.1	-12.3	5.6	3	silty CLAY to CLAY	115	1.5	50	34	-	-	5.2	9.9	38	2.66	15	-	-
45.61	102.8	229.9	102.6	5.5	-12.4	5.4	9	very stiff fine SOIL	120	2.0	51	41	60	38	-	-	31	2.51	30	0.00	0.0
45.77	104.7	237.4	104.5	5.8	-12.4	5.7	9	very stiff fine SOIL	120	2.0	52	42	61	39	-	-	31	2.52	30	0.00	0.0
45.93	101.3	244.2	101.0	6.0	-12.4	6.1	9	very stiff fine SOIL	120	2.0	51	40	60	38	-	-	33	2.55	30	0.00	0.0
46.10	98.1	-	97.8	6.1	-12.4	6.4	9	very stiff fine SOIL	120	2.0	49	33	53	38	-	-	36	2.62	30	-	-
46.26	94.5	-	94.2	5.9	-12.4	6.4	3	silty CLAY to CLAY	115	1.5	63	42	-	-	6.6	9.9	37	2.64	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Pacific Materials Laboratory
Data File: SDF(291).cpt
CPT Date: 10/10/2014 1:56:34 PM
GW During Test: 8 ft

Sounding ID: CPT-01
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
46.43	61.1	-	60.8	4.3	-12.3	7.4	3	silty CLAY to CLAY	115	1.5	41	27	-	-	4.2	9.9	47	2.81	15	-	-
46.59	46.0	-	45.8	3.6	-12.3	8.2	3	silty CLAY to CLAY	115	1.5	31	20	-	-	3.1	9.4	54	2.93	15	-	-
46.75	63.3	-	63.1	3.5	-12.3	5.8	3	silty CLAY to CLAY	115	1.5	42	28	-	-	4.4	9.9	42	2.73	15	-	-
46.92	61.9	-	61.7	3.6	-12.3	6.1	3	silty CLAY to CLAY	115	1.5	41	27	-	-	4.3	9.9	43	2.75	15	-	-
47.08	49.1	-	48.8	3.2	-12.3	7.0	3	silty CLAY to CLAY	115	1.5	33	21	-	-	3.4	9.9	50	2.87	15	-	-
47.25	45.1	-	44.9	3.0	-12.3	7.2	3	silty CLAY to CLAY	115	1.5	30	20	-	-	3.1	9.1	52	2.90	15	-	-
47.41	60.3	-	60.1	2.9	-12.4	5.0	3	silty CLAY to CLAY	115	1.5	40	26	-	-	4.2	9.9	40	2.70	15	-	-
47.57	94.0	168.4	93.8	3.2	-12.5	3.5	4	clayy SILT to silty CLAY	115	2.0	47	37	-	-	6.5	9.9	26	2.39	15	0.00	0.0
47.74	80.7	185.2	80.4	3.6	-12.4	4.7	4	clayy SILT to silty CLAY	115	2.0	40	32	-	-	5.6	9.9	32	2.53	15	0.00	0.0
47.90	51.3	-	51.1	2.6	-12.5	5.3	3	silty CLAY to CLAY	115	1.5	34	22	-	-	3.5	9.9	44	2.77	15	-	-
48.07	31.8	-	31.5	2.1	-12.4	7.2	3	silty CLAY to CLAY	115	1.5	21	14	-	-	2.1	6.2	60	3.02	15	-	-
48.23	25.3	-	25.0	1.7	-12.1	7.5	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.7	4.8	67	3.12	15	-	-
48.39	27.5	-	27.2	1.7	-12.1	6.9	3	silty CLAY to CLAY	115	1.5	18	12	-	-	1.8	5.2	63	3.07	15	-	-
48.56	30.0	-	29.8	2.0	-12.1	7.4	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.0	5.7	62	3.05	15	-	-
48.72	34.3	-	34.0	2.3	-12.1	7.4	3	silty CLAY to CLAY	115	1.5	23	15	-	-	2.3	6.6	59	3.01	15	-	-
48.89	39.0	-	38.8	2.7	-12.1	7.3	3	silty CLAY to CLAY	115	1.5	26	17	-	-	2.6	7.6	56	2.97	15	-	-
49.05	45.0	-	44.8	2.9	-12.1	7.0	3	silty CLAY to CLAY	115	1.5	30	19	-	-	3.1	8.8	52	2.90	15	-	-
49.22	42.3	-	42.1	2.9	-12.1	7.4	3	silty CLAY to CLAY	115	1.5	28	18	-	-	2.9	8.2	55	2.94	15	-	-
49.38	38.5	-	38.3	2.9	-12.0	8.2	3	silty CLAY to CLAY	115	1.5	26	16	-	-	2.6	7.4	59	3.01	15	-	-
49.54	45.4	-	45.1	2.9	-12.0	6.9	3	silty CLAY to CLAY	115	1.5	30	19	-	-	3.1	8.8	52	2.90	15	-	-
49.71	42.3	-	42.1	2.8	-12.0	7.2	3	silty CLAY to CLAY	115	1.5	28	18	-	-	2.9	8.2	54	2.94	15	-	-
49.87	38.2	-	38.0	2.8	-12.0	8.1	3	silty CLAY to CLAY	115	1.5	25	16	-	-	2.6	7.3	59	3.01	15	-	-
50.04	44.6	-	44.3	3.4	-11.9	8.1	3	silty CLAY to CLAY	115	1.5	30	19	-	-	3.0	8.6	56	2.96	15	-	-
50.20	83.2	-	83.0	4.7	-12.1	5.8	3	silty CLAY to CLAY	115	1.5	55	35	-	-	5.8	9.9	38	2.66	15	-	-
50.36	97.6	-	97.4	5.7	-12.0	6.0	3	silty CLAY to CLAY	115	1.5	65	40	-	-	6.8	9.9	37	2.62	15	-	-
50.53	132.1	223.3	131.9	5.6	-12.1	4.4	9	very stiff fine SOIL	120	2.0	66	50	67	39	-	-	25	2.37	30	0.00	0.0
50.69	182.3	215.1	182.1	5.2	-12.5	2.9	5	silty SAND to sandy SILT	120	4.0	46	35	78	41	-	-	17	2.15	16	0.00	0.0
50.86	206.7	195.1	206.5	3.6	-12.4	1.8	6	clean SAND to silty SAND	125	5.0	41	32	82	42	-	-	12	1.95	16	0.00	0.0
51.02	191.5	180.9	191.3	3.2	-12.4	1.7	6	clean SAND to silty SAND	125	5.0	38	29	79	41	-	-	12	1.95	16	0.00	0.0
51.18	160.9	204.0	160.7	4.8	-12.3	3.1	5	silty SAND to sandy SILT	120	4.0	40	31	74	40	-	-	19	2.20	16	0.00	0.0
51.35	92.7	-	92.4	4.7	-12.1	5.3	4	clayy SILT to silty CLAY	115	2.0	46	28	-	-	6.4	9.9	35	2.60	15	-	-
51.51	59.9	-	59.6	5.0	-12.1	8.9	3	silty CLAY to CLAY	115	1.5	40	24	-	-	4.1	9.9	52	2.90	15	-	-
51.68	91.3	-	91.0	4.9	-12.0	5.5	4	clayy SILT to silty CLAY	115	2.0	46	28	-	-	6.3	9.9	36	2.62	15	-	-
51.84	136.2	184.0	135.9	4.0	-12.2	3.0	5	silty SAND to sandy SILT	120	4.0	34	26	68	39	-	-	21	2.25	16	0.00	0.0
52.00	133.5	141.6	133.3	2.2	-12.3	1.7	5	silty SAND to sandy SILT	120	4.0	33	25	67	39	-	-	15	2.07	16	1.14	6.3
52.17	85.9	157.9	85.7	2.9	-12.2	3.5	4	clayy SILT to silty CLAY	115	2.0	43	32	-	-	6.0	9.9	28	2.43	15	0.40	2.2
52.33	47.3	-	47.0	2.7	-12.1	6.0	3	silty CLAY to CLAY	115	1.5	32	19	-	-	3.2	8.8	50	2.86	15	-	-
52.50	32.6	-	32.4	2.5	-12.0	8.4	3	silty CLAY to CLAY	115	1.5	22	13	-	-	2.2	5.8	65	3.09	15	-	-
52.66	31.9	-	31.7	2.1	-12.0	7.3	3	silty CLAY to CLAY	115	1.5	21	13	-	-	2.1	5.7	62	3.06	15	-	-
52.82	33.8	-	33.6	2.2	-12.0	7.3	3	silty CLAY to CLAY	115	1.5	23	13	-	-	2.3	6.0	61	3.04	15	-	-
52.99	31.7	-	31.5	2.2	-12.0	7.8	3	silty CLAY to CLAY	115	1.5	21	13	-	-	2.1	5.6	64	3.08	15	-	-
53.15	30.9	-	30.6	2.2	-12.0	8.0	3	silty CLAY to CLAY	115	1.5	21	12	-	-	2.1	5.4	65	3.09	15	-	-
53.32	35.7	-	35.4	2.3	-12.1	7.0	3	silty CLAY to CLAY	115	1.5	24	14	-	-	2.4	6.3	59	3.01	15	-	-
53.48	41.4	-	41.1	2.4	-12.1	6.4	3	silty CLAY to CLAY	115	1.5	28	16	-	-	2.8	7.4	54	2.93	15	-	-
53.64	40.9	-	40.7	2.6	-12.1	6.8	3	silty CLAY to CLAY	115	1.5	27	16	-	-	2.8	7.3	55	2.95	15	-	-
53.81	35.9	-	35.6	3.2	-12.2	9.7	3	silty CLAY to CLAY	115	1.5	24	14	-	-	2.4	6.3	66	3.11	15	-	-
53.97	68.9	-	68.6	4.3	-12.2	6.5	3	silty CLAY to CLAY	115	1.5	46	27	-	-	4.7	9.9	44	2.77	15	-	-
54.14	92.4	-	92.1	5.1	-12.4	5.7	3	silty CLAY to CLAY	115	1.5	62	36	-	-	6.4	9.9	38	2.64	15	-	-
54.30	142.1	211.4	141.9	5.3	-12.4	3.8	5	silty SAND to sandy SILT	120	4.0	36	26	69	39	-	-	23	2.32	16	0.00	0.0
54.46	167.0	174.5	166.7	3.5	-12.5	2.1	5	silty SAND to sandy SILT	120	4.0	42	31	74	40	-	-	15	2.08	16	0.00	0.0
54.63	120.7	176.8	120.5	3.8	-12.3	3.2	5	silty SAND to sandy SILT	120	4.0	30	22	63	39	-	-	23	2.31	16	0.00	0.0
54.79	56.3	-	56.1	3.4	-10.4	6.3	3	silty CLAY to CLAY	115	1.5	38	22	-	-	3.9	9.9	48	2.83	15	-	-
54.96	42.8	-	42.6	3.2	-10.3	8.0	3	silty CLAY to CLAY	115	1.5	29	16	-	-	2.9	7.5	58	2.99	15	-	-
55.12	38.7	-	38.5	3.1	-10.2	8.8	3	silty CLAY to CLAY	115	1.5	26	15	-	-	2.6	6.7	63	3.06	15	-	-
55.28	46.8	-	46.6	3.8	-10.1	8.6	3	silty CLAY to CLAY	115	1.5	31	18	-	-	3.2	8.2	58	2.99	15	-	-
55.45	85.5	-	85.3	4.2	-10.2	5.2	4	clayy SILT to silty CLAY	115	2.0	43	24	-	-	5.9	9.9	37	2.64	15	-	-
55.61	144.5	198.4	144.3	4.8	-10.3	3.4	5	silty SAND to sandy SILT	120	4.0	36	26	69	39	-	-	22	2.28	16	0.00	0.0
55.78	166.2	187.2	166.0	4.2	-10.7	2.6	5	silty SAND to sandy SILT	120	4.0	42	30	73	40	-	-	17	2.14	16	0.00	0.0
55.94	162.1	199.9	161.9	4.8	-10.9	3.0	5	silty SAND to sandy SILT	120	4.0	41	30	73	40	-	-	19	2.21	16	0.00	0.0
56.11	153.1	229.1	152.9	6.2	-10.9	4.2	9	very stiff fine SOIL	120	2.0	77	56	71	40	-	-	24	2.33	30	0.00	0.0
56.27	146.7	243.9	146.5	6.9	-11.1	4.8	9	very stiff fine SOIL	120	2.0	73	54	69	39	-	-	26	2.39	30	0.00	0.0
56.43	198.8	238.6	198.6	6.7	-11.1	3.4	5	silty SAND to sandy SILT	120	4.0	50	36	79	41	-	-	19	2.19	16	0.00	0.0
56.60	235.5	212.8	235.2	4.5	-11.5	1.9	6	clean SAND to silty SAND	125	5.0	47	34	85	42	-	-	12	1.95	16	0.00	0.0
56.76	227.6	204.0	227.3	4.1	-11.6	1.8	6	clean SAND to silty SAND	125	5.0	46	33	84	42	-	-	12	1.94	16	0.00	0.0
56.93	195.1	205.7	194.9	4.9	-11.6	2.6	5	silty SAND to sandy SILT	120	4.0	49	35	78	41	-	-	16	2.10	16	0.00	0.0
57.09	170.9	195.0	170.7	4.6	-11.8	2.7	5	silty SAND to sandy SILT	120	4.0	43	31	74	40	-	-	18	2.16	16	0.00	0.0
57.25	139.4	174.0	139.2	3.8	-11.8	2.8	5	silty SAND to sandy SILT	120	4.0	35	25	67	39	-	-	20	2.22	16	0.00	0.0
57.42	94.1	174.0	93.9	3.6	-11.9	4.0	4	clayy SILT to silty CLAY	115	2.0	47	34	-	-	6.5	9.9	29	2.46	15	0.00	0.0
57.58	47.2	-	46.9	3.3	-11.7	7.5	3	silty CLAY to CLAY	115	1.5	31	17	-	-	3.2	8.0	56	2.96	15	-	-
57.75	41.8	-	41.6	2.4	-11.8	6.4	3	silty CLAY to CLAY	115	1.5	28	15	-	-	2.8	7.0	55	2.95	15	-	-
57.91	38.6	-	38.4	2.3	-11.8	6.5	3	silty CLAY to CLAY	115	1.5	26	14	-	-	2.6	6.4	57	2.98	15	-	-
58.07	41.2	-	41.0	2.6	-12.1	6.9	3	silty CLAY to CLAY	115	1.5	27	15	-	-	2.8	6.8	57	2.98	15	-	-
58.24	44.0	-	43.7	3.4	-12.1	8.5	3	silty CLAY to CLAY	115	1.5	29	16	-	-	3.0	7.3	60	3.02	15	-	-
58.40	117.4	196.1	117.1	4.7	-12.2	4.1	4	clayy SILT to silty CLAY	115	2.0	59	42	-	-	8.2	9.9	27	2.40	15	0.00	0.0
58.57	211.6	217.3	211.4	5.4	-12.5	2.6	5	silty SAND to sandy SILT	120	4.0	53	38	81	41	-	-	15	2.09	16	0.00	0.0
58.73	243.1	219.2	242.8	4.9	-12.5	2.0	6	clean SAND to silty SAND	125	5.0	49	35	85	42	-	-	12	1.97	16	0.00	0.0
58.89	249.4	220.9	249.1	4.9	-12.6	2.0	6	clean SAND to silty SAND	125	5.0	50	36	86	42	-	-	12	1.95	16	0.00	0.0
59.06	252.6	222.2	252.4	4.9	-12.6	2.0	6	clean SAND to silty SAND	125	5.0	51	36	86	42	-	-	11	1.94	16	0.00	0.0
59.22	256.3	221.7	256.1	4.8	-12.6	1.9	6	clean SAND to silty SAND	125	5.0	51	37	87	42	-	-	11	1.93	16	0.00	0.0
59.39	245.2	213.7	244.9	4.5	-12.6	1.9	6	clean SAND to silty SAND	125	5.0	49	35	85	42	-	-	11	1.94	16	0.00	0.0
59.55	220.4	199.8	220.2	4.2	-12.5	1.9	6	clean SAND to silty SAND	125	5.0	44	31	82	41	-	-	12	1.98	16	0.00	0.0
59.71	199.9	190.7	199.7	4.1	-12.4	2.1	5	silty SAND to sandy SILT	120	4.0	50	35	79	41	-	-	14	2.03	16	0.00	0.0
59.88	184.8	182.0	184.6	3.9	-12.4	2.1	5	silty SAND to sandy SILT	120	4.0	46	33	76	40	-	-	15	2.06	16	0.00	0.0
60.04	172.4	174.8	172.1	3.7	-12.4	2.2	5	silty SAND to sandy SILT	120	4.0	43	31	74	40	-	-	15	2.09	16	0.00	0.0
60.21	161.0	176.3	160.8	3.9	-12.4	2.4	5	silty SAND to sandy SILT	120	4.0	40	28	71	40	-	-	17	2.15	16	0.00	0.0
60.37	164.7	183.6	164.5	4.2	-12.5	2.6	5	silty SAND to sandy SILT	120	4.0	41	29	72	40	-	-	18	2.16	16	0.00	0.0
60.53	167.8	179.2	167.5	4.0	-12.8	2.4	5	silty SAND to sandy SILT	120	4.0	42	30	73	40	-	-	17	2.13	16	0.00	0.0
60.70	169.1	173.8	168.9	3.7	-12.9	2.2	5	silty SAND to sandy SILT	120	4.0	42	30	73	40	-	-	16	2.10	16	0.00	0.0
60.86	154.9	172.4	154.7	3.7	-13.0	2.5	5	silty SAND to sandy SILT	120	4.0	39	27	70	39	-	-	18	2.16	16	0.00	0.0
61.03	137.3	167.2	137.0	3.6	-13.0	2.7	5	silty SAND to sandy SILT	120	4.0	34	24	66	39	-	-	20	2.23	16	0.00	0.0
61.19	126.8	174.2	126.5	3.9	-13.0	3.1	5	silty SAND to sandy SILT	120	4.0	32	22	63	38	-	-	23	2.30	16	0.00	0.0
61.35	125.5	168.2	125.3	3.6	-13.1	3.0	5	silty SAND to sandy SILT	120	4.0	31	22	63	38	-	-	22	2.29	16	0.00	0.0
61.52	113.6	152.4	113.3	3.0	-13.2	2.7	5	silty SAND to sandy SILT	120	4.0	28	20	59	38	-	-	22	2.29	16	0.52	2.9
61.68	89.8	150.2	89.5	2.8	-13.2	3.2	4	clayy SILT to silty CLAY	115	2.0	45	31	-	-	6.2	9.9	27	2.42	15	0.54	3.3

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Pacific Materials Laboratory
Data File: SDF(291).cpt
CPT Date: 10/10/2014 1:56:34 PM
GW During Test: 8 ft

Sounding ID: CPT-01
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
61.85	54.7	-	54.5	2.4	-13.1	4.7	3	silty CLAY to CLAY	115	1.5	36	19	-	-	3.7	8.7	45	2.79	15	-	-
62.01	40.3	-	40.0	2.2	-13.0	5.9	3	silty CLAY to CLAY	115	1.5	27	14	-	-	2.7	6.2	56	2.96	15	-	-
62.17	37.4	-	37.2	1.7	-13.0	5.2	3	silty CLAY to CLAY	115	1.5	25	13	-	-	2.5	5.7	55	2.95	15	-	-
62.34	32.1	-	31.8	2.2	-13.0	7.8	3	silty CLAY to CLAY	115	1.5	21	11	-	-	2.1	4.8	67	3.13	15	-	-
62.50	73.0	122.8	72.7	1.8	-13.2	2.6	5	silty SAND to sandy SILT	120	4.0	18	13	45	35	-	-	27	2.43	16	1.87	43.3
62.67	126.5	129.7	126.2	2.1	-13.2	1.7	5	silty SAND to sandy SILT	120	4.0	32	22	63	38	-	-	16	2.11	16	1.63	13.3
62.83	115.3	159.6	115.1	3.3	-13.2	3.0	5	silty SAND to sandy SILT	120	4.0	29	20	60	38	-	-	23	2.31	16	0.31	1.7
63.00	72.8	-	72.6	3.4	-13.1	4.9	3	silty CLAY to CLAY	115	1.5	49	25	-	-	5.0	9.9	41	2.71	15	-	-
63.16	49.2	-	48.9	2.8	-13.0	6.2	3	silty CLAY to CLAY	115	1.5	33	17	-	-	3.3	7.6	53	2.91	15	-	-
63.32	41.2	-	41.0	1.8	-13.0	4.7	3	silty CLAY to CLAY	115	1.5	27	14	-	-	2.8	6.3	52	2.89	15	-	-
63.49	35.0	-	34.8	1.4	-12.9	4.3	3	silty CLAY to CLAY	115	1.5	23	12	-	-	2.3	5.2	54	2.93	15	-	-
63.65	31.8	-	31.6	1.4	-12.9	5.0	3	silty CLAY to CLAY	115	1.5	21	11	-	-	2.1	4.7	59	3.01	15	-	-
63.82	34.4	-	34.1	1.5	-12.9	4.8	3	silty CLAY to CLAY	115	1.5	23	12	-	-	2.3	5.1	57	2.97	15	-	-
63.98	37.3	-	37.1	1.6	-12.9	4.9	3	silty CLAY to CLAY	115	1.5	25	13	-	-	2.5	5.6	55	2.95	15	-	-
64.14	38.1	-	37.9	2.1	-12.9	6.0	3	silty CLAY to CLAY	115	1.5	25	13	-	-	2.6	5.7	58	3.00	15	-	-
64.31	50.6	-	50.3	2.1	-13.0	4.4	3	silty CLAY to CLAY	115	1.5	34	17	-	-	3.4	7.7	46	2.81	15	-	-
64.47	44.4	-	44.2	1.9	-12.9	4.6	3	silty CLAY to CLAY	115	1.5	30	15	-	-	3.0	6.7	50	2.87	15	-	-
64.64	37.9	-	37.7	2.2	-12.9	6.3	3	silty CLAY to CLAY	115	1.5	25	13	-	-	2.5	5.6	60	3.02	15	-	-
64.80	38.6	-	38.4	2.1	-12.3	6.0	3	silty CLAY to CLAY	115	1.5	26	13	-	-	2.6	5.7	58	3.00	15	-	-
64.96	39.2	-	39.0	2.0	-12.2	5.7	3	silty CLAY to CLAY	115	1.5	26	13	-	-	2.6	5.8	57	2.98	15	-	-
65.13	39.3	-	39.0	2.1	-12.2	6.0	3	silty CLAY to CLAY	115	1.5	26	13	-	-	2.6	5.8	58	2.99	15	-	-
65.29	39.6	-	39.4	2.3	-12.1	6.3	3	silty CLAY to CLAY	115	1.5	26	13	-	-	2.7	5.8	59	3.00	15	-	-
65.46	43.0	-	42.8	2.6	-12.2	6.6	3	silty CLAY to CLAY	115	1.5	29	14	-	-	2.9	6.4	58	2.99	15	-	-
65.62	47.6	-	47.4	3.4	-12.2	7.7	3	silty CLAY to CLAY	115	1.5	32	16	-	-	3.2	7.1	58	3.00	15	-	-
65.78	70.2	-	70.0	3.9	-12.2	5.9	3	silty CLAY to CLAY	115	1.5	47	23	-	-	4.8	9.9	46	2.79	15	-	-
65.95	95.9	-	95.7	4.9	-12.2	5.3	3	silty CLAY to CLAY	115	1.5	64	31	-	-	6.6	9.9	38	2.66	15	-	-
66.11	63.9	-	63.6	3.6	-12.1	6.0	3	silty CLAY to CLAY	115	1.5	43	21	-	-	4.4	9.7	48	2.83	15	-	-
66.28	41.7	-	41.5	3.7	-12.0	9.7	3	silty CLAY to CLAY	115	1.5	28	14	-	-	2.8	6.1	67	3.12	15	-	-
66.44	89.1	-	88.9	3.8	-12.0	4.4	4	clayy SILT to silty CLAY	115	2.0	45	22	-	-	6.2	9.9	37	2.63	15	-	-
66.60	148.2	183.1	148.0	4.4	-12.2	3.1	5	silty SAND to sandy SILT	120	4.0	37	25	67	39	-	-	21	2.26	16	0.00	0.0
66.77	149.4	178.6	149.2	4.2	-12.2	2.9	5	silty SAND to sandy SILT	120	4.0	37	25	67	39	-	-	20	2.24	16	0.00	0.0
66.93	142.9	182.8	142.6	4.4	-12.2	3.2	5	silty SAND to sandy SILT	120	4.0	36	24	66	38	-	-	22	2.28	16	0.00	0.0
67.10	130.8	148.7	130.6	2.9	-12.1	2.3	5	silty SAND to sandy SILT	120	4.0	33	22	63	38	-	-	19	2.21	16	0.59	3.3
67.26	77.0	129.9	76.7	2.1	-12.0	2.9	4	clayy SILT to silty CLAY	115	2.0	38	26	-	-	5.3	9.9	28	2.44	15	1.42	34.1
67.42	43.1	-	42.9	2.7	-11.9	7.0	3	silty CLAY to CLAY	115	1.5	29	14	-	-	2.9	6.2	59	3.01	15	-	-
67.59	60.7	-	60.5	3.0	-11.9	5.3	3	silty CLAY to CLAY	115	1.5	40	19	-	-	4.1	9.0	47	2.82	15	-	-
67.75	162.0	147.7	161.8	2.6	-12.3	1.7	5	silty SAND to sandy SILT	120	4.0	40	27	70	39	-	-	14	2.04	16	0.67	3.4
67.92	173.7	169.7	173.5	3.7	-12.1	2.2	5	silty SAND to sandy SILT	120	4.0	43	29	72	39	-	-	16	2.10	16	0.00	0.0
68.08	87.1	-	86.9	4.2	-11.4	5.0	3	silty CLAY to CLAY	115	1.5	58	28	-	-	6.0	9.9	40	2.68	15	-	-
68.24	61.5	-	61.3	4.7	-11.4	8.1	3	silty CLAY to CLAY	115	1.5	41	19	-	-	4.2	9.0	55	2.94	15	-	-
68.41	48.4	-	48.2	3.7	-11.4	8.3	3	silty CLAY to CLAY	115	1.5	32	15	-	-	3.3	6.9	61	3.03	15	-	-
68.57	45.3	-	45.0	3.3	-11.3	7.9	3	silty CLAY to CLAY	115	1.5	30	14	-	-	3.0	6.4	61	3.04	15	-	-
68.74	44.4	-	44.2	3.0	-11.3	7.4	3	silty CLAY to CLAY	115	1.5	30	14	-	-	3.0	6.3	60	3.03	15	-	-
68.90	42.8	-	42.6	3.0	-11.3	7.7	3	silty CLAY to CLAY	115	1.5	29	13	-	-	2.9	6.0	62	3.05	15	-	-
69.07	38.9	-	38.6	2.7	-11.3	7.7	3	silty CLAY to CLAY	115	1.5	26	12	-	-	2.6	5.4	64	3.09	15	-	-
69.23	33.1	-	32.9	2.3	-11.3	7.8	3	silty CLAY to CLAY	115	1.5	22	10	-	-	2.2	4.5	69	3.15	15	-	-
69.39	30.7	-	30.5	1.8	-11.3	6.6	3	silty CLAY to CLAY	115	1.5	20	10	-	-	2.0	4.1	68	3.13	15	-	-
69.56	31.5	-	31.2	1.9	-11.4	6.9	3	silty CLAY to CLAY	115	1.5	21	10	-	-	2.1	4.2	68	3.13	15	-	-
69.72	35.0	-	34.8	2.2	-11.4	7.1	3	silty CLAY to CLAY	115	1.5	23	11	-	-	2.3	4.8	66	3.10	15	-	-
69.89	47.7	-	47.5	2.6	-11.4	5.9	3	silty CLAY to CLAY	115	1.5	32	15	-	-	3.2	6.7	54	2.94	15	-	-
70.05	55.0	-	54.8	3.1	-11.5	6.0	3	silty CLAY to CLAY	115	1.5	37	17	-	-	3.7	7.8	52	2.90	15	-	-
70.21	56.5	-	56.3	3.6	-11.9	6.8	3	silty CLAY to CLAY	115	1.5	38	17	-	-	3.8	8.0	54	2.93	15	-	-
70.38	58.3	-	58.1	3.2	-11.4	5.9	3	silty CLAY to CLAY	115	1.5	39	18	-	-	4.0	8.3	50	2.87	15	-	-
70.54	50.7	-	50.5	3.1	-11.4	6.7	3	silty CLAY to CLAY	115	1.5	34	16	-	-	3.4	7.1	56	2.96	15	-	-
70.71	40.0	-	39.8	2.5	-11.4	6.8	3	silty CLAY to CLAY	115	1.5	27	12	-	-	2.7	5.5	62	3.05	15	-	-
70.87	37.0	-	36.7	2.8	-11.4	8.6	3	silty CLAY to CLAY	115	1.5	25	11	-	-	2.5	5.0	69	3.14	15	-	-
71.03	44.9	-	44.6	4.2	-11.6	9.9	3	silty CLAY to CLAY	115	1.5	30	14	-	-	3.0	6.2	67	3.12	15	-	-
71.20	101.8	-	101.6	4.8	-11.5	4.9	4	clayy SILT to silty CLAY	115	2.0	51	23	-	-	7.0	9.9	37	2.64	15	-	-
71.36	156.0	177.1	155.7	4.3	-11.8	2.8	5	silty SAND to sandy SILT	120	4.0	39	26	68	39	-	-	20	2.22	16	0.00	0.0
71.53	136.2	164.4	136.0	3.7	-11.8	2.8	5	silty SAND to sandy SILT	120	4.0	34	22	63	38	-	-	21	2.26	16	0.00	0.0
71.69	75.7	-	75.5	3.7	-11.7	5.2	3	silty CLAY to CLAY	115	1.5	50	23	-	-	5.2	9.9	43	2.75	15	-	-
71.85	45.0	-	44.7	3.2	-11.6	7.8	3	silty CLAY to CLAY	115	1.5	30	14	-	-	3.0	6.1	62	3.05	15	-	-
72.02	37.5	-	37.3	2.5	-11.4	7.4	3	silty CLAY to CLAY	115	1.5	25	11	-	-	2.5	5.0	65	3.10	15	-	-
72.18	40.1	-	39.9	2.8	-11.4	7.7	3	silty CLAY to CLAY	115	1.5	27	12	-	-	2.7	5.4	65	3.09	15	-	-
72.35	40.1	-	39.9	2.8	-11.3	7.7	3	silty CLAY to CLAY	115	1.5	27	12	-	-	2.7	5.4	65	3.09	15	-	-
72.51	38.5	-	38.3	2.7	-11.4	8.0	3	silty CLAY to CLAY	115	1.5	26	12	-	-	2.6	5.1	67	3.12	15	-	-
72.67	37.3	-	37.1	2.4	-11.4	7.1	3	silty CLAY to CLAY	115	1.5	25	11	-	-	2.5	4.9	65	3.09	15	-	-
72.84	35.9	-	35.7	2.2	-11.3	7.0	3	silty CLAY to CLAY	115	1.5	24	11	-	-	2.4	4.7	66	3.10	15	-	-
73.00	36.1	-	35.9	2.4	-11.3	7.6	3	silty CLAY to CLAY	115	1.5	24	11	-	-	2.4	4.7	67	3.13	15	-	-
73.17	39.7	-	39.4	2.8	-11.4	7.8	3	silty CLAY to CLAY	115	1.5	26	12	-	-	2.6	5.2	66	3.10	15	-	-
73.33	63.2	-	63.0	3.3	-11.5	5.6	3	silty CLAY to CLAY	115	1.5	42	19	-	-	4.3	8.7	49	2.84	15	-	-
73.49	64.7	-	64.5	3.7	-11.6	6.2	3	silty CLAY to CLAY	115	1.5	43	19	-	-	4.4	8.9	50	2.87	15	-	-
73.66	69.3	-	69.0	4.4	-11.7	6.7	3	silty CLAY to CLAY	115	1.5	46	21	-	-	4.7	9.5	50	2.87	15	-	-
73.82	67.4	-	67.2	4.1	-11.5	6.5	3	silty CLAY to CLAY	115	1.5	45	20	-	-	4.6	9.2	50	2.87	15	-	-
73.99	56.1	-	55.9	3.2	-11.5	6.3	3	silty CLAY to CLAY	115	1.5	37	17	-	-	3.8	7.6	53	2.92	15	-	-
74.15	55.3	-	55.1	4.2	-11.4	8.2	3	silty CLAY to CLAY	115	1.5	37	16	-	-	3.7	7.4	59	3.01	15	-	-
74.31	76.6	-	76.3	4.9	-11.3	6.7	3	silty CLAY to CLAY	115	1.5	51	23	-	-	5.2	9.9	48	2.84	15	-	-
74.48	76.6	-	76.4	4.5	-11.2	6.2	3	silty CLAY to CLAY	115	1.5	51	23	-	-	5.3	9.9	47	2.81	15	-	-
74.64	71.5	-	71.3	3.6	-11.2	5.4	3	silty CLAY to CLAY	115	1.5	48	21	-	-	4.9	9.7	46	2.80	15	-	-
74.81	63.4	-	63.2	4.0	-11.2	6.8	3	silty CLAY to CLAY	115	1.5	42	19	-	-	4.3	8.5	52	2.90	15	-	-
74.97	65.1	-	64.9	4.8	-11.1	7.9	3	silty CLAY to CLAY	115	1.5	43	19	-	-	4.4	8.8	55	2.94	15	-	-
75.13	81.0	-	80.7	5.6	-11.1	7.3	3	silty CLAY to CLAY	115	1.5	54	24	-	-	5.6	9.9	49	2.85	15	-	-
75.30	90.6	-	90.3	6.2	-10.9	7.3	3	silty CLAY to CLAY	115	1.5	60	26	-	-	6.2	9.9	47	2.81	15	-	-
75.46	83.2	-	83.0	6.3	-10.9	8.0	3	silty CLAY to CLAY	115	1.5	55	24	-	-	5.7	9.9	50	2.87	15	-	-
75.63	80.0	-	79.8	6.0	-10.9	7.9	3	silty CLAY to CLAY	115	1.5	53	23	-	-	5.5	9.9	51	2.88	15	-	-
75.79	77.5	-	77.3	6.3	-10.8	8.6	3	silty CLAY to CLAY	115	1.5	52	22	-	-	5.3	9.9	53	2.92	15	-	-
75.96	93.0	-	92.8	6.3	-11.1	7.1	3	silty CLAY to CLAY	115	1.5	62	27	-	-	6.4	9.9	46	2.80	15	-	-
76.12	123.7	-	123.5	6.9	-10.8	5.8	3	silty CLAY to CLAY	115	1.5	82	36	-	-	8.6	9.9	38	2.65	15	-	-
76.28	114.5	-	114.3	6.6	-10.9	6.0	3	silty CLAY to CLAY	115	1.5	76	33	-	-	7.9	9.9	40	2.69	15	-	-
76.45	69.2	-	69.0	6.1	-11.0	9.5	3	silty CLAY to CLAY	115	1.5	46	20	-	-	4.7	9.2	58	2.99	15	-	-
76.61	150.3	211.5	150.1	6.1	-11.3	4.2	4	clayy SILT to silty CLAY	115	2.0	75	48	-	-	10.5	9.9	25	2.37	15	0.00	0.0
76.78	232.6	207.3	232.4	5.5	-11.4	2.4	5	silty SAND to sandy SILT	120	4.0	58	37	80	41	-	-	15	2.07	16	0.00	0.0
76.94	236.3	182.5	236.1	3.7	-11.5	1.6	6	clean SAND to silty SAND	125	5.0	47	30	80	41	-	-	11	1.93	16	0.00	0.0
77.10	247.5	177.4	247.3	3.0	-11.8	1.2	6	clean SAND to silty SAND	125	5.0	49	31	82	41	-	-	9	1.83	16	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Pacific Materials Laboratory
Data File: SDF(291).cpt
CPT Date: 10/10/2014 1:56:34 PM
GW During Test: 8 ft

Sounding ID: CPT-01
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk -	* Vol Strn %	* Cycl SStn %
77.27	263.6	180.1	263.4	2.7	-12.0	1.0	6	clean SAND to silty SAND	125	5.0	53	33	84	41	-	-	7	1.76	16	0.00	0.0
77.43	260.7	182.3	260.5	2.9	-12.3	1.1	6	clean SAND to silty SAND	125	5.0	52	33	84	41	-	-	8	1.80	16	0.00	0.0
77.60	241.4	166.6	241.1	2.4	-11.8	1.0	6	clean SAND to silty SAND	125	5.0	48	31	81	41	-	-	8	1.78	16	0.00	0.0
77.76	240.3	166.4	240.1	2.4	-11.9	1.0	6	clean SAND to silty SAND	125	5.0	48	30	81	41	-	-	8	1.78	16	0.00	0.0
77.92	243.8	189.4	243.5	4.1	-12.0	1.7	6	clean SAND to silty SAND	125	5.0	49	31	81	41	-	-	11	1.94	16	0.00	0.0
78.09	242.1	200.5	241.9	4.9	-12.2	2.1	5	silty SAND to sandy SILT	120	4.0	61	38	81	41	-	-	13	2.01	16	0.00	0.0
78.25	227.4	189.5	227.2	4.5	-12.3	2.0	5	silty SAND to sandy SILT	120	4.0	57	36	79	40	-	-	13	2.02	16	0.00	0.0
78.42	219.8	179.0	219.6	3.9	-12.4	1.8	6	clean SAND to silty SAND	125	5.0	44	28	78	40	-	-	13	2.00	16	0.00	0.0
78.58	204.1	168.7	203.8	3.6	-12.5	1.8	5	silty SAND to sandy SILT	120	4.0	51	32	75	40	-	-	13	2.01	16	0.00	0.0
78.74	188.9	159.1	188.6	3.2	-12.6	1.8	5	silty SAND to sandy SILT	120	4.0	47	30	73	39	-	-	14	2.03	16	0.27	1.9
78.91	167.1	172.3	166.9	4.2	-12.5	2.6	5	silty SAND to sandy SILT	120	4.0	42	26	69	39	-	-	19	2.19	16	0.00	0.0
79.07	114.5	-	114.3	5.3	-12.4	4.8	4	clayy SILT to silty CLAY	115	2.0	57	24	-	-	7.9	9.9	37	2.62	15	-	-
79.24	74.4	-	74.2	4.9	-12.5	7.1	3	silty CLAY to CLAY	115	1.5	50	21	-	-	5.1	9.6	51	2.88	15	-	-
79.40	64.7	-	64.4	4.8	-12.6	7.9	3	silty CLAY to CLAY	115	1.5	43	18	-	-	4.4	8.2	56	2.97	15	-	-
79.56	97.0	-	96.7	4.5	-12.7	4.9	3	silty CLAY to CLAY	115	1.5	65	27	-	-	6.7	9.9	40	2.68	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

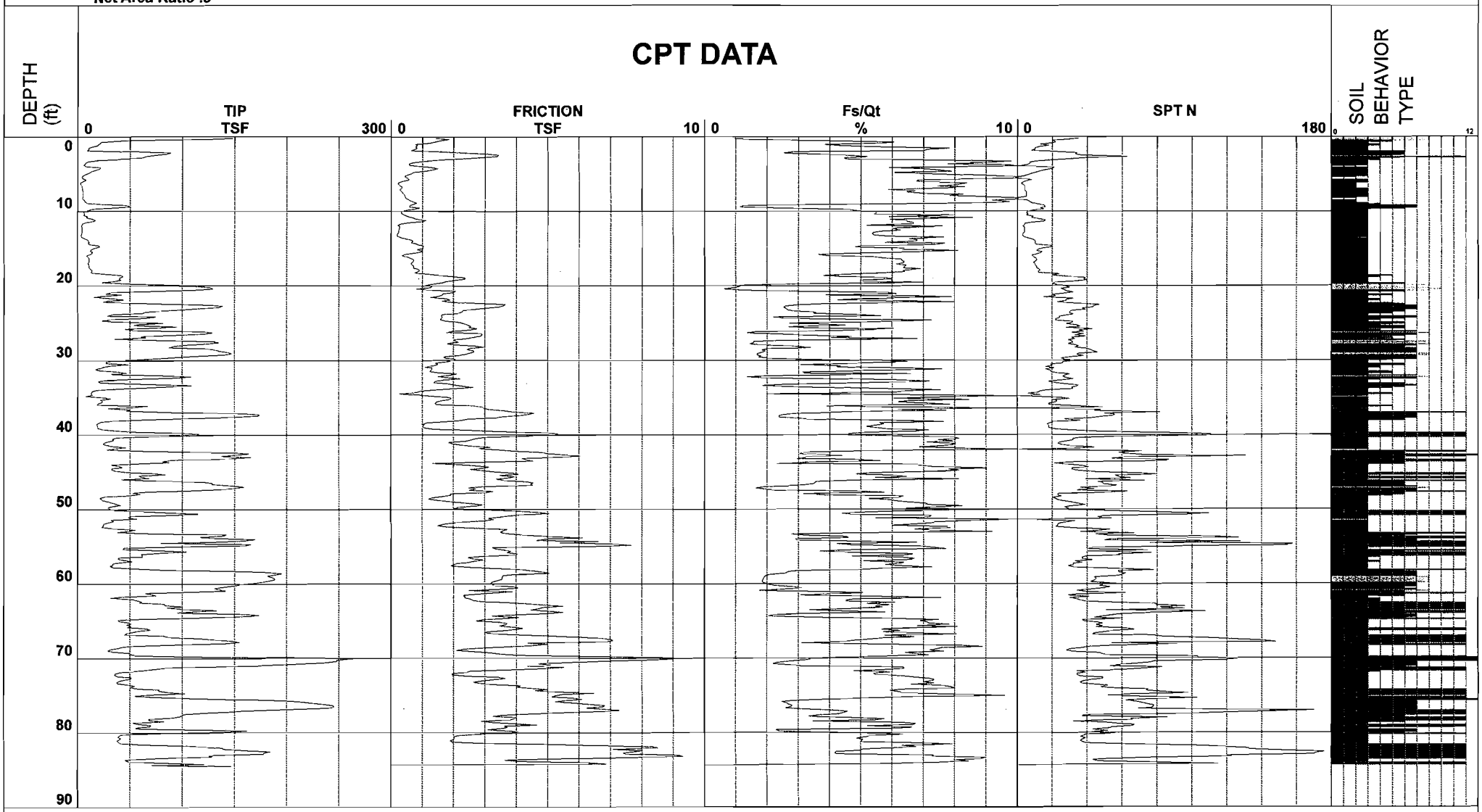
Middle Earth Geo Testing

Pacific Materials Laboratory

Project	Carpentaria Hotel	Operator	DG-BH	Filename	SDF(292).cpt
Job Number	Carpentaria Hotel	Cone Number	DDG1268	GPS	
Hole Number	CPT-02	Date and Time	10/10/2014 3:05:48 PM	Maximum Depth	84.48 ft
EST GW Depth During Test		8.00 ft			

Net Area Ratio .8

CPT DATA



- 1 - sensitive fine grained
- 2 - organic material
- 3 - clay
- 4 - silty clay to clay
- 5 - clayey silt to silty clay
- 6 - sandy silt to clayey silt
- 7 - silty sand to sandy silt
- 8 - sand to silty sand
- 9 - sand
- 10 - gravelly sand to sand
- 11 - very stiff fine grained (*)
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Carpentaria Hotel

Project ID: Pacific Materials Laboratory
Data File: SDF(292).cpt
CPT Date: 10/10/2014 3:05:48 PM
GW During Test: 8 ft

Sounding ID: CPT-02
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
0.33	122.0	220.6	122.0	1.8	-0.3	1.5	6	clean SAND to silty SAND	125	5.0	24	39	89	48	-	-	9	1.83	16	N/A	N/A
0.49	42.2	165.6	42.2	1.6	-0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	21	34	-	-	3.0	9.9	28	2.43	15	N/A	N/A
0.66	22.9	-	22.9	1.4	-0.3	6.0	3	silty CLAY to CLAY	115	1.5	15	25	-	-	1.6	9.9	44	2.76	15	N/A	N/A
0.82	21.3	-	21.3	1.2	-0.2	5.6	3	silty CLAY to CLAY	115	1.5	14	23	-	-	1.5	9.9	44	2.76	15	N/A	N/A
0.98	19.9	-	19.9	0.8	-2.0	3.8	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	1.4	9.9	39	2.67	15	N/A	N/A
1.15	18.9	-	18.9	0.8	-2.2	4.4	3	silty CLAY to CLAY	115	1.5	13	20	-	-	1.3	9.9	42	2.73	15	N/A	N/A
1.31	14.0	-	13.9	0.8	-2.4	5.5	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.0	9.9	51	2.89	15	N/A	N/A
1.48	10.3	-	10.3	0.8	-2.3	7.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	65	3.09	15	N/A	N/A
1.64	10.7	-	10.6	0.8	-5.4	7.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	62	3.05	15	N/A	N/A
1.80	8.9	-	8.8	0.6	-5.2	7.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	9.9	66	3.11	15	N/A	N/A
1.97	49.5	153.5	49.4	1.4	-5.0	2.8	5	silty SAND to sandy SILT	120	4.0	12	20	59	47	-	-	22	2.30	16	N/A	N/A
2.13	89.0	205.1	88.9	2.3	-1.9	2.5	5	silty SAND to sandy SILT	120	4.0	22	36	79	48	-	-	16	2.09	16	N/A	N/A
2.30	85.6	235.9	85.6	3.1	-1.0	3.6	8	stiff SAND to clayy SAND	115	1.0	86	100	-	-	5.7	9.9	20	2.22	16	N/A	N/A
2.46	74.9	249.9	74.9	3.4	-0.5	4.6	9	very stiff fine SOIL	120	2.0	37	60	73	48	-	-	24	2.34	30	N/A	N/A
2.62	65.3	250.7	65.3	3.4	-0.5	5.2	9	very stiff fine SOIL	120	2.0	33	52	69	47	-	-	27	2.42	30	N/A	N/A
2.79	62.7	224.1	62.7	2.8	-0.7	4.5	9	very stiff fine SOIL	120	2.0	31	50	67	47	-	-	26	2.38	30	N/A	N/A
2.95	49.1	198.7	49.0	2.2	-4.6	4.5	4	clayy SILT to silty CLAY	115	2.0	25	39	-	-	3.5	9.9	28	2.45	15	N/A	N/A
3.12	20.5	-	20.3	1.5	-6.1	7.4	3	silty CLAY to CLAY	115	1.5	14	22	-	-	1.4	9.9	50	2.86	15	N/A	N/A
3.28	10.3	-	10.2	1.0	-5.6	10.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	70	3.17	15	N/A	N/A
3.45	7.7	-	7.6	0.7	-5.5	9.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	9.9	76	3.24	15	N/A	N/A
3.61	7.3	-	7.2	0.6	-5.5	8.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	9.9	74	3.22	15	N/A	N/A
3.77	5.8	-	5.7	0.6	-5.5	9.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	8.3	86	3.35	15	N/A	N/A
3.94	7.3	-	7.2	0.9	-5.6	9.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	9.9	79	3.28	15	N/A	N/A
4.10	21.8	-	21.7	1.3	-5.7	6.0	3	silty CLAY to CLAY	115	1.5	15	23	-	-	1.5	9.9	45	2.78	15	N/A	N/A
4.27	21.1	-	21.0	1.5	-5.9	7.1	3	silty CLAY to CLAY	115	1.5	14	23	-	-	1.5	9.9	48	2.84	15	N/A	N/A
4.43	17.2	-	17.1	1.3	-5.9	7.6	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	9.9	54	2.93	15	N/A	N/A
4.59	13.6	-	13.5	1.1	-5.6	8.1	3	silty CLAY to CLAY	115	1.5	9	15	-	-	0.9	9.9	60	3.02	15	N/A	N/A
4.76	11.7	-	11.6	0.7	-5.4	6.2	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	9.9	58	2.99	15	N/A	N/A
4.92	8.8	-	8.7	0.6	-5.3	7.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	9.8	68	3.13	15	N/A	N/A
5.09	6.1	-	6.0	0.5	-4.9	8.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	6.5	81	3.30	15	N/A	N/A
5.25	4.6	-	4.5	0.4	-4.7	10.0	2	Organic SOILS - Peats	100	1.0	5	7	-	-	0.5	4.7	94	3.44	10	N/A	N/A
5.41	4.0	-	3.9	0.4	-4.7	9.9	2	Organic SOILS - Peats	100	1.0	4	6	-	-	0.4	3.9	95	3.49	10	N/A	N/A
5.58	4.8	-	4.7	0.5	-4.7	9.9	2	Organic SOILS - Peats	100	1.0	5	8	-	-	0.5	4.6	92	3.43	10	N/A	N/A
5.74	8.2	-	8.1	0.6	-4.7	7.1	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	7.8	69	3.15	15	N/A	N/A
5.91	5.6	-	5.4	0.4	-6.9	7.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	5.1	80	3.29	15	N/A	N/A
6.07	2.9	-	2.8	0.2	-6.8	8.7	2	Organic SOILS - Peats	100	1.0	3	5	-	-	0.3	2.5	95	3.58	10	N/A	N/A
6.23	2.5	-	2.4	0.2	-6.8	9.8	2	Organic SOILS - Peats	100	1.0	2	4	-	-	0.2	2.0	95	3.67	10	N/A	N/A
6.40	3.0	-	2.9	0.2	-6.7	9.2	2	Organic SOILS - Peats	100	1.0	3	5	-	-	0.3	2.4	95	3.58	10	N/A	N/A
6.56	3.9	-	3.8	0.3	-6.6	8.2	2	Organic SOILS - Peats	100	1.0	4	6	-	-	0.4	3.1	95	3.46	10	N/A	N/A
6.73	4.2	-	4.1	0.3	-6.6	9.1	2	Organic SOILS - Peats	100	1.0	4	7	-	-	0.4	3.3	95	3.46	10	N/A	N/A
6.89	4.4	-	4.3	0.3	-6.5	7.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.4	89	3.40	15	N/A	N/A
7.05	4.5	-	4.4	0.3	-6.5	6.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.4	84	3.34	15	N/A	N/A
7.22	4.5	-	4.3	0.3	-6.4	7.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.3	88	3.38	15	N/A	N/A
7.38	5.3	-	5.2	0.3	-6.3	7.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	3.8	81	3.30	15	N/A	N/A
7.55	5.2	-	5.1	0.4	-6.3	7.6	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.3	3.7	84	3.33	15	N/A	N/A
7.71	5.0	-	4.9	0.4	-6.2	9.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.4	89	3.39	15	N/A	N/A
7.87	5.4	-	5.3	0.4	-6.2	8.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	3.7	85	3.35	15	N/A	N/A
8.04	5.0	-	4.9	0.4	-6.2	9.6	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.4	91	3.41	15	-	-
8.20	4.5	-	4.3	0.5	-6.2	9.9	2	Organic SOILS - Peats	100	1.0	4	7	-	-	0.4	2.9	95	3.46	10	-	-
8.37	4.9	-	4.8	0.5	-6.1	9.9	2	Organic SOILS - Peats	100	1.0	5	8	-	-	0.5	3.2	92	3.43	10	-	-
8.53	6.4	-	6.3	0.6	-6.0	9.9	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.3	84	3.33	15	-	-
8.69	7.1	-	7.0	0.7	-6.0	9.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.7	81	3.30	15	-	-
8.86	8.5	-	8.4	0.8	-5.8	9.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	5.6	76	3.24	15	-	-
9.02	19.4	-	19.3	0.7	-5.7	3.7	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	1.3	9.9	39	2.67	15	-	-
9.19	45.9	97.4	45.8	0.6	-7.8	1.3	5	silty SAND to sandy SILT	120	4.0	11	16	53	40	-	-	17	2.13	16	2.39	31.2
9.35	50.9	99.4	50.7	0.6	-7.6	1.1	5	silty SAND to sandy SILT	120	4.0	13	18	56	41	-	-	15	2.07	16	2.35	27.6
9.51	34.0	117.3	33.8	0.9	-7.5	2.7	5	silty SAND to sandy SILT	120	4.0	8	12	42	39	-	-	28	2.44	16	1.54	43.1
9.68	15.4	-	15.3	0.7	-7.4	4.7	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.1	9.9	47	2.82	15	-	-
9.84	9.0	-	8.9	0.4	-7.2	5.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.6	61	3.03	15	-	-
10.01	5.8	-	5.7	0.3	-7.0	6.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.5	76	3.24	15	-	-
10.17	5.8	-	5.7	0.3	-6.9	6.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.4	76	3.24	15	-	-
10.34	6.5	-	6.4	0.4	-6.7	5.9	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.8	72	3.19	15	-	-
10.50	5.4	-	5.2	0.4	-6.6	8.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	3.1	88	3.38	15	-	-
10.66	9.2	-	9.1	0.5	-6.5	6.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.5	64	3.08	15	-	-
10.83	8.0	-	7.9	0.7	-6.5	9.3	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.5	4.7	76	3.24	15	-	-
10.99	13.5	-	13.3	0.8	-6.5	6.2	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	8.0	55	2.95	15	-	-
11.16	16.9	-	16.8	1.1	-6.7	6.7	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	9.9	52	2.90	15	-	-
11.32	15.3	-	15.2	1.0	-6.7	6.7	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.0	9.0	54	2.93	15	-	-
11.48	8.3	-	8.2	0.6	-6.8	7.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.7	70	3.16	15	-	-
11.65	4.7	-	4.5	0.3	-6.7	7.8	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.4	90	3.40	15	-	-
11.81	3.8	-	3.7	0.2	-6.5	6.3	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	1.9	92	3.43	15	-	-
11.98	3.4	-	3.3	0.3	-6.5	9.5	2	Organic SOILS - Peats	100	1.0	3	5	-	-	0.3	1.6	95	3.58	10	-	-
12.14	4.3	-	4.2	0.3	-5.9	7.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.1	92	3.42	15	-	-
12.30	4.2	-	4.1	0.3	-5.8	7.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.1	92	3.42	15	-	-
12.47	3.8	-	3.7	0.2	-5.8	7.7	2	Organic SOILS - Peats	100	1.0	4	6	-	-	0.3	1.8	95	3.48	10	-	-
12.63	4.2	-	4.1	0.2	-5.7	6.8	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.0	91	3.41	15	-	-
12.80	4.2	-	4.0	0.2	-5.6	6.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.0	90	3.40	15	-	-
12.96	3.7	-	3.6	0.2	-5.6	6.7	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	1.7	95	3.46	15	-	-
13.12	3.4	-	3.3	0.2	-5.5	6.9	2	Organic SOILS - Peats	100	1.0	3	5	-	-	0.3	1.5	95	3.51	10	-	-
13.29	3.2	-	3.1	0.2	-5.4	7.7	2	Organic SOILS - Peats	100	1.0	3	5	-	-	0.3	1.4	95	3.56	10	-	-
13.45	3.9	-	3.8	0.3	-5.3	9.5	2	Organic SOILS - Peats	100	1.0	4	6	-	-	0.4	1.8	95	3.53	10	-	-
13.62	7.1	-	7.0	0.5	-5.3	7.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.5	75	3.23	15	-	-
13.78	9.4	-	9.3	0.6	-5.2	7.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.8	68	3.13	15	-	-
13.94	10.2	-	10.1	0.7	-5.1	7.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.2	65	3.10	15	-	-
14.11	11.0	-	10.9	0.6	-5.1	6.2	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.7	5.6	60	3.02	15	-	-
14.27	10.1	-	10.0	0.8	-5.0	8.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.0	68	3.14	15	-	-
14.44	11.7	-	11.6	0.9	-4.9	8.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	5.9	64	3.08	15	-	-
14.60	20.6	-	20.5	1.0	-5.0	5.2	3	silty CLAY to CLAY	115	1.5	14	22	-	-	1.4	9.9	44	2.76	15	-	-
14.76	20.7	-	20.6	1.0	-5.6	5.0	3	silty CLAY to CLAY	115	1.5	14	22	-	-	1.4	9.9	43	2.75	15	-	-
14.93	15.9	-	15.8	1.0	-5.5	6.7	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	7.9	54	2.93	15	-	-
15.09	12.9	-	12.8	0.8	-5.3	6.8	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.3	59	3.00	15	-	-
15.26	12.1	-	12.0	1.0	-5.2	8.7	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	5.8	65	3.10	15	-	-
15.42	14.3	-	14.2	0.9	-4.3	6.9	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	6.9	57	2.97	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Carpentaria Hotel

Project ID: Pacific Materials Laboratory
Data File: SDF(292).cpt
CPT Date: 10/10/2014 3:05:48 PM
GW During Test: 8 ft

Sounding ID: CPT-02
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
15.58	13.6	-	13.6	0.7	-4.2	5.1	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.6	52	2.91	15	-	-
15.75	11.7	-	11.6	0.4	-4.1	3.9	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	5.5	51	2.89	15	-	-
15.91	8.6	-	8.5	0.3	-4.0	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	3.9	61	3.03	15	-	-
16.08	9.2	-	9.1	0.5	-3.8	6.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.2	65	3.10	15	-	-
16.24	10.8	-	10.7	0.6	-3.7	6.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.0	62	3.05	15	-	-
16.40	11.1	-	11.0	0.7	-3.6	6.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.1	64	3.07	15	-	-
16.57	11.1	-	11.1	0.7	-3.6	6.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.0	64	3.07	15	-	-
16.73	10.8	-	10.8	0.7	-3.6	7.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	4.9	65	3.09	15	-	-
16.90	9.9	-	9.9	0.6	-3.6	7.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.4	67	3.13	15	-	-
17.06	10.4	-	10.3	0.6	-3.5	6.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.6	66	3.10	15	-	-
17.23	10.9	-	10.8	0.7	-3.4	7.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	4.8	66	3.10	15	-	-
17.39	11.1	-	11.0	0.7	-3.4	7.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	4.8	65	3.09	15	-	-
17.55	11.1	-	11.1	0.7	-3.3	7.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	4.8	65	3.09	15	-	-
17.72	12.3	-	12.2	0.8	-3.3	7.5	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	5.3	64	3.08	15	-	-
17.88	14.0	-	14.0	0.9	-3.2	6.8	3	silty CLAY to CLAY	115	1.5	9	13	-	-	0.9	6.1	59	3.01	15	-	-
18.05	13.1	-	13.0	0.8	-3.2	6.9	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.6	61	3.04	15	-	-
18.21	13.0	-	13.0	0.7	-3.1	6.2	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.6	59	3.01	15	-	-
18.37	25.1	-	25.1	1.2	-3.0	4.9	3	silty CLAY to CLAY	115	1.5	17	23	-	-	1.7	9.9	42	2.72	15	-	-
18.54	42.3	146.9	42.2	1.6	-4.5	3.9	4	clayy SILT to silty CLAY	115	2.0	21	24	-	-	2.9	9.9	33	2.55	15	0.56	2.9
18.70	43.4	171.1	43.3	2.0	-6.3	4.7	4	clayy SILT to silty CLAY	115	2.0	22	27	-	-	3.0	9.9	34	2.58	15	0.00	0.0
18.87	40.4	-	40.3	2.3	-6.7	5.9	3	silty CLAY to CLAY	115	1.5	27	37	-	-	2.8	9.9	38	2.64	15	-	-
19.03	39.6	-	39.4	2.4	-7.0	6.1	3	silty CLAY to CLAY	115	1.5	26	36	-	-	2.7	9.9	39	2.66	15	-	-
19.19	41.5	-	41.4	2.1	-7.1	5.2	4	clayy SILT to silty CLAY	115	2.0	21	25	-	-	2.9	9.9	37	2.63	15	-	-
19.36	34.8	-	34.6	1.8	-7.0	5.2	3	silty CLAY to CLAY	115	1.5	23	31	-	-	2.4	9.9	38	2.65	15	-	-
19.52	23.4	-	23.3	1.6	-7.0	7.3	3	silty CLAY to CLAY	115	1.5	16	21	-	-	1.6	9.9	51	2.89	15	-	-
19.69	52.8	128.7	52.6	1.3	-6.9	2.6	5	silty SAND to sandy SILT	120	4.0	13	15	50	39	-	-	25	2.36	16	1.56	26.9
19.85	96.1	131.2	95.9	1.1	-8.8	1.2	6	clean SAND to silty SAND	125	5.0	19	21	69	42	-	-	11	1.93	16	1.42	6.8
20.01	115.2	149.2	115.0	1.3	-9.1	1.1	6	clean SAND to silty SAND	125	5.0	23	26	75	43	-	-	10	1.87	16	0.52	2.9
20.18	126.4	155.2	126.2	1.2	-9.7	1.0	6	clean SAND to silty SAND	125	5.0	25	28	78	43	-	-	8	1.80	16	0.36	2.4
20.34	129.3	144.9	129.1	0.8	-10.6	0.6	6	clean SAND to silty SAND	125	5.0	26	29	79	43	-	-	5	1.66	16	0.70	3.4
20.51	111.5	144.6	111.2	1.3	-10.9	1.2	6	clean SAND to silty SAND	125	5.0	22	25	74	42	-	-	10	1.89	16	0.72	3.5
20.67	73.4	155.9	73.2	2.1	-9.0	2.8	5	silty SAND to sandy SILT	120	4.0	18	20	60	40	-	-	22	2.29	16	0.35	1.9
20.83	34.0	-	33.9	2.0	-7.5	6.0	3	silty CLAY to CLAY	115	1.5	23	29	-	-	2.3	9.9	42	2.72	15	-	-
21.00	26.8	-	26.7	1.6	-7.1	6.4	3	silty CLAY to CLAY	115	1.5	18	23	-	-	1.8	9.9	47	2.82	15	-	-
21.16	42.3	145.9	42.1	1.6	-7.9	4.0	4	clayy SILT to silty CLAY	115	2.0	21	23	-	-	2.9	9.9	34	2.57	15	0.68	44.6
21.33	22.8	-	22.7	1.5	-3.6	6.9	3	silty CLAY to CLAY	115	1.5	15	19	-	-	1.6	8.9	52	2.90	15	-	-
21.49	15.8	-	15.8	1.2	-3.4	8.6	3	silty CLAY to CLAY	115	1.5	11	13	-	-	1.1	6.0	64	3.08	15	-	-
21.65	34.0	-	33.9	1.7	-3.3	5.3	3	silty CLAY to CLAY	115	1.5	23	28	-	-	2.3	9.9	40	2.69	15	-	-
21.82	44.1	156.1	43.9	1.9	-7.4	4.4	4	clayy SILT to silty CLAY	115	2.0	22	24	-	-	3.1	9.9	35	2.59	15	0.36	1.3
21.98	29.1	-	28.9	1.6	-9.1	5.8	3	silty CLAY to CLAY	115	1.5	19	24	-	-	2.0	9.9	45	2.77	15	-	-
22.15	24.0	-	23.8	1.9	-9.0	8.4	3	silty CLAY to CLAY	115	1.5	16	20	-	-	1.6	9.2	55	2.95	15	-	-
22.31	69.9	180.5	69.7	2.7	-9.0	4.0	4	clayy SILT to silty CLAY	115	2.0	35	37	-	-	4.9	9.9	27	2.42	15	0.00	0.0
22.47	123.1	210.0	122.9	3.6	-10.3	3.0	5	silty SAND to sandy SILT	120	4.0	31	33	76	43	-	-	18	2.17	16	0.00	0.0
22.64	138.7	213.0	138.4	3.6	-12.3	2.6	5	silty SAND to sandy SILT	120	4.0	35	37	80	43	-	-	16	2.09	16	0.00	0.0
22.80	134.9	207.1	134.7	3.4	-13.0	2.6	5	silty SAND to sandy SILT	120	4.0	34	36	79	43	-	-	16	2.10	16	0.00	0.0
22.97	115.4	189.4	115.1	3.0	-13.2	2.6	5	silty SAND to sandy SILT	120	4.0	29	31	74	42	-	-	17	2.15	16	0.00	0.0
23.13	100.9	175.6	100.6	2.7	-13.2	2.7	5	silty SAND to sandy SILT	120	4.0	25	27	69	41	-	-	19	2.19	16	0.00	0.0
23.30	81.4	161.2	81.1	2.3	-13.2	2.9	5	silty SAND to sandy SILT	120	4.0	20	21	62	40	-	-	22	2.28	16	0.00	0.0
23.46	63.6	163.0	63.3	2.3	-13.0	3.6	4	clayy SILT to silty CLAY	115	2.0	32	33	-	-	4.4	9.9	28	2.43	15	0.00	0.0
23.62	62.2	159.2	61.9	2.2	-13.0	3.6	4	clayy SILT to silty CLAY	115	2.0	31	33	-	-	4.3	9.9	28	2.43	15	0.32	1.5
23.79	34.0	-	33.8	1.6	-13.0	5.0	3	silty CLAY to CLAY	115	1.5	23	26	-	-	2.3	9.9	40	2.69	15	-	-
23.95	28.2	-	27.9	1.6	-13.0	5.9	3	silty CLAY to CLAY	115	1.5	19	22	-	-	1.9	9.9	47	2.81	15	-	-
24.12	74.8	135.4	74.5	1.6	-13.0	2.2	5	silty SAND to sandy SILT	120	4.0	19	19	59	40	-	-	20	2.23	16	1.30	10.6
24.28	63.3	134.4	63.0	1.6	-12.6	2.6	5	silty SAND to sandy SILT	120	4.0	16	16	53	39	-	-	24	2.33	16	1.36	16.7
24.44	34.6	-	34.3	1.6	-12.6	4.7	4	clayy SILT to silty CLAY	115	2.0	17	20	-	-	2.4	9.9	39	2.68	15	-	-
24.61	23.2	-	22.9	1.7	-12.3	7.7	3	silty CLAY to CLAY	115	1.5	15	17	-	-	1.6	8.1	56	2.96	15	-	-
24.77	33.7	-	33.5	2.0	-12.4	6.1	3	silty CLAY to CLAY	115	1.5	22	25	-	-	2.3	9.9	44	2.77	15	-	-
24.94	81.7	156.4	81.5	2.2	-12.6	2.7	5	silty SAND to sandy SILT	120	4.0	20	21	61	40	-	-	22	2.27	16	0.39	2.2
25.10	59.3	165.5	59.1	2.3	-11.4	4.0	4	clayy SILT to silty CLAY	115	2.0	30	30	-	-	4.1	9.9	30	2.49	15	0.00	0.0
25.26	53.7	172.0	53.4	2.4	-11.4	4.6	4	clayy SILT to silty CLAY	115	2.0	27	27	-	-	3.7	9.9	34	2.57	15	0.00	0.0
25.43	94.9	168.1	94.7	2.5	-11.6	2.7	5	silty SAND to sandy SILT	120	4.0	24	24	66	41	-	-	20	2.23	16	0.00	0.0
25.59	73.8	166.5	73.6	2.5	-9.9	3.4	4	clayy SILT to silty CLAY	115	2.0	37	37	-	-	5.1	9.9	25	2.38	15	0.00	0.0
25.76	45.3	-	45.1	2.7	-9.3	6.2	3	silty CLAY to CLAY	115	1.5	30	33	-	-	3.1	9.9	40	2.70	15	-	-
25.92	55.0	172.7	54.9	2.5	-9.2	4.6	4	clayy SILT to silty CLAY	115	2.0	28	28	-	-	3.8	9.9	34	2.56	15	0.00	0.0
26.08	120.5	158.1	120.3	2.0	-10.1	1.7	6	clean SAND to silty SAND	125	5.0	24	24	73	42	-	-	13	2.00	16	0.37	2.3
26.25	128.8	157.1	128.5	1.8	-11.6	1.4	6	clean SAND to silty SAND	125	5.0	26	26	76	42	-	-	11	1.92	16	0.39	2.4
26.41	120.1	181.2	119.9	2.9	-10.1	2.4	5	silty SAND to sandy SILT	120	4.0	30	30	73	42	-	-	17	2.13	16	0.00	0.0
26.58	86.0	178.4	85.7	2.9	-11.3	3.4	5	silty SAND to sandy SILT	120	4.0	21	22	62	40	-	-	24	2.34	16	0.00	0.0
26.74	60.5	183.9	60.3	2.8	-11.6	4.8	4	clayy SILT to silty CLAY	115	2.0	30	30	-	-	4.2	9.9	33	2.55	15	0.00	0.0
26.90	65.2	173.4	65.0	2.6	-11.6	4.1	4	clayy SILT to silty CLAY	115	2.0	33	32	-	-	4.5	9.9	30	2.48	15	0.00	0.0
27.07	35.1	-	34.9	2.4	-11.4	7.1	3	silty CLAY to CLAY	115	1.5	23	25	-	-	2.4	9.9	48	2.83	15	-	-
27.23	76.2	145.8	76.0	2.0	-11.2	2.7	5	silty SAND to sandy SILT	120	4.0	19	19	58	39	-	-	22	2.29	16	0.82	5.4
27.40	128.7	161.6	128.5	2.0	-11.9	1.6	6	clean SAND to silty SAND	125	5.0	26	25	75	42	-	-	12	1.98	16	0.00	0.0
27.56	135.4	167.2	135.2	2.1	-12.0	1.6	6	clean SAND to silty SAND	125	5.0	27	27	77	42	-	-	12	1.96	16	0.00	0.0
27.72	122.2	151.5	121.9	1.8	-12.3	1.5	6	clean SAND to silty SAND	125	5.0	24	24	73	42	-	-	12	1.97	16	0.58	3.1
27.89	102.7	148.6	102.5	2.0	-12.4	2.0	5	silty SAND to sandy SILT	120	4.0	26	25	67	41	-	-	16	2.11	16	0.69	3.7
28.05	92.3	167.7	92.0	2.6	-12.3	2.9	5	silty SAND to sandy SILT	120	4.0	23	23	64	40	-	-	21	2.27	16	0.00	0.0
28.22	87.1	178.3	86.8	3.0	-12.2	3.5	5	silty SAND to sandy SILT	120	4.0	22	21	62	40	-	-	24	2.34	16	0.00	0.0
28.38	121.6	169.5	121.4	2.5	-12.5	2.1	5	silty SAND to sandy SILT	120	4.0	30	30	73	42	-	-	15	2.09	16	0.00	0.0
28.54	132.1	170.3	131.9	2.4	-12.6	1.8	5	silty SAND to sandy SILT	120	4.0	33	32	75	42	-	-	13	2.02	16	0.00	0.0
28.71	135.7	176.8	135.4	2.6	-12.6	2.0	5	silty SAND to sandy SILT	120	4.0	34	33	76	42	-	-	14	2.03	16	0.00	0.0
28.87	143.8	180.2	143.6	2.6	-12.7	1.9	5	silty SAND to sandy SILT	120	4.0	36	35	78	42	-	-	13	2.00	16	0.00	0.0
29.04	147.1	178.5	146.9	2.5	-12.8	1.7	6	clean SAND to silty SAND	125	5.0	29	28	79	42	-	-	12	1.97	16	0.00	0.0
29.20	140.7	171.9	140.5	2.4	-12.9	1.7	6	clean SAND to silty SAND	125	5.0	28	27	77	42	-	-	12	1.98	16	0.00	0.0
29.36	118.3	156.0	118.0	2.1	-12.9	1.8	5	silty SAND to sandy SILT	120	4.0	30	28	71	41	-	-	14	2.05	16	0.45	2.6
29.53	96.8	135.6	96.5	1.7	-13.0	1.8	5	silty SAND to sandy SILT	120	4.0	24	23	65	40	-	-	16	2.10	16	1.37	9.0
29.69	78.4	134.0	78.1	1.7	-13.0	2.3	5	silty SAND to sandy SILT	120	4.0	20	19	57	39	-	-	21	2.25	16	1.45	15.5
29.86	56.7	151.3	56.5	2.1	-13.0	3.7	4	clayy SILT to silty CLAY	115	2.0	28	27	-	-	3.9	9.9	31	2.51	15	0.60	19.6
30.02	34.8	-	34.5	2.0	-12.9	5.9	3	silty CLAY to CLAY	115	1.5	23	22	-	-	2.4	9.9	46	2.80	15	-	-
30.19	27.3	-	27.1	1.8	-12.9	6.9	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.9	8.1	54	2.93	15	-	-
30.35	27.0	-	26.7	1.4	-12.9	5.5	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.8	7.9	50	2.87	15	-	-
30.51	48.7	129.4	48.5	1.5	-13.0	3.2	4	clayy SILT to silty CLAY	115	2.0	24	23	-	-	3.4	9.9	31	2.51	15	1.71	48.8
30.68	31.1	-	30.9	1.3	-13.1	4.6	3	silty CLAY to CLAY	115	1.5	21	20	-	-	2.1	9.1	44	2.77	15	-	-
30.84	24.9	-	24.7	1.1	-13.0	4.6	3	silty CLAY to CLAY	115	1.5	17	16	-	-	1.7	7.2	48	2.84	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Carpentaria Hotel

Project ID: Pacific Materials Laboratory
Data File: SDF(292).cpt
CPT Date: 10/10/2014 3:05:48 PM
GW During Test: 8 ft

Sounding ID: CPT-02
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
31.01	22.1	-	21.9	1.3	-13.1	6.4	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.5	6.3	57	2.98	15	-	-
31.17	17.0	-	16.7	1.3	-13.2	8.5	3	silty CLAY to CLAY	115	1.5	11	11	-	-	1.1	4.7	70	3.16	15	-	-
31.33	20.2	-	19.9	1.3	-13.2	6.8	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.6	61	3.04	15	-	-
31.50	39.2	120.3	38.9	1.2	-13.3	3.3	4	clayy SILT to silty CLAY	115	2.0	20	18	-	-	2.7	9.9	35	2.59	15	2.01	51.2
31.66	46.8	129.9	46.6	1.5	-13.3	3.3	4	clayy SILT to silty CLAY	115	2.0	23	22	-	-	3.2	9.9	32	2.54	15	1.68	51.2
31.83	31.6	-	31.4	2.1	-13.3	7.0	3	silty CLAY to CLAY	115	1.5	21	19	-	-	2.2	9.0	52	2.90	15	-	-
31.99	85.8	136.9	85.5	1.8	-13.4	2.2	5	silty SAND to sandy SILT	120	4.0	21	20	59	39	-	-	20	2.22	16	1.32	10.8
32.15	108.7	131.7	108.4	1.5	-13.5	1.4	6	clean SAND to silty SAND	125	5.0	22	20	67	40	-	-	13	2.01	16	1.60	10.2
32.32	88.7	135.6	88.5	1.8	-13.5	2.1	5	silty SAND to sandy SILT	120	4.0	22	21	60	39	-	-	19	2.19	16	1.40	11.2
32.48	50.3	-	50.0	2.2	-13.3	4.6	4	clayy SILT to silty CLAY	115	2.0	25	23	-	-	3.5	9.9	36	2.62	15	-	-
32.65	27.6	-	27.3	1.7	-13.2	6.5	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.9	7.6	54	2.93	15	-	-
32.81	19.3	-	19.1	1.4	-13.2	8.0	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.1	66	3.11	15	-	-
32.97	22.0	-	21.8	1.3	-13.1	6.7	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.9	60	3.02	15	-	-
33.14	69.4	135.9	69.2	1.8	-13.2	2.7	5	silty SAND to sandy SILT	120	4.0	17	16	52	38	-	-	25	2.36	16	1.38	19.9
33.30	108.9	145.6	108.7	2.0	-13.3	1.9	5	silty SAND to sandy SILT	120	4.0	27	25	67	40	-	-	16	2.10	16	0.90	4.8
33.47	88.4	150.5	88.1	2.3	-13.4	2.6	5	silty SAND to sandy SILT	120	4.0	22	20	60	39	-	-	22	2.27	16	0.67	4.0
33.63	65.3	167.1	65.0	2.6	-13.4	4.1	4	clayy SILT to silty CLAY	115	2.0	33	30	-	-	4.5	9.9	31	2.51	15	0.00	0.0
33.79	33.9	-	33.6	1.9	-13.3	6.0	3	silty CLAY to CLAY	115	1.5	23	20	-	-	2.3	9.2	49	2.84	15	-	-
33.96	18.0	-	17.8	1.4	-13.2	8.5	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.6	70	3.16	15	-	-
34.12	14.2	-	13.9	0.9	-13.1	7.5	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.9	3.5	74	3.22	15	-	-
34.29	13.0	-	12.7	0.8	-13.1	7.2	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.8	3.1	77	3.24	15	-	-
34.45	13.0	-	12.8	0.3	-13.1	2.4	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.8	3.1	56	2.96	15	-	-
34.61	14.2	-	14.0	0.9	-13.1	7.2	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.9	3.5	74	3.21	15	-	-
34.78	7.8	-	7.5	1.2	-13.0	9.9	2	Organic SOILS - Peats	100	1.0	8	7	-	-	0.7	1.6	95	3.55	10	-	-
34.94	25.5	-	25.3	1.9	-13.1	7.9	3	silty CLAY to CLAY	115	1.5	17	15	-	-	1.7	6.6	60	3.03	15	-	-
35.11	31.8	-	31.5	1.9	-13.1	6.4	3	silty CLAY to CLAY	115	1.5	21	18	-	-	2.2	8.3	52	2.90	15	-	-
35.27	21.4	-	21.2	1.8	-13.1	9.3	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.4	69	3.14	15	-	-
35.43	23.7	-	23.5	1.6	-13.1	7.2	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	6.0	60	3.03	15	-	-
35.60	23.0	-	22.8	1.4	-13.1	6.8	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.8	60	3.03	15	-	-
35.76	19.5	-	19.2	1.4	-13.0	8.0	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	4.8	68	3.13	15	-	-
35.93	18.5	-	18.3	1.5	-13.0	8.8	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.5	72	3.18	15	-	-
36.09	66.9	164.5	66.7	2.6	-13.0	4.0	4	clayy SILT to silty CLAY	115	2.0	33	30	-	-	4.6	9.9	31	2.50	15	0.00	0.0
36.26	51.6	-	51.4	2.9	-13.1	5.9	3	silty CLAY to CLAY	115	1.5	34	29	-	-	3.6	9.9	42	2.72	15	-	-
36.42	28.7	-	28.5	3.0	-13.0	9.9	3	silty CLAY to CLAY	115	1.5	19	16	-	-	1.9	7.3	63	3.07	15	-	-
36.58	50.4	-	50.1	3.1	-13.0	6.4	3	silty CLAY to CLAY	115	1.5	34	28	-	-	3.5	9.9	44	2.76	15	-	-
36.75	46.2	-	46.0	3.6	-13.0	8.1	3	silty CLAY to CLAY	115	1.5	31	25	-	-	3.2	9.9	50	2.86	15	-	-
36.91	85.7	199.6	85.4	3.9	-13.1	4.6	4	clayy SILT to silty CLAY	115	2.0	43	38	-	-	6.0	9.9	30	2.48	15	0.00	0.0
37.08	156.4	214.9	156.2	4.6	-13.2	3.0	5	silty SAND to sandy SILT	120	4.0	39	34	77	42	-	-	18	2.16	16	0.00	0.0
37.24	174.2	215.7	174.0	4.4	-13.2	2.5	5	silty SAND to sandy SILT	120	4.0	44	38	81	42	-	-	15	2.08	16	0.00	0.0
37.40	173.4	209.8	173.1	4.1	-13.2	2.4	5	silty SAND to sandy SILT	120	4.0	43	38	81	42	-	-	15	2.06	16	0.00	0.0
37.57	148.8	189.6	148.5	3.5	-13.2	2.4	5	silty SAND to sandy SILT	120	4.0	37	32	76	41	-	-	16	2.10	16	0.00	0.0
37.73	109.7	178.8	109.4	3.3	-13.2	3.1	5	silty SAND to sandy SILT	120	4.0	27	24	65	40	-	-	22	2.28	16	0.00	0.0
37.90	71.8	155.2	71.5	2.4	-13.1	3.5	4	clayy SILT to silty CLAY	115	2.0	36	31	-	-	5.0	9.9	28	2.44	15	0.52	3.2
38.06	37.8	-	37.5	2.2	-13.1	6.2	3	silty CLAY to CLAY	115	1.5	25	20	-	-	2.6	9.3	49	2.85	15	-	-
38.22	22.6	-	22.3	1.7	-13.1	8.5	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.5	5.3	67	3.12	15	-	-
38.39	20.0	-	19.7	1.1	-13.1	6.3	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	4.6	64	3.08	15	-	-
38.55	17.9	-	17.7	1.0	-13.0	6.5	3	silty CLAY to CLAY	115	1.5	12	9	-	-	1.2	4.1	68	3.13	15	-	-
38.72	18.7	-	18.4	1.0	-13.1	6.3	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.3	66	3.10	15	-	-
38.88	19.2	-	18.9	1.0	-13.1	5.8	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.3	4.4	64	3.08	15	-	-
39.04	19.0	-	18.8	1.0	-13.1	6.2	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.3	4.3	65	3.10	15	-	-
39.21	22.7	-	22.5	1.3	-13.1	6.5	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.5	5.3	62	3.05	15	-	-
39.37	32.1	-	31.9	2.3	-13.2	7.7	3	silty CLAY to CLAY	115	1.5	21	17	-	-	2.2	7.6	57	2.98	15	-	-
39.54	51.1	-	50.8	3.4	-13.1	6.9	3	silty CLAY to CLAY	115	1.5	34	26	-	-	3.5	9.9	46	2.80	15	-	-
39.70	95.1	222.4	94.8	4.8	-13.3	5.2	9	very stiff fine SOIL	120	2.0	48	40	60	39	-	-	30	2.50	30	0.00	0.0
39.86	116.1	229.7	115.8	5.3	-13.4	4.7	9	very stiff fine SOIL	120	2.0	58	49	67	40	-	-	27	2.40	30	0.00	0.0
40.03	112.8	226.8	112.5	5.2	-13.4	4.7	9	very stiff fine SOIL	120	2.0	56	48	66	40	-	-	27	2.41	30	0.00	0.0
40.19	62.2	-	62.0	3.9	-13.2	6.6	3	silty CLAY to CLAY	115	1.5	41	32	-	-	4.3	9.9	42	2.73	15	-	-
40.36	37.3	-	37.0	3.0	-13.2	8.5	3	silty CLAY to CLAY	115	1.5	25	19	-	-	2.5	8.7	56	2.97	15	-	-
40.52	33.1	-	32.8	2.7	-13.1	8.7	3	silty CLAY to CLAY	115	1.5	22	17	-	-	2.2	7.7	60	3.02	15	-	-
40.68	34.0	-	33.7	2.5	-13.1	8.0	3	silty CLAY to CLAY	115	1.5	23	17	-	-	2.3	7.9	57	2.98	15	-	-
40.85	29.9	-	29.7	2.4	-13.1	8.6	3	silty CLAY to CLAY	115	1.5	20	15	-	-	2.0	6.8	62	3.05	15	-	-
41.01	25.7	-	25.4	1.8	-13.1	7.8	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	5.8	63	3.07	15	-	-
41.18	24.2	-	24.0	1.9	-13.1	8.9	3	silty CLAY to CLAY	115	1.5	16	12	-	-	1.6	5.4	68	3.13	15	-	-
41.34	27.8	-	27.5	2.2	-13.2	8.7	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.9	6.2	64	3.08	15	-	-
41.50	33.0	-	32.7	2.5	-13.1	8.2	3	silty CLAY to CLAY	115	1.5	22	16	-	-	2.2	7.5	59	3.00	15	-	-
41.67	46.1	-	45.9	3.2	-13.1	7.2	3	silty CLAY to CLAY	115	1.5	31	23	-	-	3.2	9.9	49	2.86	15	-	-
41.83	33.8	-	33.5	2.8	-13.1	8.9	3	silty CLAY to CLAY	115	1.5	23	17	-	-	2.3	7.6	60	3.02	15	-	-
42.00	27.4	-	27.2	3.3	-13.1	9.9	3	silty CLAY to CLAY	115	1.5	18	13	-	-	1.8	6.1	67	3.13	15	-	-
42.16	73.1	-	72.8	3.9	-13.1	5.5	4	clayy SILT to silty CLAY	115	2.0	37	27	-	-	5.1	9.9	37	2.63	15	-	-
42.32	150.9	212.5	150.7	4.8	-13.3	3.2	5	silty SAND to sandy SILT	120	4.0	38	31	74	41	-	-	19	2.21	16	0.00	0.0
42.49	164.0	218.3	163.7	5.0	-13.3	3.1	5	silty SAND to sandy SILT	120	4.0	41	34	77	41	-	-	18	2.17	16	0.00	0.0
42.65	149.8	227.3	149.5	5.5	-13.3	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.8	9.9	21	2.26	16	0.00	0.0
42.82	137.2	240.7	136.9	6.0	-13.2	4.5	9	very stiff fine SOIL	120	2.0	69	57	71	40	-	-	24	2.35	30	0.00	0.0
42.98	165.4	227.8	165.2	5.5	-13.3	3.4	5	silty SAND to sandy SILT	120	4.0	41	34	77	41	-	-	19	2.20	16	0.00	0.0
43.15	141.6	196.3	141.3	4.2	-13.1	3.0	5	silty SAND to sandy SILT	120	4.0	35	29	72	41	-	-	19	2.21	16	0.00	0.0
43.31	90.8	204.8	90.5	4.3	-13.0	4.9	4	clayy SILT to silty CLAY	115	2.0	45	37	-	-	6.3	9.9	30	2.50	15	0.00	0.0
43.47	80.7	-	80.5	4.5	-13.0	5.8	3	silty CLAY to CLAY	115	1.5	54	38	-	-	5.6	9.9	37	2.63	15	-	-
43.64	87.5	170.1	87.2	3.1	-13.0	3.7	4	clayy SILT to silty CLAY	115	2.0	44	36	-	-	6.1	9.9	27	2.41	15	0.00	0.0
43.80	55.9	112.3	55.7	1.3	-12.8	2.4	5	silty SAND to sandy SILT	120	4.0	14	11	41	35	-	-	28	2.43	16	2.13	49.2
43.97	31.7	-	31.4	2.1	-12.8	7.4	3	silty CLAY to CLAY	115	1.5	21	15	-	-	2.1	6.8	59	3.00	15	-	-
44.13	38.5	-	38.3	2.6	-12.8	7.4	3	silty CLAY to CLAY	115	1.5	26	18	-	-	2.6	8.4	54	2.94	15	-	-
44.29	42.5	-	42.3	3.1	-12.9	7.8	3	silty CLAY to CLAY	115	1.5	28	20	-	-	2.9	9.3	54	2.92	15	-	-
44.46	32.7	-	32.4	2.9	-13.2	9.8	3	silty CLAY to CLAY	115	1.5	22	15	-	-	2.2	7.0	64	3.08	15	-	-
44.62	32.4	-	32.1	2.5	-13.2	8.5	3	silty CLAY to CLAY	115	1.5	22	15	-	-	2.2	6.9	61	3.04	15	-	-
44.79	35.7	-	35.4	2.9	-13.2	8.8	3	silty CLAY to CLAY	115	1.5	24	17	-	-	2.4	7.6	60	3.02	15	-	-
44.95	47.0	-	46.8	3.3	-13.2	7.5	3	silty CLAY to CLAY	115	1.5	31	22	-	-	3.2	9.9	51	2.88	15	-	-
45.11	73.7	-	73.4	3.9	-13.2	5.5	3	silty CLAY to CLAY	115	1.5	49	34	-	-	5.1	9.9	38	2.65	15	-	-
45.28	84.0	198.8	83.7	4.1	-13.3	5.0	4	clayy SILT to silty CLAY	115	2.0	42	34	-	-	5.8	9.9	32	2.53	15	0.00	0.0
45.44	58.6	-	58.4	3.5	-13.2	6.2	3	silty CLAY to CLAY	115	1.5	39	27	-	-	4.0	9.9	44	2.76	15	-	-
45.61	61.1	-	60.8	3.9	-13.1	6.7	3	silty CLAY to CLAY	115	1.5	41	28	-	-	4.2	9.9	44	2.77	15	-	-
45.77	68.4	-	68.1	3.7	-13.2	5.7	3	silty CLAY to CLAY	115	1.5	46	31	-	-	4.7	9.9	40	2.68	15	-	-
45.93	41.4	-	41.2	3.4	-13.1	8.7	3	silty CLAY to CLAY	115	1.5	28	19	-	-	2.8	8.7	57	2.97	15	-	-
46.10	76.7	-	76.4	3.7	-13.1	4.9	4	clayy SILT to silty CLAY	115	2.0	38	26	-	-	5.3	9.9	36	2.61	15	-	-
46.26	120.5	196.1	120.3	4.3	-13.3	3.6	5	silty SAND to sandy SILT	120	4.0	30	24	66	39	-	-	23	2.33	16	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Pacific Materials Laboratory
Data File: SDF(292).cpt
CPT Date: 10/10/2014 3:05:48 PM
GW During Test: 8 ft

Sounding ID: CPT-02
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR -	* Fin Ic %	* Ic SBT Indx	* Nk -	* Vol Strn %	* Cycl SStn %
46.43	128.7	201.5	128.5	4.5	-13.4	3.6	5	silty SAND to sandy SILT	120	4.0	32	26	68	40	-	-	23	2.30	16	0.00	0.0
46.59	128.3	199.3	128.0	4.5	-13.4	3.5	5	silty SAND to sandy SILT	120	4.0	32	26	68	40	-	-	23	2.30	16	0.00	0.0
46.75	147.8	201.1	147.5	4.5	-13.4	3.1	5	silty SAND to sandy SILT	120	4.0	37	29	72	40	-	-	20	2.22	16	0.00	0.0
46.92	159.4	172.0	159.1	3.0	-13.4	1.9	5	silty SAND to sandy SILT	120	4.0	40	32	75	41	-	-	14	2.04	16	0.00	0.0
47.08	150.4	157.0	150.1	2.5	-13.4	1.7	6	clean SAND to silty SAND	125	5.0	30	24	73	41	-	-	13	2.01	16	0.52	2.9
47.25	138.4	158.2	138.2	2.7	-13.3	2.0	5	silty SAND to sandy SILT	120	4.0	35	27	70	40	-	-	16	2.09	16	0.47	2.7
47.41	108.0	147.5	107.7	2.5	-13.3	2.4	5	silty SAND to sandy SILT	120	4.0	27	21	62	39	-	-	20	2.22	16	0.85	5.2
47.57	65.9	-	65.6	3.3	-13.3	5.2	3	silty CLAY to CLAY	115	1.5	44	29	-	-	4.5	9.9	39	2.67	15	-	-
47.74	52.8	-	52.5	3.0	-13.2	6.0	3	silty CLAY to CLAY	115	1.5	35	23	-	-	3.6	9.9	46	2.80	15	-	-
47.90	59.8	134.4	59.6	1.9	-13.2	3.3	4	clayy SILT to silty CLAY	115	2.0	30	24	-	-	4.1	9.9	31	2.52	15	1.43	45.3
48.07	48.7	-	48.4	1.9	-13.2	4.1	4	clayy SILT to silty CLAY	115	2.0	24	16	-	-	3.3	9.9	41	2.71	15	-	-
48.23	26.1	-	25.8	1.7	-13.2	7.1	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.7	5.0	65	3.09	15	-	-
48.39	21.0	-	20.7	1.3	-13.1	7.1	3	silty CLAY to CLAY	115	1.5	14	9	-	-	1.4	3.9	71	3.17	15	-	-
48.56	22.6	-	22.4	1.2	-13.1	6.0	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.5	4.2	65	3.09	15	-	-
48.72	23.9	-	23.7	1.4	-13.1	6.7	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.6	4.5	66	3.10	15	-	-
48.89	28.8	-	28.5	1.8	-13.2	6.8	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.9	5.5	61	3.04	15	-	-
49.05	32.6	-	32.4	2.1	-13.2	7.2	3	silty CLAY to CLAY	115	1.5	22	14	-	-	2.2	6.3	59	3.01	15	-	-
49.22	36.7	-	36.4	2.6	-13.2	7.7	3	silty CLAY to CLAY	115	1.5	24	16	-	-	2.5	7.2	58	3.00	15	-	-
49.38	40.8	-	40.6	2.9	-13.3	7.7	3	silty CLAY to CLAY	115	1.5	27	17	-	-	2.8	8.0	56	2.96	15	-	-
49.54	32.7	-	32.4	2.7	-13.3	9.0	3	silty CLAY to CLAY	115	1.5	22	14	-	-	2.2	6.3	65	3.09	15	-	-
49.71	28.8	-	28.6	2.2	-13.3	8.3	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.9	5.5	66	3.11	15	-	-
49.87	30.8	-	30.5	2.0	-13.3	7.1	3	silty CLAY to CLAY	115	1.5	21	13	-	-	2.1	5.8	61	3.04	15	-	-
50.04	32.2	-	32.0	2.9	-13.3	10.0	3	silty CLAY to CLAY	115	1.5	21	14	-	-	2.2	6.1	67	3.13	15	-	-
50.20	60.6	-	60.4	3.9	-13.3	6.8	3	silty CLAY to CLAY	115	1.5	40	26	-	-	4.2	9.9	46	2.80	15	-	-
50.36	91.2	-	90.9	4.7	-13.4	5.4	4	clayy SILT to silty CLAY	115	2.0	46	29	-	-	6.3	9.9	36	2.60	15	-	-
50.53	115.1	212.7	114.9	5.0	-13.5	4.5	4	clayy SILT to silty CLAY	115	2.0	58	44	-	-	8.0	9.9	27	2.42	15	0.00	0.0
50.69	88.4	198.0	88.1	4.2	-13.5	4.9	4	clayy SILT to silty CLAY	115	2.0	44	34	-	-	6.1	9.9	32	2.53	15	0.00	0.0
50.86	52.2	-	51.9	3.8	-13.4	7.7	3	silty CLAY to CLAY	115	1.5	35	22	-	-	3.6	9.9	51	2.89	15	-	-
51.02	48.2	-	48.0	3.5	-13.4	7.6	3	silty CLAY to CLAY	115	1.5	32	20	-	-	3.3	9.3	53	2.92	15	-	-
51.18	56.7	-	56.4	3.1	-13.3	5.8	3	silty CLAY to CLAY	115	1.5	38	23	-	-	3.9	9.9	45	2.78	15	-	-
51.35	31.8	-	31.6	3.3	-13.2	9.9	3	silty CLAY to CLAY	115	1.5	21	13	-	-	2.1	5.9	68	3.13	15	-	-
51.51	34.5	-	34.2	2.9	-13.1	9.2	3	silty CLAY to CLAY	115	1.5	23	14	-	-	2.3	6.4	64	3.08	15	-	-
51.68	29.7	-	29.5	2.2	-13.1	8.2	3	silty CLAY to CLAY	115	1.5	20	12	-	-	2.0	5.4	66	3.10	15	-	-
51.84	25.6	-	25.4	1.9	-13.1	8.2	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.7	4.6	70	3.16	15	-	-
52.00	24.4	-	24.1	1.6	-13.1	7.5	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.6	4.3	69	3.15	15	-	-
52.17	24.7	-	24.4	1.5	-13.1	6.8	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.6	4.4	67	3.12	15	-	-
52.33	22.9	-	22.7	1.8	-13.1	8.8	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.5	4.0	75	3.22	15	-	-
52.50	34.8	-	34.6	2.7	-13.1	8.6	3	silty CLAY to CLAY	115	1.5	23	14	-	-	2.3	6.4	63	3.07	15	-	-
52.66	55.2	-	55.0	3.7	-13.1	7.1	3	silty CLAY to CLAY	115	1.5	37	22	-	-	3.8	9.9	49	2.86	15	-	-
52.82	47.9	-	47.6	3.6	-13.1	8.0	3	silty CLAY to CLAY	115	1.5	32	19	-	-	3.3	9.0	55	2.94	15	-	-
52.99	38.0	-	37.8	3.5	-13.1	10.0	3	silty CLAY to CLAY	115	1.5	25	15	-	-	2.6	7.0	65	3.09	15	-	-
53.15	70.0	-	69.7	3.6	-13.2	5.3	3	silty CLAY to CLAY	115	1.5	47	28	-	-	4.8	9.9	40	2.70	15	-	-
53.32	142.0	182.2	141.8	4.0	-13.3	2.8	5	silty SAND to sandy SILT	120	4.0	36	27	69	40	-	-	20	2.22	16	0.00	0.0
53.48	139.6	193.5	139.3	4.5	-13.2	3.3	5	silty SAND to sandy SILT	120	4.0	35	26	69	40	-	-	21	2.27	16	0.00	0.0
53.64	117.4	216.3	117.1	5.3	-13.2	4.6	4	clayy SILT to silty CLAY	115	2.0	59	44	-	-	8.2	9.9	28	2.43	15	0.00	0.0
53.81	133.0	232.0	132.7	6.1	-13.2	4.7	9	very stiff fine SOIL	120	2.0	66	50	67	39	-	-	27	2.40	30	0.00	0.0
53.97	169.7	205.7	169.5	4.9	-13.3	3.0	5	silty SAND to sandy SILT	120	4.0	42	32	75	41	-	-	18	2.18	16	0.00	0.0
54.14	158.1	198.3	157.8	4.7	-13.3	3.0	5	silty SAND to sandy SILT	120	4.0	40	30	73	40	-	-	19	2.20	16	0.00	0.0
54.30	134.1	242.9	133.9	6.6	-13.1	5.1	9	very stiff fine SOIL	120	2.0	67	50	67	39	-	-	28	2.43	30	0.00	0.0
54.46	79.4	-	79.2	5.4	-12.8	7.1	3	silty CLAY to CLAY	115	1.5	53	31	-	-	5.5	9.9	43	2.75	15	-	-
54.63	165.4	246.7	165.1	7.0	-14.1	4.3	9	very stiff fine SOIL	120	2.0	83	62	74	40	-	-	23	2.32	30	0.00	0.0
54.79	160.4	260.8	160.2	7.7	-14.2	4.9	9	very stiff fine SOIL	120	2.0	80	60	73	40	-	-	25	2.37	30	0.00	0.0
54.96	94.1	-	93.8	6.4	-13.2	7.1	3	silty CLAY to CLAY	115	1.5	63	37	-	-	6.5	9.9	41	2.71	15	-	-
55.12	44.6	-	44.4	3.2	-12.8	7.8	3	silty CLAY to CLAY	115	1.5	30	17	-	-	3.0	8.0	56	2.97	15	-	-
55.28	43.5	-	43.2	3.3	-12.6	8.3	3	silty CLAY to CLAY	115	1.5	29	17	-	-	2.9	7.7	58	3.00	15	-	-
55.45	78.3	-	78.0	3.6	-12.6	4.8	4	clayy SILT to silty CLAY	115	2.0	39	23	-	-	5.4	9.9	37	2.64	15	-	-
55.61	104.1	179.8	103.9	3.8	-12.7	3.8	4	clayy SILT to silty CLAY	115	2.0	52	38	-	-	7.2	9.9	27	2.41	15	0.00	0.0
55.78	80.9	-	80.7	3.7	-12.6	4.8	4	clayy SILT to silty CLAY	115	2.0	40	23	-	-	5.6	9.9	37	2.63	15	-	-
55.94	60.8	-	60.6	4.0	-12.7	7.0	3	silty CLAY to CLAY	115	1.5	41	23	-	-	4.2	9.9	48	2.84	15	-	-
56.11	61.7	-	61.4	4.0	-12.8	6.8	3	silty CLAY to CLAY	115	1.5	41	24	-	-	4.2	9.9	48	2.83	15	-	-
56.27	62.0	-	61.8	2.9	-12.9	5.0	3	silty CLAY to CLAY	115	1.5	41	24	-	-	4.3	9.9	42	2.73	15	-	-
56.43	39.1	-	38.9	2.5	-12.9	6.9	3	silty CLAY to CLAY	115	1.5	26	15	-	-	2.6	6.8	57	2.98	15	-	-
56.60	38.3	-	38.1	2.6	-13.0	7.3	3	silty CLAY to CLAY	115	1.5	26	15	-	-	2.6	6.6	59	3.01	15	-	-
56.76	45.5	-	45.2	2.9	-13.0	7.0	3	silty CLAY to CLAY	115	1.5	30	17	-	-	3.1	7.9	54	2.94	15	-	-
56.93	52.4	-	52.1	2.7	-13.2	5.4	3	silty CLAY to CLAY	115	1.5	35	20	-	-	3.6	9.2	47	2.81	15	-	-
57.09	38.5	-	38.2	2.4	-13.2	7.0	3	silty CLAY to CLAY	115	1.5	26	15	-	-	2.6	6.6	58	2.99	15	-	-
57.25	33.4	-	33.1	2.1	-13.2	7.0	3	silty CLAY to CLAY	115	1.5	22	13	-	-	2.2	5.6	62	3.05	15	-	-
57.42	33.9	-	33.6	2.0	-13.2	6.4	3	silty CLAY to CLAY	115	1.5	23	13	-	-	2.3	5.7	60	3.02	15	-	-
57.58	30.6	-	30.4	1.9	-13.2	7.0	3	silty CLAY to CLAY	115	1.5	20	11	-	-	2.0	5.1	64	3.08	15	-	-
57.75	34.6	-	34.3	2.5	-13.3	8.0	3	silty CLAY to CLAY	115	1.5	23	13	-	-	2.3	5.8	64	3.08	15	-	-
57.91	57.4	-	57.1	3.3	-13.5	6.1	3	silty CLAY to CLAY	115	1.5	38	21	-	-	3.9	9.9	47	2.82	15	-	-
58.07	81.4	-	81.1	4.2	-13.6	5.3	3	silty CLAY to CLAY	115	1.5	54	30	-	-	5.6	9.9	39	2.67	15	-	-
58.24	152.1	191.2	151.8	4.5	-13.8	3.0	5	silty SAND to sandy SILT	120	4.0	38	28	70	40	-	-	20	2.23	16	0.00	0.0
58.40	181.7	201.4	181.4	4.8	-13.8	2.7	5	silty SAND to sandy SILT	120	4.0	45	33	76	41	-	-	17	2.14	16	0.00	0.0
58.57	195.2	208.2	194.9	5.1	-13.8	2.6	5	silty SAND to sandy SILT	120	4.0	49	35	78	41	-	-	16	2.11	16	0.00	0.0
58.73	187.8	185.4	187.5	3.9	-13.8	2.1	5	silty SAND to sandy SILT	120	4.0	47	34	77	41	-	-	14	2.05	16	0.00	0.0
58.89	181.6	177.9	181.3	3.6	-13.7	2.0	5	silty SAND to sandy SILT	120	4.0	45	33	76	41	-	-	14	2.04	16	0.00	0.0
59.06	185.9	178.8	185.6	3.6	-13.6	1.9	5	silty SAND to sandy SILT	120	4.0	46	33	77	41	-	-	14	2.03	16	0.00	0.0
59.22	188.2	179.1	187.9	3.5	-13.5	1.9	5	silty SAND to sandy SILT	120	4.0	47	34	77	41	-	-	13	2.02	16	0.00	0.0
59.39	188.5	179.1	188.2	3.5	-13.5	1.9	5	silty SAND to sandy SILT	120	4.0	47	34	77	41	-	-	13	2.02	16	0.00	0.0
59.55	183.3	174.8	183.0	3.4	-13.4	1.9	5	silty SAND to sandy SILT	120	4.0	46	33	76	41	-	-	14	2.02	16	0.00	0.0
59.71	175.5	169.1	175.2	3.2	-13.3	1.9	5	silty SAND to sandy SILT	120	4.0	44	31	75	40	-	-	14	2.03	16	0.00	0.0
59.88	165.6	165.4	165.3	3.2	-13.3	2.0	5	silty SAND to sandy SILT	120	4.0	41	30	73	40	-	-	15	2.07	16	0.00	0.0
60.04	156.0	162.4	155.7	3.2	-13.3	2.1	5	silty SAND to sandy SILT	120	4.0	39	28	71	40	-	-	16	2.10	16	0.00	0.0
60.21	148.0	164.1	147.7	3.3	-13.3	2.3	5	silty SAND to sandy SILT	120	4.0	37	26	69	39	-	-	17	2.15	16	0.00	0.0
60.37	138.8	176.4	138.5	3.9	-13.3	2.9	5	silty SAND to sandy SILT	120	4.0	35	25	67	39	-	-	21	2.25	16	0.00	0.0
60.53	130.7	179.4	130.4	4.1	-13.5	3.2	5	silty SAND to sandy SILT	120	4.0	33	23	65	39	-	-	22	2.29	16	0.00	0.0
60.70	135.1	168.1	134.8	3.6	-13.6	2.7	5	silty SAND to sandy SILT	120	4.0	34	24	66	39	-	-	20	2.23	16	0.00	0.0
60.86	141.6	143.8	141.3	2.5	-13.7	1.8	5	silty SAND to sandy SILT	120	4.0	35	25	67	39	-	-	15	2.09	16	0.96	5.0
61.03	104.9	178.0	104.7	3.9	-13.7	3.8	4	clayy SILT to silty CLAY	115	2.0	52	37	-	-	7.3	9.9	27	2.42	15	0.00	0.0
61.19	64.7	-	64.5	3.3	-13.5	5.3	3	silty CLAY to CLAY	115	1.5	43	23	-	-	4.4	9.9	44	2.76	15	-	-
61.35	71.3	-	71.0	2.7	-13.4	4.0	4	clayy SILT to silty CLAY	115	2.0	36	19	-	-	4.9	9.9	38	2.64	15	-	-
61.52	75.3	139.3	75.0	2.3	-13.9	3.2	4	clayy SILT to silty CLAY	115	2.0	38	27	-	-	5.2	9.9	29	2.47	15	1.02	25.7
61.68	42.8	-	42.5	2.3	-13.8	6.0	3	silty CLAY to CLAY	115	1.5	29	15	-	-	2.9	6.8	54	2.94	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Carpentaria Hotel

Project ID: Pacific Materials Laboratory
Data File: SDF(292).cpt
CPT Date: 10/10/2014 3:05:48 PM
GW During Test: 8 ft

Sounding ID: CPT-02
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	Ic SBT Indx	Nk - -	Vol Strn %	Cycl SStn %
61.85	31.2	-	31.0	2.4	-13.8	8.5	3	silty CLAY to CLAY	115	1.5	21	11	-	-	2.1	4.8	70	3.15	15	-	-
62.01	53.1	-	52.9	2.6	-13.9	5.1	3	silty CLAY to CLAY	115	1.5	35	19	-	-	3.6	8.6	47	2.82	15	-	-
62.17	56.8	-	56.5	2.6	-13.9	4.9	3	silty CLAY to CLAY	115	1.5	38	20	-	-	3.9	9.2	45	2.78	15	-	-
62.34	61.4	-	61.2	2.8	-13.9	4.8	3	silty CLAY to CLAY	115	1.5	41	21	-	-	4.2	9.9	43	2.75	15	-	-
62.50	59.3	-	59.1	3.6	-14.0	6.5	3	silty CLAY to CLAY	115	1.5	40	21	-	-	4.1	9.6	49	2.86	15	-	-
62.67	82.9	-	82.7	4.3	-14.1	5.4	3	silty CLAY to CLAY	115	1.5	55	29	-	-	5.7	9.9	40	2.69	15	-	-
62.83	83.3	-	83.0	4.9	-13.9	6.2	3	silty CLAY to CLAY	115	1.5	56	29	-	-	5.8	9.9	42	2.73	15	-	-
63.00	100.5	-	100.3	5.5	-14.1	5.7	3	silty CLAY to CLAY	115	1.5	67	35	-	-	7.0	9.9	38	2.65	15	-	-
63.16	85.5	-	85.3	4.9	-14.1	5.9	3	silty CLAY to CLAY	115	1.5	57	29	-	-	5.9	9.9	41	2.72	15	-	-
63.32	100.9	199.1	100.6	4.7	-14.2	4.8	4	clayy SILT to silty CLAY	115	2.0	50	35	-	-	7.0	9.9	31	2.51	15	0.00	0.0
63.49	133.0	186.9	132.8	4.5	-14.2	3.4	5	silty SAND to sandy SILT	120	4.0	33	23	64	38	-	-	23	2.32	16	0.00	0.0
63.65	112.5	204.6	112.2	5.1	-14.0	4.7	4	clayy SILT to silty CLAY	115	2.0	56	39	-	-	7.8	9.9	29	2.47	15	0.00	0.0
63.82	95.4	-	95.1	5.5	-14.0	6.0	3	silty CLAY to CLAY	115	1.5	64	33	-	-	6.6	9.9	40	2.69	15	-	-
63.98	160.7	194.5	160.4	4.8	-14.1	3.1	5	silty SAND to sandy SILT	120	4.0	40	28	71	39	-	-	20	2.23	16	0.00	0.0
64.14	173.5	176.7	173.3	3.9	-14.2	2.3	5	silty SAND to sandy SILT	120	4.0	43	30	73	40	-	-	16	2.11	16	0.00	0.0
64.31	157.7	160.9	157.4	3.2	-14.1	2.1	5	silty SAND to sandy SILT	120	4.0	39	27	70	39	-	-	16	2.11	16	0.00	0.0
64.47	113.8	179.1	113.5	4.1	-14.0	3.7	4	clayy SILT to silty CLAY	115	2.0	57	39	-	-	7.9	9.9	26	2.39	15	0.00	0.0
64.64	61.7	-	61.4	3.5	-13.7	6.0	3	silty CLAY to CLAY	115	1.5	41	21	-	-	4.2	9.7	48	2.83	15	-	-
64.80	39.0	-	38.7	2.9	-13.7	8.3	3	silty CLAY to CLAY	115	1.5	26	13	-	-	2.6	5.9	64	3.08	15	-	-
64.96	39.5	-	39.2	2.7	-13.7	7.6	3	silty CLAY to CLAY	115	1.5	26	13	-	-	2.7	5.9	62	3.05	15	-	-
65.13	48.7	-	48.4	3.5	-13.7	7.7	3	silty CLAY to CLAY	115	1.5	32	16	-	-	3.3	7.5	58	2.99	15	-	-
65.29	51.5	-	51.2	3.7	-13.8	7.7	3	silty CLAY to CLAY	115	1.5	34	17	-	-	3.5	7.9	56	2.97	15	-	-
65.46	47.0	-	46.7	3.7	-13.7	8.5	3	silty CLAY to CLAY	115	1.5	31	16	-	-	3.2	7.1	60	3.03	15	-	-
65.62	50.8	-	50.6	3.5	-13.7	7.3	3	silty CLAY to CLAY	115	1.5	34	17	-	-	3.5	7.8	56	2.96	15	-	-
65.78	47.3	-	47.0	3.8	-13.6	8.8	3	silty CLAY to CLAY	115	1.5	32	16	-	-	3.2	7.2	61	3.04	15	-	-
65.95	66.1	-	65.8	4.2	-13.8	6.7	3	silty CLAY to CLAY	115	1.5	44	22	-	-	4.5	9.9	49	2.85	15	-	-
66.11	69.7	-	69.5	3.9	-13.9	6.0	3	silty CLAY to CLAY	115	1.5	46	23	-	-	4.8	9.9	46	2.79	15	-	-
66.28	56.8	-	56.5	3.5	-13.8	6.7	3	silty CLAY to CLAY	115	1.5	38	19	-	-	3.9	8.7	52	2.90	15	-	-
66.44	52.8	-	52.5	3.0	-13.8	6.2	3	silty CLAY to CLAY	115	1.5	35	17	-	-	3.6	8.0	52	2.90	15	-	-
66.60	46.6	-	46.4	3.1	-13.7	7.1	3	silty CLAY to CLAY	115	1.5	31	15	-	-	3.2	7.0	57	2.98	15	-	-
66.77	45.1	-	44.8	3.6	-13.6	8.8	3	silty CLAY to CLAY	115	1.5	30	15	-	-	3.0	6.7	63	3.06	15	-	-
66.93	82.1	-	81.8	4.7	-13.8	6.0	3	silty CLAY to CLAY	115	1.5	55	27	-	-	5.7	9.9	43	2.75	15	-	-
67.10	87.9	-	87.6	5.9	-13.8	7.0	3	silty CLAY to CLAY	115	1.5	59	29	-	-	6.1	9.9	45	2.78	15	-	-
67.26	116.4	-	116.1	6.7	-13.8	5.9	3	silty CLAY to CLAY	115	1.5	78	38	-	-	8.1	9.9	37	2.64	15	-	-
67.42	130.8	241.1	130.5	7.0	-13.8	5.5	9	very stiff fine SOIL	120	2.0	65	44	63	38	-	-	30	2.49	30	0.00	0.0
67.59	147.2	239.9	146.9	7.1	-14.0	5.0	9	very stiff fine SOIL	120	2.0	74	50	67	39	-	-	27	2.42	30	0.00	0.0
67.75	154.9	232.8	154.6	6.8	-14.0	4.5	9	very stiff fine SOIL	120	2.0	77	52	69	39	-	-	25	2.38	30	0.00	0.0
67.92	140.9	181.7	140.6	4.4	-13.9	3.2	5	silty SAND to sandy SILT	120	4.0	35	24	65	38	-	-	22	2.29	16	0.00	0.0
68.08	96.6	-	96.3	5.0	-13.7	5.4	3	silty CLAY to CLAY	115	1.5	64	31	-	-	6.7	9.9	39	2.67	15	-	-
68.24	55.1	-	54.9	4.5	-13.5	8.8	3	silty CLAY to CLAY	115	1.5	37	18	-	-	3.8	8.2	58	3.00	15	-	-
68.41	42.1	-	41.8	3.7	-13.5	9.8	3	silty CLAY to CLAY	115	1.5	28	14	-	-	2.8	6.1	67	3.12	15	-	-
68.57	39.1	-	38.9	3.0	-13.5	8.4	3	silty CLAY to CLAY	115	1.5	26	13	-	-	2.6	5.6	66	3.10	15	-	-
68.74	31.7	-	31.4	2.4	-13.5	8.5	3	silty CLAY to CLAY	115	1.5	21	10	-	-	2.1	4.4	72	3.18	15	-	-
68.90	28.9	-	28.6	2.1	-13.6	8.3	3	silty CLAY to CLAY	115	1.5	19	9	-	-	1.9	3.9	74	3.21	15	-	-
69.07	34.0	-	33.8	2.6	-13.5	8.7	3	silty CLAY to CLAY	115	1.5	23	11	-	-	2.3	4.7	70	3.16	15	-	-
69.23	49.0	-	48.8	3.1	-13.6	7.0	3	silty CLAY to CLAY	115	1.5	33	16	-	-	3.3	7.1	57	2.97	15	-	-
69.39	51.3	-	51.1	3.5	-13.6	7.4	3	silty CLAY to CLAY	115	1.5	34	16	-	-	3.5	7.4	57	2.97	15	-	-
69.56	56.8	-	56.5	4.1	-13.7	7.7	3	silty CLAY to CLAY	115	1.5	38	18	-	-	3.9	8.3	55	2.95	15	-	-
69.72	107.6	-	107.3	6.1	-14.3	5.9	3	silty CLAY to CLAY	115	1.5	72	34	-	-	7.5	9.9	39	2.67	15	-	-
69.89	218.3	267.1	218.0	8.9	-14.9	4.2	9	very stiff fine SOIL	120	2.0	100	73	79	41	-	-	21	2.26	30	0.00	0.0
70.05	263.3	273.7	263.0	9.1	-13.9	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.3	9.9	17	2.15	16	0.00	0.0
70.21	247.3	252.9	247.0	7.9	-13.5	3.2	5	silty SAND to sandy SILT	120	4.0	62	41	83	41	-	-	17	2.14	16	0.00	0.0
70.38	248.2	235.5	247.9	6.7	-13.9	2.8	5	silty SAND to sandy SILT	120	4.0	62	41	84	41	-	-	15	2.08	16	0.00	0.0
70.54	237.8	214.5	237.5	5.5	-13.9	2.3	5	silty SAND to sandy SILT	120	4.0	59	40	82	41	-	-	14	2.04	16	0.00	0.0
70.71	214.7	196.1	214.4	4.7	-13.8	2.2	5	silty SAND to sandy SILT	120	4.0	54	36	79	41	-	-	14	2.05	16	0.00	0.0
70.87	187.7	197.2	187.4	5.1	-13.6	2.8	5	silty SAND to sandy SILT	120	4.0	47	31	74	40	-	-	18	2.16	16	0.00	0.0
71.03	139.2	179.4	138.9	4.3	-13.4	3.2	5	silty SAND to sandy SILT	120	4.0	35	23	64	38	-	-	22	2.30	16	0.00	0.0
71.20	86.9	-	86.7	5.5	-13.2	6.7	3	silty CLAY to CLAY	115	1.5	58	27	-	-	6.0	9.9	45	2.78	15	-	-
71.36	75.1	-	74.8	4.8	-13.7	6.7	3	silty CLAY to CLAY	115	1.5	50	23	-	-	5.2	9.9	48	2.83	15	-	-
71.53	65.0	-	64.7	3.7	-13.8	6.1	3	silty CLAY to CLAY	115	1.5	43	20	-	-	4.4	9.3	49	2.85	15	-	-
71.69	53.1	-	52.8	2.5	-13.8	5.2	3	silty CLAY to CLAY	115	1.5	35	16	-	-	3.6	7.5	50	2.87	15	-	-
71.85	40.6	-	40.3	2.4	-13.8	6.6	3	silty CLAY to CLAY	115	1.5	27	12	-	-	2.7	5.5	61	3.03	15	-	-
72.02	35.8	-	35.6	1.9	-13.8	6.1	3	silty CLAY to CLAY	115	1.5	24	11	-	-	2.4	4.8	62	3.06	15	-	-
72.18	35.5	-	35.3	1.9	-13.8	6.2	3	silty CLAY to CLAY	115	1.5	24	11	-	-	2.4	4.8	63	3.06	15	-	-
72.35	38.2	-	37.9	2.4	-13.8	7.2	3	silty CLAY to CLAY	115	1.5	25	12	-	-	2.5	5.1	64	3.08	15	-	-
72.51	51.3	-	51.0	3.4	-13.9	7.2	3	silty CLAY to CLAY	115	1.5	34	16	-	-	3.5	7.1	57	2.98	15	-	-
72.67	50.9	-	50.6	3.6	-14.0	7.8	3	silty CLAY to CLAY	115	1.5	34	15	-	-	3.4	7.0	59	3.01	15	-	-
72.84	44.4	-	44.1	3.2	-14.0	8.1	3	silty CLAY to CLAY	115	1.5	30	13	-	-	3.0	6.0	63	3.07	15	-	-
73.00	39.7	-	39.4	2.9	-14.0	8.2	3	silty CLAY to CLAY	115	1.5	26	12	-	-	2.6	5.3	66	3.11	15	-	-
73.17	37.4	-	37.1	2.6	-14.0	7.9	3	silty CLAY to CLAY	115	1.5	25	11	-	-	2.5	5.0	67	3.12	15	-	-
73.33	38.6	-	38.3	2.8	-14.0	8.2	3	silty CLAY to CLAY	115	1.5	26	12	-	-	2.6	5.1	67	3.12	15	-	-
73.49	48.5	-	48.2	3.2	-14.0	7.2	3	silty CLAY to CLAY	115	1.5	32	15	-	-	3.3	6.6	59	3.01	15	-	-
73.66	54.6	-	54.3	4.1	-14.0	8.2	3	silty CLAY to CLAY	115	1.5	36	16	-	-	3.7	7.5	59	3.00	15	-	-
73.82	50.7	-	50.5	4.0	-14.1	8.6	3	silty CLAY to CLAY	115	1.5	34	15	-	-	3.4	6.9	61	3.04	15	-	-
73.99	55.8	-	55.5	4.4	-14.0	8.6	3	silty CLAY to CLAY	115	1.5	37	17	-	-	3.8	7.6	59	3.01	15	-	-
74.15	78.1	-	77.9	5.0	-14.1	6.7	3	silty CLAY to CLAY	115	1.5	52	23	-	-	5.4	9.9	48	2.83	15	-	-
74.31	77.5	-	77.3	4.6	-14.1	6.3	3	silty CLAY to CLAY	115	1.5	52	23	-	-	5.3	9.9	47	2.81	15	-	-
74.48	87.5	-	87.2	5.5	-14.1	6.6	3	silty CLAY to CLAY	115	1.5	58	26	-	-	6.0	9.9	45	2.79	15	-	-
74.64	102.7	-	102.4	6.5	-14.0	6.6	3	silty CLAY to CLAY	115	1.5	68	31	-	-	7.1	9.9	42	2.74	15	-	-
74.81	69.6	-	69.3	5.5	-13.8	8.4	3	silty CLAY to CLAY	115	1.5	46	21	-	-	4.8	9.6	54	2.94	15	-	-
74.97	54.5	-	54.3	5.2	-13.7	9.9	3	silty CLAY to CLAY	115	1.5	36	16	-	-	3.7	7.4	63	3.07	15	-	-
75.13	75.3	-	75.0	5.1	-13.8	7.2	3	silty CLAY to CLAY	115	1.5	50	22	-	-	5.2	9.9	50	2.87	15	-	-
75.30	108.0	-	107.7	5.8	-13.9	5.6	3	silty CLAY to CLAY	115	1.5	72	32	-	-	7.5	9.9	39	2.67	15	-	-
75.46	157.4	212.6	157.2	6.1	-13.9	4.0	4	clayy SILT to silty CLAY	115	2.0	79	51	-	-	11.0	9.9	24	2.34	15	0.00	0.0
75.63	195.0	203.1	194.7	5.6	-13.9	2.9	5	silty SAND to sandy SILT	120	4.0	49	31	75	40	-	-	18	2.18	16	0.00	0.0
75.79	212.0	200.2	211.8	5.2	-13.9	2.5	5	silty SAND to sandy SILT	120	4.0	53	34	77	40	-	-	16	2.11	16	0.00	0.0
75.96	221.5	211.0	221.3	5.8	-13.9	2.7	5	silty SAND to sandy SILT	120	4.0	55	36	79	40	-	-	16	2.11	16	0.00	0.0
76.12	232.2	219.3	231.9	6.2	-13.9	2.7	5	silty SAND to sandy SILT	120	4.0	58	37	80	41	-	-	16	2.11	16	0.00	0.0
76.28	243.3	230.4	243.0	6.8	-13.9	2.9	5	silty SAND to sandy SILT	120	4.0	61	39	82	41	-	-	16	2.11	16	0.00	0.0
76.45	245.3	230.3	245.0	6.8	-13.9	2.8	5	silty SAND to sandy SILT	120	4.0	61	39	82	41	-	-	16	2.10	16	0.00	0.0
76.61	241.6	221.2	241.4	6.2	-13.8	2.6	5	silty SAND to sandy SILT	120	4.0	60	39	81	41	-	-	15	2.09	16	0.00	0.0
76.78	216.3	223.5	216.0	6.7	-13.7	3.2	5	silty SAND to sandy SILT	120	4.0	54	35	78	40	-	-	18	2.18	16	0.00	0.0
76.94	177.6	233.1	177.3	7.3	-13.6	4.2	9	very stiff fine SOIL	120	2.0	89	57	71	39	-	-	24	2.33	30	0.00	0.0
77.10	146.6	225.5	146.4	6.7	-13.5	4.7	9	very stiff fine SOIL	120	2.0	73	47	65	38	-	-	27	2.42	30	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Pacific Materials Laboratory
Data File: SDF(292).cpt
CPT Date: 10/10/2014 3:05:48 PM
GW During Test: 8 ft

Sounding ID: CPT-02
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	Ic SBT Indx	Nk - -	Vol Strn %	Cycl SStn %
77.27	121.5	203.4	121.3	5.4	-13.4	4.6	4	clayy SILT to silty CLAY	115	2.0	61	39	-	-	8.4	9.9	29	2.47	15	0.00	0.0
77.43	101.7	-	101.4	4.4	-13.3	4.5	4	clayy SILT to silty CLAY	115	2.0	51	22	-	-	7.0	9.9	37	2.63	15	-	-
77.60	99.5	164.6	99.2	3.6	-13.3	3.8	4	clayy SILT to silty CLAY	115	2.0	50	32	-	-	6.9	9.9	29	2.47	15	0.00	0.0
77.76	97.5	156.0	97.3	3.2	-13.2	3.5	4	clayy SILT to silty CLAY	115	2.0	49	31	-	-	6.7	9.9	28	2.45	15	0.24	1.0
77.92	90.1	-	89.8	4.0	-13.2	4.7	4	clayy SILT to silty CLAY	115	2.0	45	19	-	-	6.2	9.9	40	2.68	15	-	-
78.09	67.8	-	67.5	3.9	-13.7	6.1	3	silty CLAY to CLAY	115	1.5	45	19	-	-	4.6	8.9	50	2.86	15	-	-
78.25	68.7	-	68.4	3.8	-13.7	5.9	3	silty CLAY to CLAY	115	1.5	46	20	-	-	4.7	9.0	49	2.84	15	-	-
78.42	82.7	-	82.4	2.9	-13.8	3.7	4	clayy SILT to silty CLAY	115	2.0	41	18	-	-	5.7	9.9	37	2.64	15	-	-
78.58	52.7	-	52.4	3.3	-13.8	6.8	3	silty CLAY to CLAY	115	1.5	35	15	-	-	3.6	6.8	57	2.98	15	-	-
78.74	58.3	-	58.0	3.9	-13.8	7.3	3	silty CLAY to CLAY	115	1.5	39	16	-	-	4.0	7.5	56	2.97	15	-	-
78.91	69.9	-	69.6	4.6	-13.8	7.1	3	silty CLAY to CLAY	115	1.5	47	20	-	-	4.8	9.1	52	2.90	15	-	-
79.07	69.1	-	68.9	3.6	-13.8	5.6	3	silty CLAY to CLAY	115	1.5	46	20	-	-	4.7	9.0	48	2.83	15	-	-
79.24	56.1	-	55.8	3.7	-13.8	7.2	3	silty CLAY to CLAY	115	1.5	37	16	-	-	3.8	7.2	57	2.98	15	-	-
79.40	56.0	-	55.7	3.5	-13.7	6.9	3	silty CLAY to CLAY	115	1.5	37	16	-	-	3.8	7.1	56	2.96	15	-	-
79.56	135.3	147.6	135.0	3.1	-14.1	2.4	5	silty SAND to sandy SILT	120	4.0	34	21	62	37	-	-	20	2.23	16	0.50	2.7
79.73	161.7	164.8	161.4	3.8	-14.2	2.4	5	silty SAND to sandy SILT	120	4.0	40	25	68	38	-	-	18	2.18	16	0.00	0.0
79.89	111.3	173.5	111.0	4.1	-14.1	3.8	4	clayy SILT to silty CLAY	115	2.0	56	35	-	-	7.7	9.9	28	2.44	15	0.00	0.0
80.06	59.2	-	58.9	3.3	-14.0	6.0	3	silty CLAY to CLAY	115	1.5	39	16	-	-	4.0	7.5	53	2.91	15	-	-
80.22	41.2	-	40.9	2.6	-13.9	7.1	3	silty CLAY to CLAY	115	1.5	27	11	-	-	2.7	5.0	65	3.09	15	-	-
80.38	39.8	-	39.5	2.1	-13.9	6.0	3	silty CLAY to CLAY	115	1.5	27	11	-	-	2.6	4.8	62	3.05	15	-	-
80.55	38.3	-	38.0	2.0	-13.9	5.9	3	silty CLAY to CLAY	115	1.5	26	11	-	-	2.5	4.6	63	3.06	15	-	-
80.71	41.2	-	40.9	2.0	-13.9	5.5	3	silty CLAY to CLAY	115	1.5	27	11	-	-	2.7	5.0	59	3.01	15	-	-
80.88	39.3	-	39.0	2.0	-13.9	5.7	3	silty CLAY to CLAY	115	1.5	26	11	-	-	2.6	4.7	62	3.04	15	-	-
81.04	37.4	-	37.1	1.9	-13.9	5.7	3	silty CLAY to CLAY	115	1.5	25	10	-	-	2.5	4.5	63	3.06	15	-	-
81.20	39.0	-	38.7	2.0	-13.9	5.7	3	silty CLAY to CLAY	115	1.5	26	11	-	-	2.6	4.7	62	3.05	15	-	-
81.37	41.0	-	40.7	2.9	-13.9	7.9	3	silty CLAY to CLAY	115	1.5	27	11	-	-	2.7	4.9	67	3.12	15	-	-
81.53	64.5	-	64.2	5.1	-13.5	8.5	3	silty CLAY to CLAY	115	1.5	43	18	-	-	4.4	8.1	58	2.99	15	-	-
81.70	110.9	-	110.6	7.0	-13.6	6.6	3	silty CLAY to CLAY	115	1.5	74	30	-	-	7.7	9.9	43	2.74	15	-	-
81.86	123.5	-	123.2	8.3	-13.7	7.0	3	silty CLAY to CLAY	115	1.5	82	34	-	-	8.6	9.9	42	2.73	15	-	-
82.02	138.4	-	138.1	8.5	-13.6	6.4	3	silty CLAY to CLAY	115	1.5	92	38	-	-	9.6	9.9	39	2.66	15	-	-
82.19	139.1	-	138.9	7.1	-13.6	5.3	4	clayy SILT to silty CLAY	115	2.0	70	28	-	-	9.7	9.9	35	2.60	15	-	-
82.35	162.0	245.0	161.7	8.0	-13.5	5.1	9	very stiff fine SOIL	120	2.0	81	50	67	38	-	-	28	2.43	30	0.00	0.0
82.52	184.5	237.4	184.2	7.7	-13.3	4.3	9	very stiff fine SOIL	120	2.0	92	57	71	39	-	-	24	2.34	30	0.00	0.0
82.68	178.4	231.7	178.1	7.4	-13.2	4.3	9	very stiff fine SOIL	120	2.0	89	55	70	39	-	-	24	2.34	30	0.00	0.0
82.85	177.6	232.9	177.4	7.5	-13.1	4.3	9	very stiff fine SOIL	120	2.0	89	55	70	39	-	-	24	2.35	30	0.00	0.0
83.01	125.6	-	125.3	9.2	-13.1	7.6	3	silty CLAY to CLAY	115	1.5	84	34	-	-	8.7	9.9	43	2.75	15	-	-
83.17	128.2	-	128.0	9.3	-13.1	7.5	3	silty CLAY to CLAY	115	1.5	85	35	-	-	8.9	9.9	43	2.75	15	-	-
83.34	82.4	-	82.1	7.4	-13.0	9.5	3	silty CLAY to CLAY	115	1.5	55	22	-	-	5.6	9.9	56	2.96	15	-	-
83.50	54.0	-	53.8	4.7	-12.8	9.7	3	silty CLAY to CLAY	115	1.5	36	15	-	-	3.6	6.5	65	3.10	15	-	-
83.67	45.0	-	44.7	3.6	-12.8	9.0	3	silty CLAY to CLAY	115	1.5	30	12	-	-	3.0	5.3	68	3.14	15	-	-
83.83	48.6	-	48.3	4.1	-12.8	9.4	3	silty CLAY to CLAY	115	1.5	32	13	-	-	3.3	5.8	67	3.12	15	-	-
83.99	82.7	-	82.4	6.2	-12.9	8.0	3	silty CLAY to CLAY	115	1.5	55	22	-	-	5.7	9.9	52	2.90	15	-	-
84.16	120.6	-	120.3	6.9	-13.1	5.9	3	silty CLAY to CLAY	115	1.5	80	32	-	-	8.3	9.9	40	2.69	15	-	-

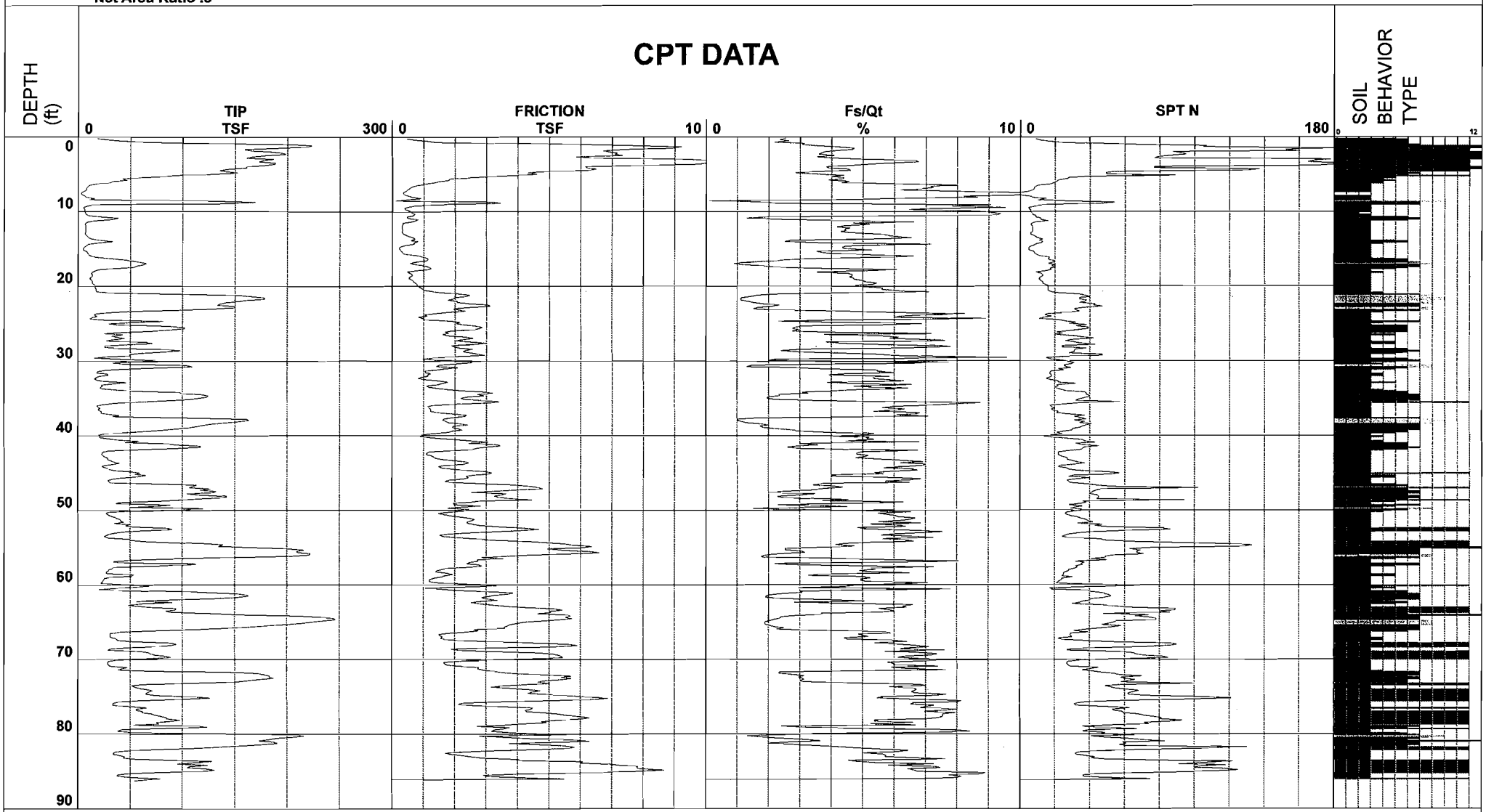
* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Pacific Materials Laboratory

Project	Carpentaria Hotel	Operator	DG-BH	Filename	SDF(293).cpt
Job Number	Carpentaria Hotel	Cone Number	DDG1268	GPS	
Hole Number	CPT-03	Date and Time	10/10/2014 4:05:22 PM	Maximum Depth	86.29 ft
EST GW Depth During Test		8.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained	4 - silty clay to clay	7 - silty sand to sandy silt	10 - gravelly sand to sand
2 - organic material	5 - clayey silt to silty clay	8 - sand to silty sand	11 - very stiff fine grained (*)
3 - clay	6 - sandy silt to clayey silt	9 - sand	12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Carpentaria Hotel

Project ID: Pacific Materials Laboratory
Data File: SDF(293).cpt
CPT Date: 10/10/2014 4:05:22 PM
GW During Test: 8 ft

Sounding ID: CPT-03
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR -	* Fin Ic %	* Ic SBT Indx	* Nk -	* Vol Strn %	* Cycl SStn %
0.33	28.0	106.3	28.0	0.7	-0.2	2.3	5	silty SAND to sandy SILT	120	4.0	7	11	41	48	-	-	27	2.41	16	N/A	N/A
0.49	40.7	133.3	40.7	1.1	-0.2	2.6	5	silty SAND to sandy SILT	120	4.0	10	16	53	48	-	-	24	2.33	16	N/A	N/A
0.66	63.9	155.6	63.9	1.4	-0.2	2.2	5	silty SAND to sandy SILT	120	4.0	16	26	68	48	-	-	17	2.13	16	N/A	N/A
0.82	115.8	268.3	115.8	3.6	-0.3	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.7	9.9	16	2.09	16	N/A	N/A
0.98	203.7	406.3	203.7	6.2	-0.2	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.5	9.9	12	1.95	16	N/A	N/A
1.15	223.3	459.1	223.2	7.8	-0.1	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.8	9.9	13	1.99	16	N/A	N/A
1.31	220.2	489.3	220.2	9.2	-0.6	4.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.6	9.9	15	2.06	16	N/A	N/A
1.48	188.4	460.2	188.4	8.9	-0.2	4.7	9	very stiff fine SOIL	120	2.0	94	100	95	48	-	-	17	2.14	30	N/A	N/A
1.64	158.6	405.7	158.6	7.4	-0.4	4.7	9	very stiff fine SOIL	120	2.0	79	100	95	48	-	-	18	2.17	30	N/A	N/A
1.80	165.2	389.4	165.2	6.7	-0.2	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.9	9.9	16	2.11	16	N/A	N/A
1.97	182.8	405.4	182.8	6.9	-0.2	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.1	9.9	15	2.06	16	N/A	N/A
2.13	195.2	421.6	195.2	7.2	-0.4	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.9	9.9	14	2.03	16	N/A	N/A
2.30	198.0	421.9	198.0	7.1	0.4	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.1	9.9	14	2.02	16	N/A	N/A
2.46	179.4	414.4	179.4	7.3	-0.2	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.9	9.9	16	2.09	16	N/A	N/A
2.62	165.9	366.3	165.9	5.8	0.0	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.0	9.9	14	2.05	16	N/A	N/A
2.79	160.6	378.4	160.6	6.4	0.1	4.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.6	9.9	16	2.11	16	N/A	N/A
2.95	186.2	472.4	186.2	9.3	-0.6	5.0	9	very stiff fine SOIL	120	2.0	93	100	95	48	-	-	18	2.16	30	N/A	N/A
3.12	176.6	536.8	176.6	11.7	-0.7	6.7	9	very stiff fine SOIL	120	2.0	88	100	95	48	-	-	22	2.28	30	N/A	N/A
3.28	172.5	534.2	172.6	11.7	1.0	6.8	9	very stiff fine SOIL	120	2.0	86	100	95	48	-	-	22	2.29	30	N/A	N/A
3.45	188.2	519.3	188.2	11.0	-0.6	5.9	9	very stiff fine SOIL	120	2.0	94	100	95	48	-	-	20	2.22	30	N/A	N/A
3.61	187.8	485.3	187.8	9.8	-0.6	5.2	9	very stiff fine SOIL	120	2.0	94	100	95	48	-	-	18	2.18	30	N/A	N/A
3.77	177.1	433.5	177.0	8.1	-0.6	4.6	9	very stiff fine SOIL	120	2.0	89	100	95	48	-	-	17	2.14	30	N/A	N/A
3.94	160.8	371.1	160.8	6.1	-0.6	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.6	9.9	16	2.09	16	N/A	N/A
4.10	160.3	372.1	160.3	6.2	-0.1	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.6	9.9	16	2.10	16	N/A	N/A
4.27	143.5	372.1	143.5	6.5	-0.6	4.5	9	very stiff fine SOIL	120	2.0	72	100	95	48	-	-	18	2.18	30	N/A	N/A
4.43	134.8	360.3	134.8	6.2	-0.7	4.6	9	very stiff fine SOIL	120	2.0	67	100	92	48	-	-	19	2.20	30	N/A	N/A
4.59	141.5	321.9	141.5	4.8	-0.8	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.4	9.9	15	2.08	16	N/A	N/A
4.76	152.0	315.0	152.0	4.3	-0.9	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.1	9.9	13	1.99	16	N/A	N/A
4.92	129.4	307.7	129.3	4.6	-0.9	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.6	9.9	16	2.12	16	N/A	N/A
5.09	93.4	277.5	93.3	4.1	-1.4	4.4	9	very stiff fine SOIL	120	2.0	47	75	80	46	-	-	21	2.27	30	N/A	N/A
5.25	81.2	242.6	81.1	3.2	-1.2	4.0	8	stiff SAND to clayy SAND	115	1.0	81	100	-	-	5.4	9.9	22	2.27	16	N/A	N/A
5.41	58.5	214.2	58.4	2.6	-1.1	4.4	9	very stiff fine SOIL	120	2.0	29	47	65	44	-	-	26	2.39	30	N/A	N/A
5.58	42.0	181.6	42.0	1.8	-1.3	4.4	4	clayy SILT to silty CLAY	115	2.0	21	34	-	-	2.9	9.9	30	2.49	15	N/A	N/A
5.74	46.7	178.7	46.7	1.8	-1.3	3.9	4	clayy SILT to silty CLAY	115	2.0	23	37	-	-	3.3	9.9	27	2.42	15	N/A	N/A
5.91	33.3	167.7	33.3	1.5	-1.9	4.6	4	clayy SILT to silty CLAY	115	2.0	17	27	-	-	2.3	9.9	34	2.57	15	N/A	N/A
6.07	30.3	156.1	30.3	1.3	-2.2	4.4	4	clayy SILT to silty CLAY	115	2.0	15	24	-	-	2.1	9.9	34	2.58	15	N/A	N/A
6.23	18.5	-	18.5	1.1	-2.7	6.0	3	silty CLAY to CLAY	115	1.5	12	20	-	-	1.3	9.9	48	2.83	15	N/A	N/A
6.40	10.9	-	10.8	0.9	-3.8	8.3	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.7	9.2	65	3.10	15	N/A	N/A
6.56	9.6	-	9.6	0.7	-3.7	7.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.7	8.0	66	3.11	15	N/A	N/A
6.73	8.4	-	8.3	0.6	-4.2	7.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	6.7	70	3.16	15	N/A	N/A
6.89	8.0	-	7.9	0.5	-4.5	7.2	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.5	6.2	70	3.16	15	N/A	N/A
7.05	7.8	-	7.7	0.5	-4.8	6.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	5.9	69	3.14	15	N/A	N/A
7.22	5.7	-	5.6	0.5	-4.3	8.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	4.1	84	3.34	15	N/A	N/A
7.38	3.6	-	3.5	0.4	-3.1	9.9	2	Organic SOILS - Peats	100	1.0	4	6	-	-	0.3	2.4	95	3.54	10	N/A	N/A
7.55	2.8	-	2.8	0.4	-2.9	9.9	2	Organic SOILS - Peats	100	1.0	3	5	-	-	0.3	1.8	95	3.64	10	N/A	N/A
7.71	3.9	-	3.9	0.4	-3.0	9.9	2	Organic SOILS - Peats	100	1.0	4	6	-	-	0.4	2.6	95	3.51	10	N/A	N/A
7.87	6.2	-	6.1	0.5	-3.7	8.9	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.1	82	3.32	15	N/A	N/A
8.04	7.4	-	7.3	0.6	-3.9	9.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	5.0	78	3.26	15	-	-
8.20	15.5	-	15.4	0.9	-4.1	6.1	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.1	9.9	52	2.89	15	-	-
8.37	10.8	-	10.6	0.5	-7.0	4.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.7	7.2	55	2.95	15	-	-
8.53	119.7	169.1	119.5	0.1	-12.1	0.1	7	grvly SAND to dense SAND	130	6.0	20	28	84	45	-	-	5	1.27	16	0.00	0.0
8.69	169.1	273.0	169.1	3.2	-0.6	1.9	6	clean SAND to silty SAND	125	5.0	34	47	95	47	-	-	9	1.86	16	0.00	0.0
8.86	146.8	259.1	146.8	3.5	-0.5	2.4	5	silty SAND to sandy SILT	120	4.0	37	51	91	46	-	-	12	1.97	16	0.00	0.0
9.02	16.1	-	16.1	1.5	0.8	9.4	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	9.9	60	3.02	15	-	-
9.19	9.4	-	9.4	0.7	0.3	8.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.9	70	3.16	15	-	-
9.35	5.2	-	5.2	0.5	0.3	9.9	2	Organic SOILS - Peats	100	1.0	5	8	-	-	0.5	3.1	91	3.41	10	-	-
9.51	5.5	-	5.5	0.4	0.4	7.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.3	84	3.33	15	-	-
9.68	6.4	-	6.4	0.4	0.5	7.1	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.8	77	3.25	15	-	-
9.84	6.4	-	6.4	0.6	0.5	9.5	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.8	84	3.33	15	-	-
10.01	6.5	-	6.5	0.6	0.4	9.9	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.8	84	3.33	15	-	-
10.17	7.0	-	7.0	0.7	0.4	9.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	4.1	82	3.31	15	-	-
10.34	7.8	-	7.8	0.7	0.3	9.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.5	79	3.27	15	-	-
10.50	9.4	-	9.4	0.7	0.2	7.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.5	68	3.13	15	-	-
10.66	23.4	88.2	23.4	0.5	-0.4	2.1	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	1.6	9.9	31	2.51	15	2.59	51.2
10.83	38.3	87.0	38.3	0.5	-3.6	1.3	5	silty SAND to sandy SILT	120	4.0	10	13	45	39	-	-	20	2.22	16	2.62	43.1
10.99	31.8	111.9	31.7	0.8	-3.5	2.7	4	clayy SILT to silty CLAY	115	2.0	16	21	-	-	2.2	9.9	30	2.48	15	2.08	51.2
11.16	16.4	-	16.3	0.7	-4.2	4.7	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.1	9.6	46	2.80	15	-	-
11.32	9.1	-	9.0	0.6	-4.5	7.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.1	67	3.13	15	-	-
11.48	7.3	-	7.2	0.3	-4.3	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.0	66	3.11	15	-	-
11.65	6.7	-	6.6	0.3	-4.2	5.8	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.6	71	3.18	15	-	-
11.81	7.1	-	7.0	0.3	-3.9	4.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.8	66	3.11	15	-	-
11.98	7.3	-	7.3	0.3	-3.8	4.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.9	64	3.08	15	-	-
12.14	6.8	-	6.8	0.3	-3.7	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.4	3.6	68	3.14	15	-	-
12.30	7.3	-	7.2	0.3	-3.7	4.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.8	66	3.10	15	-	-
12.47	7.3	-	7.2	0.3	-3.6	5.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.7	66	3.11	15	-	-
12.63	7.3	-	7.2	0.3	-3.6	4.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.7	65	3.10	15	-	-
12.80	6.7	-	6.7	0.3	-3.5	5.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.4	69	3.15	15	-	-
12.96	6.8	-	6.7	0.4	-3.5	6.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.4	3.4	73	3.20	15	-	-
13.12	8.1	-	8.0	0.5	-3.4	6.4	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.5	4.0	69	3.14	15	-	-
13.29	9.2	-	9.1	0.6	-3.4	6.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.6	66	3.11	15	-	-
13.45	10.2	-	10.2	0.7	-3.4	7.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.2	65	3.09	15	-	-
13.62	14.0	-	13.9	0.7	-3.3	5.5	3	silty CLAY to CLAY	115	1.5	9	15	-	-	0.9	7.2	52	2.91	15	-	-
13.78	22.0	-	22.0	0.6	-3.3	2.8	4	clayy SILT to silty CLAY	115	2.0	11	15	-	-	1.5	9.9	36	2.60	15	-	-
13.94	32.9	108.8	32.8	0.8	-4.3	2.6	4	clayy SILT to silty CLAY	115	2.0	16	20	-	-	2.3	9.9	30	2.48	15	2.18	51.2
14.11	18.8	-	18.7	0.7	-4.7	3.8	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	1.3	9.5	40	2.70	15	-	-
14.27	9.9	-	9.8	0.7	-4.6	7.8	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	4.8	68	3.13	15	-	-
14.44	8.5	-	8.4	0.4	-4.5	5.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.0	65	3.10	15	-	-
14.60	6.8	-	6.7	0.3	-4.4	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.4	3.1	69	3.15	15	-	-
14.76	5.5	-	5.5	0.2	-4.4	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	2.4	76	3.24	15	-	-
14.93	4.9	-	4.8	0.2	-4.3	5.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.1	81	3.30	15	-	-
15.09	5.0	-	4.9	0.3	-4.3	6.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.1	85	3.35	15	-	-
15.26	8.3	-	8.2	0.3	-4.0	3.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.5	3.8	60	3.02	15	-	-
15.42	8.8	-	8.7	0.3	-3.9	4.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.0	59	3.01	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Pacific Materials Laboratory
Data File: SDF(293).cpt
CPT Date: 10/10/2014 4:05:22 PM
GW During Test: 8 ft

Sounding ID: CPT-03
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
15.58	9.5	-	9.4	0.4	-3.9	4.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.3	59	3.01	15	-	-
15.75	10.4	-	10.3	0.6	-3.8	5.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.7	62	3.05	15	-	-
15.91	12.6	-	12.5	0.8	-3.7	7.1	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	5.7	62	3.04	15	-	-
16.08	17.5	-	17.4	1.0	-3.7	6.0	3	silty CLAY to CLAY	115	1.5	12	17	-	-	1.2	8.1	51	2.88	15	-	-
16.24	32.7	126.6	32.6	1.1	-3.9	3.5	4	clayy SILT to silty CLAY	115	2.0	16	19	-	-	2.3	9.9	35	2.59	15	1.52	51.2
16.40	44.1	121.4	43.9	1.1	-6.4	2.6	5	silty SAND to sandy SILT	120	4.0	11	13	45	38	-	-	27	2.41	16	1.84	42.1
16.57	52.0	118.5	51.9	1.1	-7.9	2.2	5	silty SAND to sandy SILT	120	4.0	13	15	51	39	-	-	22	2.30	16	1.96	33.2
16.73	60.3	102.1	60.1	0.7	-9.4	1.3	5	silty SAND to sandy SILT	120	4.0	15	18	55	40	-	-	16	2.10	16	2.30	27.9
16.90	65.1	96.5	64.9	0.6	-10.4	0.9	6	clean SAND to silty SAND	125	5.0	13	15	58	40	-	-	12	1.98	16	2.41	25.2
17.06	62.3	101.6	62.1	0.7	-10.5	1.2	5	silty SAND to sandy SILT	120	4.0	16	18	56	40	-	-	15	2.07	16	2.31	26.9
17.23	56.5	113.1	56.3	1.0	-10.4	1.8	5	silty SAND to sandy SILT	120	4.0	14	16	53	39	-	-	20	2.23	16	2.11	30.7
17.39	53.2	121.2	52.9	1.2	-10.3	2.2	5	silty SAND to sandy SILT	120	4.0	13	15	51	39	-	-	23	2.31	16	1.88	32.8
17.55	34.7	131.3	34.5	1.2	-10.6	3.7	4	clayy SILT to silty CLAY	115	2.0	17	20	-	-	2.4	9.9	35	2.59	15	1.30	51.2
17.72	19.4	-	19.2	1.2	-10.6	6.4	3	silty CLAY to CLAY	115	1.5	13	18	-	-	1.3	8.4	51	2.89	15	-	-
17.88	15.8	-	15.6	0.8	-10.4	5.2	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.1	6.7	52	2.90	15	-	-
18.05	13.5	-	13.3	0.5	-10.4	3.8	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.6	50	2.87	15	-	-
18.21	12.3	-	12.3	0.6	-10.3	4.9	3	silty CLAY to CLAY	115	1.5	8	11	-	-	0.8	5.1	57	2.97	15	-	-
18.37	13.6	-	13.4	0.6	-10.2	5.1	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.6	55	2.95	15	-	-
18.54	13.7	-	13.5	0.6	-10.2	5.0	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.6	55	2.95	15	-	-
18.70	12.5	-	12.3	0.6	-10.1	5.0	3	silty CLAY to CLAY	115	1.5	8	11	-	-	0.8	5.1	57	2.98	15	-	-
18.87	11.1	-	10.9	0.5	-10.1	5.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.4	61	3.04	15	-	-
19.03	11.9	-	11.7	0.6	-10.1	5.2	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.8	4.7	60	3.02	15	-	-
19.19	13.1	-	12.9	0.7	-10.1	5.4	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.2	58	3.00	15	-	-
19.36	13.4	-	13.2	0.7	-10.1	5.5	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.3	58	3.00	15	-	-
19.52	13.5	-	13.3	0.7	-10.1	5.9	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.3	60	3.02	15	-	-
19.69	15.0	-	14.8	0.8	-10.1	5.7	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.0	5.9	57	2.97	15	-	-
19.85	16.8	-	16.6	0.8	-10.1	5.0	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.1	6.6	52	2.90	15	-	-
20.01	16.4	-	16.2	0.8	-10.1	5.3	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.1	6.4	53	2.92	15	-	-
20.18	16.4	-	16.2	0.9	-10.0	6.1	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.1	6.4	56	2.96	15	-	-
20.34	17.4	-	17.2	1.0	-10.0	6.0	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.2	6.8	55	2.94	15	-	-
20.51	17.2	-	17.0	1.0	-10.0	6.5	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.2	6.6	56	2.97	15	-	-
20.67	17.8	-	17.6	1.3	-10.0	7.6	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.2	6.9	59	3.01	15	-	-
20.83	33.0	-	32.8	1.5	-9.9	4.8	4	clayy SILT to silty CLAY	115	2.0	16	21	-	-	2.3	9.9	39	2.67	15	-	-
21.00	106.1	165.0	105.9	2.2	-10.1	2.1	5	silty SAND to sandy SILT	120	4.0	27	29	72	42	-	-	16	2.09	16	0.00	0.0
21.16	154.8	198.1	154.6	2.5	-10.2	1.6	6	clean SAND to silty SAND	125	5.0	31	33	84	44	-	-	10	1.90	16	0.00	0.0
21.33	168.5	203.9	168.3	2.3	-10.3	1.4	6	clean SAND to silty SAND	125	5.0	34	36	87	44	-	-	9	1.82	16	0.00	0.0
21.49	178.0	203.6	177.8	2.0	-10.4	1.1	6	clean SAND to silty SAND	125	5.0	36	38	88	44	-	-	7	1.74	16	0.00	0.0
21.65	178.0	202.1	177.8	1.9	-10.6	1.1	6	clean SAND to silty SAND	125	5.0	36	38	88	44	-	-	7	1.74	16	0.00	0.0
21.82	160.4	186.1	160.3	1.8	-8.9	1.1	6	clean SAND to silty SAND	125	5.0	32	34	85	44	-	-	8	1.77	16	0.00	0.0
21.98	153.0	186.3	152.8	2.1	-9.2	1.4	6	clean SAND to silty SAND	125	5.0	31	32	83	44	-	-	9	1.85	16	0.00	0.0
22.15	141.0	178.3	140.8	2.1	-9.4	1.5	6	clean SAND to silty SAND	125	5.0	28	30	80	43	-	-	11	1.91	16	0.00	0.0
22.31	135.4	183.8	135.2	2.5	-9.3	1.9	6	clean SAND to silty SAND	125	5.0	27	29	79	43	-	-	13	1.99	16	0.00	0.0
22.47	133.0	197.0	132.9	3.1	-9.5	2.3	5	silty SAND to sandy SILT	120	4.0	33	35	78	43	-	-	15	2.07	16	0.00	0.0
22.64	148.5	204.0	148.3	3.1	-9.9	2.1	5	silty SAND to sandy SILT	120	4.0	37	39	82	43	-	-	13	2.01	16	0.00	0.0
22.80	150.1	189.3	149.9	2.4	-10.7	1.6	6	clean SAND to silty SAND	125	5.0	30	31	82	43	-	-	11	1.92	16	0.00	0.0
22.97	129.7	166.5	129.5	2.0	-10.3	1.5	6	clean SAND to silty SAND	125	5.0	26	27	77	43	-	-	11	1.94	16	0.00	0.0
23.13	100.3	157.6	100.1	2.1	-10.7	2.1	5	silty SAND to sandy SILT	120	4.0	25	26	68	41	-	-	17	2.13	16	0.33	2.0
23.30	52.8	169.7	53.0	2.3	9.1	4.5	4	clayy SILT to silty CLAY	115	2.0	26	27	-	-	3.7	9.9	33	2.56	15	0.00	0.0
23.46	28.4	-	28.5	1.7	8.9	6.5	3	silty CLAY to CLAY	115	1.5	19	21	-	-	1.9	9.9	48	2.84	15	-	-
23.62	17.0	-	17.1	1.4	8.7	9.0	3	silty CLAY to CLAY	115	1.5	11	13	-	-	1.1	5.8	66	3.11	15	-	-
23.79	15.0	-	15.1	1.0	8.9	7.5	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.0	5.0	66	3.10	15	-	-
23.95	18.2	-	18.4	1.1	8.8	6.7	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.2	6.2	58	3.00	15	-	-
24.12	14.0	-	14.1	0.8	5.3	6.7	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.6	65	3.09	15	-	-
24.28	11.1	-	11.2	1.0	5.8	9.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	3.5	81	3.30	15	-	-
24.44	22.4	-	22.5	1.0	5.7	4.8	3	silty CLAY to CLAY	115	1.5	15	16	-	-	1.5	7.6	48	2.84	15	-	-
24.61	80.9	143.2	80.9	1.9	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	20	21	61	40	-	-	20	2.23	16	0.88	5.2
24.77	50.6	162.0	50.5	2.2	-5.0	4.4	4	clayy SILT to silty CLAY	115	2.0	25	26	-	-	3.5	9.9	34	2.57	15	0.00	0.0
24.94	29.4	-	29.4	2.0	-4.4	7.2	3	silty CLAY to CLAY	115	1.5	20	21	-	-	2.0	9.9	50	2.88	15	-	-
25.10	39.5	-	39.4	2.3	-4.2	5.9	3	silty CLAY to CLAY	115	1.5	26	29	-	-	2.7	9.9	42	2.72	15	-	-
25.26	83.2	169.4	83.1	2.6	-4.9	3.2	5	silty SAND to sandy SILT	120	4.0	21	21	61	40	-	-	23	2.32	16	0.00	0.0
25.43	101.4	177.4	101.2	2.9	-6.3	2.9	5	silty SAND to sandy SILT	120	4.0	25	25	68	41	-	-	20	2.23	16	0.00	0.0
25.59	101.5	174.7	101.3	2.8	-9.2	2.8	5	silty SAND to sandy SILT	120	4.0	25	25	68	41	-	-	20	2.22	16	0.00	0.0
25.76	88.6	168.6	88.3	2.6	-10.8	3.0	5	silty SAND to sandy SILT	120	4.0	22	22	63	40	-	-	22	2.29	16	0.00	0.0
25.92	69.8	144.1	69.6	1.9	-11.7	2.8	5	silty SAND to sandy SILT	120	4.0	17	17	55	39	-	-	24	2.34	16	0.86	6.2
26.08	43.0	144.2	42.7	1.7	-11.9	4.0	4	clayy SILT to silty CLAY	115	2.0	21	22	-	-	3.0	9.9	35	2.60	15	0.86	51.2
26.25	25.2	-	24.9	1.8	-11.8	7.6	3	silty CLAY to CLAY	115	1.5	17	18	-	-	1.7	8.2	56	2.96	15	-	-
26.41	42.5	139.6	42.2	1.6	-11.8	3.9	4	clayy SILT to silty CLAY	115	2.0	21	21	-	-	2.9	9.9	35	2.60	15	1.10	51.2
26.58	32.0	-	31.8	1.8	-11.8	5.9	3	silty CLAY to CLAY	115	1.5	21	22	-	-	2.2	9.9	46	2.80	15	-	-
26.74	37.8	-	37.5	2.3	-11.7	6.4	3	silty CLAY to CLAY	115	1.5	25	26	-	-	2.6	9.9	45	2.78	15	-	-
26.90	44.3	-	44.1	2.6	-11.7	6.1	3	silty CLAY to CLAY	115	1.5	30	30	-	-	3.1	9.9	41	2.71	15	-	-
27.07	32.0	-	31.8	2.3	-11.7	7.5	3	silty CLAY to CLAY	115	1.5	21	22	-	-	2.2	9.9	51	2.88	15	-	-
27.23	26.8	-	26.6	2.0	-11.7	8.1	3	silty CLAY to CLAY	115	1.5	18	18	-	-	1.8	8.5	56	2.96	15	-	-
27.40	64.4	166.0	64.2	2.5	-11.7	3.9	4	clayy SILT to silty CLAY	115	2.0	32	32	-	-	4.5	9.9	29	2.47	15	0.00	0.0
27.56	71.0	184.2	70.7	3.0	-11.8	4.3	4	clayy SILT to silty CLAY	115	2.0	35	35	-	-	4.9	9.9	30	2.48	15	0.00	0.0
27.72	45.2	-	44.9	2.5	-11.7	5.8	3	silty CLAY to CLAY	115	1.5	30	30	-	-	3.1	9.9	40	2.70	15	-	-
27.89	25.7	-	25.5	1.9	-11.8	7.9	3	silty CLAY to CLAY	115	1.5	17	17	-	-	1.7	7.9	57	2.97	15	-	-
28.05	25.4	-	25.1	2.0	-11.6	8.3	3	silty CLAY to CLAY	115	1.5	17	17	-	-	1.7	7.8	58	3.00	15	-	-
28.22	39.3	-	39.1	2.2	-11.6	5.8	3	silty CLAY to CLAY	115	1.5	26	26	-	-	2.7	9.9	43	2.74	15	-	-
28.38	83.8	164.0	83.6	2.6	-11.7	3.1	5	silty SAND to sandy SILT	120	4.0	21	20	60	39	-	-	23	2.32	16	0.00	0.0
28.54	97.6	156.4	97.4	2.3	-11.8	2.4	5	silty SAND to sandy SILT	120	4.0	24	24	65	40	-	-	19	2.20	16	0.41	2.4
28.71	80.5	153.7	80.3	2.3	-11.8	2.9	5	silty SAND to sandy SILT	120	4.0	20	19	59	39	-	-	23	2.31	16	0.50	2.9
28.87	58.6	170.2	58.4	2.5	-11.7	4.5	4	clayy SILT to silty CLAY	115	2.0	29	28	-	-	4.1	9.9	33	2.55	15	0.00	0.0
29.04	49.4	-	49.2	2.7	-11.6	5.7	3	silty CLAY to CLAY	115	1.5	33	32	-	-	3.4	9.9	39	2.68	15	-	-
29.20	49.4	-	49.2	2.9	-11.6	6.2	3	silty CLAY to CLAY	115	1.5	33	32	-	-	3.4	9.9	41	2.70	15	-	-
29.36	27.4	-	27.2	2.0	-11.7	7.8	3	silty CLAY to CLAY	115	1.5	18	18	-	-	1.9	8.2	56	2.96	15	-	-
29.53	15.9	-	15.6	1.5	-11.6	9.9	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.0	4.5	75	3.22	15	-	-
29.69	44.6	104.6	44.4	1.0	-11.6	2.3	5	silty SAND to sandy SILT	120	4.0	11	11	39	36	-	-	28	2.44	16	2.25	51.2
29.86	74.1	124.5	73.9	1.5	-11.7	2.1	5	silty SAND to sandy SILT	120	4.0	19	18	55	39	-	-	20	2.24	16	1.88	28.1
30.02	57.1	167.2	56.8	2.5	-11.7	4.5	4	clayy SILT to silty CLAY	115	2.0	29	27	-	-	4.0	9.9	34	2.56	15	0.00	0.0
30.19	32.9	-	32.7	2.5	-11.7	8.2	3	silty CLAY to CLAY	115	1.5	22	21	-	-	2.2	9.7	54	2.92	15	-	-
30.35	45.9	-	45.7	2.0	-11.7	4.6	4	clayy SILT to silty CLAY	115	2.0	23	22	-	-	3.2	9.9	37	2.64	15	-	-
30.51	103.3	131.6	103.0	1.5	-11.8	1.5	5	silty SAND to sandy SILT	120	4.0	26	24	66	40	-	-	14	2.04	16	1.58	10.6
30.68	108.9	131.0	108.7	1.4	-11.9	1.3	6	clean SAND to silty SAND	125	5.0	22	20	68	41	-	-	13	1.99	16	1.62	9.9
30.84	75.1	146.4	74.9	2.1	-11.9	2.9	5	silty SAND to sandy SILT	120	4.0	19	18	55	39	-	-	24	2.34	16	0.82	5.9

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Pacific Materials Laboratory
Data File: SDF(293).cpt
CPT Date: 10/10/2014 4:05:22 PM
GW During Test: 8 ft

Sounding ID: CPT-03
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	Ic SBT Indx	Nk - -	Vol Strn %	Cycl SStn %
31.01	45.1	-	44.9	1.7	-11.9	3.9	4	clayy SILT to silty CLAY	115	2.0	23	21	-	-	3.1	9.9	35	2.60	15	-	-
31.17	26.1	-	25.9	1.4	-11.8	5.8	3	silty CLAY to CLAY	115	1.5	17	16	-	-	1.8	7.4	52	2.91	15	-	-
31.33	19.2	-	19.0	1.0	-11.7	6.0	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.2	60	3.02	15	-	-
31.50	17.7	-	17.4	1.1	-11.6	6.7	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.2	4.8	64	3.08	15	-	-
31.66	27.5	-	27.2	1.2	-11.7	4.8	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.9	7.7	48	2.83	15	-	-
31.83	28.9	-	28.7	1.1	-11.7	4.2	3	silty CLAY to CLAY	115	1.5	19	17	-	-	2.0	8.1	45	2.78	15	-	-
31.99	19.4	-	19.2	1.1	-11.6	6.5	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.2	62	3.05	15	-	-
32.15	17.5	-	17.2	0.9	-11.6	5.9	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.6	63	3.06	15	-	-
32.32	15.6	-	15.4	0.8	-11.6	6.1	3	silty CLAY to CLAY	115	1.5	10	9	-	-	1.0	4.0	66	3.11	15	-	-
32.48	18.0	-	17.8	1.0	-11.6	6.5	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.2	4.7	64	3.08	15	-	-
32.65	23.4	-	23.2	1.5	-11.7	6.9	3	silty CLAY to CLAY	115	1.5	16	14	-	-	1.6	6.3	59	3.00	15	-	-
32.81	46.1	-	45.8	1.8	-11.7	4.0	4	clayy SILT to silty CLAY	115	2.0	23	20	-	-	3.2	9.9	36	2.62	15	-	-
32.97	33.7	-	33.5	1.6	-11.6	5.0	3	silty CLAY to CLAY	115	1.5	22	20	-	-	2.3	9.2	45	2.79	15	-	-
33.14	22.0	-	21.8	1.4	-11.6	7.2	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.8	61	3.04	15	-	-
33.30	23.3	-	23.1	1.1	-11.6	5.1	3	silty CLAY to CLAY	115	1.5	16	14	-	-	1.6	6.2	54	2.93	15	-	-
33.47	21.4	-	21.2	1.1	-11.6	5.9	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.6	58	3.00	15	-	-
33.63	21.9	-	21.7	1.4	-11.6	7.1	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.7	62	3.04	15	-	-
33.79	38.0	-	37.8	1.8	-11.7	4.9	3	silty CLAY to CLAY	115	1.5	25	22	-	-	2.6	9.9	43	2.75	15	-	-
33.96	55.3	157.0	55.0	2.3	-11.6	4.2	4	clayy SILT to silty CLAY	115	2.0	28	25	-	-	3.8	9.9	34	2.57	15	0.43	2.0
34.12	96.5	170.5	96.3	3.0	-11.7	3.1	5	silty SAND to sandy SILT	120	4.0	24	22	62	39	-	-	23	2.30	16	0.00	0.0
34.29	98.3	177.8	98.1	3.2	-11.7	3.3	5	silty SAND to sandy SILT	120	4.0	25	22	63	40	-	-	23	2.32	16	0.00	0.0
34.45	117.7	164.8	117.5	2.7	-11.7	2.3	5	silty SAND to sandy SILT	120	4.0	29	26	69	41	-	-	18	2.15	16	0.00	0.0
34.61	124.2	171.5	124.0	2.9	-11.8	2.4	5	silty SAND to sandy SILT	120	4.0	31	28	70	41	-	-	17	2.15	16	0.00	0.0
34.78	123.0	158.3	122.8	2.4	-11.2	2.0	5	silty SAND to sandy SILT	120	4.0	31	27	70	41	-	-	16	2.09	16	0.42	2.5
34.94	113.8	149.3	113.6	2.2	-11.3	2.0	5	silty SAND to sandy SILT	120	4.0	28	25	67	40	-	-	16	2.11	16	0.74	3.9
35.11	104.3	150.1	104.1	2.3	-11.4	2.2	5	silty SAND to sandy SILT	120	4.0	26	23	64	40	-	-	18	2.18	16	0.71	4.0
35.27	82.5	170.1	82.3	2.9	-11.4	3.6	4	clayy SILT to silty CLAY	115	2.0	41	37	-	-	5.7	9.9	27	2.40	15	0.00	0.0
35.43	60.0	-	59.7	3.4	-11.4	5.9	3	silty CLAY to CLAY	115	1.5	40	33	-	-	4.2	9.9	39	2.68	15	-	-
35.60	35.6	-	35.4	3.1	-11.4	9.3	3	silty CLAY to CLAY	115	1.5	24	20	-	-	2.4	9.2	57	2.98	15	-	-
35.76	25.1	-	24.9	2.0	-11.3	8.5	3	silty CLAY to CLAY	115	1.5	17	14	-	-	1.7	6.3	63	3.07	15	-	-
35.93	18.1	-	17.9	1.3	-11.3	8.2	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.3	71	3.17	15	-	-
36.09	18.8	-	18.6	1.1	-11.3	6.8	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.2	4.5	66	3.11	15	-	-
36.26	20.9	-	20.7	1.2	-11.3	6.2	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.4	5.1	62	3.05	15	-	-
36.42	19.4	-	19.1	1.2	-11.3	7.1	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.3	4.6	66	3.11	15	-	-
36.58	20.2	-	19.9	1.2	-11.3	6.8	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	4.8	64	3.09	15	-	-
36.75	22.9	-	22.7	1.2	-11.4	5.9	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.5	5.5	59	3.00	15	-	-
36.91	21.7	-	21.5	1.5	-11.4	7.6	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.2	65	3.09	15	-	-
37.08	29.6	-	29.4	2.0	-11.5	7.2	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.0	7.3	57	2.97	15	-	-
37.24	39.2	-	38.9	2.4	-11.5	6.4	3	silty CLAY to CLAY	115	1.5	26	21	-	-	2.7	9.8	49	2.85	15	-	-
37.40	32.8	-	32.6	2.3	-11.5	7.6	3	silty CLAY to CLAY	115	1.5	22	17	-	-	2.2	8.0	56	2.96	15	-	-
37.57	110.9	139.1	110.7	1.9	-11.7	1.8	5	silty SAND to sandy SILT	120	4.0	28	24	66	40	-	-	16	2.10	16	1.27	7.8
37.73	160.7	155.7	160.5	1.7	-11.8	1.0	6	clean SAND to silty SAND	125	5.0	32	28	78	42	-	-	9	1.82	16	0.54	3.0
37.90	163.1	155.8	162.9	1.6	-11.9	1.0	6	clean SAND to silty SAND	125	5.0	33	28	78	42	-	-	8	1.80	16	0.54	3.0
38.06	152.9	152.1	152.7	1.7	-11.1	1.1	6	clean SAND to silty SAND	125	5.0	31	26	76	41	-	-	10	1.86	16	0.67	3.4
38.22	140.4	146.4	140.2	1.8	-11.1	1.3	6	clean SAND to silty SAND	125	5.0	28	24	73	41	-	-	11	1.93	16	0.92	4.4
38.39	127.5	149.7	127.3	2.2	-11.2	1.7	5	silty SAND to sandy SILT	120	4.0	32	27	70	40	-	-	14	2.05	16	0.76	3.8
38.55	120.3	153.0	120.1	2.4	-11.2	2.0	5	silty SAND to sandy SILT	120	4.0	30	26	68	40	-	-	16	2.12	16	0.61	3.4
38.72	114.5	139.6	114.2	2.0	-11.3	1.7	5	silty SAND to sandy SILT	120	4.0	29	24	66	40	-	-	15	2.09	16	1.25	7.4
38.88	106.3	136.5	106.1	1.9	-11.4	1.8	5	silty SAND to sandy SILT	120	4.0	27	23	64	39	-	-	17	2.13	16	1.40	10.1
39.04	94.1	139.6	93.9	2.1	-11.4	2.3	5	silty SAND to sandy SILT	120	4.0	24	20	60	39	-	-	20	2.23	16	1.23	9.6
39.21	79.7	145.0	79.5	2.2	-11.5	2.9	5	silty SAND to sandy SILT	120	4.0	20	17	54	38	-	-	25	2.36	16	0.95	8.0
39.37	68.0	136.6	67.7	1.9	-11.5	2.9	4	clayy SILT to silty CLAY	115	2.0	34	29	-	-	4.7	9.9	27	2.41	15	1.36	25.1
39.54	44.6	-	44.4	1.8	-11.5	4.2	4	clayy SILT to silty CLAY	115	2.0	22	17	-	-	3.1	9.9	40	2.69	15	-	-
39.70	25.1	-	24.9	1.3	-11.4	5.9	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	5.7	58	2.99	15	-	-
39.86	19.8	-	19.6	1.0	-11.4	5.8	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.3	4.4	64	3.07	15	-	-
40.03	20.9	-	20.7	0.8	-11.4	4.5	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.4	4.6	58	2.99	15	-	-
40.19	21.1	-	20.9	1.1	-11.4	5.8	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.4	4.6	62	3.06	15	-	-
40.36	29.0	-	28.8	1.5	-11.4	5.6	3	silty CLAY to CLAY	115	1.5	19	14	-	-	2.0	6.6	54	2.93	15	-	-
40.52	37.7	-	37.5	2.0	-11.5	5.7	3	silty CLAY to CLAY	115	1.5	25	19	-	-	2.6	8.7	49	2.85	15	-	-
40.68	58.4	-	58.1	2.6	-11.6	4.6	4	clayy SILT to silty CLAY	115	2.0	29	22	-	-	4.0	9.9	37	2.64	15	-	-
40.85	44.9	-	44.7	3.0	-11.6	7.2	3	silty CLAY to CLAY	115	1.5	30	22	-	-	3.1	9.9	50	2.86	15	-	-
41.01	82.8	150.9	82.5	2.5	-11.6	3.1	5	silty SAND to sandy SILT	120	4.0	21	17	55	38	-	-	25	2.37	16	0.68	4.6
41.18	94.3	177.5	94.1	3.4	-11.6	3.7	4	clayy SILT to silty CLAY	115	2.0	47	39	-	-	6.6	9.9	26	2.39	15	0.00	0.0
41.34	117.1	177.3	116.8	3.4	-11.6	3.0	5	silty SAND to sandy SILT	120	4.0	29	24	66	40	-	-	21	2.26	16	0.00	0.0
41.50	116.7	165.8	116.5	3.0	-11.7	2.6	5	silty SAND to sandy SILT	120	4.0	29	24	66	40	-	-	20	2.22	16	0.00	0.0
41.67	93.0	157.1	92.8	2.7	-11.6	3.0	5	silty SAND to sandy SILT	120	4.0	23	19	58	38	-	-	24	2.33	16	0.47	2.7
41.83	54.3	-	54.1	2.5	-11.7	4.9	3	silty CLAY to CLAY	115	1.5	36	26	-	-	3.7	9.9	40	2.69	15	-	-
42.00	29.2	-	29.0	2.0	-11.5	7.4	3	silty CLAY to CLAY	115	1.5	19	14	-	-	2.0	6.4	60	3.02	15	-	-
42.16	23.5	-	23.3	1.2	-11.5	5.6	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	5.0	60	3.02	15	-	-
42.32	22.8	-	22.6	1.1	-11.4	5.4	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.5	4.8	60	3.02	15	-	-
42.49	22.7	-	22.5	1.1	-11.4	5.4	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.5	4.8	60	3.02	15	-	-
42.65	24.1	-	23.8	1.2	-11.4	5.8	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	5.1	60	3.02	15	-	-
42.82	26.0	-	25.8	1.3	-11.4	5.6	3	silty CLAY to CLAY	115	1.5	17	12	-	-	1.7	5.5	58	2.99	15	-	-
42.98	28.5	-	28.3	1.4	-11.5	5.2	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.9	6.1	54	2.93	15	-	-
43.15	28.4	-	28.2	1.6	-11.4	6.1	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.9	6.0	57	2.98	15	-	-
43.31	31.3	-	31.1	2.0	-11.5	6.8	3	silty CLAY to CLAY	115	1.5	21	15	-	-	2.1	6.7	57	2.98	15	-	-
43.47	34.1	-	33.9	2.4	-11.4	7.5	3	silty CLAY to CLAY	115	1.5	23	16	-	-	2.3	7.3	57	2.98	15	-	-
43.64	39.3	-	39.1	2.4	-11.5	6.6	3	silty CLAY to CLAY	115	1.5	26	18	-	-	2.7	8.5	52	2.90	15	-	-
43.80	32.4	-	32.2	2.3	-11.4	7.6	3	silty CLAY to CLAY	115	1.5	22	15	-	-	2.2	6.9	59	3.01	15	-	-
43.97	23.9	-	23.6	1.7	-11.4	7.8	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	4.9	67	3.12	15	-	-
44.13	23.0	-	22.8	1.5	-11.3	7.2	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.5	4.7	67	3.11	15	-	-
44.29	28.1	-	27.9	1.6	-11.2	6.2	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.9	5.8	59	3.00	15	-	-
44.46	29.4	-	29.2	1.9	-11.1	7.2	3	silty CLAY to CLAY	115	1.5	20	14	-	-	2.0	6.1	60	3.03	15	-	-
44.62	35.1	-	34.9	2.4	-11.1	7.3	3	silty CLAY to CLAY	115	1.5	23	16	-	-	2.4	7.4	57	2.97	15	-	-
44.79	50.1	-	49.8	3.0	-11.1	6.2	3	silty CLAY to CLAY	115	1.5	33	23	-	-	3.4	9.9	47	2.81	15	-	-
44.95	59.2	-	59.0	3.2	-11.1	5.6	3	silty CLAY to CLAY	115	1.5	39	27	-	-	4.1	9.9	42	2.72	15	-	-
45.11	54.2	-	54.0	3.1	-11.1	5.9	3	silty CLAY to CLAY	115	1.5	36	25	-	-	3.7	9.9	44	2.77	15	-	-
45.28	64.8	-	64.6	2.6	-11.0	4.2	4	clayy SILT to silty CLAY	115	2.0	32	22	-	-	4.5	9.9	36	2.61	15	-	-
45.44	59.2	-	59.0	2.4	-11.0	4.2	4	clayy SILT to silty CLAY	115	2.0	30	20	-	-	4.1	9.9	37	2.63	15	-	-
45.61	41.5	-	41.3	2.4	-10.9	6.3	3	silty CLAY to CLAY	115	1.5	28	19	-	-	2.8	8.7	51	2.88	15	-	-
45.77	33.2	-	33.0	2.3	-10.8	7.5	3	silty CLAY to CLAY	115	1.5	22	15	-	-	2.2	6.8	59	3.01	15	-	-
45.93	28.6	-	28.4	1.8	-10.7	7.1	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.9	5.7	61	3.04	15	-	-
46.10	29.5	-	29.3	1.7	-10.7	6.3	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.0	5.9	58	3.00	15	-	-
46.26	30.5	-	30.3	2.0	-10.7	7.1	3	silty CLAY to CLAY	115	1.5	20	14	-	-	2.0	6.1	60	3.02	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Pacific Materials Laboratory
Data File: SDF(293).cpt
CPT Date: 10/10/2014 4:05:22 PM
GW During Test: 8 ft

Sounding ID: CPT-03
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	q1ncs PS -	qt PS* tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Mat Typ Zon	Material Behavior Description*	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
46.43	80.4	165.8	80.2	3.0	-10.8	3.8	4	clayy SILT to silty CLAY	115	2.0	40	32	-	-	5.6	9.9	29	2.47	15	0.00	0.0
46.59	113.1	184.2	112.9	3.8	-10.9	3.5	5	silty SAND to sandy SILT	120	4.0	28	22	63	39	-	-	24	2.33	16	0.00	0.0
46.75	109.3	199.2	109.1	4.4	-10.9	4.1	4	clayy SILT to silty CLAY	115	2.0	55	43	-	-	7.6	9.9	26	2.40	15	0.00	0.0
46.92	106.4	206.5	106.2	4.6	-11.0	4.5	4	clayy SILT to silty CLAY	115	2.0	53	42	-	-	7.4	9.9	28	2.43	15	0.00	0.0
47.08	126.2	206.7	126.0	4.8	-11.0	3.9	4	clayy SILT to silty CLAY	115	2.0	63	50	-	-	8.8	9.9	24	2.34	15	0.00	0.0
47.25	116.1	187.7	115.9	4.0	-11.0	3.5	5	silty SAND to sandy SILT	120	4.0	29	23	64	39	-	-	24	2.33	16	0.00	0.0
47.41	131.9	169.0	131.7	3.3	-11.0	2.5	5	silty SAND to sandy SILT	120	4.0	33	26	68	40	-	-	18	2.18	16	0.00	0.0
47.57	128.8	150.9	128.5	2.5	-11.0	2.0	5	silty SAND to sandy SILT	120	4.0	32	25	67	40	-	-	16	2.12	16	0.72	3.9
47.74	104.1	178.7	103.9	3.6	-11.0	3.6	4	clayy SILT to silty CLAY	115	2.0	52	41	-	-	7.3	9.9	25	2.37	15	0.00	0.0
47.90	114.9	173.6	114.7	3.5	-11.0	3.1	5	silty SAND to sandy SILT	120	4.0	29	22	63	39	-	-	22	2.29	16	0.00	0.0
48.07	142.1	169.8	141.9	3.2	-11.1	2.3	5	silty SAND to sandy SILT	120	4.0	36	28	70	40	-	-	17	2.14	16	0.00	0.0
48.23	141.6	172.9	141.4	3.4	-11.2	2.4	5	silty SAND to sandy SILT	120	4.0	35	28	70	40	-	-	18	2.16	16	0.00	0.0
48.39	115.2	182.4	115.0	3.8	-11.2	3.4	5	silty SAND to sandy SILT	120	4.0	29	22	63	39	-	-	23	2.33	16	0.00	0.0
48.56	97.8	202.1	97.6	4.4	-11.2	4.7	4	clayy SILT to silty CLAY	115	2.0	49	38	-	-	6.8	9.9	30	2.48	15	0.00	0.0
48.72	74.9	159.8	74.7	2.8	-11.3	3.9	4	clayy SILT to silty CLAY	115	2.0	37	29	-	-	5.2	9.9	30	2.50	15	0.36	1.8
48.89	40.0	-	39.8	2.5	-11.2	6.8	3	silty CLAY to CLAY	115	1.5	27	17	-	-	2.7	7.8	54	2.93	15	-	-
49.05	36.4	-	36.2	1.9	-11.1	5.8	3	silty CLAY to CLAY	115	1.5	24	15	-	-	2.5	7.0	53	2.92	15	-	-
49.22	88.2	131.3	88.0	2.0	-11.3	2.4	5	silty SAND to sandy SILT	120	4.0	22	17	54	37	-	-	22	2.29	16	1.63	26.1
49.38	75.1	160.5	74.9	2.8	-11.3	3.9	4	clayy SILT to silty CLAY	115	2.0	38	29	-	-	5.2	9.9	31	2.50	15	0.00	0.0
49.54	50.0	-	49.8	2.3	-11.3	4.8	3	silty CLAY to CLAY	115	1.5	33	21	-	-	3.4	9.8	44	2.76	15	-	-
49.71	119.3	128.5	119.1	1.8	-11.5	1.5	5	silty SAND to sandy SILT	120	4.0	30	23	64	39	-	-	15	2.07	16	1.78	16.6
49.87	99.2	147.1	99.0	2.5	-11.5	2.6	5	silty SAND to sandy SILT	120	4.0	25	19	58	38	-	-	22	2.29	16	0.84	5.6
50.04	50.6	-	50.3	2.3	-11.5	4.9	3	silty CLAY to CLAY	115	1.5	34	21	-	-	3.5	9.8	44	2.76	15	-	-
50.20	28.9	-	28.6	1.9	-11.4	7.3	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.9	5.3	64	3.07	15	-	-
50.36	26.8	-	26.6	1.5	-11.4	6.2	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.8	4.9	62	3.05	15	-	-
50.53	28.6	-	28.4	1.6	-11.4	6.4	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.9	5.2	61	3.04	15	-	-
50.69	30.4	-	30.2	1.8	-11.4	6.7	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.0	5.6	61	3.03	15	-	-
50.86	34.7	-	34.4	2.1	-11.5	6.7	3	silty CLAY to CLAY	115	1.5	23	14	-	-	2.3	6.4	58	2.99	15	-	-
51.02	36.9	-	36.7	2.5	-11.5	7.3	3	silty CLAY to CLAY	115	1.5	25	15	-	-	2.5	6.9	58	2.99	15	-	-
51.18	40.2	-	40.0	2.6	-11.6	7.0	3	silty CLAY to CLAY	115	1.5	27	16	-	-	2.7	7.5	55	2.95	15	-	-
51.35	40.7	-	40.5	2.6	-11.6	6.8	3	silty CLAY to CLAY	115	1.5	27	17	-	-	2.8	7.6	54	2.94	15	-	-
51.51	43.7	-	43.5	2.4	-11.6	5.9	3	silty CLAY to CLAY	115	1.5	29	18	-	-	3.0	8.2	50	2.88	15	-	-
51.68	35.0	-	34.7	2.4	-11.6	7.5	3	silty CLAY to CLAY	115	1.5	23	14	-	-	2.4	6.4	60	3.02	15	-	-
51.84	49.4	-	49.1	2.6	-11.7	5.6	3	silty CLAY to CLAY	115	1.5	33	20	-	-	3.4	9.3	47	2.82	15	-	-
52.00	45.3	-	45.1	2.8	-11.6	6.6	3	silty CLAY to CLAY	115	1.5	30	18	-	-	3.1	8.4	52	2.90	15	-	-
52.17	52.8	-	52.6	3.4	-11.6	6.8	3	silty CLAY to CLAY	115	1.5	35	21	-	-	3.6	9.9	49	2.86	15	-	-
52.33	84.6	-	84.4	4.1	-11.6	5.0	4	clayy SILT to silty CLAY	115	2.0	42	25	-	-	5.9	9.9	36	2.62	15	-	-
52.50	90.2	-	89.9	4.7	-11.6	5.4	4	clayy SILT to silty CLAY	115	2.0	45	27	-	-	6.3	9.9	36	2.62	15	-	-
52.66	65.0	-	64.7	4.2	-11.7	6.7	3	silty CLAY to CLAY	115	1.5	43	26	-	-	4.5	9.9	46	2.79	15	-	-
52.82	43.3	-	43.0	3.3	-11.6	8.1	3	silty CLAY to CLAY	115	1.5	29	17	-	-	2.9	7.9	57	2.98	15	-	-
52.99	34.9	-	34.7	2.4	-11.5	7.6	3	silty CLAY to CLAY	115	1.5	23	14	-	-	2.4	6.3	61	3.03	15	-	-
53.15	29.8	-	29.6	1.8	-11.4	6.8	3	silty CLAY to CLAY	115	1.5	20	12	-	-	2.0	5.2	63	3.06	15	-	-
53.32	27.2	-	27.0	1.5	-11.4	6.3	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.8	4.7	63	3.07	15	-	-
53.48	24.8	-	24.6	1.6	-11.4	7.4	3	silty CLAY to CLAY	115	1.5	17	10	-	-	1.6	4.2	69	3.15	15	-	-
53.64	29.4	-	29.2	2.1	-11.4	8.1	3	silty CLAY to CLAY	115	1.5	20	12	-	-	2.0	5.1	67	3.12	15	-	-
53.81	48.5	-	48.3	2.7	-11.5	6.0	3	silty CLAY to CLAY	115	1.5	32	19	-	-	3.3	8.8	49	2.86	15	-	-
53.97	50.4	-	50.1	3.2	-11.5	6.8	3	silty CLAY to CLAY	115	1.5	34	20	-	-	3.4	9.1	51	2.88	15	-	-
54.14	65.8	-	65.5	4.4	-11.5	7.0	3	silty CLAY to CLAY	115	1.5	44	26	-	-	4.5	9.9	46	2.81	15	-	-
54.30	94.3	-	94.1	5.0	-11.4	5.4	4	clayy SILT to silty CLAY	115	2.0	47	28	-	-	6.5	9.9	36	2.62	15	-	-
54.46	123.2	217.9	123.0	5.5	-11.5	4.6	4	clayy SILT to silty CLAY	115	2.0	62	46	-	-	8.6	9.9	27	2.42	15	0.00	0.0
54.63	138.7	220.9	138.5	5.7	-11.6	4.2	9	very stiff fine SOIL	120	2.0	69	51	68	39	-	-	25	2.36	30	0.00	0.0
54.79	134.2	235.7	134.0	6.4	-11.5	4.8	9	very stiff fine SOIL	120	2.0	67	50	67	39	-	-	27	2.42	30	0.00	0.0
54.96	159.4	226.8	159.2	6.1	-11.5	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.4	9.9	22	2.29	16	0.00	0.0
55.12	197.8	209.4	197.5	4.9	-11.6	2.5	5	silty SAND to sandy SILT	120	4.0	49	36	79	41	-	-	15	2.09	16	0.00	0.0
55.28	215.9	223.2	215.6	5.5	-11.7	2.6	5	silty SAND to sandy SILT	120	4.0	54	40	82	42	-	-	15	2.07	16	0.00	0.0
55.45	208.9	235.4	208.7	6.3	-11.6	3.1	5	silty SAND to sandy SILT	120	4.0	52	38	81	41	-	-	17	2.14	16	0.00	0.0
55.61	209.2	239.9	209.0	6.6	-11.7	3.2	5	silty SAND to sandy SILT	120	4.0	52	38	81	41	-	-	17	2.15	16	0.00	0.0
55.78	222.4	226.6	222.1	5.6	-11.8	2.6	5	silty SAND to sandy SILT	120	4.0	56	41	83	42	-	-	15	2.06	16	0.00	0.0
55.94	220.9	203.7	220.6	4.2	-11.8	1.9	6	clean SAND to silty SAND	125	5.0	44	32	83	42	-	-	12	1.97	16	0.00	0.0
56.11	204.0	187.4	203.8	3.6	-11.9	1.8	6	clean SAND to silty SAND	125	5.0	41	30	80	41	-	-	12	1.96	16	0.00	0.0
56.27	154.4	157.8	154.1	2.9	-12.3	1.9	5	silty SAND to sandy SILT	120	4.0	39	28	71	40	-	-	15	2.07	16	0.45	2.6
56.43	85.2	176.3	84.9	3.6	-12.4	4.3	4	clayy SILT to silty CLAY	115	2.0	43	31	-	-	5.9	9.9	31	2.51	15	0.00	0.0
56.60	52.3	-	52.0	2.7	-12.3	5.5	3	silty CLAY to CLAY	115	1.5	35	20	-	-	3.6	9.1	47	2.82	15	-	-
56.76	34.1	-	33.8	2.7	-12.2	8.9	3	silty CLAY to CLAY	115	1.5	23	13	-	-	2.3	5.7	66	3.11	15	-	-
56.93	38.8	-	38.5	2.5	-12.2	7.0	3	silty CLAY to CLAY	115	1.5	26	14	-	-	2.6	6.5	58	3.00	15	-	-
57.09	110.4	138.7	110.2	2.4	-12.4	2.2	5	silty SAND to sandy SILT	120	4.0	28	20	60	38	-	-	20	2.23	16	1.20	8.8
57.25	112.8	148.2	112.5	2.7	-12.6	2.5	5	silty SAND to sandy SILT	120	4.0	28	20	60	38	-	-	21	2.26	16	0.74	4.4
57.42	66.9	-	66.6	2.9	-12.6	4.5	4	clayy SILT to silty CLAY	115	2.0	33	19	-	-	4.6	9.9	40	2.68	15	-	-
57.58	34.3	-	34.0	2.5	-12.8	8.0	3	silty CLAY to CLAY	115	1.5	23	13	-	-	2.3	5.7	64	3.09	15	-	-
57.75	32.9	-	32.6	1.7	-12.8	5.9	3	silty CLAY to CLAY	115	1.5	22	12	-	-	2.2	5.4	59	3.01	15	-	-
57.91	29.1	-	28.9	1.6	-12.8	6.1	3	silty CLAY to CLAY	115	1.5	19	11	-	-	1.9	4.7	63	3.06	15	-	-
58.07	29.0	-	28.7	1.4	-12.9	5.6	3	silty CLAY to CLAY	115	1.5	19	11	-	-	1.9	4.6	61	3.04	15	-	-
58.24	27.2	-	27.0	1.4	-12.9	5.9	3	silty CLAY to CLAY	115	1.5	18	10	-	-	1.8	4.3	64	3.08	15	-	-
58.40	26.8	-	26.5	1.7	-12.9	7.4	3	silty CLAY to CLAY	115	1.5	18	10	-	-	1.8	4.2	70	3.16	15	-	-
58.57	53.4	-	53.2	1.9	-13.1	3.9	4	clayy SILT to silty CLAY	115	2.0	27	15	-	-	3.6	9.0	42	2.72	15	-	-
58.73	51.0	-	50.8	1.7	-13.1	3.5	4	clayy SILT to silty CLAY	115	2.0	26	14	-	-	3.5	8.6	41	2.71	15	-	-
58.89	32.0	-	31.7	1.6	-13.0	5.6	3	silty CLAY to CLAY	115	1.5	21	12	-	-	2.1	5.1	59	3.01	15	-	-
59.06	25.3	-	25.0	1.3	-12.9	6.1	3	silty CLAY to CLAY	115	1.5	17	9	-	-	1.7	3.9	67	3.12	15	-	-
59.22	24.8	-	24.6	1.2	-13.0	5.7	3	silty CLAY to CLAY	115	1.5	17	9	-	-	1.6	3.8	67	3.12	15	-	-
59.39	24.0	-	23.8	1.2	-12.9	5.8	3	silty CLAY to CLAY	115	1.5	16	9	-	-	1.6	3.7	68	3.13	15	-	-
59.55	23.6	-	23.3	1.2	-13.0	6.0	3	silty CLAY to CLAY	115	1.5	16	8	-	-	1.5	3.6	69	3.15	15	-	-
59.71	21.7	-	21.4	1.5	-12.9	8.4	3	silty CLAY to CLAY	115	1.5	14	8	-	-	1.4	3.2	79	3.28	15	-	-
59.88	44.0	-	43.8	2.7	-13.0	6.6	3	silty CLAY to CLAY	115	1.5	29	16	-	-	3.0	7.2	55	2.95	15	-	-
60.04	71.7	-	71.5	3.4	-13.0	5.0	3	silty CLAY to CLAY	115	1.5	48	26	-	-	4.9	9.9	41	2.71	15	-	-
60.21	55.4	-	55.1	2.4	-12.9	4.7	3	silty CLAY to CLAY	115	1.5	37	20	-	-	3.8	9.1	44	2.77	15	-	-
60.37	36.5	-	36.3	1.1	-12.9	3.2	3	silty CLAY to CLAY	115	1.5	24	13	-	-	2.4	5.8	47	2.82	15	-	-
60.53	20.2	-	19.9	1.6	-12.8	9.5	3	silty CLAY to CLAY	115	1.5	13	7	-	-	1.3	2.9	85	3.35	15	-	-
60.70	40.7	-	40.5	2.0	-12.9	5.4	3	silty CLAY to CLAY	115	1.5	27	14	-	-	2.7	6.5	53	2.92	15	-	-
60.86	106.8	159.2	106.6	3.2	-12.9	3.1	5	silty SAND to sandy SILT	120	4.0	27	19	58	37	-	-	24	2.35	16	0.33	1.8
61.03	126.4	174.3	126.2	3.9	-12.9	3.1	5	silty SAND to sandy SILT	120	4.0	32	22	63	38	-	-	23	2.30	16	0.00	0.0
61.19	152.4	171.7	152.2	3.7	-13.0	2.5	5	silty SAND to sandy SILT	120	4.0	38	27	69	39	-	-	18	2.17	16	0.00	0.0
61.35	162.2	163.8	161.9	3.2	-13.0	2.0	5	silty SAND to sandy SILT	120	4.0	41	29	71	40	-	-	15	2.09	16	0.00	0.0
61.52	162.6	161.2	162.4	3.1	-12.9	2.0	5	silty SAND to sandy SILT	120	4.0	41	29	71	40	-	-	15	2.07	16	0.00	0.0
61.68	151.2	153.2	151.0	2.9	-12.8	1.9	5	silty SAND to sandy SILT	120	4.0	38	27	69	39	-	-	16	2.09	16	0.54	3.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Pacific Materials Laboratory
Data File: SDF(293).cpt
CPT Date: 10/10/2014 4:05:22 PM
GW During Test: 8 ft

Sounding ID: CPT-03
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
61.85	128.7	153.0	128.4	3.0	-12.7	2.4	5	silty SAND to sandy SILT	120	4.0	32	23	64	38	-	-	19	2.21	16	0.52	2.9
62.01	83.5	-	83.2	3.4	-12.6	4.2	4	clayy SILT to silty CLAY	115	2.0	42	22	-	-	5.8	9.9	36	2.61	15	-	-
62.17	56.3	-	56.0	2.8	-12.5	5.4	3	silty CLAY to CLAY	115	1.5	38	19	-	-	3.8	9.0	47	2.82	15	-	-
62.34	89.9	142.0	89.6	2.5	-12.5	2.9	5	silty SAND to sandy SILT	120	4.0	22	16	52	36	-	-	26	2.39	16	0.90	7.3
62.50	63.4	-	63.2	2.8	-12.5	4.7	3	silty CLAY to CLAY	115	1.5	42	22	-	-	4.3	9.9	43	2.74	15	-	-
62.67	47.9	-	47.7	3.2	-12.4	7.2	3	silty CLAY to CLAY	115	1.5	32	16	-	-	3.3	7.5	56	2.96	15	-	-
62.83	58.0	-	57.7	3.6	-12.4	6.7	3	silty CLAY to CLAY	115	1.5	39	20	-	-	4.0	9.2	51	2.88	15	-	-
63.00	67.5	-	67.2	4.3	-12.4	6.8	3	silty CLAY to CLAY	115	1.5	45	23	-	-	4.6	9.9	48	2.83	15	-	-
63.16	93.6	-	93.3	5.1	-12.5	5.7	3	silty CLAY to CLAY	115	1.5	62	32	-	-	6.5	9.9	39	2.68	15	-	-
63.32	93.0	-	92.7	5.4	-12.5	6.1	3	silty CLAY to CLAY	115	1.5	62	32	-	-	6.4	9.9	41	2.70	15	-	-
63.49	83.5	-	83.3	5.0	-12.5	6.3	3	silty CLAY to CLAY	115	1.5	56	28	-	-	5.8	9.9	43	2.75	15	-	-
63.65	90.1	-	89.8	5.1	-12.6	5.9	3	silty CLAY to CLAY	115	1.5	60	31	-	-	6.2	9.9	40	2.70	15	-	-
63.82	125.4	191.3	125.1	4.6	-12.6	3.8	4	clayy SILT to silty CLAY	115	2.0	63	43	-	-	8.7	9.9	25	2.37	15	0.00	0.0
63.98	153.8	209.4	153.5	5.6	-12.7	3.7	5	silty SAND to sandy SILT	120	4.0	38	27	69	39	-	-	23	2.31	16	0.00	0.0
64.14	207.9	215.4	207.6	5.7	-12.9	2.8	5	silty SAND to sandy SILT	120	4.0	52	36	79	41	-	-	17	2.13	16	0.00	0.0
64.31	231.2	218.4	230.9	5.5	-13.0	2.4	5	silty SAND to sandy SILT	120	4.0	58	40	82	41	-	-	14	2.05	16	0.00	0.0
64.47	244.9	225.3	244.7	5.7	-13.1	2.4	5	silty SAND to sandy SILT	120	4.0	61	42	84	42	-	-	14	2.03	16	0.00	0.0
64.64	246.0	219.5	245.8	5.3	-13.0	2.2	5	silty SAND to sandy SILT	120	4.0	62	42	84	42	-	-	13	2.00	16	0.00	0.0
64.80	235.0	208.2	234.8	4.8	-13.0	2.1	5	silty SAND to sandy SILT	120	4.0	59	40	83	41	-	-	13	1.99	16	0.00	0.0
64.96	224.4	196.0	224.1	4.2	-12.9	1.9	6	clean SAND to silty SAND	125	5.0	45	31	81	41	-	-	12	1.98	16	0.00	0.0
65.13	213.8	188.5	213.5	4.0	-12.9	1.9	6	clean SAND to silty SAND	125	5.0	43	29	80	41	-	-	13	1.99	16	0.00	0.0
65.29	198.3	180.0	198.1	3.8	-12.8	1.9	5	silty SAND to sandy SILT	120	4.0	50	34	77	40	-	-	13	2.02	16	0.00	0.0
65.46	181.8	174.1	181.6	3.7	-12.8	2.1	5	silty SAND to sandy SILT	120	4.0	45	31	74	40	-	-	15	2.07	16	0.00	0.0
65.62	163.8	167.7	163.6	3.6	-12.8	2.2	5	silty SAND to sandy SILT	120	4.0	41	28	71	39	-	-	17	2.12	16	0.00	0.0
65.78	145.1	165.7	144.9	3.6	-12.8	2.5	5	silty SAND to sandy SILT	120	4.0	36	25	67	39	-	-	19	2.20	16	0.00	0.0
65.95	117.5	141.3	117.3	2.6	-12.7	2.3	5	silty SAND to sandy SILT	120	4.0	29	20	60	37	-	-	20	2.24	16	0.94	5.8
66.11	80.8	150.4	80.6	2.8	-12.8	3.6	4	clayy SILT to silty CLAY	115	2.0	40	27	-	-	5.6	9.9	30	2.49	15	0.45	2.3
66.28	41.4	-	41.1	2.4	-12.7	6.3	3	silty CLAY to CLAY	115	1.5	28	13	-	-	2.8	6.1	58	2.99	15	-	-
66.44	30.8	-	30.6	1.8	-12.7	6.7	3	silty CLAY to CLAY	115	1.5	21	10	-	-	2.0	4.3	67	3.12	15	-	-
66.60	30.8	-	30.5	1.5	-12.8	5.5	3	silty CLAY to CLAY	115	1.5	21	10	-	-	2.0	4.3	63	3.06	15	-	-
66.77	30.7	-	30.5	1.5	-12.8	5.7	3	silty CLAY to CLAY	115	1.5	20	10	-	-	2.0	4.3	64	3.08	15	-	-
66.93	31.2	-	30.9	1.6	-12.9	5.9	3	silty CLAY to CLAY	115	1.5	21	10	-	-	2.1	4.4	64	3.08	15	-	-
67.10	35.4	-	35.1	1.6	-13.0	4.9	3	silty CLAY to CLAY	115	1.5	24	11	-	-	2.4	5.0	57	2.98	15	-	-
67.26	37.2	-	37.0	1.7	-13.1	5.0	3	silty CLAY to CLAY	115	1.5	25	12	-	-	2.5	5.3	56	2.97	15	-	-
67.42	38.6	-	38.3	2.3	-13.4	6.6	3	silty CLAY to CLAY	115	1.5	26	12	-	-	2.6	5.5	61	3.03	15	-	-
67.59	53.2	-	52.9	3.4	-13.5	6.9	3	silty CLAY to CLAY	115	1.5	35	17	-	-	3.6	7.8	54	2.94	15	-	-
67.75	90.3	-	90.0	4.8	-13.6	5.6	3	silty CLAY to CLAY	115	1.5	60	29	-	-	6.2	9.9	41	2.70	15	-	-
67.92	93.8	-	93.5	5.7	-13.6	6.3	3	silty CLAY to CLAY	115	1.5	63	30	-	-	6.5	9.9	42	2.73	15	-	-
68.08	89.7	-	89.4	5.9	-13.5	6.9	3	silty CLAY to CLAY	115	1.5	60	29	-	-	6.2	9.9	44	2.77	15	-	-
68.24	72.8	-	72.5	5.2	-13.5	7.5	3	silty CLAY to CLAY	115	1.5	49	23	-	-	5.0	9.9	50	2.87	15	-	-
68.41	44.4	-	44.1	2.9	-13.3	7.2	3	silty CLAY to CLAY	115	1.5	30	14	-	-	3.0	6.4	59	3.01	15	-	-
68.57	30.5	-	30.2	1.9	-13.2	7.1	3	silty CLAY to CLAY	115	1.5	20	10	-	-	2.0	4.2	69	3.15	15	-	-
68.74	28.4	-	28.1	2.2	-13.1	8.9	3	silty CLAY to CLAY	115	1.5	19	9	-	-	1.9	3.8	76	3.24	15	-	-
68.90	59.8	-	59.5	3.4	-13.3	6.1	3	silty CLAY to CLAY	115	1.5	40	19	-	-	4.1	8.7	50	2.87	15	-	-
69.07	67.9	-	67.6	4.7	-13.3	7.3	3	silty CLAY to CLAY	115	1.5	45	21	-	-	4.6	9.9	51	2.88	15	-	-
69.23	69.4	-	69.1	5.1	-13.3	7.8	3	silty CLAY to CLAY	115	1.5	46	22	-	-	4.8	9.9	52	2.90	15	-	-
69.39	74.6	-	74.3	5.3	-13.3	7.6	3	silty CLAY to CLAY	115	1.5	50	23	-	-	5.1	9.9	50	2.86	15	-	-
69.56	85.4	-	85.2	5.4	-13.3	6.6	3	silty CLAY to CLAY	115	1.5	57	27	-	-	5.9	9.9	45	2.78	15	-	-
69.72	88.7	-	88.5	5.4	-13.2	6.4	3	silty CLAY to CLAY	115	1.5	59	28	-	-	6.1	9.9	44	2.76	15	-	-
69.89	64.1	-	63.9	4.4	-13.2	7.3	3	silty CLAY to CLAY	115	1.5	43	20	-	-	4.4	9.3	52	2.90	15	-	-
70.05	38.0	-	37.7	2.8	-13.1	8.4	3	silty CLAY to CLAY	115	1.5	25	12	-	-	2.5	5.2	67	3.12	15	-	-
70.21	29.7	-	29.4	2.0	-12.9	8.0	3	silty CLAY to CLAY	115	1.5	20	9	-	-	1.9	3.9	73	3.20	15	-	-
70.38	28.4	-	28.2	1.6	-12.9	6.8	3	silty CLAY to CLAY	115	1.5	19	9	-	-	1.9	3.7	71	3.17	15	-	-
70.54	28.2	-	28.0	1.7	-12.9	7.0	3	silty CLAY to CLAY	115	1.5	19	9	-	-	1.8	3.7	72	3.18	15	-	-
70.71	29.8	-	29.6	1.8	-12.7	6.9	3	silty CLAY to CLAY	115	1.5	20	9	-	-	2.0	3.9	70	3.16	15	-	-
70.87	30.5	-	30.3	2.3	-12.7	8.6	3	silty CLAY to CLAY	115	1.5	20	9	-	-	2.0	4.0	74	3.21	15	-	-
71.03	47.1	-	46.8	2.8	-12.7	6.5	3	silty CLAY to CLAY	115	1.5	31	14	-	-	3.2	6.5	57	2.97	15	-	-
71.20	42.6	-	42.4	2.7	-12.7	7.1	3	silty CLAY to CLAY	115	1.5	28	13	-	-	2.9	5.8	61	3.04	15	-	-
71.36	38.1	-	37.9	2.9	-12.6	8.6	3	silty CLAY to CLAY	115	1.5	25	12	-	-	2.5	5.2	68	3.13	15	-	-
71.53	66.6	-	66.3	3.2	-12.8	5.2	3	silty CLAY to CLAY	115	1.5	44	20	-	-	4.5	9.4	46	2.79	15	-	-
71.69	146.3	159.8	146.1	3.5	-12.9	2.4	5	silty SAND to sandy SILT	120	4.0	37	24	66	38	-	-	19	2.20	16	0.26	1.6
71.85	170.9	172.2	170.6	3.9	-12.9	2.4	5	silty SAND to sandy SILT	120	4.0	43	28	71	39	-	-	17	2.14	16	0.00	0.0
72.02	178.4	191.1	178.2	4.9	-12.9	2.8	5	silty SAND to sandy SILT	120	4.0	45	29	72	39	-	-	19	2.19	16	0.00	0.0
72.18	182.5	206.4	182.3	5.7	-12.9	3.2	5	silty SAND to sandy SILT	120	4.0	46	30	73	39	-	-	20	2.22	16	0.00	0.0
72.35	183.3	200.3	183.0	5.4	-12.9	3.0	5	silty SAND to sandy SILT	120	4.0	46	30	73	40	-	-	19	2.20	16	0.00	0.0
72.51	186.9	206.3	186.6	5.7	-12.8	3.1	5	silty SAND to sandy SILT	120	4.0	47	31	74	40	-	-	19	2.21	16	0.00	0.0
72.67	171.9	198.8	171.6	5.3	-12.7	3.2	5	silty SAND to sandy SILT	120	4.0	43	28	71	39	-	-	20	2.24	16	0.00	0.0
72.84	161.3	188.0	161.0	4.8	-12.5	3.1	5	silty SAND to sandy SILT	120	4.0	40	26	69	39	-	-	21	2.25	16	0.00	0.0
73.00	151.3	184.3	151.1	4.6	-12.5	3.2	5	silty SAND to sandy SILT	120	4.0	38	25	67	38	-	-	22	2.27	16	0.00	0.0
73.17	104.7	-	104.4	5.0	-12.5	5.0	4	clayy SILT to silty CLAY	115	2.0	52	23	-	-	7.2	9.9	37	2.64	15	-	-
73.33	61.6	-	61.4	4.2	-12.5	7.3	3	silty CLAY to CLAY	115	1.5	41	18	-	-	4.2	8.5	54	2.93	15	-	-
73.49	51.2	-	50.9	3.6	-12.5	7.6	3	silty CLAY to CLAY	115	1.5	34	15	-	-	3.5	6.9	59	3.01	15	-	-
73.66	54.2	-	54.0	3.2	-12.5	6.3	3	silty CLAY to CLAY	115	1.5	36	16	-	-	3.7	7.4	54	2.93	15	-	-
73.82	58.0	-	57.8	3.8	-12.5	7.1	3	silty CLAY to CLAY	115	1.5	39	17	-	-	3.9	7.9	55	2.94	15	-	-
73.99	64.9	-	64.6	4.4	-13.0	7.2	3	silty CLAY to CLAY	115	1.5	43	19	-	-	4.4	8.9	53	2.91	15	-	-
74.15	71.0	-	70.8	4.7	-13.0	7.1	3	silty CLAY to CLAY	115	1.5	47	21	-	-	4.9	9.8	51	2.88	15	-	-
74.31	68.4	-	68.1	4.5	-13.0	7.0	3	silty CLAY to CLAY	115	1.5	46	20	-	-	4.7	9.4	51	2.89	15	-	-
74.48	65.0	-	64.7	4.3	-13.0	7.1	3	silty CLAY to CLAY	115	1.5	43	19	-	-	4.4	8.8	53	2.91	15	-	-
74.64	64.8	-	64.5	5.0	-13.0	8.2	3	silty CLAY to CLAY	115	1.5	43	19	-	-	4.4	8.8	56	2.96	15	-	-
74.81	75.3	-	75.0	5.5	-13.0	7.8	3	silty CLAY to CLAY	115	1.5	50	22	-	-	5.2	9.9	51	2.89	15	-	-
74.97	111.9	-	111.6	6.3	-13.0	5.9	3	silty CLAY to CLAY	115	1.5	75	33	-	-	7.7	9.9	39	2.68	15	-	-
75.13	126.2	-	126.0	6.9	-13.0	5.6	3	silty CLAY to CLAY	115	1.5	84	37	-	-	8.8	9.9	37	2.63	15	-	-
75.30	99.9	-	99.7	6.4	-13.0	6.8	3	silty CLAY to CLAY	115	1.5	67	29	-	-	6.9	9.9	44	2.76	15	-	-
75.46	59.3	-	59.0	4.8	-12.9	8.8	3	silty CLAY to CLAY	115	1.5	40	17	-	-	4.0	7.9	59	3.01	15	-	-
75.63	40.3	-	40.1	3.2	-12.8	9.0	3	silty CLAY to CLAY	115	1.5	27	12	-	-	2.7	5.2	69	3.15	15	-	-
75.79	34.4	-	34.1	2.3	-12.8	7.6	3	silty CLAY to CLAY	115	1.5	23	10	-	-	2.3	4.3	70	3.16	15	-	-
75.96	32.6	-	32.4	2.1	-12.8	7.5	3	silty CLAY to CLAY	115	1.5	22	9	-	-	2.1	4.0	71	3.17	15	-	-
76.12	33.9	-	33.7	2.5	-12.8	8.4	3	silty CLAY to CLAY	115	1.5	23	10	-	-	2.2	4.2	72	3.19	15	-	-
76.28	52.6	-	52.3	3.7	-12.9	7.7	3	silty CLAY to CLAY	115	1.5	35	15	-	-	3.6	6.9	59	3.01	15	-	-
76.45	65.5	-	65.3	4.5	-13.0	7.3	3	silty CLAY to CLAY	115	1.5	44	19	-	-	4.5	8.7	53	2.92	15	-	-
76.61	55.3	-	55.0	4.4	-13.0	8.7	3	silty CLAY to CLAY	115	1.5	37	16	-	-	3.7	7.2	61	3.03	15	-	-
76.78	55.1	-	54.9	4.2	-13.0	8.4	3	silty CLAY to CLAY	115	1.5	37	16	-	-	3.7	7.2	60	3.02	15	-	-
76.94	61.8	-	61.5	4.3	-13.0	7.5	3	silty CLAY to CLAY	115	1.5	41	18	-	-	4.2	8.1	55	2.95	15	-	-
77.10	61.5	-	61.3	4.9	-13.0	8.6	3	silty CLAY to CLAY	115	1.5	41	18	-	-	4.2	8.1	58	2.99	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Carpentaria Hotel

Project ID: , Pacific Materials Laboratory
Data File: SDF(293).cpt
CPT Date: 10/10/2014 4:05:22 PM
GW During Test: 8 ft

Sounding ID: CPT-03
Project No: Carpentaria Hotel
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qIncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -	Vol Strn %	Cycl SStn %
77.27	70.0	-	69.7	5.3	-13.0	8.1	3	silty CLAY to CLAY	115	1.5	47	20	-	-	4.8	9.3	54	2.93	15	-	-
77.43	74.3	-	74.0	5.6	-13.1	8.0	3	silty CLAY to CLAY	115	1.5	50	21	-	-	5.1	9.8	53	2.91	15	-	-
77.60	79.6	-	79.4	6.0	-13.1	8.0	3	silty CLAY to CLAY	115	1.5	53	23	-	-	5.5	9.9	52	2.89	15	-	-
77.76	84.6	-	84.4	6.3	-13.0	7.9	3	silty CLAY to CLAY	115	1.5	56	24	-	-	5.8	9.9	50	2.87	15	-	-
77.92	84.2	-	83.9	6.0	-13.0	7.5	3	silty CLAY to CLAY	115	1.5	56	24	-	-	5.8	9.9	49	2.86	15	-	-
78.09	97.6	-	97.3	5.2	-12.9	5.6	3	silty CLAY to CLAY	115	1.5	65	28	-	-	6.7	9.9	41	2.72	15	-	-
78.25	88.6	-	88.4	4.8	-12.9	5.7	3	silty CLAY to CLAY	115	1.5	59	25	-	-	6.1	9.9	43	2.75	15	-	-
78.42	74.6	-	74.3	4.9	-12.8	7.0	3	silty CLAY to CLAY	115	1.5	50	21	-	-	5.1	9.8	50	2.87	15	-	-
78.58	77.4	-	77.1	4.1	-12.7	5.6	3	silty CLAY to CLAY	115	1.5	52	22	-	-	5.3	9.9	46	2.79	15	-	-
78.74	53.2	-	53.0	3.5	-12.7	7.3	3	silty CLAY to CLAY	115	1.5	35	15	-	-	3.6	6.8	58	3.00	15	-	-
78.91	113.9	139.0	113.7	2.7	-12.8	2.5	5	silty SAND to sandy SILT	120	4.0	28	18	56	36	-	-	22	2.30	16	0.81	5.1
79.07	123.4	163.3	123.2	3.7	-12.8	3.1	5	silty SAND to sandy SILT	120	4.0	31	19	59	37	-	-	24	2.35	16	0.00	0.0
79.24	70.4	-	70.1	3.5	-12.7	5.4	3	silty CLAY to CLAY	115	1.5	47	20	-	-	4.8	9.1	47	2.81	15	-	-
79.40	42.0	-	41.8	3.3	-12.6	8.8	3	silty CLAY to CLAY	115	1.5	28	12	-	-	2.8	5.2	68	3.14	15	-	-
79.56	37.8	-	37.6	3.2	-12.6	9.6	3	silty CLAY to CLAY	115	1.5	25	11	-	-	2.5	4.6	73	3.20	15	-	-
79.73	51.1	-	50.8	3.8	-12.6	8.1	3	silty CLAY to CLAY	115	1.5	34	14	-	-	3.4	6.4	62	3.05	15	-	-
79.89	120.6	182.2	120.4	4.5	-12.7	3.9	4	clayy SILT to silty CLAY	115	2.0	60	38	-	-	8.4	9.9	27	2.42	15	0.00	0.0
80.06	205.8	196.0	205.6	5.3	-13.0	2.6	5	silty SAND to sandy SILT	120	4.0	51	32	75	40	-	-	17	2.14	16	0.00	0.0
80.22	215.6	160.7	215.3	2.8	-13.0	1.3	6	clean SAND to silty SAND	125	5.0	43	27	77	40	-	-	10	1.90	16	0.00	0.0
80.38	206.4	169.5	206.2	3.6	-13.0	1.8	5	silty SAND to sandy SILT	120	4.0	52	32	75	40	-	-	13	2.01	16	0.00	0.0
80.55	190.6	176.6	190.4	4.3	-12.5	2.3	5	silty SAND to sandy SILT	120	4.0	48	30	73	39	-	-	16	2.12	16	0.00	0.0
80.71	181.8	201.3	181.6	5.7	-12.6	3.2	5	silty SAND to sandy SILT	120	4.0	45	28	71	39	-	-	20	2.24	16	0.00	0.0
80.88	172.6	211.9	172.4	6.3	-12.6	3.7	5	silty SAND to sandy SILT	120	4.0	43	27	69	39	-	-	23	2.31	16	0.00	0.0
81.04	186.1	193.3	185.9	5.3	-12.8	2.9	5	silty SAND to sandy SILT	120	4.0	47	29	72	39	-	-	19	2.20	16	0.00	0.0
81.20	190.5	167.0	190.3	3.7	-12.9	2.0	5	silty SAND to sandy SILT	120	4.0	48	30	73	39	-	-	15	2.07	16	0.00	0.0
81.37	178.0	183.6	177.8	4.8	-12.9	2.8	5	silty SAND to sandy SILT	120	4.0	45	28	70	39	-	-	19	2.20	16	0.00	0.0
81.53	159.8	196.4	159.6	5.5	-12.8	3.5	5	silty SAND to sandy SILT	120	4.0	40	25	67	38	-	-	23	2.31	16	0.00	0.0
81.70	136.0	206.3	135.8	5.8	-12.9	4.4	4	clayy SILT to silty CLAY	115	2.0	68	42	-	-	9.4	9.9	28	2.43	15	0.00	0.0
81.86	114.9	-	114.6	5.6	-12.8	5.1	4	clayy SILT to silty CLAY	115	2.0	57	23	-	-	7.9	9.9	38	2.65	15	-	-
82.02	78.9	-	78.6	4.5	-12.7	6.1	3	silty CLAY to CLAY	115	1.5	53	21	-	-	5.4	9.9	48	2.83	15	-	-
82.19	50.8	-	50.5	3.3	-12.6	7.1	3	silty CLAY to CLAY	115	1.5	34	14	-	-	3.4	6.1	60	3.02	15	-	-
82.35	36.0	-	35.8	2.2	-12.6	7.0	3	silty CLAY to CLAY	115	1.5	24	10	-	-	2.4	4.2	69	3.14	15	-	-
82.52	34.1	-	33.8	1.7	-12.7	5.9	3	silty CLAY to CLAY	115	1.5	23	9	-	-	2.2	3.9	67	3.11	15	-	-
82.68	33.4	-	33.1	1.9	-12.7	6.6	3	silty CLAY to CLAY	115	1.5	22	9	-	-	2.2	3.8	70	3.16	15	-	-
82.85	39.2	-	39.0	2.2	-12.7	6.5	3	silty CLAY to CLAY	115	1.5	26	11	-	-	2.6	4.6	65	3.09	15	-	-
83.01	44.7	-	44.4	2.5	-12.9	6.4	3	silty CLAY to CLAY	115	1.5	30	12	-	-	3.0	5.3	61	3.04	15	-	-
83.17	43.2	-	43.0	2.9	-12.9	7.5	3	silty CLAY to CLAY	115	1.5	29	12	-	-	2.9	5.1	65	3.10	15	-	-
83.34	50.8	-	50.6	3.9	-13.1	8.4	3	silty CLAY to CLAY	115	1.5	34	14	-	-	3.4	6.1	64	3.08	15	-	-
83.50	91.9	-	91.6	4.2	-13.3	4.8	3	silty CLAY to CLAY	115	1.5	61	24	-	-	6.3	9.9	41	2.71	15	-	-
83.67	127.9	-	127.6	6.1	-13.4	4.9	4	clayy SILT to silty CLAY	115	2.0	64	25	-	-	8.9	9.9	36	2.61	15	-	-
83.83	110.7	-	110.5	6.0	-13.0	5.6	3	silty CLAY to CLAY	115	1.5	74	29	-	-	7.6	9.9	40	2.70	15	-	-
83.99	95.2	-	94.9	6.9	-13.0	7.6	3	silty CLAY to CLAY	115	1.5	63	25	-	-	6.5	9.9	49	2.84	15	-	-
84.16	123.5	-	123.3	7.2	-12.8	6.0	3	silty CLAY to CLAY	115	1.5	82	33	-	-	8.6	9.9	40	2.69	15	-	-
84.32	106.8	-	106.6	7.8	-12.8	7.7	3	silty CLAY to CLAY	115	1.5	71	28	-	-	7.4	9.9	47	2.81	15	-	-
84.49	104.3	-	104.1	7.8	-12.7	7.8	3	silty CLAY to CLAY	115	1.5	70	27	-	-	7.2	9.9	48	2.83	15	-	-
84.65	122.1	-	121.9	7.8	-12.7	6.7	3	silty CLAY to CLAY	115	1.5	81	32	-	-	8.5	9.9	42	2.73	15	-	-
84.81	130.4	-	130.2	8.7	-12.7	6.9	3	silty CLAY to CLAY	115	1.5	87	34	-	-	9.0	9.9	41	2.72	15	-	-
84.98	117.8	-	117.5	7.9	-12.6	7.0	3	silty CLAY to CLAY	115	1.5	79	31	-	-	8.1	9.9	43	2.75	15	-	-
85.14	75.9	-	75.6	6.8	-12.5	9.5	3	silty CLAY to CLAY	115	1.5	51	20	-	-	5.2	9.2	58	2.99	15	-	-
85.31	46.6	-	46.3	4.1	-12.5	9.9	3	silty CLAY to CLAY	115	1.5	31	12	-	-	3.1	5.4	70	3.16	15	-	-
85.47	37.6	-	37.4	2.9	-12.5	8.9	3	silty CLAY to CLAY	115	1.5	25	10	-	-	2.5	4.2	74	3.21	15	-	-
85.63	37.6	-	37.4	3.1	-12.5	9.4	3	silty CLAY to CLAY	115	1.5	25	10	-	-	2.5	4.2	75	3.22	15	-	-
85.80	52.5	-	52.2	4.2	-12.5	8.8	3	silty CLAY to CLAY	115	1.5	35	14	-	-	3.5	6.1	65	3.09	15	-	-
85.96	78.5	-	78.2	5.5	-12.6	7.5	3	silty CLAY to CLAY	115	1.5	52	20	-	-	5.4	9.4	52	2.90	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

APPENDIX D

SEISMIC AND LIQUEFACTION ANALYSES

October 23, 2014

Lab No: 106224-2

File No: 14-14026-2

Pacific Materials Laboratory of Santa Barbara, Inc.

SEISMICITY AND LIQUEFACTION ANALYSES

An analysis of the seismicity and potential liquefaction of the site was performed using the United States Geological Survey (USGS) 2008 Interactive Deaggregations (Beta) for probabilistic seismic hazard analysis and the computer program LIQUEFY2 utilizing the NCEER 1997 method to determine liquefaction potential.

USGS 2008 INTERACTIVE DEAGGREGATIONS

The USGS 2008 Interactive Deaggregations (Beta) is located on the Internet at http://geohazards.usgs.gov/deaggint/2008/. This web page is intended to allow the user to determine the principal sources that contribute to seismic hazard at a specified site. The probabilistic seismic hazard analysis utilizes the 2008-update source and attenuation models of the NSHMP (Petersen and others, 2008) and probabilistic calculations to determine the modal deaggregated earthquake magnitude. The location of the site is identified by entering the latitude and longitude corresponding to the site. The return period for this analysis is based on a 2% probability of exceedence in 50 years. The modal deaggregated earthquake magnitude was determined to be 7.22.

The ground acceleration was determined to be 1.093g based on Section 1803.5.12 of the 2013 CBC, Paragraph 2.2. These values were used to perform the liquefaction analysis.

LIQUEFACTION ANALYSIS

An analysis of the liquefaction potential of the soils at the site was performed using the computer program LIQUEFY2. The program uses the NCEER (1997) procedure for liquefaction analysis based on Standard Penetration Test values correlated from the CPT data and grain-size data.

The input data and results of the analysis are presented on the following pages to the end of this Appendix. Soil profiles based on CPT-1, -2, and -3 were used to model soil conditions at the site.

*** Deaggregation of Seismic Hazard at One Period of Spectral Accel. ***
*** Data from U.S.G.S. National Seismic Hazards Mapping Project, 2008 version ***
PSHA Deaggregation. %contributions. site: Carpinteria_Hot long: 119.535 W., lat: 34.406 N.
Vs30(m/s)= 760.0 (some WUS atten. models use Site Class not Vs30).
NSHMP 2007-08 See USGS OFR 2008-1128. dM=0.2 below
Return period: 2475 yrs. Exceedance PGA =1.0927 g. Weight * Computed_Rate_Ex 0.406E-03
#Pr[at least one eq with median motion>=PGA in 50 yrs]=0.00193
#This deaggregation corresponds to Mean Hazard w/all GMPEs

DIST(KM)	MAG(MW)	ALL_EPS	EPSILON>2	1<EPS<2	0<EPS<1	-1<EPS<0	-2<EPS<-1	EPS<-2
6.5	5.05	0.062	0.062	0.000	0.000	0.000	0.000	0.000
6.5	5.20	0.148	0.148	0.000	0.000	0.000	0.000	0.000
6.6	5.40	0.178	0.176	0.002	0.000	0.000	0.000	0.000
6.6	5.60	0.194	0.170	0.024	0.000	0.000	0.000	0.000
6.7	5.80	0.193	0.154	0.039	0.000	0.000	0.000	0.000
6.4	6.02	0.273	0.211	0.062	0.000	0.000	0.000	0.000
6.6	6.20	0.405	0.292	0.113	0.000	0.000	0.000	0.000
5.7	6.45	1.110	0.511	0.576	0.023	0.000	0.000	0.000
10.5	6.46	0.180	0.129	0.051	0.000	0.000	0.000	0.000
5.4	6.61	16.294	3.829	10.742	1.723	0.000	0.000	0.000
10.8	6.62	1.252	0.930	0.322	0.000	0.000	0.000	0.000
5.9	6.80	12.464	2.692	8.094	1.678	0.000	0.000	0.000
10.9	6.79	1.772	1.214	0.558	0.000	0.000	0.000	0.000
6.3	7.00	13.921	2.641	7.955	3.256	0.069	0.000	0.000
10.9	6.97	1.940	1.084	0.838	0.017	0.000	0.000	0.000
6.4	7.22	22.025	3.565	10.878	6.985	0.596	0.000	0.000
11.0	7.15	1.064	0.442	0.559	0.063	0.000	0.000	0.000
5.5	7.38	19.216	2.461	9.123	7.014	0.618	0.000	0.000
11.2	7.34	0.343	0.128	0.180	0.035	0.000	0.000	0.000
4.8	7.54	6.845	0.791	3.162	2.589	0.303	0.000	0.000

Summary statistics for above PSHA PGA deaggregation, R=distance, e=epsilon:
Contribution from this GMPE(%): 100.0
Mean src-site R= 6.2 km; M= 7.04; eps0= 0.89. Mean calculated for all sources.
Modal src-site R= 6.4 km; M= 7.22; eps0= 0.69 from peak (R,M) bin
MODE R*= 6.5km; M*= 7.22; EPS.INTERVAL: 1 to 2 sigma % CONTRIB.= 10.878

Principal sources (faults, subduction, random seismicity having > 3% contribution)

Source Category:	% contr.	R(km)	M	epsilon0 (mean values).
California B-faults Char	54.50	6.1	7.19	0.82
California B-faults GR	43.30	6.3	6.89	0.94

Individual fault hazard details if its contribution to mean hazard > 2%:

Fault ID	% contr.	Rcd(km)	M	epsilon0	Site-to-src azimuth(d)
Mission Ridge-Arroyo Parida-Sant	6.98	2.9	6.77	1.04	6.9
Ventura-Pitas Point Char	2.47	11.0	6.90	1.71	177.2
Red Mountain Char	22.20	4.5	7.40	0.46	-179.3
Pitas Point (Lower)-Montalvo Cha	14.36	7.8	7.25	0.66	167.7
North Channel Char	2.77	6.6	6.68	1.55	-176.1
Mission Ridge-Arroyo Parida-Sa G	4.14	3.6	6.66	0.99	7.5
Red Mountain GR	17.26	4.6	7.00	0.71	-172.9
Pitas Point (Lower)-Montalvo GR	18.24	7.9	6.87	0.97	170.9

#*********End of deaggregation corresponding to Mean Hazard w/all GMPEs *********#

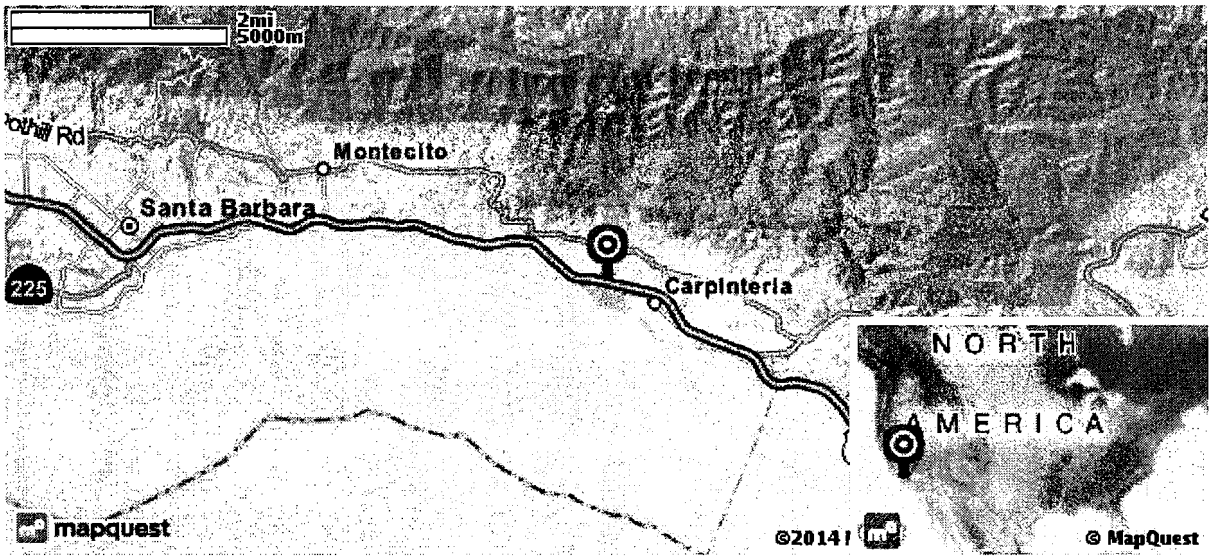
PSHA Deaggregation. %contributions. site: Carpinteria_Hot long: 119.535 W., lat: 34.406 N.
Vs30(m/s)= 760.0 (some WUS atten. models use Site Class not Vs30).
NSHMP 2007-08 See USGS OFR 2008-1128. dM=0.2 below
Return period: 2475 yrs. Exceedance PGA =1.0927 g. Weight * Computed_Rate_Ex 0.882E-04
#Pr[at least one eq with median motion>=PGA in 50 yrs]=0.00000
#This deaggregation corresponds to Boore-Atkinson 2008

DIST(KM)	MAG(MW)	ALL_EPS	EPSILON>2	1<EPS<2	0<EPS<1	-1<EPS<0	-2<EPS<-1	EPS<-2
5.6	6.03	0.031	0.031	0.000	0.000	0.000	0.000	0.000
5.5	6.20	0.055	0.055	0.000	0.000	0.000	0.000	0.000
4.6	6.45	0.142	0.096	0.046	0.000	0.000	0.000	0.000
10.2	6.46	0.015	0.015	0.000	0.000	0.000	0.000	0.000
5.9	6.60	2.992	0.934	2.015	0.043	0.000	0.000	0.000

USGS Design Maps Summary Report

User-Specified Input

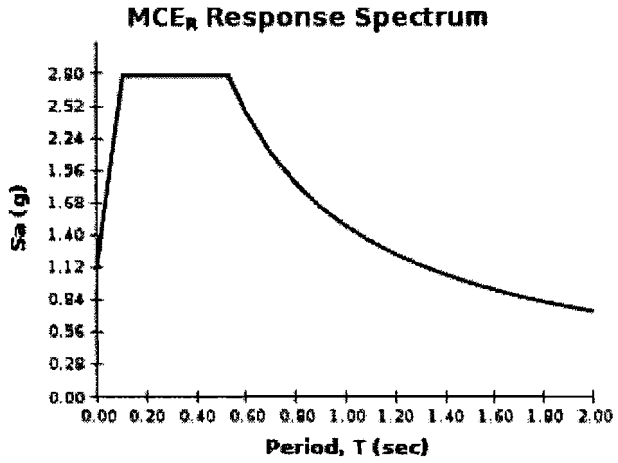
Report Title	Carpinteria Hotels Tue November 18, 2014 19:15:22 UTC
Building Code Reference Document	ASCE 7-10 Standard (which utilizes USGS hazard data available in 2008)
Site Coordinates	34.4056°N, 119.5348°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

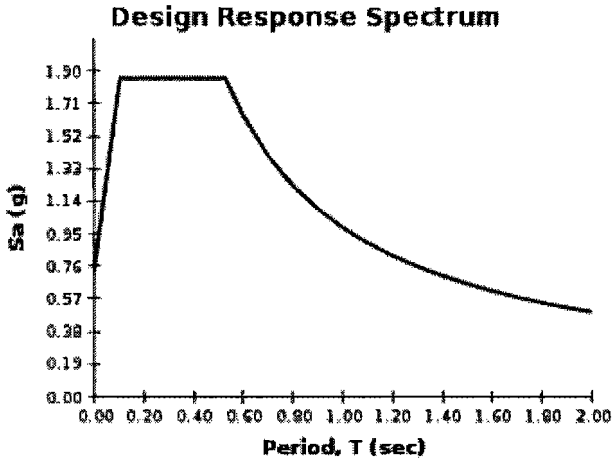


USGS-Provided Output

S_S =	2.786 g	S_{MS} =	2.786 g	S_{DS} =	1.857 g
S_1 =	0.985 g	S_{M1} =	1.478 g	S_{D1} =	0.985 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

USGS Design Maps Detailed Report

ASCE 7-10 Standard (34.4056°N, 119.5348°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1] $S_S = 2.786$ g

From Figure 22-2 [2] $S_1 = 0.985$ g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3-1 Site Classification

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content $w \geq 40\%$, and • Undrained shear strength $\bar{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients and Risk-Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4-1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_S

For Site Class = D and S_S = 2.786 g, F_a = 1.000

Table 11.4-2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1-s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.985 g, F_v = 1.500

Equation (11.4–1): $S_{MS} = F_a S_S = 1.000 \times 2.786 = 2.786$ g

Equation (11.4–2): $S_{M1} = F_v S_1 = 1.500 \times 0.985 = 1.478$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

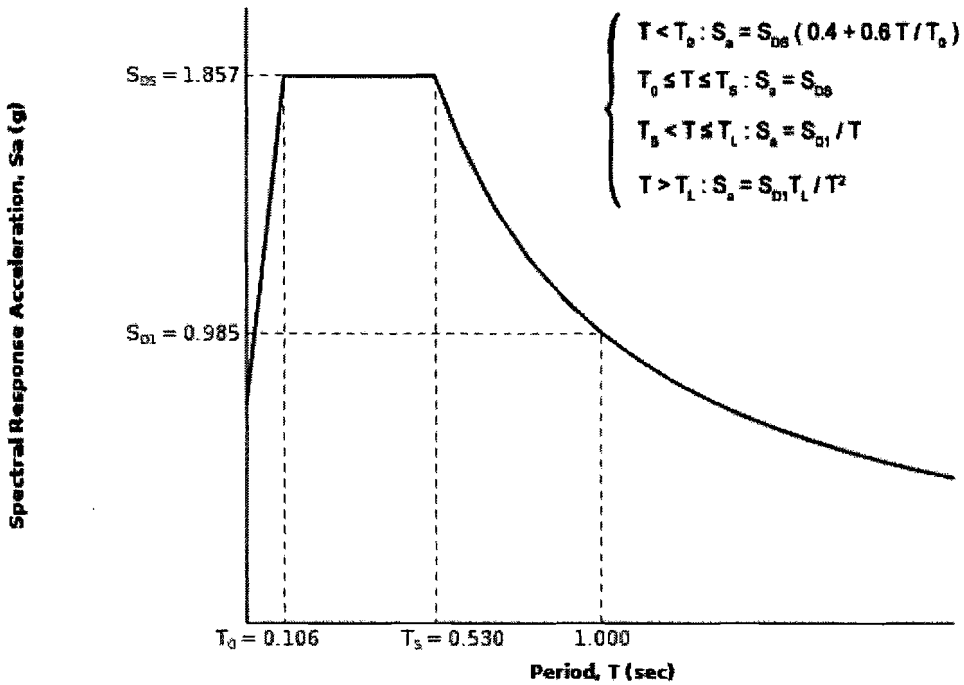
Equation (11.4–3): $S_{DS} = \frac{2}{3} S_{MS} = \frac{2}{3} \times 2.786 = 1.857$ g

Equation (11.4–4): $S_{D1} = \frac{2}{3} S_{M1} = \frac{2}{3} \times 1.478 = 0.985$ g

Section 11.4.5 — Design Response Spectrum

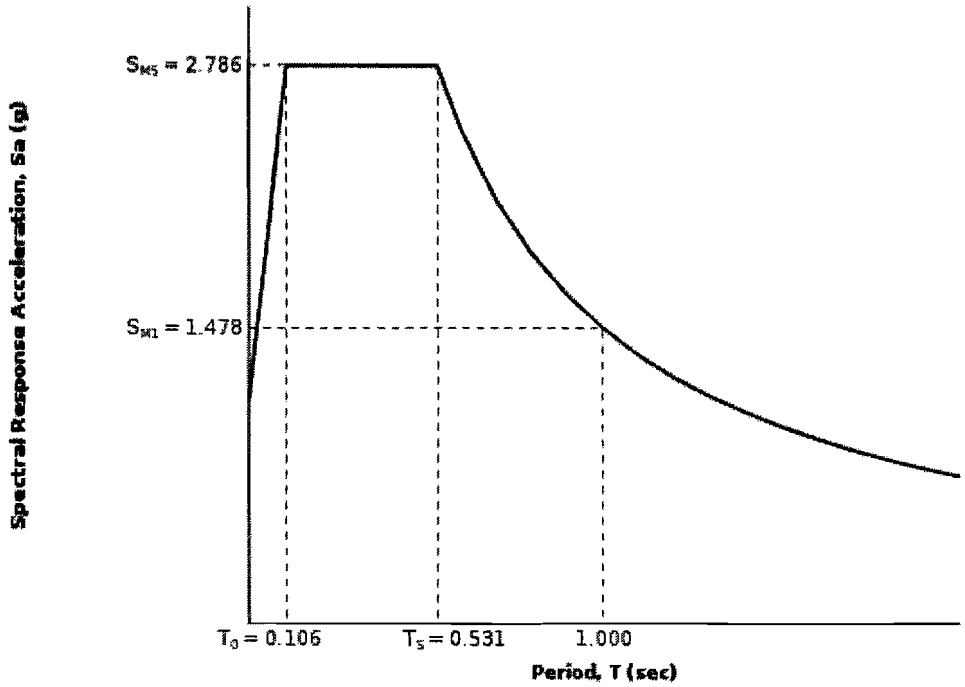
From Figure 22-12 [3] $T_L = 8$ seconds

Figure 11.4–1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7[4] PGA = 1.093

Equation (11.8-1): $PGA_M = F_{PGA}PGA = 1.000 \times 1.093 = 1.093$ g

Table 11.8-1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of PGA

For Site Class = D and PGA = 1.093 g, F_{PGA} = 1.000

Section 21.2.1.1 — Method 1 (from Chapter 21 - Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17[5] C_{RS} = 0.900

From Figure 22-18[6] C_{R1} = 0.903

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	C
$0.33g \leq S_{DS} < 0.50g$	C	C	D
$0.50g \leq S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 1.857 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \leq S_{D1} < 0.133g$	B	B	C
$0.133g \leq S_{D1} < 0.20g$	C	C	D
$0.20g \leq S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.985 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = E

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

0.0

0.5	29.5	1	125	10	0.000	0.25
1.0	52.5	1	120	20	0.000	0.75
3.5	34.5	1	120	20	0.000	2.25
4.0	32.0	0	115	60	0.000	3.75
4.5	25.6	0	115	60	0.000	4.25
5.0	29.0	0	115	60	0.000	4.75
5.5	16.2	1	120	20	0.000	5.25
6.5	10.7	0	115	60	0.000	6.25
7.0	18.0	0	115	60	0.000	6.75
7.5	13.0	0	115	60	0.000	7.25
8.0	12.5	0	115	60	0.000	7.75
8.5	12.6	1	120	20	0.000	8.25
9.0	17.0	0	115	60	0.000	8.75
10.0	10.0	0	115	60	0.000	9.75
11.0	12.8	0	115	60	0.000	10.75
15.0	11.0	0	115	60	0.000	13.25
15.5	14.0	1	120	20	0.000	15.25
16.0	24.7	1	125	10	0.000	15.75
16.5	16.6	1	120	20	0.000	16.25
17.0	12.5	0	115	60	0.000	16.75
19.5	10.9	0	115	60	0.000	18.25
20.0	22.0	0	115	60	0.000	19.75
20.5	20.0	1	120	20	0.000	20.25
23.0	20.5	0	115	60	0.000	21.75
23.5	24.5	1	120	20	0.000	23.25
25.0	18.3	0	115	60	0.000	24.25
25.5	30.3	1	120	20	0.000	25.25
26.0	27.2	1	125	10	0.000	25.75
26.5	18.0	1	120	20	0.000	26.25
28.0	18.4	0	115	60	0.000	27.25
28.5	15.5	0	115	60	0.000	28.25
29.0	18.0	1	125	10	0.000	28.75
29.5	18.3	1	120	20	0.000	29.25
30.5	19.8	1	125	10	0.000	30.25
31.0	20.7	1	120	20	0.000	30.75
31.5	19.5	0	115	60	0.000	31.25
32.0	23.7	0	115	60	0.000	31.75
32.5	12.0	1	120	20	0.000	32.25
33.0	13.7	0	115	60	0.000	32.75
33.5	12.0	1	120	20	0.000	33.25
35.0	12.0	0	115	60	0.000	34.25
35.5	22.0	0	115	60	0.000	35.25
37.5	12.5	0	115	60	0.000	36.75
38.5	17.5	0	115	60	0.000	38.25
39.0	26.5	0	115	60	0.000	38.75
41.5	14.1	0	115	60	0.000	40.25
42.0	10.0	1	120	20	0.000	41.75
42.5	27.0	1	120	20	0.000	42.25
43.0	47.5	1	120	40	0.000	42.75
43.5	49.0	1	120	40	0.000	43.25
44.0	43.0	0	115	60	0.000	43.75
44.5	28.3	1	120	20	0.000	44.25
45.0	23.8	1	120	20	0.000	44.75
45.5	22.0	0	115	60	0.000	45.25
46.5	39.0	1	120	40	0.000	46.25
47.5	26.4	0	115	60	0.000	47.25
48.0	34.5	0	115	60	0.000	47.75
50.5	19.0	0	115	60	0.000	49.25

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*                           *
*      L I Q U E F Y 2      *
*                           *
*       Version 1.50        *
*                           *
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EMPIRICAL PREDICTION OF
EARTHQUAKE-INDUCED LIQUEFACTION POTENTIAL

JOB NUMBER: 14026-2 DATE: 11-18-2014

JOB NAME: 4110 Via Real, CPT-1 (Detailed Strata)

SOIL-PROFILE NAME: 4110VdC1.LDW

BORING GROUNDWATER DEPTH: 0.00 ft

CALCULATION GROUNDWATER DEPTH: 0.00 ft

DESIGN EARTHQUAKE MAGNITUDE: 7.22 Mw

SITE PEAK GROUND ACCELERATION: 1.093 g

BOREHOLE DIAMETER CORRECTION FACTOR: 1.00

SAMPLER SIZE CORRECTION FACTOR: 1.00

N60 HAMMER CORRECTION FACTOR: 1.00

MAGNITUDE SCALING FACTOR METHOD: Idriss (1997, in press)

Magnitude Scaling Factor: 1.102

rd-CORRECTION METHOD: NCEER (1997)

FIELD SPT N-VALUES ARE CORRECTED FOR THE LENGTH OF THE DRIVE RODS.

Rod Stick-Up Above Ground: 3.0 ft

CN NORMALIZATION FACTOR: 1.044 tsf

MINIMUM CN VALUE: 0.6

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY —

File Name: 4110VdC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
1	0.25	0.016	0.008	30	1.83	2.000	46.1	Infin	0.999	1.418	NonLiq
2	0.75	0.046	0.023	53	9.87	2.000	88.6	Infin	0.998	1.435	NonLiq
3	1.25	0.076	0.037	35	7.73	2.000	59.5	Infin	0.997	1.450	NonLiq
3	1.75	0.106	0.052	35	7.73	2.000	59.5	Infin	0.996	1.456	NonLiq
3	2.25	0.136	0.066	35	7.73	2.000	59.5	Infin	0.995	1.458	NonLiq
3	2.75	0.166	0.080	35	7.73	2.000	59.5	Infin	0.994	1.459	NonLiq
3	3.25	0.196	0.095	35	7.73	2.000	59.5	Infin	0.992	1.459	NonLiq
4	3.75	0.226	0.109	32	~	~	~	~	~	~	~~
5	4.25	0.254	0.122	26	~	~	~	~	~	~	~~
6	4.75	0.283	0.135	29	~	~	~	~	~	~	~~
7	5.25	0.313	0.149	16	5.55	2.000	29.8	0.460	0.988	1.475	0.34
8	5.75	0.342	0.162	11	~	~	~	~	~	~	~~
8	6.25	0.371	0.176	11	~	~	~	~	~	~	~~
9	6.75	0.399	0.189	18	~	~	~	~	~	~	~~
10	7.25	0.428	0.202	13	~	~	~	~	~	~	~~
11	7.75	0.457	0.215	13	~	~	~	~	~	~	~~
12	8.25	0.486	0.229	13	5.12	2.000	24.0	0.270	0.981	1.480	0.20
13	8.75	0.516	0.243	17	~	~	~	~	~	~	~~
14	9.25	0.544	0.256	10	~	~	~	~	~	~	~~
14	9.75	0.573	0.269	10	~	~	~	~	~	~	~~
15	10.25	0.602	0.282	13	~	~	~	~	~	~	~~
15	10.75	0.631	0.295	13	~	~	~	~	~	~	~~
16	11.25	0.659	0.308	11	~	~	~	~	~	~	~~
16	11.75	0.688	0.322	11	~	~	~	~	~	~	~~
16	12.25	0.717	0.335	11	~	~	~	~	~	~	~~
16	12.75	0.746	0.348	11	~	~	~	~	~	~	~~
16	13.25	0.774	0.361	11	~	~	~	~	~	~	~~
16	13.75	0.803	0.374	11	~	~	~	~	~	~	~~
16	14.25	0.832	0.387	11	~	~	~	~	~	~	~~
16	14.75	0.861	0.400	11	~	~	~	~	~	~	~~
17	15.25	0.890	0.414	14	5.15	1.588	24.4	0.277	0.964	1.472	0.21
18	15.75	0.921	0.429	25	1.60	1.560	35.4	Infin	0.963	1.468	NonLiq
19	16.25	0.951	0.444	17	5.40	1.533	27.9	0.346	0.962	1.464	0.26
20	16.75	0.981	0.458	13	~	~	~	~	~	~	~~
21	17.25	1.009	0.471	11	~	~	~	~	~	~	~~
21	17.75	1.038	0.484	11	~	~	~	~	~	~	~~
21	18.25	1.067	0.497	11	~	~	~	~	~	~	~~
21	18.75	1.096	0.511	11	~	~	~	~	~	~	~~
21	19.25	1.124	0.524	11	~	~	~	~	~	~	~~
22	19.75	1.153	0.537	22	~	~	~	~	~	~	~~
23	20.25	1.183	0.551	20	5.66	1.377	31.4	Infin	0.953	1.453	NonLiq
24	20.75	1.212	0.564	21	~	~	~	~	~	~	~~
24	21.25	1.241	0.578	21	~	~	~	~	~	~	~~

File Name: 4110VdC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
24	21.75	1.269	0.591	21	~	~	~	~	~	~	~~
24	22.25	1.298	0.604	21	~	~	~	~	~	~	~~
24	22.75	1.327	0.617	21	~	~	~	~	~	~	~~
25	23.25	1.356	0.631	25	6.04	1.286	36.5	Infin	0.946	1.445	NonLiq
26	23.75	1.386	0.645	18	~	~	~	~	~	~	~~
26	24.25	1.414	0.658	18	~	~	~	~	~	~	~~
26	24.75	1.443	0.671	18	~	~	~	~	~	~	~~
27	25.25	1.473	0.685	30	6.54	1.235	43.4	Infin	0.941	1.438	NonLiq
28	25.75	1.503	0.700	27	1.58	1.221	34.5	Infin	0.940	1.435	NonLiq
29	26.25	1.534	0.715	18	5.33	1.209	27.0	0.323	0.939	1.431	0.25
30	26.75	1.563	0.729	18	~	~	~	~	~	~	~~
30	27.25	1.592	0.742	18	~	~	~	~	~	~	~~
30	27.75	1.621	0.755	18	~	~	~	~	~	~	~~
31	28.25	1.649	0.768	16	~	~	~	~	~	~	~~
32	28.75	1.679	0.782	18	1.32	1.155	22.1	0.243	0.933	1.423	0.19
33	29.25	1.710	0.797	18	5.28	1.144	26.2	0.308	0.932	1.420	0.24
34	29.75	1.741	0.812	20	1.35	1.123	23.6	0.264	0.931	1.417	0.20
34	30.25	1.772	0.828	20	1.35	1.123	23.6	0.264	0.928	1.410	0.21
35	30.75	1.803	0.843	21	5.44	1.113	28.5	0.365	0.924	1.403	0.29
36	31.25	1.832	0.857	20	~	~	~	~	~	~	~~
37	31.75	1.861	0.870	24	~	~	~	~	~	~	~~
38	32.25	1.890	0.884	12	4.65	1.087	17.7	0.192	0.912	1.385	0.15
39	32.75	1.919	0.898	14	~	~	~	~	~	~	~~
40	33.25	1.949	0.911	12	4.64	1.070	17.5	0.190	0.903	1.372	0.15
41	33.75	1.978	0.925	12	~	~	~	~	~	~	~~
41	34.25	2.007	0.938	12	~	~	~	~	~	~	~~
41	34.75	2.036	0.951	12	~	~	~	~	~	~	~~
42	35.25	2.064	0.965	22	~	~	~	~	~	~	~~
43	35.75	2.093	0.978	13	~	~	~	~	~	~	~~
43	36.25	2.122	0.991	13	~	~	~	~	~	~	~~
43	36.75	2.151	1.004	13	~	~	~	~	~	~	~~
43	37.25	2.179	1.017	13	~	~	~	~	~	~	~~
44	37.75	2.208	1.030	18	~	~	~	~	~	~	~~
44	38.25	2.237	1.043	18	~	~	~	~	~	~	~~
45	38.75	2.266	1.057	27	~	~	~	~	~	~	~~
46	39.25	2.294	1.070	14	~	~	~	~	~	~	~~
46	39.75	2.323	1.083	14	~	~	~	~	~	~	~~
46	40.25	2.352	1.096	14	~	~	~	~	~	~	~~
46	40.75	2.381	1.109	14	~	~	~	~	~	~	~~
46	41.25	2.409	1.122	14	~	~	~	~	~	~	~~
47	41.75	2.439	1.136	10	4.38	0.959	14.0	0.150	0.834	1.272	0.13
48	42.25	2.469	1.151	27	5.66	0.953	31.4	Infin	0.830	1.266	NonLiq
49	42.75	2.499	1.165	48	13.84	0.947	58.8	Infin	0.826	1.259	NonLiq
50	43.25	2.529	1.179	49	14.06	0.941	60.2	Infin	0.822	1.252	NonLiq

File Name: 4110VdC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
51	43.75	2.558	1.193	43	~	~	~	~	~	~	~~
52	44.25	2.587	1.207	28	5.71	0.930	32.0	Infin	0.814	1.240	NonLiq
53	44.75	2.617	1.221	24	5.36	0.925	27.4	0.324	0.810	1.233	0.29
54	45.25	2.647	1.235	22	~	~	~	~	~	~	~~
55	45.75	2.676	1.249	39	11.96	0.909	47.4	Infin	0.802	1.221	NonLiq
55	46.25	2.706	1.263	39	11.96	0.909	47.4	Infin	0.798	1.214	NonLiq
56	46.75	2.736	1.277	26	~	~	~	~	~	~	~~
56	47.25	2.764	1.290	26	~	~	~	~	~	~	~~
57	47.75	2.793	1.303	35	~	~	~	~	~	~	~~
58	48.25	2.822	1.316	19	~	~	~	~	~	~	~~
58	48.75	2.851	1.330	19	~	~	~	~	~	~	~~
58	49.25	2.879	1.343	19	~	~	~	~	~	~	~~
58	49.75	2.908	1.356	19	~	~	~	~	~	~	~~
58	50.25	2.937	1.369	19	~	~	~	~	~	~	~~

0.0

0.5	39.0	1	125	10	0.000	0.25
1.0	24.0	0	115	60	0.000	0.75
2.0	13.2	0	115	60	0.000	1.75
2.5	28.0	1	120	20	0.000	2.25
3.0	54.0	1	120	40	0.000	2.75
5.5	13.1	0	115	60	0.000	4.25
6.0	7.0	1	100	60	0.000	5.75
7.0	5.4	1	100	60	0.000	6.75
8.0	5.4	0	115	60	0.000	7.75
8.5	7.5	1	100	60	0.000	8.25
9.0	8.0	0	115	60	0.000	8.75
9.5	15.3	1	120	20	0.000	9.25
12.0	9.8	0	115	60	0.000	10.75
12.5	5.0	0	115	60	0.000	12.25
13.0	4.0	0	115	60	0.000	12.75
13.5	5.3	1	100	60	0.000	13.25
18.5	12.7	0	115	60	0.000	16.25
19.0	25.5	0	115	60	0.000	18.75
19.5	25.0	0	115	60	0.000	19.25
20.0	15.0	1	120	20	0.000	19.75
20.5	25.8	1	125	10	0.000	20.25
21.0	20.0	1	120	20	0.000	20.75
21.5	23.0	0	115	60	0.000	21.25
22.0	20.0	0	115	60	0.000	21.75
22.5	22.0	0	115	60	0.000	22.25
23.5	30.8	1	120	20	0.000	23.25
24.0	33.0	0	115	60	0.000	23.75
24.5	17.5	1	120	20	0.000	24.25
25.0	21.0	0	115	60	0.000	24.75
25.5	28.5	0	115	60	0.000	25.25
26.0	37.0	0	115	60	0.000	25.75
26.5	25.0	1	125	10	0.000	26.25
27.0	26.0	1	120	20	0.000	26.75
27.5	25.0	0	115	60	0.000	27.25
28.0	25.3	1	125	10	0.000	27.75
29.0	28.4	1	120	20	0.000	28.75
29.5	27.5	1	125	10	0.000	29.25
30.0	23.3	1	120	20	0.000	29.75
30.5	18.7	0	115	60	0.000	30.25
31.5	14.6	0	115	60	0.000	31.25
32.0	20.0	0	115	60	0.000	31.75
32.5	20.0	1	125	10	0.000	32.25
33.0	14.0	0	115	60	0.000	32.75
33.5	20.3	1	120	20	0.000	33.25
34.0	30.0	0	115	60	0.000	33.75
35.0	10.0	0	115	60	0.000	34.75
36.0	13.1	0	115	60	0.000	35.75
36.5	30.0	0	115	60	0.000	36.25
37.0	24.5	0	115	60	0.000	36.75
38.0	33.2	1	120	20	0.000	37.75
39.5	13.7	0	115	60	0.000	38.75
40.0	45.7	1	120	40	0.000	39.75
42.0	17.3	0	115	60	0.000	41.25
42.5	27.0	0	115	60	0.000	42.25
43.0	100.0	1	115	20	0.000	42.75
43.5	31.5	1	120	20	0.000	43.25
44.0	36.0	0	115	60	0.000	43.75
45.5	19.5	0	115	60	0.000	44.75
46.0	26.2	0	115	60	0.000	45.75
46.5	26.0	0	115	60	0.000	46.25
47.0	27.4	1	120	20	0.000	46.75
47.5	24.0	1	125	10	0.000	47.25
48.0	26.0	0	115	60	0.000	47.75
48.5	20.0	0	115	60	0.000	48.25
50.5	13.7	0	115	60	0.000	49.75

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*      L I Q U E F Y 2      *
*                           *
*       Version 1.50        *
*                           *
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EMPIRICAL PREDICTION OF
EARTHQUAKE-INDUCED LIQUEFACTION POTENTIAL

JOB NUMBER: 14026-2 DATE: 11-18-2014

JOB NAME: 4110 Via Real, CPT-2 (Detailed Strata)

SOIL-PROFILE NAME: 4110VdC2.LDW

BORING GROUNDWATER DEPTH: 0.00 ft

CALCULATION GROUNDWATER DEPTH: 0.00 ft

DESIGN EARTHQUAKE MAGNITUDE: 7.22 Mw

SITE PEAK GROUND ACCELERATION: 1.093 g

BOREHOLE DIAMETER CORRECTION FACTOR: 1.00

SAMPLER SIZE CORRECTION FACTOR: 1.00

N60 HAMMER CORRECTION FACTOR: 1.00

MAGNITUDE SCALING FACTOR METHOD: Idriss (1997, in press)

Magnitude Scaling Factor: 1.102

rd-CORRECTION METHOD: NCEER (1997)

FIELD SPT N-VALUES ARE CORRECTED FOR THE LENGTH OF THE DRIVE RODS.

Rod Stick-Up Above Ground: 3.0 ft

CN NORMALIZATION FACTOR: 1.044 tsf

MINIMUM CN VALUE: 0.6

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY — PAGE 1

File Name: 4110VdC2.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
1	0.25	0.016	0.008	39	2.13	2.000	60.6	Infin	0.999	1.418	NonLiq
2	0.75	0.046	0.022	24	~	~	~	~	~	~	~~
3	1.25	0.074	0.035	13	~	~	~	~	~	~	~~
3	1.75	0.103	0.049	13	~	~	~	~	~	~	~~
4	2.25	0.133	0.062	28	6.95	2.000	49.0	Infin	0.995	1.503	NonLiq
5	2.75	0.163	0.077	54	20.94	2.000	101.9	Infin	0.994	1.496	NonLiq
6	3.25	0.192	0.090	13	~	~	~	~	~	~	~~
6	3.75	0.221	0.104	13	~	~	~	~	~	~	~~
6	4.25	0.249	0.117	13	~	~	~	~	~	~	~~
6	4.75	0.278	0.130	13	~	~	~	~	~	~	~~
6	5.25	0.307	0.143	13	~	~	~	~	~	~	~~
7	5.75	0.334	0.154	7	7.05	2.000	17.5	0.191	0.987	1.516	0.14
8	6.25	0.359	0.164	5	6.57	2.000	14.7	0.160	0.985	1.534	0.11
8	6.75	0.384	0.173	5	6.57	2.000	14.7	0.160	0.984	1.550	0.11
9	7.25	0.411	0.184	5	~	~	~	~	~	~	~~
9	7.75	0.439	0.198	5	~	~	~	~	~	~	~~
10	8.25	0.466	0.209	8	7.19	2.000	18.4	0.200	0.981	1.556	0.14
11	8.75	0.493	0.220	8	~	~	~	~	~	~	~~
12	9.25	0.523	0.234	15	5.44	2.000	28.4	0.362	0.978	1.553	0.26
13	9.75	0.552	0.248	10	~	~	~	~	~	~	~~
13	10.25	0.581	0.261	10	~	~	~	~	~	~	~~
13	10.75	0.609	0.274	10	~	~	~	~	~	~	~~
13	11.25	0.638	0.287	10	~	~	~	~	~	~	~~
13	11.75	0.667	0.300	10	~	~	~	~	~	~	~~
14	12.25	0.696	0.313	5	~	~	~	~	~	~	~~
15	12.75	0.724	0.327	4	~	~	~	~	~	~	~~
16	13.25	0.751	0.338	5	6.51	1.758	14.3	0.156	0.969	1.531	0.11
17	13.75	0.778	0.349	13	~	~	~	~	~	~	~~
17	14.25	0.807	0.362	13	~	~	~	~	~	~	~~
17	14.75	0.836	0.375	13	~	~	~	~	~	~	~~
17	15.25	0.864	0.389	13	~	~	~	~	~	~	~~
17	15.75	0.893	0.402	13	~	~	~	~	~	~	~~
17	16.25	0.922	0.415	13	~	~	~	~	~	~	~~
17	16.75	0.951	0.428	13	~	~	~	~	~	~	~~
17	17.25	0.979	0.441	13	~	~	~	~	~	~	~~
17	17.75	1.008	0.454	13	~	~	~	~	~	~	~~
17	18.25	1.037	0.467	13	~	~	~	~	~	~	~~
18	18.75	1.066	0.481	26	~	~	~	~	~	~	~~
19	19.25	1.094	0.494	25	~	~	~	~	~	~	~~
20	19.75	1.124	0.508	15	5.21	1.434	25.2	0.289	0.954	1.501	0.21
21	20.25	1.154	0.523	26	1.61	1.413	35.8	Infin	0.953	1.495	NonLiq
22	20.75	1.185	0.538	20	5.70	1.394	32.0	Infin	0.952	1.490	NonLiq
23	21.25	1.214	0.551	23	~	~	~	~	~	~	~~

File Name: 4110VdC2.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
24	21.75	1.243	0.565	20	~	~	~	~	~	~	~~
25	22.25	1.272	0.578	22	~	~	~	~	~	~	~~
26	22.75	1.301	0.591	31	6.72	1.313	45.8	Infin	0.947	1.480	NonLiq
26	23.25	1.331	0.606	31	6.72	1.313	45.8	Infin	0.946	1.476	NonLiq
27	23.75	1.361	0.620	33	~	~	~	~	~	~	~~
28	24.25	1.390	0.633	18	5.36	1.284	27.3	0.331	0.943	1.471	0.25
29	24.75	1.419	0.647	21	~	~	~	~	~	~	~~
30	25.25	1.448	0.660	29	~	~	~	~	~	~	~~
31	25.75	1.477	0.673	37	~	~	~	~	~	~	~~
32	26.25	1.507	0.688	25	1.53	1.232	32.1	Infin	0.939	1.461	NonLiq
33	26.75	1.538	0.703	26	6.13	1.219	37.7	Infin	0.938	1.457	NonLiq
34	27.25	1.567	0.717	25	~	~	~	~	~	~	~~
35	27.75	1.597	0.731	25	1.52	1.195	31.8	Infin	0.935	1.451	NonLiq
36	28.25	1.628	0.746	28	6.26	1.172	39.5	Infin	0.934	1.448	NonLiq
36	28.75	1.658	0.760	28	6.26	1.172	39.5	Infin	0.933	1.445	NonLiq
37	29.25	1.688	0.776	28	1.56	1.160	33.5	Infin	0.932	1.441	NonLiq
38	29.75	1.719	0.791	23	5.74	1.149	32.5	Infin	0.931	1.437	NonLiq
39	30.25	1.748	0.804	19	~	~	~	~	~	~	~~
40	30.75	1.777	0.817	15	~	~	~	~	~	~	~~
40	31.25	1.806	0.831	15	~	~	~	~	~	~	~~
41	31.75	1.834	0.844	20	~	~	~	~	~	~	~~
42	32.25	1.864	0.858	20	1.35	1.103	23.4	0.261	0.912	1.407	0.20
43	32.75	1.894	0.873	14	~	~	~	~	~	~	~~
44	33.25	1.924	0.886	20	5.36	1.085	27.4	0.333	0.903	1.393	0.26
45	33.75	1.953	0.900	30	~	~	~	~	~	~	~~
46	34.25	1.982	0.913	10	~	~	~	~	~	~	~~
46	34.75	2.011	0.926	10	~	~	~	~	~	~	~~
47	35.25	2.039	0.940	13	~	~	~	~	~	~	~~
47	35.75	2.068	0.953	13	~	~	~	~	~	~	~~
48	36.25	2.097	0.966	30	~	~	~	~	~	~	~~
49	36.75	2.126	0.979	25	~	~	~	~	~	~	~~
50	37.25	2.155	0.993	33	6.30	1.018	40.1	Infin	0.871	1.343	NonLiq
50	37.75	2.185	1.007	33	6.30	1.018	40.1	Infin	0.867	1.336	NonLiq
51	38.25	2.214	1.021	14	~	~	~	~	~	~	~~
51	38.75	2.243	1.034	14	~	~	~	~	~	~	~~
51	39.25	2.272	1.047	14	~	~	~	~	~	~	~~
52	39.75	2.301	1.061	46	13.91	0.992	59.2	Infin	0.851	1.311	NonLiq
53	40.25	2.331	1.075	17	~	~	~	~	~	~	~~
53	40.75	2.359	1.088	17	~	~	~	~	~	~	~~
53	41.25	2.388	1.101	17	~	~	~	~	~	~	~~
53	41.75	2.417	1.114	17	~	~	~	~	~	~	~~
54	42.25	2.446	1.127	27	~	~	~	~	~	~	~~
55	42.75	2.474	1.141	100	11.22	0.957	106.9	Infin	0.826	1.273	NonLiq
56	43.25	2.504	1.154	32	5.99	0.951	36.0	Infin	0.822	1.267	NonLiq

File Name: 4110VdC2.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
57	43.75	2.533	1.168	36	~	~	~	~	~	~	~~
58	44.25	2.562	1.181	20	~	~	~	~	~	~	~~
58	44.75	2.591	1.194	20	~	~	~	~	~	~	~~
58	45.25	2.619	1.208	20	~	~	~	~	~	~	~~
59	45.75	2.648	1.221	26	~	~	~	~	~	~	~~
60	46.25	2.677	1.234	26	~	~	~	~	~	~	~~
61	46.75	2.706	1.248	27	5.61	0.915	30.7	Infin	0.794	1.223	NonLiq
62	47.25	2.737	1.263	24	1.34	0.909	23.2	0.249	0.789	1.216	0.23
63	47.75	2.767	1.277	26	~	~	~	~	~	~	~~
64	48.25	2.796	1.290	20	~	~	~	~	~	~	~~
65	48.75	2.824	1.303	14	~	~	~	~	~	~	~~
65	49.25	2.853	1.317	14	~	~	~	~	~	~	~~
65	49.75	2.882	1.330	14	~	~	~	~	~	~	~~
65	50.25	2.911	1.343	14	~	~	~	~	~	~	~~

0.0

1.0	17.7	1	120	20	0.000	0.75
1.5	100.0	1	115	20	0.000	1.25
2.0	100.0	1	120	40	0.000	1.75
3.0	100.0	1	115	20	0.000	2.75
4.0	100.0	1	120	40	0.000	3.75
4.5	100.0	1	115	20	0.000	4.25
5.0	100.0	1	115	20	0.000	4.75
5.5	75.0	1	120	40	0.000	5.25
6.5	30.5	0	115	60	0.000	6.25
7.5	10.6	0	115	60	0.000	7.25
8.0	5.7	1	100	60	0.000	7.75
8.5	11.0	0	115	60	0.000	8.25
9.0	47.0	1	125	10	0.000	8.75
9.5	13.5	0	115	60	0.000	9.25
10.5	7.4	0	115	60	0.000	10.25
11.0	16.0	0	115	60	0.000	10.75
14.0	9.3	0	115	60	0.000	12.75
14.5	16.7	0	115	60	0.000	14.25
16.5	9.2	0	115	60	0.000	15.75
17.0	15.3	1	120	20	0.000	16.75
17.5	16.3	1	120	20	0.000	17.25
18.0	20.0	0	115	60	0.000	17.75
21.0	12.9	0	115	60	0.000	19.75
22.5	33.8	1	125	10	0.000	21.75
23.0	37.0	1	120	20	0.000	22.75
23.5	26.0	1	120	20	0.000	23.25
24.5	13.3	0	115	60	0.000	24.25
25.0	21.0	1	120	20	0.000	24.75
25.5	25.0	0	115	60	0.000	25.25
26.0	22.0	1	120	20	0.000	25.75
26.5	22.0	0	115	60	0.000	26.25
27.5	23.6	0	115	60	0.000	27.25
28.0	33.5	0	115	60	0.000	27.75
28.5	22.5	0	115	60	0.000	28.25
29.0	21.0	1	120	20	0.000	28.75
29.5	23.0	0	115	60	0.000	29.25
30.0	14.5	1	120	20	0.000	29.75
30.5	21.0	0	115	60	0.000	30.25
31.0	20.0	1	125	10	0.000	30.75
33.0	12.9	0	115	60	0.000	32.25
34.0	15.7	0	115	60	0.000	33.75
35.5	24.7	1	120	20	0.000	34.75
37.5	15.2	0	115	60	0.000	36.75
38.0	24.0	1	120	20	0.000	37.75
38.5	26.5	1	125	10	0.000	38.25
39.5	22.8	1	120	20	0.000	39.25
40.5	12.8	0	115	60	0.000	40.25
41.0	22.0	0	115	60	0.000	40.75
41.5	39.0	0	115	60	0.000	41.25
42.0	22.3	1	120	20	0.000	41.75
45.5	15.5	0	115	60	0.000	43.75
46.5	14.8	0	115	60	0.000	46.25
47.0	22.0	1	120	20	0.000	46.75
47.5	45.0	0	115	60	0.000	47.25
48.0	24.7	1	120	20	0.000	47.75
48.5	25.0	1	120	20	0.000	48.25
49.0	33.5	0	115	60	0.000	48.75
49.5	17.0	1	120	20	0.000	49.25
50.0	21.0	1	120	20	0.000	49.75

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*      L I Q U E F Y 2      *
*                           *
*       Version 1.50        *
*                           *
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EMPIRICAL PREDICTION OF
EARTHQUAKE-INDUCED LIQUEFACTION POTENTIAL

JOB NUMBER: 14026-2 DATE: 11-18-2014

JOB NAME: 4110 Via Real, CPT-3 (Detailed Strata)

SOIL-PROFILE NAME: 4110VdC3.LDW

BORING GROUNDWATER DEPTH: 0.00 ft

CALCULATION GROUNDWATER DEPTH: 0.00 ft

DESIGN EARTHQUAKE MAGNITUDE: 7.22 Mw

SITE PEAK GROUND ACCELERATION: 1.093 g

BOREHOLE DIAMETER CORRECTION FACTOR: 1.00

SAMPLER SIZE CORRECTION FACTOR: 1.00

N60 HAMMER CORRECTION FACTOR: 1.00

MAGNITUDE SCALING FACTOR METHOD: Idriss (1997, in press)

Magnitude Scaling Factor: 1.102

rd-CORRECTION METHOD: NCEER (1997)

FIELD SPT N-VALUES ARE CORRECTED FOR THE LENGTH OF THE DRIVE RODS.

Rod Stick-Up Above Ground: 3.0 ft

CN NORMALIZATION FACTOR: 1.044 tsf

MINIMUM CN VALUE: 0.6

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY —

File Name: 4110VdC3.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
1	0.25	0.015	0.007	18	5.72	2.000	32.3	Infin	0.999	1.479	NonLiq
1	0.75	0.045	0.022	18	5.72	2.000	32.3	Infin	0.998	1.478	NonLiq
2	1.25	0.074	0.035	100	15.53	2.000	165.5	Infin	0.997	1.489	NonLiq
3	1.75	0.104	0.049	100	34.54	2.000	184.5	Infin	0.996	1.494	NonLiq
4	2.25	0.133	0.063	100	15.53	2.000	165.5	Infin	0.995	1.495	NonLiq
4	2.75	0.162	0.076	100	15.53	2.000	165.5	Infin	0.994	1.502	NonLiq
5	3.25	0.191	0.090	100	34.54	2.000	184.5	Infin	0.992	1.501	NonLiq
5	3.75	0.221	0.104	100	34.54	2.000	184.5	Infin	0.991	1.495	NonLiq
6	4.25	0.251	0.118	100	15.53	2.000	165.5	Infin	0.990	1.494	NonLiq
7	4.75	0.279	0.131	100	15.53	2.000	165.5	Infin	0.989	1.496	NonLiq
8	5.25	0.309	0.145	75	27.15	2.000	139.6	Infin	0.988	1.495	NonLiq
9	5.75	0.338	0.159	31	~	~	~	~	~	~	~~
9	6.25	0.367	0.172	31	~	~	~	~	~	~	~~
10	6.75	0.396	0.185	11	~	~	~	~	~	~	~~
10	7.25	0.424	0.198	11	~	~	~	~	~	~	~~
11	7.75	0.451	0.209	6	6.66	2.000	15.2	0.166	0.982	1.503	0.12
12	8.25	0.478	0.221	11	~	~	~	~	~	~	~~
13	8.75	0.508	0.235	47	2.39	2.000	72.9	Infin	0.980	1.504	NonLiq
14	9.25	0.538	0.250	14	~	~	~	~	~	~	~~
15	9.75	0.567	0.263	7	~	~	~	~	~	~	~~
15	10.25	0.596	0.276	7	~	~	~	~	~	~	~~
16	10.75	0.624	0.289	16	~	~	~	~	~	~	~~
17	11.25	0.653	0.302	9	~	~	~	~	~	~	~~
17	11.75	0.682	0.315	9	~	~	~	~	~	~	~~
17	12.25	0.711	0.328	9	~	~	~	~	~	~	~~
17	12.75	0.739	0.342	9	~	~	~	~	~	~	~~
17	13.25	0.768	0.355	9	~	~	~	~	~	~	~~
17	13.75	0.797	0.368	9	~	~	~	~	~	~	~~
18	14.25	0.826	0.381	17	~	~	~	~	~	~	~~
19	14.75	0.854	0.394	9	~	~	~	~	~	~	~~
19	15.25	0.883	0.407	9	~	~	~	~	~	~	~~
19	15.75	0.912	0.420	9	~	~	~	~	~	~	~~
19	16.25	0.941	0.434	9	~	~	~	~	~	~	~~
20	16.75	0.970	0.447	15	5.27	1.528	26.1	0.305	0.961	1.480	0.23
21	17.25	1.000	0.462	16	5.36	1.504	27.4	0.333	0.960	1.477	0.25
22	17.75	1.029	0.476	20	~	~	~	~	~	~	~~
23	18.25	1.058	0.489	13	~	~	~	~	~	~	~~
23	18.75	1.087	0.502	13	~	~	~	~	~	~	~~
23	19.25	1.116	0.515	13	~	~	~	~	~	~	~~
23	19.75	1.144	0.528	13	~	~	~	~	~	~	~~
23	20.25	1.173	0.541	13	~	~	~	~	~	~	~~
23	20.75	1.202	0.554	13	~	~	~	~	~	~	~~
24	21.25	1.232	0.569	34	1.80	1.336	44.8	Infin	0.950	1.462	NonLiq

File Name: 4110VdC3.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
24	21.75	1.263	0.585	34	1.80	1.336	44.8	Infin	0.949	1.457	NonLiq
24	22.25	1.294	0.600	34	1.80	1.336	44.8	Infin	0.948	1.453	NonLiq
25	22.75	1.325	0.615	37	7.30	1.303	53.7	Infin	0.947	1.449	NonLiq
26	23.25	1.355	0.630	26	6.19	1.288	38.6	Infin	0.946	1.446	NonLiq
27	23.75	1.384	0.643	13	~	~	~	~	~	~	~~
27	24.25	1.413	0.657	13	~	~	~	~	~	~	~~
28	24.75	1.443	0.670	21	5.66	1.248	31.4	Infin	0.942	1.441	NonLiq
29	25.25	1.472	0.684	25	~	~	~	~	~	~	~~
30	25.75	1.501	0.698	22	5.73	1.223	32.4	Infin	0.940	1.437	NonLiq
31	26.25	1.531	0.712	22	~	~	~	~	~	~	~~
32	26.75	1.559	0.725	24	~	~	~	~	~	~	~~
32	27.25	1.588	0.738	24	~	~	~	~	~	~	~~
33	27.75	1.617	0.751	34	~	~	~	~	~	~	~~
34	28.25	1.646	0.764	23	~	~	~	~	~	~	~~
35	28.75	1.675	0.778	21	5.55	1.158	29.9	0.466	0.933	1.427	0.36
36	29.25	1.704	0.792	23	~	~	~	~	~	~	~~
37	29.75	1.734	0.806	15	4.93	1.138	21.4	0.235	0.931	1.423	0.18
38	30.25	1.763	0.819	21	~	~	~	~	~	~	~~
39	30.75	1.793	0.834	20	1.35	1.119	23.7	0.266	0.924	1.411	0.21
40	31.25	1.823	0.848	13	~	~	~	~	~	~	~~
40	31.75	1.852	0.861	13	~	~	~	~	~	~	~~
40	32.25	1.881	0.874	13	~	~	~	~	~	~	~~
40	32.75	1.909	0.888	13	~	~	~	~	~	~	~~
41	33.25	1.938	0.901	16	~	~	~	~	~	~	~~
41	33.75	1.967	0.914	16	~	~	~	~	~	~	~~
42	34.25	1.996	0.928	25	5.68	1.053	31.7	Infin	0.895	1.369	NonLiq
42	34.75	2.026	0.942	25	5.68	1.053	31.7	Infin	0.891	1.362	NonLiq
42	35.25	2.056	0.956	25	5.68	1.053	31.7	Infin	0.887	1.355	NonLiq
43	35.75	2.086	0.970	15	~	~	~	~	~	~	~~
43	36.25	2.114	0.983	15	~	~	~	~	~	~	~~
43	36.75	2.143	0.997	15	~	~	~	~	~	~	~~
43	37.25	2.172	1.010	15	~	~	~	~	~	~	~~
44	37.75	2.201	1.023	24	5.54	1.010	29.8	0.449	0.867	1.324	0.37
45	38.25	2.232	1.038	27	1.44	1.003	28.0	0.349	0.863	1.317	0.29
46	38.75	2.263	1.053	23	5.41	0.989	27.9	0.345	0.859	1.310	0.29
46	39.25	2.293	1.068	23	5.41	0.989	27.9	0.345	0.855	1.303	0.29
47	39.75	2.322	1.082	13	~	~	~	~	~	~	~~
47	40.25	2.351	1.095	13	~	~	~	~	~	~	~~
48	40.75	2.379	1.108	22	~	~	~	~	~	~	~~
49	41.25	2.408	1.121	39	~	~	~	~	~	~	~~
50	41.75	2.437	1.135	22	5.31	0.959	26.7	0.312	0.834	1.273	0.27
51	42.25	2.467	1.149	16	~	~	~	~	~	~	~~
51	42.75	2.496	1.162	16	~	~	~	~	~	~	~~
51	43.25	2.524	1.175	16	~	~	~	~	~	~	~~

File Name: 41l0VdC3.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
51	43.75	2.553	1.188	16	~	~	~	~	~	~	~~
51	44.25	2.582	1.201	16	~	~	~	~	~	~	~~
51	44.75	2.611	1.214	16	~	~	~	~	~	~	~~
51	45.25	2.639	1.228	16	~	~	~	~	~	~	~~
52	45.75	2.668	1.241	15	~	~	~	~	~	~	~~
52	46.25	2.697	1.254	15	~	~	~	~	~	~	~~
53	46.75	2.726	1.268	22	5.20	0.908	25.2	0.279	0.794	1.212	0.25
54	47.25	2.756	1.281	45	~	~	~	~	~	~	~~
55	47.75	2.785	1.295	25	5.38	0.898	27.6	0.325	0.785	1.200	0.30
56	48.25	2.815	1.310	25	5.39	0.893	27.7	0.328	0.781	1.193	0.30
57	48.75	2.844	1.323	34	~	~	~	~	~	~	~~
58	49.25	2.874	1.337	17	4.81	0.884	19.8	0.207	0.773	1.181	0.19
59	49.75	2.904	1.352	21	5.08	0.879	23.5	0.251	0.769	1.174	0.24

0.0

3.5	39.1	1	120	20	0.000	1.75
5.0	27.0	0	115	60	0.000	4.25
5.5	16.2	1	120	20	0.000	5.25
7.0	13.6	0	115	60	0.000	6.25
8.0	15.2	0	115	60	0.000	7.75
8.5	12.6	1	120	20	0.000	8.25
15.0	11.1	0	115	60	0.000	11.75
16.5	19.0	1	120	20	0.000	15.75
20.0	13.8	0	115	60	0.000	18.25
20.5	20.0	1	120	20	0.000	20.25
23.0	21.6	0	115	60	0.000	21.75
23.5	24.5	1	120	20	0.000	23.25
25.0	22.0	0	115	60	0.000	24.25
26.5	27.2	1	120	20	0.000	25.75
28.0	18.9	0	115	60	0.000	27.25
28.5	15.5	0	115	60	0.000	28.25
29.5	18.2	1	120	20	0.000	29.25
31.0	20.1	1	120	20	0.000	30.25
31.5	22.0	0	115	60	0.000	31.25
32.0	23.7	0	115	60	0.000	31.75
32.5	12.0	1	120	20	0.000	32.25
33.0	16.0	0	115	60	0.000	32.75
33.5	12.0	1	120	20	0.000	33.25
38.5	14.4	0	115	60	0.000	36.25
41.5	16.7	0	115	60	0.000	40.25
42.0	10.0	1	120	20	0.000	41.75
43.0	64.4	1	120	40	0.000	42.75
43.5	49.0	1	120	40	0.000	43.25
44.0	31.0	0	115	60	0.000	43.75
44.5	28.3	1	120	20	0.000	44.25
45.0	23.8	1	120	20	0.000	44.75
45.5	24.3	0	115	60	0.000	45.25
46.5	39.0	1	120	40	0.000	46.25
50.5	22.5	0	115	60	0.000	48.75

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*      L I Q U E F Y 2      *
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*       Version 1.50        *
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EMPIRICAL PREDICTION OF
EARTHQUAKE-INDUCED LIQUEFACTION POTENTIAL

JOB NUMBER: 14026-2 DATE: 11-18-2014

JOB NAME: 4110 Via Real, CPT-1 (Simplified Strata)

SOIL-PROFILE NAME: 4110VsC1.LDW

BORING GROUNDWATER DEPTH: 0.00 ft

CALCULATION GROUNDWATER DEPTH: 0.00 ft

DESIGN EARTHQUAKE MAGNITUDE: 7.22 Mw

SITE PEAK GROUND ACCELERATION: 1.093 g

BOREHOLE DIAMETER CORRECTION FACTOR: 1.00

SAMPLER SIZE CORRECTION FACTOR: 1.00

N60 HAMMER CORRECTION FACTOR: 1.00

MAGNITUDE SCALING FACTOR METHOD: Idriss (1997, in press)

Magnitude Scaling Factor: 1.102

rd-CORRECTION METHOD: NCEER (1997)

FIELD SPT N-VALUES ARE CORRECTED FOR THE LENGTH OF THE DRIVE RODS.

Rod Stick-Up Above Ground: 3.0 ft

CN NORMALIZATION FACTOR: 1.044 tsf

MINIMUM CN VALUE: 0.6

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY —

File Name: 4110VsC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
1	0.25	0.015	0.007	39	8.27	2.000	66.9	Infin	0.999	1.479	NonLiq
1	0.75	0.045	0.022	39	8.27	2.000	66.9	Infin	0.998	1.478	NonLiq
1	1.25	0.075	0.036	39	8.27	2.000	66.9	Infin	0.997	1.476	NonLiq
1	1.75	0.105	0.050	39	8.27	2.000	66.9	Infin	0.996	1.474	NonLiq
1	2.25	0.135	0.065	39	8.27	2.000	66.9	Infin	0.995	1.472	NonLiq
1	2.75	0.165	0.079	39	8.27	2.000	66.9	Infin	0.994	1.471	NonLiq
1	3.25	0.195	0.094	39	8.27	2.000	66.9	Infin	0.992	1.469	NonLiq
2	3.75	0.224	0.107	27	~	~	~	~	~	~	~~
2	4.25	0.253	0.121	27	~	~	~	~	~	~	~~
2	4.75	0.282	0.134	27	~	~	~	~	~	~	~~
3	5.25	0.311	0.147	16	5.55	2.000	29.8	0.460	0.988	1.481	0.34
4	5.75	0.341	0.161	14	~	~	~	~	~	~	~~
4	6.25	0.369	0.174	14	~	~	~	~	~	~	~~
4	6.75	0.398	0.188	14	~	~	~	~	~	~	~~
5	7.25	0.427	0.201	15	~	~	~	~	~	~	~~
5	7.75	0.456	0.214	15	~	~	~	~	~	~	~~
6	8.25	0.485	0.228	13	5.12	2.000	24.0	0.270	0.981	1.485	0.20
7	8.75	0.514	0.241	11	~	~	~	~	~	~	~~
7	9.25	0.543	0.255	11	~	~	~	~	~	~	~~
7	9.75	0.572	0.268	11	~	~	~	~	~	~	~~
7	10.25	0.601	0.281	11	~	~	~	~	~	~	~~
7	10.75	0.629	0.294	11	~	~	~	~	~	~	~~
7	11.25	0.658	0.307	11	~	~	~	~	~	~	~~
7	11.75	0.687	0.320	11	~	~	~	~	~	~	~~
7	12.25	0.716	0.333	11	~	~	~	~	~	~	~~
7	12.75	0.744	0.347	11	~	~	~	~	~	~	~~
7	13.25	0.773	0.360	11	~	~	~	~	~	~	~~
7	13.75	0.802	0.373	11	~	~	~	~	~	~	~~
7	14.25	0.831	0.386	11	~	~	~	~	~	~	~~
7	14.75	0.859	0.399	11	~	~	~	~	~	~	~~
8	15.25	0.889	0.413	19	5.68	1.563	31.7	Infin	0.964	1.475	NonLiq
8	15.75	0.919	0.427	19	5.68	1.563	31.7	Infin	0.963	1.471	NonLiq
8	16.25	0.949	0.442	19	5.68	1.563	31.7	Infin	0.962	1.468	NonLiq
9	16.75	0.978	0.456	14	~	~	~	~	~	~	~~
9	17.25	1.007	0.469	14	~	~	~	~	~	~	~~
9	17.75	1.036	0.482	14	~	~	~	~	~	~	~~
9	18.25	1.064	0.495	14	~	~	~	~	~	~	~~
9	18.75	1.093	0.508	14	~	~	~	~	~	~	~~
9	19.25	1.122	0.521	14	~	~	~	~	~	~	~~
9	19.75	1.151	0.534	14	~	~	~	~	~	~	~~
10	20.25	1.180	0.548	20	5.67	1.380	31.5	Infin	0.953	1.457	NonLiq
11	20.75	1.209	0.562	22	~	~	~	~	~	~	~~
11	21.25	1.238	0.575	22	~	~	~	~	~	~	~~

File Name: 4110VsC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
11	21.75	1.267	0.588	22	~	~	~	~	~	~	~~
11	22.25	1.296	0.601	22	~	~	~	~	~	~	~~
11	22.75	1.324	0.615	22	~	~	~	~	~	~	~~
12	23.25	1.354	0.628	25	6.04	1.289	36.6	Infin	0.946	1.448	NonLiq
13	23.75	1.383	0.642	22	~	~	~	~	~	~	~~
13	24.25	1.412	0.655	22	~	~	~	~	~	~	~~
13	24.75	1.441	0.668	22	~	~	~	~	~	~	~~
14	25.25	1.470	0.682	27	6.23	1.224	39.2	Infin	0.941	1.441	NonLiq
14	25.75	1.500	0.697	27	6.23	1.224	39.2	Infin	0.940	1.438	NonLiq
14	26.25	1.530	0.711	27	6.23	1.224	39.2	Infin	0.939	1.435	NonLiq
15	26.75	1.559	0.725	19	~	~	~	~	~	~	~~
15	27.25	1.588	0.738	19	~	~	~	~	~	~	~~
15	27.75	1.617	0.751	19	~	~	~	~	~	~	~~
16	28.25	1.646	0.764	16	~	~	~	~	~	~	~~
17	28.75	1.675	0.778	18	5.27	1.148	26.2	0.307	0.933	1.427	0.24
17	29.25	1.705	0.792	18	5.27	1.148	26.2	0.307	0.932	1.424	0.24
18	29.75	1.735	0.807	20	5.42	1.128	28.1	0.352	0.931	1.422	0.27
18	30.25	1.765	0.821	20	5.42	1.128	28.1	0.352	0.928	1.417	0.27
18	30.75	1.795	0.836	20	5.42	1.128	28.1	0.352	0.924	1.410	0.27
19	31.25	1.824	0.849	22	~	~	~	~	~	~	~~
20	31.75	1.853	0.863	24	~	~	~	~	~	~	~~
21	32.25	1.883	0.876	12	4.66	1.092	17.8	0.193	0.912	1.391	0.15
22	32.75	1.912	0.890	16	~	~	~	~	~	~	~~
23	33.25	1.941	0.904	12	4.64	1.075	17.5	0.191	0.903	1.378	0.15
24	33.75	1.971	0.918	14	~	~	~	~	~	~	~~
24	34.25	1.999	0.931	14	~	~	~	~	~	~	~~
24	34.75	2.028	0.944	14	~	~	~	~	~	~	~~
24	35.25	2.057	0.957	14	~	~	~	~	~	~	~~
24	35.75	2.086	0.970	14	~	~	~	~	~	~	~~
24	36.25	2.114	0.983	14	~	~	~	~	~	~	~~
24	36.75	2.143	0.997	14	~	~	~	~	~	~	~~
24	37.25	2.172	1.010	14	~	~	~	~	~	~	~~
24	37.75	2.201	1.023	14	~	~	~	~	~	~	~~
24	38.25	2.229	1.036	14	~	~	~	~	~	~	~~
25	38.75	2.258	1.049	17	~	~	~	~	~	~	~~
25	39.25	2.287	1.062	17	~	~	~	~	~	~	~~
25	39.75	2.316	1.075	17	~	~	~	~	~	~	~~
25	40.25	2.344	1.089	17	~	~	~	~	~	~	~~
25	40.75	2.373	1.102	17	~	~	~	~	~	~	~~
25	41.25	2.402	1.115	17	~	~	~	~	~	~	~~
26	41.75	2.431	1.129	10	4.38	0.962	14.0	0.150	0.834	1.277	0.13
27	42.25	2.461	1.143	64	17.03	0.950	78.2	Infin	0.830	1.270	NonLiq
27	42.75	2.491	1.157	64	17.03	0.950	78.2	Infin	0.826	1.263	NonLiq
28	43.25	2.521	1.172	49	14.09	0.944	60.3	Infin	0.822	1.256	NonLiq

File Name: 4110VsC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
29	43.75	2.551	1.186	31	~	~	~	~	~	~	~~
30	44.25	2.580	1.199	28	5.71	0.933	32.1	Infin	0.814	1.244	NonLiq
31	44.75	2.610	1.214	24	5.37	0.927	27.4	0.326	0.810	1.237	0.29
32	45.25	2.639	1.228	24	~	~	~	~	~	~	~~
33	45.75	2.669	1.241	39	11.98	0.912	47.5	Infin	0.802	1.224	NonLiq
33	46.25	2.699	1.256	39	11.98	0.912	47.5	Infin	0.798	1.218	NonLiq
34	46.75	2.728	1.270	23	~	~	~	~	~	~	~~
34	47.25	2.757	1.283	23	~	~	~	~	~	~	~~
34	47.75	2.786	1.296	23	~	~	~	~	~	~	~~
34	48.25	2.814	1.309	23	~	~	~	~	~	~	~~
34	48.75	2.843	1.322	23	~	~	~	~	~	~	~~
34	49.25	2.872	1.335	23	~	~	~	~	~	~	~~
34	49.75	2.901	1.348	23	~	~	~	~	~	~	~~
34	50.25	2.929	1.362	23	~	~	~	~	~	~	~~

0.0

0.5	39.0	1	125	10	0.000	0.25
2.0	18.2	0	115	60	0.000	1.25
3.0	53.0	1	120	40	0.000	2.75
5.5	14.9	0	115	60	0.000	4.25
6.0	7.0	1	100	60	0.000	5.75
7.0	5.4	1	100	60	0.000	6.75
8.0	5.4	0	115	60	0.000	7.75
8.5	7.5	1	100	60	0.000	8.25
9.0	10.0	0	115	60	0.000	8.75
9.5	15.3	1	120	20	0.000	9.25
12.0	9.8	0	115	60	0.000	10.75
12.5	5.0	0	115	60	0.000	12.25
13.0	4.0	0	115	60	0.000	12.75
13.5	5.3	1	100	60	0.000	13.25
19.5	15.7	0	115	60	0.000	16.75
21.0	23.4	1	120	20	0.000	20.25
22.5	24.0	0	115	60	0.000	21.75
23.5	30.8	1	120	20	0.000	23.25
24.0	28.5	0	115	60	0.000	23.75
24.5	17.5	1	120	20	0.000	24.25
25.0	20.7	0	115	60	0.000	24.75
25.5	28.5	0	115	60	0.000	25.25
26.0	32.7	0	115	60	0.000	25.75
27.0	25.5	1	120	20	0.000	26.75
27.5	29.0	0	115	60	0.000	27.25
30.0	26.2	1	120	20	0.000	28.75
32.0	18.3	0	115	60	0.000	31.25
32.5	20.3	1	120	20	0.000	32.25
33.0	16.2	0	115	60	0.000	32.75
33.5	20.3	1	120	20	0.000	33.25
35.0	12.9	0	115	60	0.000	34.25
37.0	19.8	0	115	60	0.000	36.25
38.0	33.2	1	120	20	0.000	37.75
39.5	15.3	0	115	60	0.000	38.75
40.0	45.7	1	120	40	0.000	39.75
42.5	18.1	0	115	60	0.000	41.25
43.5	47.5	1	120	20	0.000	43.25
44.0	37.0	0	115	60	0.000	43.75
46.5	22.9	0	115	60	0.000	45.25
47.5	26.1	1	120	20	0.000	47.25
53.5	17.7	0	115	60	0.000	50.75

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*      L I Q U E F Y 2      *
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*       Version 1.50        *
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EMPIRICAL PREDICTION OF
EARTHQUAKE-INDUCED LIQUEFACTION POTENTIAL

JOB NUMBER: 14026-2 DATE: 11-18-2014

JOB NAME: 4110 Via Real, CPT-2 (Simplified Strata)

SOIL-PROFILE NAME: 4110VsC2.LDW

BORING GROUNDWATER DEPTH: 0.00 ft

CALCULATION GROUNDWATER DEPTH: 0.00 ft

DESIGN EARTHQUAKE MAGNITUDE: 7.22 Mw

SITE PEAK GROUND ACCELERATION: 1.093 g

BOREHOLE DIAMETER CORRECTION FACTOR: 1.00

SAMPLER SIZE CORRECTION FACTOR: 1.00

N60 HAMMER CORRECTION FACTOR: 1.00

MAGNITUDE SCALING FACTOR METHOD: Idriss (1997, in press)

Magnitude Scaling Factor: 1.102

rd-CORRECTION METHOD: NCEER (1997)

FIELD SPT N-VALUES ARE CORRECTED FOR THE LENGTH OF THE DRIVE RODS.

Rod Stick-Up Above Ground: 3.0 ft

CN NORMALIZATION FACTOR: 1.044 tsf

MINIMUM CN VALUE: 0.6

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY — PAGE 1

File Name: 4110VsC2.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
1	0.25	0.016	0.008	39	2.13	2.000	60.6	Infin	0.999	1.418	NonLiq
2	0.75	0.046	0.022	18	~	~	~	~	~	~	~~
2	1.25	0.074	0.035	18	~	~	~	~	~	~	~~
2	1.75	0.103	0.049	18	~	~	~	~	~	~	~~
3	2.25	0.133	0.062	53	20.64	2.000	100.1	Infin	0.995	1.503	NonLiq
3	2.75	0.163	0.077	53	20.64	2.000	100.1	Infin	0.994	1.496	NonLiq
4	3.25	0.192	0.090	15	~	~	~	~	~	~	~~
4	3.75	0.221	0.104	15	~	~	~	~	~	~	~~
4	4.25	0.249	0.117	15	~	~	~	~	~	~	~~
4	4.75	0.278	0.130	15	~	~	~	~	~	~	~~
4	5.25	0.307	0.143	15	~	~	~	~	~	~	~~
5	5.75	0.334	0.154	7	7.05	2.000	17.5	0.191	0.987	1.516	0.14
6	6.25	0.359	0.164	5	6.57	2.000	14.7	0.160	0.985	1.534	0.11
6	6.75	0.384	0.173	5	6.57	2.000	14.7	0.160	0.984	1.550	0.11
7	7.25	0.411	0.184	5	~	~	~	~	~	~	~~
7	7.75	0.439	0.198	5	~	~	~	~	~	~	~~
8	8.25	0.466	0.209	8	7.19	2.000	18.4	0.200	0.981	1.556	0.14
9	8.75	0.493	0.220	10	~	~	~	~	~	~	~~
10	9.25	0.523	0.234	15	5.44	2.000	28.4	0.362	0.978	1.553	0.26
11	9.75	0.552	0.248	10	~	~	~	~	~	~	~~
11	10.25	0.581	0.261	10	~	~	~	~	~	~	~~
11	10.75	0.609	0.274	10	~	~	~	~	~	~	~~
11	11.25	0.638	0.287	10	~	~	~	~	~	~	~~
11	11.75	0.667	0.300	10	~	~	~	~	~	~	~~
12	12.25	0.696	0.313	5	~	~	~	~	~	~	~~
13	12.75	0.724	0.327	4	~	~	~	~	~	~	~~
14	13.25	0.751	0.338	5	6.51	1.758	14.3	0.156	0.969	1.531	0.11
15	13.75	0.778	0.349	16	~	~	~	~	~	~	~~
15	14.25	0.807	0.362	16	~	~	~	~	~	~	~~
15	14.75	0.836	0.375	16	~	~	~	~	~	~	~~
15	15.25	0.864	0.389	16	~	~	~	~	~	~	~~
15	15.75	0.893	0.402	16	~	~	~	~	~	~	~~
15	16.25	0.922	0.415	16	~	~	~	~	~	~	~~
15	16.75	0.951	0.428	16	~	~	~	~	~	~	~~
15	17.25	0.979	0.441	16	~	~	~	~	~	~	~~
15	17.75	1.008	0.454	16	~	~	~	~	~	~	~~
15	18.25	1.037	0.467	16	~	~	~	~	~	~	~~
15	18.75	1.066	0.481	16	~	~	~	~	~	~	~~
15	19.25	1.094	0.494	16	~	~	~	~	~	~	~~
16	19.75	1.124	0.508	23	6.08	1.414	37.1	Infin	0.954	1.501	NonLiq
16	20.25	1.154	0.522	23	6.08	1.414	37.1	Infin	0.953	1.496	NonLiq
16	20.75	1.184	0.536	23	6.08	1.414	37.1	Infin	0.952	1.492	NonLiq
17	21.25	1.213	0.550	24	~	~	~	~	~	~	~~

File Name: 4110VsC2.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
17	21.75	1.242	0.563	24	~	~	~	~	~	~	~~
17	22.25	1.271	0.576	24	~	~	~	~	~	~	~~
18	22.75	1.300	0.590	31	6.73	1.314	45.9	Infin	0.947	1.482	NonLiq
18	23.25	1.330	0.605	31	6.73	1.314	45.9	Infin	0.946	1.478	NonLiq
19	23.75	1.359	0.618	29	~	~	~	~	~	~	~~
20	24.25	1.389	0.632	18	5.36	1.285	27.3	0.332	0.943	1.473	0.25
21	24.75	1.418	0.646	21	~	~	~	~	~	~	~~
22	25.25	1.447	0.659	29	~	~	~	~	~	~	~~
23	25.75	1.476	0.672	33	~	~	~	~	~	~	~~
24	26.25	1.505	0.686	26	6.08	1.221	37.2	Infin	0.939	1.463	NonLiq
24	26.75	1.535	0.700	26	6.08	1.221	37.2	Infin	0.938	1.460	NonLiq
25	27.25	1.564	0.714	29	~	~	~	~	~	~	~~
26	27.75	1.594	0.728	26	6.06	1.175	36.8	Infin	0.935	1.455	NonLiq
26	28.25	1.624	0.742	26	6.06	1.175	36.8	Infin	0.934	1.452	NonLiq
26	28.75	1.654	0.757	26	6.06	1.175	36.8	Infin	0.933	1.448	NonLiq
26	29.25	1.684	0.771	26	6.06	1.175	36.8	Infin	0.932	1.445	NonLiq
26	29.75	1.714	0.786	26	6.06	1.175	36.8	Infin	0.931	1.442	NonLiq
27	30.25	1.743	0.799	18	~	~	~	~	~	~	~~
27	30.75	1.772	0.812	18	~	~	~	~	~	~	~~
27	31.25	1.801	0.826	18	~	~	~	~	~	~	~~
27	31.75	1.829	0.839	18	~	~	~	~	~	~	~~
28	32.25	1.859	0.853	20	5.40	1.107	27.9	0.346	0.912	1.412	0.27
29	32.75	1.888	0.866	16	~	~	~	~	~	~	~~
30	33.25	1.917	0.880	20	5.37	1.089	27.5	0.335	0.903	1.398	0.26
31	33.75	1.947	0.894	13	~	~	~	~	~	~	~~
31	34.25	1.976	0.907	13	~	~	~	~	~	~	~~
31	34.75	2.004	0.920	13	~	~	~	~	~	~	~~
32	35.25	2.033	0.933	20	~	~	~	~	~	~	~~
32	35.75	2.062	0.946	20	~	~	~	~	~	~	~~
32	36.25	2.091	0.960	20	~	~	~	~	~	~	~~
32	36.75	2.119	0.973	20	~	~	~	~	~	~	~~
33	37.25	2.149	0.987	33	6.31	1.021	40.2	Infin	0.871	1.348	NonLiq
33	37.75	2.179	1.001	33	6.31	1.021	40.2	Infin	0.867	1.340	NonLiq
34	38.25	2.208	1.015	15	~	~	~	~	~	~	~~
34	38.75	2.237	1.028	15	~	~	~	~	~	~	~~
34	39.25	2.266	1.041	15	~	~	~	~	~	~	~~
35	39.75	2.295	1.055	46	13.94	0.995	59.4	Infin	0.851	1.315	NonLiq
36	40.25	2.324	1.069	18	~	~	~	~	~	~	~~
36	40.75	2.353	1.082	18	~	~	~	~	~	~	~~
36	41.25	2.382	1.095	18	~	~	~	~	~	~	~~
36	41.75	2.411	1.108	18	~	~	~	~	~	~	~~
36	42.25	2.439	1.121	18	~	~	~	~	~	~	~~
37	42.75	2.469	1.135	48	7.21	0.953	52.5	Infin	0.826	1.277	NonLiq
37	43.25	2.499	1.149	48	7.21	0.953	52.5	Infin	0.822	1.270	NonLiq

File Name: 4110VsC2.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
38	43.75	2.528	1.163	37	~	~	~	~	~	~	~~
39	44.25	2.557	1.176	23	~	~	~	~	~	~	~~
39	44.75	2.586	1.189	23	~	~	~	~	~	~	~~
39	45.25	2.614	1.203	23	~	~	~	~	~	~	~~
39	45.75	2.643	1.216	23	~	~	~	~	~	~	~~
39	46.25	2.672	1.229	23	~	~	~	~	~	~	~~
40	46.75	2.701	1.243	26	5.50	0.911	29.3	0.389	0.794	1.226	0.35
40	47.25	2.731	1.257	26	5.50	0.911	29.3	0.389	0.789	1.219	0.35
41	47.75	2.761	1.271	18	~	~	~	~	~	~	~~
41	48.25	2.789	1.284	18	~	~	~	~	~	~	~~
41	48.75	2.818	1.297	18	~	~	~	~	~	~	~~
41	49.25	2.847	1.310	18	~	~	~	~	~	~	~~
41	49.75	2.876	1.323	18	~	~	~	~	~	~	~~
41	50.25	2.904	1.337	18	~	~	~	~	~	~	~~
41	50.75	2.933	1.350	18	~	~	~	~	~	~	~~
41	51.25	2.962	1.363	18	~	~	~	~	~	~	~~
41	51.75	2.991	1.376	18	~	~	~	~	~	~	~~
41	52.25	3.019	1.389	18	~	~	~	~	~	~	~~
41	52.75	3.048	1.402	18	~	~	~	~	~	~	~~
41	53.25	3.077	1.415	18	~	~	~	~	~	~	~~

0.0

5.5	89.8	1	120	40	0.000	2.75
7.5	17.8	0	115	60	0.000	6.75
8.0	5.7	1	100	60	0.000	7.75
8.5	11.0	0	115	60	0.000	8.25
9.0	42.0	1	120	20	0.000	8.75
9.5	13.5	0	115	60	0.000	9.25
11.0	8.5	0	115	60	0.000	10.25
16.5	10.6	0	115	60	0.000	13.75
17.5	15.7	1	120	20	0.000	17.25
21.0	13.7	0	115	60	0.000	19.25
23.5	32.6	1	120	20	0.000	22.25
24.5	15.0	0	115	60	0.000	24.25
25.0	21.0	1	120	20	0.000	24.75
25.5	25.3	0	115	60	0.000	25.25
26.0	22.0	1	120	20	0.000	25.75
28.5	24.0	0	115	60	0.000	27.25
29.0	21.0	1	120	20	0.000	28.75
29.5	24.0	0	115	60	0.000	29.25
30.0	14.5	1	120	20	0.000	29.75
30.5	23.3	0	115	60	0.000	30.25
31.0	20.7	1	120	20	0.000	30.75
34.0	15.2	0	115	60	0.000	32.75
35.5	24.7	1	120	20	0.000	34.75
37.5	16.7	0	115	60	0.000	36.75
39.5	24.3	1	120	20	0.000	38.75
41.0	16.7	0	115	60	0.000	40.25
41.5	39.0	0	115	60	0.000	41.25
42.0	22.3	1	120	20	0.000	41.75
46.5	16.3	0	115	60	0.000	44.25
47.0	22.0	1	120	20	0.000	46.75
47.5	45.0	0	115	60	0.000	47.25
48.0	24.7	1	120	20	0.000	47.75
48.5	25.0	1	120	20	0.000	48.25
49.0	24.8	0	115	60	0.000	48.75
49.5	17.0	1	120	20	0.000	49.25
50.0	21.0	1	120	20	0.000	49.75

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*                           *
*      L I Q U E F Y 2      *
*                           *
*       Version 1.50        *
*                           *
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EMPIRICAL PREDICTION OF
EARTHQUAKE-INDUCED LIQUEFACTION POTENTIAL

JOB NUMBER: 14026-2 DATE: 11-18-2014

JOB NAME: 4110 Via Real, CPT-3 (Simplified Strata)

SOIL-PROFILE NAME: 4110VsC3.LDW

BORING GROUNDWATER DEPTH: 0.00 ft

CALCULATION GROUNDWATER DEPTH: 0.00 ft

DESIGN EARTHQUAKE MAGNITUDE: 7.22 Mw

SITE PEAK GROUND ACCELERATION: 1.093 g

BOREHOLE DIAMETER CORRECTION FACTOR: 1.00

SAMPLER SIZE CORRECTION FACTOR: 1.00

N60 HAMMER CORRECTION FACTOR: 1.00

MAGNITUDE SCALING FACTOR METHOD: Idriss (1997, in press)

Magnitude Scaling Factor: 1.102

rd-CORRECTION METHOD: NCEER (1997)

FIELD SPT N-VALUES ARE CORRECTED FOR THE LENGTH OF THE DRIVE RODS.

Rod Stick-Up Above Ground: 3.0 ft

CN NORMALIZATION FACTOR: 1.044 tsf

MINIMUM CN VALUE: 0.6

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY — PAGE 1

File Name: 4110VsC3.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
1	0.25	0.015	0.007	90	31.52	2.000	166.2	Infin	0.999	1.479	NonLiq
1	0.75	0.045	0.022	90	31.52	2.000	166.2	Infin	0.998	1.478	NonLiq
1	1.25	0.075	0.036	90	31.52	2.000	166.2	Infin	0.997	1.476	NonLiq
1	1.75	0.105	0.050	90	31.52	2.000	166.2	Infin	0.996	1.474	NonLiq
1	2.25	0.135	0.065	90	31.52	2.000	166.2	Infin	0.995	1.472	NonLiq
1	2.75	0.165	0.079	90	31.52	2.000	166.2	Infin	0.994	1.471	NonLiq
1	3.25	0.195	0.094	90	31.52	2.000	166.2	Infin	0.992	1.469	NonLiq
1	3.75	0.225	0.108	90	31.52	2.000	166.2	Infin	0.991	1.467	NonLiq
1	4.25	0.255	0.122	90	31.52	2.000	166.2	Infin	0.990	1.465	NonLiq
1	4.75	0.285	0.137	90	31.52	2.000	166.2	Infin	0.989	1.464	NonLiq
1	5.25	0.315	0.151	90	31.52	2.000	166.2	Infin	0.988	1.462	NonLiq
2	5.75	0.344	0.165	18	~	~	~	~	~	~	~~
2	6.25	0.373	0.178	18	~	~	~	~	~	~	~~
2	6.75	0.402	0.191	18	~	~	~	~	~	~	~~
2	7.25	0.431	0.204	18	~	~	~	~	~	~	~~
3	7.75	0.458	0.216	6	6.66	2.000	15.2	0.166	0.982	1.480	0.12
4	8.25	0.484	0.227	11	~	~	~	~	~	~	~~
5	8.75	0.514	0.241	42	8.62	2.000	71.6	Infin	0.980	1.485	NonLiq
6	9.25	0.543	0.255	14	~	~	~	~	~	~	~~
7	9.75	0.572	0.268	9	~	~	~	~	~	~	~~
7	10.25	0.601	0.281	9	~	~	~	~	~	~	~~
7	10.75	0.629	0.294	9	~	~	~	~	~	~	~~
8	11.25	0.658	0.307	11	~	~	~	~	~	~	~~
8	11.75	0.687	0.320	11	~	~	~	~	~	~	~~
8	12.25	0.716	0.333	11	~	~	~	~	~	~	~~
8	12.75	0.744	0.347	11	~	~	~	~	~	~	~~
8	13.25	0.773	0.360	11	~	~	~	~	~	~	~~
8	13.75	0.802	0.373	11	~	~	~	~	~	~	~~
8	14.25	0.831	0.386	11	~	~	~	~	~	~	~~
8	14.75	0.859	0.399	11	~	~	~	~	~	~	~~
8	15.25	0.888	0.412	11	~	~	~	~	~	~	~~
8	15.75	0.917	0.425	11	~	~	~	~	~	~	~~
8	16.25	0.946	0.439	11	~	~	~	~	~	~	~~
9	16.75	0.975	0.452	16	5.29	1.495	26.4	0.311	0.961	1.471	0.23
9	17.25	1.005	0.467	16	5.29	1.495	26.4	0.311	0.960	1.468	0.23
10	17.75	1.034	0.481	14	~	~	~	~	~	~	~~
10	18.25	1.063	0.494	14	~	~	~	~	~	~	~~
10	18.75	1.092	0.507	14	~	~	~	~	~	~	~~
10	19.25	1.121	0.520	14	~	~	~	~	~	~	~~
10	19.75	1.149	0.533	14	~	~	~	~	~	~	~~
10	20.25	1.178	0.546	14	~	~	~	~	~	~	~~
10	20.75	1.207	0.559	14	~	~	~	~	~	~	~~
11	21.25	1.236	0.573	33	6.88	1.317	48.0	Infin	0.950	1.456	NonLiq

File Name: 4110VsC3.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
11	21.75	1.266	0.588	33	6.88	1.317	48.0	Infin	0.949	1.453	NonLiq
11	22.25	1.296	0.602	33	6.88	1.317	48.0	Infin	0.948	1.450	NonLiq
11	22.75	1.326	0.616	33	6.88	1.317	48.0	Infin	0.947	1.447	NonLiq
11	23.25	1.356	0.631	33	6.88	1.317	48.0	Infin	0.946	1.445	NonLiq
12	23.75	1.386	0.645	15	~	~	~	~	~	~	~~
12	24.25	1.414	0.658	15	~	~	~	~	~	~	~~
13	24.75	1.444	0.672	21	5.66	1.247	31.4	Infin	0.942	1.439	NonLiq
14	25.25	1.473	0.685	25	~	~	~	~	~	~	~~
15	25.75	1.503	0.699	22	5.73	1.222	32.3	Infin	0.940	1.435	NonLiq
16	26.25	1.532	0.713	24	~	~	~	~	~	~	~~
16	26.75	1.561	0.726	24	~	~	~	~	~	~	~~
16	27.25	1.589	0.739	24	~	~	~	~	~	~	~~
16	27.75	1.618	0.752	24	~	~	~	~	~	~	~~
16	28.25	1.647	0.765	24	~	~	~	~	~	~	~~
17	28.75	1.676	0.779	21	5.55	1.157	29.9	0.462	0.933	1.426	0.36
18	29.25	1.706	0.793	24	~	~	~	~	~	~	~~
19	29.75	1.735	0.807	15	4.93	1.138	21.4	0.235	0.931	1.422	0.18
20	30.25	1.764	0.821	23	~	~	~	~	~	~	~~
21	30.75	1.794	0.834	21	5.45	1.119	28.6	0.369	0.924	1.411	0.29
22	31.25	1.823	0.848	15	~	~	~	~	~	~	~~
22	31.75	1.852	0.861	15	~	~	~	~	~	~	~~
22	32.25	1.881	0.874	15	~	~	~	~	~	~	~~
22	32.75	1.909	0.888	15	~	~	~	~	~	~	~~
22	33.25	1.938	0.901	15	~	~	~	~	~	~	~~
22	33.75	1.967	0.914	15	~	~	~	~	~	~	~~
23	34.25	1.996	0.928	25	5.68	1.053	31.7	Infin	0.895	1.369	NonLiq
23	34.75	2.026	0.942	25	5.68	1.053	31.7	Infin	0.891	1.362	NonLiq
23	35.25	2.056	0.956	25	5.68	1.053	31.7	Infin	0.887	1.355	NonLiq
24	35.75	2.086	0.970	17	~	~	~	~	~	~	~~
24	36.25	2.114	0.983	17	~	~	~	~	~	~	~~
24	36.75	2.143	0.997	17	~	~	~	~	~	~	~~
24	37.25	2.172	1.010	17	~	~	~	~	~	~	~~
25	37.75	2.201	1.023	24	5.54	0.996	29.7	0.442	0.867	1.324	0.37
25	38.25	2.231	1.038	24	5.54	0.996	29.7	0.442	0.863	1.318	0.37
25	38.75	2.261	1.052	24	5.54	0.996	29.7	0.442	0.859	1.311	0.37
25	39.25	2.291	1.067	24	5.54	0.996	29.7	0.442	0.855	1.304	0.37
26	39.75	2.321	1.080	17	~	~	~	~	~	~	~~
26	40.25	2.349	1.094	17	~	~	~	~	~	~	~~
26	40.75	2.378	1.107	17	~	~	~	~	~	~	~~
27	41.25	2.407	1.120	39	~	~	~	~	~	~	~~
28	41.75	2.436	1.134	22	5.31	0.960	26.7	0.313	0.834	1.274	0.27
29	42.25	2.466	1.147	16	~	~	~	~	~	~	~~
29	42.75	2.494	1.161	16	~	~	~	~	~	~	~~
29	43.25	2.523	1.174	16	~	~	~	~	~	~	~~

File Name: 4110VsC3.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
29	43.75	2.552	1.187	16	~	~	~	~	~	~	~~
29	44.25	2.581	1.200	16	~	~	~	~	~	~	~~
29	44.75	2.609	1.213	16	~	~	~	~	~	~	~~
29	45.25	2.638	1.226	16	~	~	~	~	~	~	~~
29	45.75	2.667	1.239	16	~	~	~	~	~	~	~~
29	46.25	2.696	1.253	16	~	~	~	~	~	~	~~
30	46.75	2.725	1.266	22	5.20	0.908	25.2	0.279	0.794	1.213	0.25
31	47.25	2.754	1.280	45	~	~	~	~	~	~	~~
32	47.75	2.784	1.294	25	5.38	0.898	27.6	0.325	0.785	1.200	0.30
33	48.25	2.814	1.308	25	5.39	0.893	27.7	0.329	0.781	1.194	0.30
34	48.75	2.843	1.322	25	~	~	~	~	~	~	~~
35	49.25	2.872	1.336	17	4.81	0.884	19.8	0.207	0.773	1.181	0.19
36	49.75	2.902	1.350	21	5.08	0.879	23.5	0.252	0.769	1.175	0.24

APPENDIX F

Via Real Hotel 4110 Via Real, Carpinteria, Preliminary Drainage Report

Evaluation of BMPs and Drainage Improvements at 4110 Via Real in Carpinteria



Prepared for:
nKLOSURES, Inc.

Prepared by:
Craig A. Steward, P.E., CFM

October 25, 2016
(Revised March 10, 2017)

Sign-off Sheet

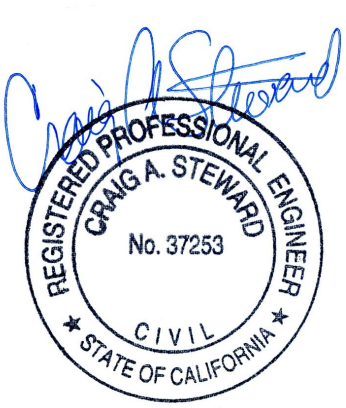
This document entitled Via Real Hotels 4110 Via Real, Carpinteria, Preliminary Drainage Report was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of nKLOSURES, Inc. (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____
(signature)

Craig A. Steward, P.E., CFM

Reviewed by _____
(signature)

Stephen C. Wang, P.E., LEED AP, QSD/P



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Attachments

Stormwater Control Plan Exhibit

Stormwater Control Measures Sizing Calculator (submit Excel file)

Appendices

This Stormwater Control Plan was prepared using the template dated 18 February 2014.

I. Project Data

Table 1. Project Data

Project Name/Number	Via Real Hotel
Application Submittal Date	September 6, 2016
Project Location	4110 Via Real, Carpinteria, CA 93013
Project Phase No.	NA
Project Type and Description	2-story hotel building surrounded by paved parking
Total Project Site Area (acres)	2.61 acres
Total New Impervious Surface Area	0.92 acres
Total Replaced Impervious Surface Area	0.75 acres
Total Pre-Project Impervious Surface Area	0.75 acres
Total Post-Project Impervious Surface Area	1. 68 acres
Net Impervious Area	NA (Tier 3)
Watershed Management Zone(s)	1
Design Storm Frequency and Depth	25-year rainfall event
Urban Sustainability Area	No Applicable

II. Setting

II.A. Project Location and Description

The project is located at 4110 Via Real (APN 004-017-022) in the City of Carpinteria. It is situated north of Via Real approximately 1,500 feet east of Craven Lane. See Figure A.

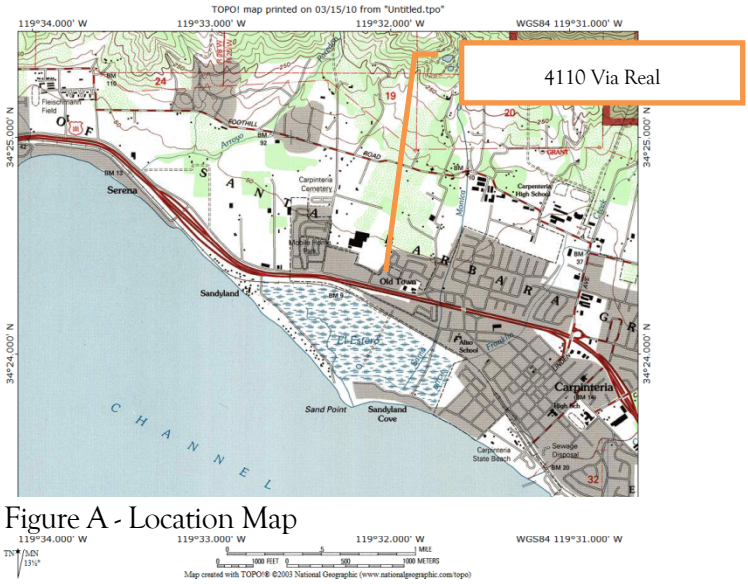

Figure A - Location Map

II.B. Existing Site Features and Conditions

The existing condition of the site is a large church building with parking. It slopes gently to the southwest and southeast at a 0.5 percent slope. The existing site has Hydrologic Soils Group Type C soils per Natural Resources Conservation Service (NRCS) Web Soil Survey and Geotechnical Report, Pacific Material Laboratory, Inc., dated October 23, 2014.

The proposed project is a 2-story hotel building surrounded by paved parking and landscaping. The lot is situated north of Via Real. The groundwater depth below natural ground at the site is 8 to 10 feet. Agricultural fields to the north and the project site drain to an existing headwall and a 36" diameter storm drain that cross under Via Real and US 101 to the south. See the Grading and Drainage Plan (Sheets C3 and C4).

The project site is located within flood Zone A as shown on the Flood Insurance Rate Map for the area[1].

The 100-year flood elevation (BFE) for the site was determined based on the Casas De Las Flores project (4096 Via Real), that was recently constructed, to be elevation 13.04 feet (NAVD1988). In accordance with standard practice, the finish floor of the structures should be elevated to two (2) feet above the BFE. Therefore, the building finish floor should be elevated to a minimum elevation of 15.04 feet (NAVD1988). We have set the finish floor at 17.0 feet based on the flood elevation and earthwork to provide a balanced site.

II.C. Opportunities and Constraints for Stormwater Control

The existing site has a couple of constraints that were considered within the project design for stormwater control. The existing site receives runoff from the northerly adjacent property via an existing vegetated swale along the northerly and western sides of the property. The entire site is sloped from the north to the south, so all the proposed runoff from the site will collect along the southern edge of the property (north of Via Real) prior to outletting through an existing culvert under Via Real and US101.

[1] FIRM Panel 06083C1420G, December 4, 2012.

With the site sloping from north to south, the drainage runoff collects along the southern edge of the property and makes an ideal location to place a stormwater treatment swale similar to the recently constructed Casas De Las Flores project to the west. The collection of the existing northerly run-on drainage will be handled by an inlet structure at the northwest and transport the runoff along the western property line to the existing drainage pipe under Via Real and US 101.

III. Low Impact Development Design Strategies

III.A. Optimization of Site Layout

III.A.1. Limitation of development envelope

The development is being limited by the necessity of providing areas to treat and retain the stormwater runoff by means of a treatment swale along the southerly boundary, high groundwater, and preservation of historic drainage patterns.

III.A.2. Preservation of natural drainage features

The drainage runoff from the northerly adjacent properties is currently draining along the western side of the property in a drainage swale. The drainage swale along the western side of the property is being collected at the northwest corner of the site and transported via pipe to the existing southern drop inlet at Via Real to preserve the historic runoff from the adjacent properties through the proposed project site and to prevent comingling of off-site, untreated stormwater.

III.A.3. Setbacks from creeks, wetlands, and riparian habitats

There are no setbacks from creeks, wetlands, or riparian habitats that affect the layout of this project.

III.A.4. Minimization of imperviousness

The project utilizes porous pavement within the northwesterly parking lot to reduce the amount of impervious material.

III.A.5. Use of drainage as a design element

Drainage runoff from the site is transported via surface runoff and storm drain piping to a stormwater treatment swale along the southern property line. The vegetated stormwater treatment will act as an aesthetic feature at the entry to the property.

III.B. Use of Permeable Pavements

The project utilizes porous asphalt concrete pavement at various location on the site to allow infiltration of the parking areas, treat stormwater, and minimize runoff.

III.C. Dispersal of Runoff to Pervious Areas

Much of the roof water is discharged to bioretention devices. The remaining drainage runoff from the site is collected through a storm drain system that runs along the eastern and western sides of the project site and daylights into a proposed stormwater

treatment swale. The vegetated treatment swale will allow minor infiltration and stormwater treatment during a rainfall event.

III.D. Storm water Control Measures

- Bioretention of roof water
- Porous Asphalt
- Direct infiltration through underground chambers
- Treatment swale

IV. Documentation of Drainage Design

IV.A. Descriptions of each Drainage Management Area

IV.A.1. Table of Drainage Management Areas

DMA Name	Surface Type	Area sf
A-1	Pervious Pavement	9,182
B-1	Pervious Pavement	811
C-1	Pervious Pavement	938
D-1	Roof	6,882
	Bioretention	1,716
E-1	Pervious Pavement	3,128
	Walkway	1,159
	Landscaping	418
F-1	Pervious Pavement	641
G-1	Walkway	199
	Pervious Pavement	479
H-1	Walkway	283
	Pervious Pavement	1,122
	Landscaping	438
I-1	Walkway	144
	Landscaping	470
	Pervious Pavement	620
J-1	Walkway	218
	Landscaping	336
	Pervious Pavement	635
K-1	Roof	8,263
	Bioretention	1,213
L-1	Roof	10,177
	Bioretention	1,117
	Walkway	1,843
M-1	Walkways/paving	3,081

DMA Name	Surface Type	Area sf
	Landscaping	13,696
N-1	Landscaping	810
	Pervious Pavement	2,515
O-1	Landscaping	4,390
	Paving	15,158
P-1	Paving	10,918
	Landscaping	1,121
Q-1	Paving	8,304
	Landscaping	202
Z-1	Paving	1,085
	Landscaping	104
Total		113,846

Table 2. Drainage Management Areas

IV.A.2. Drainage Management Area Descriptions

DMA A-1, totaling 9,182 square feet accepts the stormwater that falls on it to SCM A-1 which consists of porous paving.

DMA B-1, totaling 811 square feet accepts the stormwater that falls on it to SCM B-1 which consists of porous paving.

DMA C-1, totaling 938 square feet accepts the stormwater that falls on it to SCM C-1 which consists of porous paving.

DMA D-1, totaling 8,598 square feet accepts the stormwater that falls on a portion of the roof and the below grade bioretention planter (SCM D-1) which consists of planter/filter mix underlain by gravel. An overflow pipe will discharge to the parking lot. A deepened building footing or other measure should be evaluated by the structural engineer.

DMA E-1, totaling 4,735 square feet accepts the stormwater that falls on it and from 418 square feet of walkway. Stormwater discharges to SCM E-1 which consists of porous paving.

DMA F-1, totaling 641 square feet accepts the stormwater that falls on it to SCM F-1 which consists of porous paving.

DMA G-1, totaling 678 square feet accepts the stormwater that falls on it and from 199 square feet of walkway. Stormwater discharges to SCM G-1 which consists of porous paving.

DMA H-1, totaling 1,843 square feet accepts the stormwater that falls on it and from 283 square feet of walkway. Stormwater discharges to SCM H-1 which consists of porous paving.

DMA I-1, totaling 1,234 square feet accepts the stormwater that falls on it, from 144 square feet of walkway, and 470 square feet of landscaping. Stormwater discharges to SCM I-1 which consists of porous paving.

DMA J-1, totaling 1,189 square feet accepts the stormwater that falls on it, from 218 square feet of walkway, and 336 square feet of landscaping. Stormwater discharges to SCM J-1 which consists of porous paving.

DMA K-1, totaling 9,476 square feet accepts the stormwater that falls on a portion of the roof and the below grade bioretention planter (SCM K-1) which consists of planter/filter mix underlain by gravel. An overflow pipe will discharge to the parking lot. A deepened building footing or other measure should be evaluated by the structural engineer.

DMA L-1, totaling 13,137 square feet accepts the stormwater that falls on a portion of the roof and the below grade bioretention planter (SCM L-1) which consists of planter/filter mix underlain by gravel. An overflow pipe will discharge to the adjacent treatment swale. A deepened building footing or other measure should be evaluated by the structural engineer.

DMA M-1 totaling 16,777 square feet, drains the southerly portion of the site which is mainly landscaping with a few pathways. It also receives overflow drainage from the remainder of the site and passes it through a vegetated filter swale prior to discharging from the project site.

DMA N-1, totaling 3,325 square feet accepts the stormwater that falls on it to SCM N-1 which consists of porous paving.

DMA O-1 totaling 19,548 square feet, drains predominantly paved driving areas with some landscaping. DMA O-1 drains to SCM O-1 which consists of underground infiltration chambers which will be located below DMA A-1.

DMA P-1 totaling 12,039 square feet, drains predominantly paved driving areas with some landscaping. DMA P-1 drains to SCM P-1 which consists of underground infiltration chambers which will be located below the driveway aisle on the easterly side of the project.

DMA Q-1 totaling 8,506 square feet, drains predominantly paved driving areas with some landscaping. DMA P-1 drains to SCM Q-1 which consists of underground infiltration chambers which will be located below the driveway aisle on the westerly side of the project.

DMA Z-1 totaling 1,189 square feet, drains a small area at the southeast corner of the project that cannot be drained and treated. DMA Z-1 drains to Via Real without treatment.

IV.B. Tabulation and Sizing Calculations

IV.B.1. Information Summary for LID Facility Design

Table 3. Summary of LID Facility Design

Total Project Area (Square Feet)	113,846 square feet
Design Storm Depth	2"
Applicable Requirements	Tier 3

IV.B.2. Self-Treating Areas

Most areas that are self-treating do so by retaining and infiltrating stormwater into an appropriate SCM and are described in Table 5. Area M-1 is self-treating via a treatment swale. Design calculations verifying the design parameters is attached.

Table 4. Self-Treating Areas

DMA Name	Area (square feet)
M-1	16,757

IV.B.3. Self-Retaining Areas

This project provides the following self-retaining treatment approaches:

- Bioretention
- Porous asphalt pavement
- Direct infiltration through chambered infiltration galleries.

All self-retaining BMPs are sized to retain the 95th percentile runoff volume.

Table 5. Self-Retaining Areas

DMA Name	Area (square feet)
A-1	9,182
B-1	811
C-1	938
D-1	1,716 (bioretention)
E-1	3,158
F-1	641
G-1	479
H-1	1,122
I-1	620
J-1	635
K-1	1,213 (bioretention)
L-1	1,117 (bioretention)
N-1	2,515
O-1	NA (chambers)
P-1	NA (chambers)
Q-1	NA (chambers)

IV.B.4. Areas Draining to Self-Retaining Areas

Table 6. Areas Draining to Self-Retaining Areas

DMA Name	Area (square feet)	Post-project surface type[1]	Runoff factor	Product (Area x runoff factor)[A]	Receiving self-retaining DMA	Receiving self-retaining DMA Area (square feet) [B]	Ratio [A]/[B]
A-1	9182	PAC	0	0	A-1	9182	0
B-1	811	PAC	0	0	A-1	811	0
C-1	938	PAC	0	0	C-1	938	0
E-1	3158 418	PAC Walkway	0 1	0 418	E-1	3158 0	0.13
F-1	641	PAC	0	0	F-1	641	0
G-1	479 199	PAC Walkway	0 1	0 199	G-1	479 0	0.4
I-1	144 470 620	Walkway L PAC	1 0.1 0	172 44 0	I-1	620	0.4
J-1	218 336 635	Walkway L PAC	1 0.1 0	214 36 0	J-1	635	0.4
N-1	810 2515	L PAC	0.1 0	81 0	N-1	2515	0.03
O-1[2]	NA						
P-1[2]	NA						

Q-1	NA						

Notes:

1. PAC = Porous Asphaltic Concrete, BR – Bioretention, L = Landscaping, NA = Not applicable
2. See description of stormwater chamber requirements below.

Storm water galleries will consist of subsurface excavations into which have been constructed man-made chambers specifically designed for infiltration of stormwater. The system will provide pre-treatment for stormwater which may consist of the initial row of treatment chambers being constructed lower than the rest to trap sediment and other pollutants. The treatment chamber shall include inspection and maintenance ports to allow for cleaning and removal of pollutants. The stormwater chamber SCMs shall be designed to accept and infiltrate the 95th percentile storm volume. The specific brand, model, and style of chamber will be determined at time of final design.

IV.B.5. Areas Draining to Bioretention Facilities (Tier 2 Projects)

Table 7. Areas Draining to Bioretention Facilities

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	SCM Name		
					D-1		
D-1	6882	Roof	1.0	6882			
D-1	1716	L	0.1	172	SCM Sizing factor	Minimum SCM Size	Proposed SCM Size
Total>				7054	0.04	282	1716
DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	SCM Name		
					K-1		
K-1	8263	Roof	1.0	8263			
K-1	1213	L	0.1	121	SCM Sizing factor	Minimum SCM Size	Proposed SCM Size

Total>				8384	0.04	335	1213
DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	SCM Name		
					L-1		
L-1	10177	Roof	1.0	10177	SCM Sizing factor	Minimum SCM Size	Proposed SCM Size
L-1	1117	L	0.1	112			
Total>				10289	0.04	412	1117

V. Source Control Measures

V.A. Site activities and potential sources of pollutants

V.B. Source Control Table

Table 8. Project Source Controls

Potential source of runoff pollutants	Permanent source control BMPs	Operational source control BMPs
On-site storm drain inlets (unauthorized spills and leaks)	Mark all inlets: "No Dumping! Flows to Ocean."	Inspect inlets annually at in November. Maintain and replace inlet markings as needed. Remove silt and trash from inlets. Check inspection ports on infiltration devices. Service as necessary.
Elevator shaft sump pump	Connect elevator drain to sanitary sewer system	Inspect inlets annually at in November. Remove silt and trash from inlets.
Landscape/ Outdoor Pesticide Use/Building and Grounds Maintenance	Final landscape plans will indicate the following: Chemicals, fertilizers, pesticides and herbicides should be stored in a safe manner away from contact with stormwater and in a manner that contains spills. Appropriate plants should be maintained in the bioretention basins. Mulch should be removed and replaced on alternate years in the bioretention basins. Plants in the treatment swale area should be tolerant of saturated soil conditions.	Maintain landscaping using minimum or no pesticides.

Trash Enclosure	Architectural plans will shown trash enclosure to be covered to prevent contact with stormwater Signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	Operator will be provided with instructions to: 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.

V.C. Features, Materials, and Methods of Construction of Source Control BMPs

The Source Control BMPs on this project site can be constructed with grading operations and excavation. The porous asphalt pavement will be graded with a special structural section that allows infiltration through the material and into the ground. The stormwater treatment basin will be excavated and the outlet control structure will be constructed at the entrance to the existing drainage outlet.

VI. Stormwater Facility Maintenance

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

The Property Owner shall execute a Storm Water Maintenance Plan (SWMP) with the City of Carpinteria to maintain the proposed Best Management Practices designed for the project site. The Owner shall accept all responsibility for the operation and maintenance of the facilities until such time the property and/or responsibility is formally transferred.

VI.B. Summary of Maintenance Requirements for Each Stormwater Facility

Bioretention SCMs will be inspected at least semi-annually to verify that plantings are growing and healthy. They shall be maintained frequently, removing litter. Inspection ports shall be inspected 24 hours after significant rainfall to verify that infiltration is occurring. Remediation will be scheduled if standing water is noted in the inspection port 72 hours after significant rainfall.

Porous Paving SCMs shall be swept and vacuumed at least quarterly. Normal pavement maintenance/replacement shall ensure that the pavement remains porous. Inspection ports shall be inspected 24 hours after significant rainfall to verify that infiltration is occurring. Remediation will be scheduled if standing water is noted in the inspection port 72 hours after significant rainfall.

Infiltration gallery Inspection ports shall be inspected 24 hours after significant rainfall to verify that infiltration is occurring. Remediation will be scheduled if standing water is noted in the inspection port 72 hours after significant rainfall.

Stormwater Treatment Swale (SCM M-1) – The stormwater treatment swale shall be maintained by on-site grounds crews and landscapers. The basin shall be reviewed on a continuous schedule to prevent overgrowth of the landscaping and allow the drainage runoff to be treated and flow through the basin. Excessive sediment shall be removed as required to allow flow through the swale.

VII. Construction Checklist

Table 9. Construction Checklist

Stormwater Control Plan Page #	BMP Description	See Plan Sheet #s
4-8, 10, 12, 13	Bioretention	C3
3-7, 9, 10, 13, 14	Porous Asphalt Pavement	C3, C4
4, 6-8, 10	Infiltration Gallery	C3
	Stormwater Treatment Swale	C3

VIII. Certifications

The preliminary design of stormwater treatment facilities and other stormwater pollution control measures in this plan are in accordance with the current edition of the Santa Barbara County Project Clean Water's Stormwater Technical Guide.



LEGEND

SCM LOCATION

- POROUS ASPHALT CONCRETE
- BIORETENTION BASIN
- TREATMENT SWALE
- INFILTRATION GALLERY
- LANDSCAPING
- DMA EXTENT
- L-1 DMA NAME AND ASSOCIATED SCM
- SITE WALL
- SD STORM DRAIN PIPE
- FLOW LINE
- CATCH BASIN

AC ASPHALT CONCRETE
FL FLOWLINE
FS FINISH SURFACE
GB GRADE BREAK
INV INVERT ELEVATION
PD PERFORATED DRAIN

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RAM HOTELS

P.O.BOX 52098
AMARILLO, TX 79159

VIA REAL HOTELS

4110 VIA REAL, CARPINTERIA
SEPTEMBER 6, 2016

REGISTERED PROFESSIONAL ENGINEER
WAYNE F. PITCH
NO 60864
CIVIL
STATE OF CALIFORNIA

STORM WATER QUALITY PLAN BASED ON PRELIMINARY GRADING AND DRAINAGE PLAN

C3

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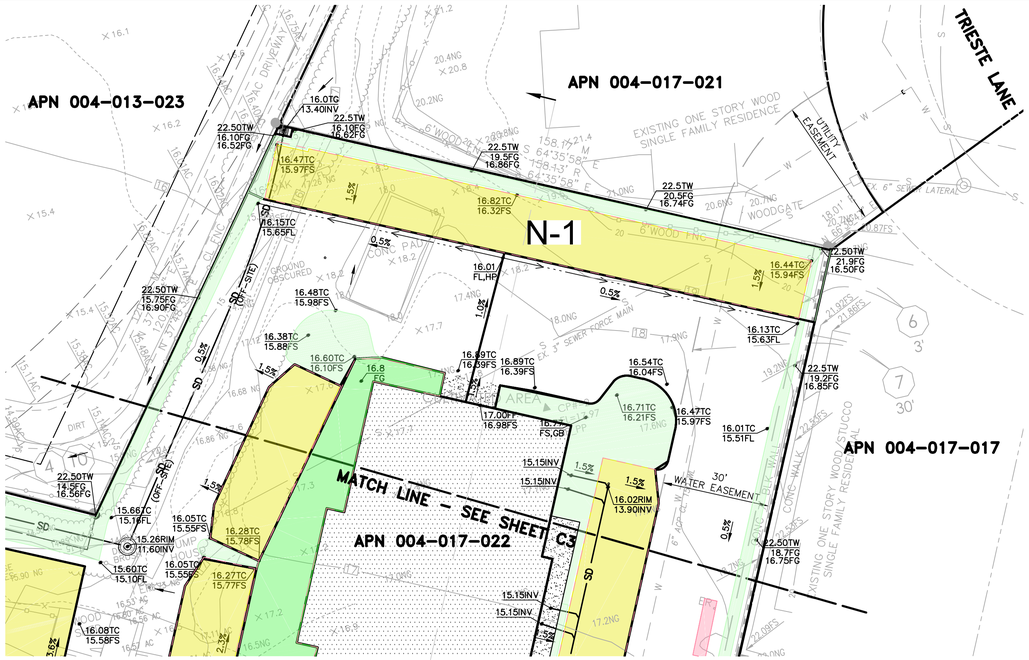

LEGEND

SCM LOCATION

- POROUS ASPHALT CONCRETE
- BIORETENTION BASIN
- TREATMENT SWALE
- INFILTRATION GALLERY
- LANDSCAPING
- DMA EXTENT
- L-1 DMA NAME AND ASSOCIATED SCM

- SITE WALL
- SD STORM DRAIN PIPE
- FLOW LINE
- CATCH BASIN

AC	ASPHALT CONCRETE
FL	FLOWLINE
FS	FINISH SURFACE
GB	GRADE BREAK
INV	INVERT ELEVATION
PD	PERFORATED DRAIN

N

SCALE: 1"=20'

0 20 40 60

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SEPTEMBER 6, 2016

REGISTERED PROFESSIONAL ENGINEER
WAYNE F. FITCH
NO 60864
CIVIL
STATE OF CALIFORNIA

STORM WATER QUALITY PLAN BASED ON PRELIMINARY GRADING AND DRAINAGE PLAN

C4

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Central Coast Region Stormwater Control Measure Sizing Calculator

Version: 2/26/2014

1. Project Information

Project name:	Via Real Hotel
Project location:	4110 Via Real, Carpinteria, CA
Tier 2/Tier 3:	Tier 3 - Retention
Design rainfall depth (in):	2.0
Total project area (ft2):	113846
Total new impervious area (ft2):	40380
Total replaced impervious in a USA (ft2):	
Total replaced impervious not in a USA (ft2):	32670
Total pervious/landscape area (ft2):	40796

2. DMA Characterization

Name	DMA Type	Area (ft2)	Surface Type	New, Replaced?	Connection
A-1	Drains to SCM	9182	Porous asphalt	New	A-1
B-1	Drains to SCM	811	Porous asphalt	New	B-1
C-1	Drains to SCM	938	Porous asphalt	New	C-1
D-1	Drains to SCM	6882	Roof	New	D-1
D-1	Drains to SCM	1716	Landscape	New	D-1
E-1	Drains to SCM	3158	Porous asphalt	Replaced	E-1
E-1	Drains to SCM	418	Concrete or asphalt	New	E-1
F-1	Drains to SCM	641	Porous asphalt	New	F-1
G-1	Drains to SCM	199	Concrete or asphalt	Replaced	G-1
G-1	Drains to SCM	479	Porous asphalt	Replaced	G-1
H-1	Drains to SCM	283	Roof	New	H-1
H-1	Drains to SCM	1122	Porous asphalt	Replaced	H-1
I-1	Drains to SCM	144	Concrete or asphalt	New	I-1
I-1	Drains to SCM	470	Landscape	New	I-1
I-1	Drains to SCM	620	Porous asphalt	New	I-1
J-1	Drains to SCM	218	Concrete or asphalt	New	J-1
J-1	Drains to SCM	336	Landscape	New	J-1
J-1	Drains to SCM	635	Pervious concrete	New	J-1
K-1	Drains to SCM	8263	Roof	Replaced	K-1
K-1	Drains to SCM	1213	Landscape	Replaced	K-1
L-1	Drains to SCM	10177	Roof	Replaced	L-1
L-1	Drains to SCM	1117	Landscape	Replaced	L-1
N-1	Drains to SCM	810	Landscape	New	N-1
N-1	Drains to SCM	2515	Porous asphalt	Replaced	N-1
M-1	Self-Treating	22388			
A-1	Drains to SCM	2	Roof	New	A-1
B-1	Drains to SCM	2	Roof	New	B-1
C-1	Drains to SCM	2	Roof	New	C-1
F-1	Drains to SCM	2	roof	New	F-1
E-1	Drains to SCM	1159	Landscape	New	E-1
H-1	Drains to SCM	438	Landscape	New	H-1
L-1	Drains to SCM	1843	Concrete or asphalt	New	L-1

DMA Summary Area	
Total project impervious area (ft2):	28435
New impervious area (ft2):	9796
Replaced impervious within a USA (ft2):	0
Replaced impervious not in a USA (ft2):	18639

Total pervious/landscape area (ft2):	27360

3. SCM Characterization

Name	SCM Type	Safety Factor	SCM Soil Type	Infilt. Rate (in/hr)	Area (ft2)
D-1	Bioretention	1	HSG C/D	0.25	1716
E-1	Direct Infiltration	2	HSG C/D	0.25	3158
G-1	Direct Infiltration	2	HSG C/D	0.25	479
H-1	Direct Infiltration	2	HSG C/D	0.25	1122
I-1	Direct Infiltration	2	HSG C/D	0.25	620
J-1	Direct Infiltration	2	HSG C/D	0.25	635
K-1	Bioretention	1	HSG C/D	0.25	1213
L-1	Bioretention	1	HSG C/D	0.25	1117
N-1	Direct Infiltration	2	HSG C/D	0.25	2515
A-1	Direct Infiltration	2	HSG C/D	0.25	9182
B-1	Direct Infiltration	2	HSG C/D	0.25	811
C-1	Direct Infiltration	2	HSG C/D	0.25	938
F-1	Direct Infiltration	2	HSG C/D	0.25	641

4. Run SBUH Model

5. SCM Minimum Sizing Requirements

SCM Name	Min. Required Storage Vol. (ft3)	Depth Below Underdrain (ft)	Drain Time (hours)
D-1	628	0.91	16.6
E-1	202	0.16	0.0
G-1	34	0.17	0.0
H-1	84	0.19	0.0
I-1	45	0.18	0.0
J-1	53	0.21	0.0
K-1	360	0.74	12.6
L-1	729	1.63	31.3
N-1	131	0.13	0.0
A-1	475	0.13	0.0
B-1	42	0.13	0.0
C-1	49	0.13	0.0
F-1	33	0.13	0.0

6. Self-Retaining Area Sizing Checks

Self-Retaining DMA Name	Self-Retaining DMA Area (ft2)	Tributary DMA Name	Tributary DMA Area (ft2)	Tributary / SRA Area Ratio

HYDROLOGY

DMA Name	Surface Type	Area sf
A-1	Pervious Pavement	9,182
B-1	Pervious Pavement	811
C-1	Pervious Pavement	938
D-1	Roof	6,882
	Bioretention	1,716
E-1	Pervious Pavement	3,158
	Landscaping	1,159
	Walkway	418
F-1	Pervious Pavement	641
G-1	Walkway	199
	Pervious Pavement	479
H-1	Walkway	283
	Pervious Pavement	1,122
	Landscaping	438
I-1	Walkway	144
	Landscaping	470
	Pervious Pavement	620
J-1	Walkway	218
	Landscaping	336
	Pervious Pavement	635
K-1	Roof	8,263
	Bioretention	1,213
L-1	Roof	10,177
	Bioretention	1,117
	Walkway	1,843
M-1	Walkways/paving	3,081
	Landscaping	13,696
N-1	Landscaping	810
	Pervious Pavement	2,515
O-1	Landscaping	4,390
	Paving	15,158
P-1	Paving	10,918
	Landscaping	1,121
Q-1	Paving	8,304
	Landscaping	202
Z-1	Paving	1,085
	Landscaping	104
Total		113,846

WATER QUALITY REQUIREMENTS

Retain on Site the 95% volume 2.0 inch

Treat the 85% runoff 1.35 inch

Post-Project Peak Runoff shall be less than Pre-Project Peak runoff for 2, 5, 10, 25, 50, and 100 year events.

Site Area: 113,846 sf

Approach:

Drainage Management Areas have been delineated for the various cover types within the SCMs

Minimim SCM sizes have been assigned per the County work template.

A more rigorous analysis is then provided using HydroCAD for both retaining the 95 percentile volume and treating the 85 percentile runoff.

Due to high groundwater a Water
using a bioswale. The treatment design will be in accordance with the City of Santa Barbara criteria assuming a flow rate of 2 x the 85 percentile flow rate as indicated in the regulations.

Determine 95th Percentile Volume

From Hydrocad = 10,043 cf

Retention Capacity Provided In SCMs

SCM	Type	Calc'd Depth below Outlet	Min. Calc'd Volume	Design Volume Provided	Area Provided	Depth Provided
		ft	cf	cf	sf	ft
A-1	Porous AC	0.13	475	3,673	9,182	1
B-1	Porous AC	0.13	42	324	811	1
C-1	Porous AC	0.13	58	375	938	1
D-1	Bioretention	1.28	723	2,059	1,716	3
E-1	Porous AC	0.19	270	1,263	3,158	1
F-1	Porous AC	0.13	35	256	641	1
G-1	Porous AC	0.18	34	192	479	1
H-1	Porous AC	0.19	109	449	1,122	1
I-1	Porous AC	0.19	48	248	620	1
J-1	Porous AC	0.21	52	254	635	1
K-1	Bioretention	0.8	361	1,456	1,213	3
L-1	Bioretention	3.78	915	1,787	1,117	4
M-1	Bioswale	NA	NA	NA	NA	
N-1	Porous AC	0.13	131	1,006	2,515	1
O-1	Dir.Infiltration	NA	NA	1,254	NA	NA
P-1	Dir.Infiltration	NA	NA	652	NA	NA
Q-1	Dir.Infiltration	NA	NA		NA	NA
Total (Not accounting for infiltration)			3,253	15,248		

Comparison of Inflow Volumes

SCM	95% Inflow
	cf
A-1	686
B-1	61
C-1	83
D-1	1,147
E-1	411
F-1	50
G-1	65
H-1	166
I-1	101
J-1	130
K-1	1,257
L-1	1,891
M-1	1,302
N-1	219
O-1	328
P-1	745
Q-1	1,237
Z-1	164
Total	10,043
Outflow	1,466

Retained on site 8,577

Comparison of Peak Flow Rates

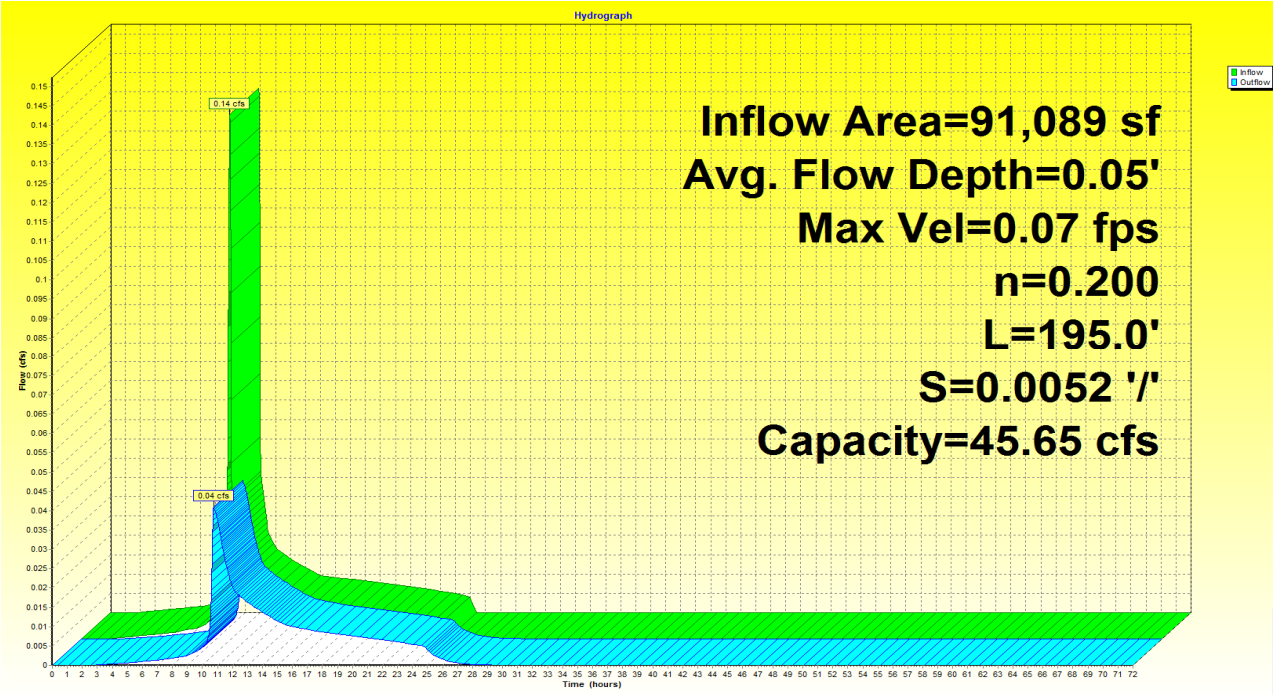
Return Period	$Q_{pre\text{-}project}$	$Q_{post\text{-}project}$	Difference
	cfs	cfs	cfs
2	5.35	0.37	-4.98
5	8.39	0.90	-7.49
10	10.43	1.97	-8.46
25	12.93	3.81	-9.12
50	14.75	4.91	-9.84
100	16.51	6.01	-10.50

Treatment

The entire site except for Areas M and Z provide treatment through infiltration.

Area Z cannot be feasibly treated. It comprises 1,171 square feet of the project total of 113,846 square feet (1 percent of site).

Area M cannot be treated through infiltration due to high groundwater. Therefore it is being treated using a biofiltration swale



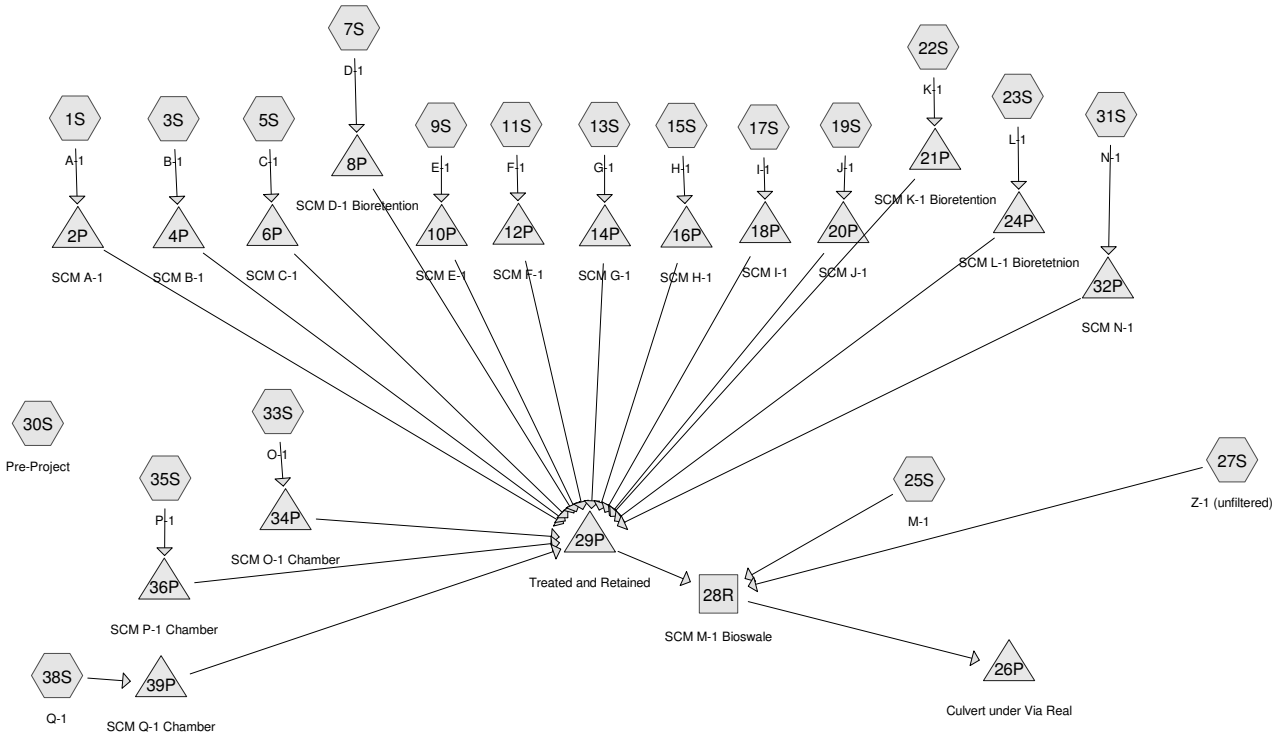
Design Criteria:

W_{bottom} =	10	ft
$S1_{slope}$ =	4:1	
$S2_{slope}$ =	vertical (wall)	
So =	0.005	ft/ft
n =	0.2	

Water Quality Performance Criteria
(reference: City of Santa Barbara Stormwater Guidance Manual)

$Length_{min}$ =	100	ft
V_{max} =	1	fps
$Depth_{max}$ =	0.333	ft
$T_{residence}$ =	10	minutes or greater

$Q_{85\%}$ =	0.14	cfs	
L =	196	ft	OK
V =	0.07	fps	OK
Depth =	0.05	ft	OK
$T_{residence}$ =	46.7	minutes	OK



Subcat Reach Pond Link

Routing Diagram for Post Project Via Real Oct16
Prepared by Stantec Consulting Ltd., Printed 10/24/2016
HydroCAD® 10.00-18 s/n 03040 © 2016 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
25,330	85	1/2 acre lots, 25% imp, HSG D (1S, 3S, 5S, 9S, 11S, 13S, 15S, 17S, 19S, 31S, 33S)
82,363	89	<50% Grass cover, Poor, HSG D (30S, 35S, 38S)
3,949	80	>75% Grass cover, Good, HSG D (7S, 22S, 23S, 31S)
13,800	84	Pasture/grassland/range, Fair, HSG D (25S, 27S)
36,101	98	Paved parking, HSG D (9S, 13S, 15S, 17S, 19S, 27S, 30S)
15,699	98	Paved roads w/curbs & sewers, HSG D (25S, 35S, 38S)
28,056	98	Roofs, HSG D (7S, 22S, 23S)
880	86	Woods/grass comb., Poor, HSG D (17S, 19S)
206,178	**91**	**TOTAL AREA**

Summary for Subcatchment 1S: A-1

Runoff = 0.04 cfs @ 9.97 hrs, Volume= 355 cf, Depth= 0.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
9,182	85	1/2 acre lots, 25% imp, HSG D
6,887	81	75.00% Pervious Area
2,296	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 3S: B-1

Runoff = 0.00 cfs @ 9.97 hrs, Volume= 31 cf, Depth= 0.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
811	85	1/2 acre lots, 25% imp, HSG D
608	81	75.00% Pervious Area
203	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 5S: C-1

Runoff = 0.01 cfs @ 9.97 hrs, Volume= 43 cf, Depth= 0.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
1,117	85	1/2 acre lots, 25% imp, HSG D
838	81	75.00% Pervious Area
279	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 7S: D-1

Runoff = 0.11 cfs @ 9.96 hrs, Volume= 715 cf, Depth= 0.98"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
7,310	98	Roofs, HSG D
1,408	80	>75% Grass cover, Good, HSG D
8,718	95	Weighted Average
1,408	80	16.15% Pervious Area
7,310	98	83.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 9S: E-1

Runoff = 0.03 cfs @ 9.97 hrs, Volume= 231 cf, Depth= 0.61"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
3,484	85	1/2 acre lots, 25% imp, HSG D
1,019	98	Paved parking, HSG D
4,503	88	Weighted Average
2,613	81	58.03% Pervious Area
1,890	98	41.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 11S: F-1

Runoff = 0.00 cfs @ 9.97 hrs, Volume= 26 cf, Depth= 0.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
673	85	1/2 acre lots, 25% imp, HSG D
505	81	75.00% Pervious Area
168	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 13S: G-1

Runoff = 0.01 cfs @ 9.97 hrs, Volume= 37 cf, Depth= 0.66"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
479	85	1/2 acre lots, 25% imp, HSG D
199	98	Paved parking, HSG D
678	89	Weighted Average
359	81	52.99% Pervious Area
319	98	47.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 15S: H-1

Runoff = 0.01 cfs @ 9.97 hrs, Volume= 93 cf, Depth= 0.61"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
1,424	85	1/2 acre lots, 25% imp, HSG D
403	98	Paved parking, HSG D
1,827	88	Weighted Average
1,068	81	58.46% Pervious Area
759	98	41.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 17S: I-1

Runoff = 0.01 cfs @ 9.97 hrs, Volume= 53 cf, Depth= 0.52"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
620	85	1/2 acre lots, 25% imp, HSG D
172	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,232	87	Weighted Average
905	83	73.46% Pervious Area
327	98	26.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 19S: J-1

Runoff = 0.01 cfs @ 9.97 hrs, Volume= 72 cf, Depth= 0.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
635	85	1/2 acre lots, 25% imp, HSG D
363	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,438	89	Weighted Average
916	83	63.72% Pervious Area
522	98	36.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 22S: K-1

Runoff = 0.12 cfs @ 9.96 hrs, Volume= 789 cf, Depth= 1.02"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
8,147	98	Roofs, HSG D
1,126	80	>75% Grass cover, Good, HSG D
9,273	96	Weighted Average
1,126	80	12.14% Pervious Area
8,147	98	87.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 23S: L-1

Runoff = 0.19 cfs @ 9.96 hrs, Volume= 1,200 cf, Depth= 1.09"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
12,599	98	Roofs, HSG D
605	80	>75% Grass cover, Good, HSG D
13,204	97	Weighted Average
605	80	4.58% Pervious Area
12,599	98	95.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 25S: M-1

Runoff = 0.14 cfs @ 9.89 hrs, Volume= 662 cf, Depth= 0.47"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
3,061	98	Paved roads w/curbs & sewers, HSG D
13,696	84	Pasture/grassland/range, Fair, HSG D
16,757	87	Weighted Average
13,696	84	81.73% Pervious Area
3,061	98	18.27% Impervious Area

Summary for Subcatchment 27S: Z-1 (unfiltered)

Runoff = 0.02 cfs @ 9.87 hrs, Volume= 104 cf, Depth= 1.06"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
1,067	98	Paved parking, HSG D
104	84	Pasture/grassland/range, Fair, HSG D
1,171	97	Weighted Average
104	84	8.88% Pervious Area
1,067	98	91.12% Impervious Area

Summary for Subcatchment 30S: Pre-Project

Runoff = 1.53 cfs @ 9.88 hrs, Volume= 6,615 cf, Depth= 0.70"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
32,878	98	Paved parking, HSG D
81,040	89	<50% Grass cover, Poor, HSG D
113,918	92	Weighted Average
81,040	89	71.14% Pervious Area
32,878	98	28.86% Impervious Area

Summary for Subcatchment 31S: N-1

Runoff = 0.01 cfs @ 9.98 hrs, Volume= 108 cf, Depth= 0.39"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
2,515	85	1/2 acre lots, 25% imp, HSG D
810	80	>75% Grass cover, Good, HSG D
3,325	84	Weighted Average
2,696	80	81.09% Pervious Area
629	98	18.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 33S: O-1

Runoff = 0.03 cfs @ 9.89 hrs, Volume= 170 cf, Depth= 0.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
4,390	85	1/2 acre lots, 25% imp, HSG D
3,293	81	75.00% Pervious Area
1,098	98	25.00% Impervious Area

Summary for Subcatchment 35S: P-1

Runoff = 0.11 cfs @ 9.87 hrs, Volume= 463 cf, Depth= 1.01"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
4,390	98	Paved roads w/curbs & sewers, HSG D
1,121	89	<50% Grass cover, Poor, HSG D
5,511	96	Weighted Average
1,121	89	20.34% Pervious Area
4,390	98	79.66% Impervious Area

Summary for Subcatchment 38S: Q-1

Runoff = 0.19 cfs @ 9.87 hrs, Volume= 787 cf, Depth= 1.12"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 85% Rainfall=1.35"

Area (sf)	CN	Description
8,248	98	Paved roads w/curbs & sewers, HSG D
202	89	<50% Grass cover, Poor, HSG D
8,450	98	Weighted Average
202	89	2.39% Pervious Area
8,248	98	97.61% Impervious Area

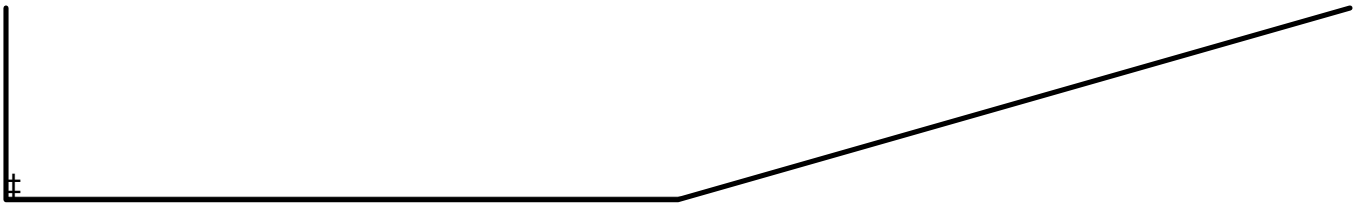
Summary for Reach 28R: SCM M-1 Bioswale

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 0.10" for 85% event
Inflow = 0.16 cfs @ 9.89 hrs, Volume= 765 cf
Outflow = 0.05 cfs @ 10.69 hrs, Volume= 765 cf, Atten= 67%, Lag= 47.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.08 fps, Min. Travel Time= 41.1 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 61.8 min

Peak Storage= 131 cf @ 10.00 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 3.00' Flow Area= 54.0 sf, Capacity= 45.65 cfs

12.00' x 3.00' deep channel, n= 0.200
Side Slope Z-value= 0.0 4.0 '/' Top Width= 24.00'
Length= 195.0' Slope= 0.0052 '/'
Inlet Invert= 9.60', Outlet Invert= 8.58'



Summary for Pond 2P: SCM A-1

Inflow Area = 9,182 sf, 25.00% Impervious, Inflow Depth = 0.46" for 85% event
Inflow = 0.04 cfs @ 9.97 hrs, Volume= 355 cf
Outflow = 0.03 cfs @ 10.18 hrs, Volume= 355 cf, Atten= 37%, Lag= 12.5 min
Discarded = 0.03 cfs @ 10.18 hrs, Volume= 355 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.01' @ 10.18 hrs Surf.Area= 9,182 sf Storage= 28 cf

Plug-Flow detention time= 17.3 min calculated for 355 cf (100% of inflow)
Center-of-Mass det. time= 17.3 min (828.1 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	4,591 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 11,478 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.00	9,182	0	0
14.00	9,182	9,182	9,182
14.50	1	2,296	11,478

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.45'	**0.5" x 20.0" Horiz. Orifice/Grate X 2.00 columns** X 24 rows C= 0.600 in 24.0" x 24.0" Grate (83% open area) Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 10.18 hrs HW=13.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 4P: SCM B-1

Inflow Area = 811 sf, 25.00% Impervious, Inflow Depth = 0.46" for 85% event
Inflow = 0.00 cfs @ 9.97 hrs, Volume= 31 cf
Outflow = 0.00 cfs @ 10.06 hrs, Volume= 31 cf, Atten= 17%, Lag= 5.1 min
Discarded = 0.00 cfs @ 10.06 hrs, Volume= 31 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.00' @ 10.06 hrs Surf.Area= 811 sf Storage= 1 cf

Plug-Flow detention time= 6.3 min calculated for 31 cf (100% of inflow)
Center-of-Mass det. time= 6.3 min (817.1 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	178 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 446 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
14.55	811	446	446

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 10.06 hrs HW=14.00' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: SCM C-1

Inflow Area = 1,117 sf, 25.00% Impervious, Inflow Depth = 0.46" for 85% event
Inflow = 0.01 cfs @ 9.97 hrs, Volume= 43 cf
Outflow = 0.00 cfs @ 10.06 hrs, Volume= 43 cf, Atten= 17%, Lag= 5.1 min
Discarded = 0.00 cfs @ 10.06 hrs, Volume= 43 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.00' @ 10.06 hrs Surf.Area= 1,117 sf Storage= 2 cf

Plug-Flow detention time= 6.3 min calculated for 43 cf (100% of inflow)
Center-of-Mass det. time= 6.3 min (817.1 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	246 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 614 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	1,117	0	0
14.55	1,117	614	614

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 10.06 hrs HW=14.00' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 8P: SCM D-1 Bioretention

Inflow Area = 8,718 sf, 83.85% Impervious, Inflow Depth = 0.98" for 85% event
Inflow = 0.11 cfs @ 9.96 hrs, Volume= 715 cf
Outflow = 0.01 cfs @ 8.82 hrs, Volume= 715 cf, Atten= 93%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.82 hrs, Volume= 715 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.21' @ 14.05 hrs Surf.Area= 1,408 sf Storage= 289 cf

Plug-Flow detention time= 370.7 min calculated for 715 cf (100% of inflow)
Center-of-Mass det. time= 370.7 min (1,115.7 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	12.70'	1,690 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.70	1,408	0.0	0	0
14.70	1,408	40.0	1,126	1,126
16.70	1,408	20.0	563	1,690

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.70'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	16.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 8.82 hrs HW=12.74' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.70' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 10P: SCM E-1

Inflow Area = 4,503 sf, 41.97% Impervious, Inflow Depth = 0.61" for 85% event
Inflow = 0.03 cfs @ 9.97 hrs, Volume= 231 cf
Outflow = 0.00 cfs @ 9.62 hrs, Volume= 231 cf, Atten= 85%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.62 hrs, Volume= 231 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.17' @ 11.86 hrs Surf.Area= 811 sf Storage= 55 cf

Plug-Flow detention time= 98.4 min calculated for 231 cf (100% of inflow)
Center-of-Mass det. time= 98.4 min (878.8 - 780.4)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,298 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
15.44	811	1,168	1,168
15.60	811	130	1,298

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.44'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.62 hrs HW=14.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 12P: SCM F-1

Inflow Area = 673 sf, 25.00% Impervious, Inflow Depth = 0.46" for 85% event
Inflow = 0.00 cfs @ 9.97 hrs, Volume= 26 cf
Outflow = 0.00 cfs @ 10.19 hrs, Volume= 26 cf, Atten= 37%, Lag= 12.9 min
Discarded = 0.00 cfs @ 10.19 hrs, Volume= 26 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.26' @ 10.19 hrs Surf.Area= 673 sf Storage= 2 cf

Plug-Flow detention time= 17.9 min calculated for 26 cf (100% of inflow)
Center-of-Mass det. time= 17.9 min (828.6 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	13.25'	417 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,043 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.25	673	0	0
14.80	673	1,043	1,043

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.75'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 10.19 hrs HW=13.26' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.25' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14P: SCM G-1

Inflow Area = 678 sf, 47.01% Impervious, Inflow Depth = 0.66" for 85% event
Inflow = 0.01 cfs @ 9.97 hrs, Volume= 37 cf
Outflow = 0.00 cfs @ 10.00 hrs, Volume= 37 cf, Atten= 46%, Lag= 1.9 min
Discarded = 0.00 cfs @ 10.00 hrs, Volume= 37 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.12' @ 10.24 hrs Surf.Area= 479 sf Storage= 4 cf

Plug-Flow detention time= 18.3 min calculated for 37 cf (100% of inflow)
Center-of-Mass det. time= 18.3 min (792.4 - 774.1)

Volume	Invert	Avail.Storage	Storage Description
#1	13.10'	297 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 742 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.10	479	0	0
14.65	479	742	742

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.61'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 10.00 hrs HW=13.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 16P: SCM H-1

Inflow Area = 1,827 sf, 41.54% Impervious, Inflow Depth = 0.61" for 85% event
Inflow = 0.01 cfs @ 9.97 hrs, Volume= 93 cf
Outflow = 0.01 cfs @ 10.17 hrs, Volume= 93 cf, Atten= 38%, Lag= 12.1 min
Discarded = 0.01 cfs @ 10.17 hrs, Volume= 93 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.12' @ 10.17 hrs Surf.Area= 1,424 sf Storage= 9 cf

Plug-Flow detention time= 18.4 min calculated for 93 cf (100% of inflow)
Center-of-Mass det. time= 18.4 min (799.4 - 781.0)

Volume	Invert	Avail.Storage	Storage Description
#1	12.10'	911 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,278 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.10	1,424	0	0
13.70	1,424	2,278	2,278

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	13.67'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 10.17 hrs HW=12.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 18P: SCM I-1

Inflow Area = 1,232 sf, 26.54% Impervious, Inflow Depth = 0.52" for 85% event
Inflow = 0.01 cfs @ 9.97 hrs, Volume= 53 cf
Outflow = 0.00 cfs @ 10.02 hrs, Volume= 53 cf, Atten= 48%, Lag= 2.8 min
Discarded = 0.00 cfs @ 10.02 hrs, Volume= 53 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.42' @ 10.28 hrs Surf.Area= 620 sf Storage= 5 cf

Plug-Flow detention time= 18.9 min calculated for 53 cf (100% of inflow)
Center-of-Mass det. time= 18.9 min (826.6 - 807.7)

Volume	Invert	Avail.Storage	Storage Description
#1	13.40'	397 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 992 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.40	620	0	0
15.00	620	992	992

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.40'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.90'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 10.02 hrs HW=13.42' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.40' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 20P: SCM J-1

Inflow Area = 1,438 sf, 36.28% Impervious, Inflow Depth = 0.60" for 85% event
Inflow = 0.01 cfs @ 9.97 hrs, Volume= 72 cf
Outflow = 0.00 cfs @ 9.93 hrs, Volume= 72 cf, Atten= 62%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.93 hrs, Volume= 72 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.04' @ 10.44 hrs Surf.Area= 635 sf Storage= 9 cf

Plug-Flow detention time= 22.5 min calculated for 72 cf (100% of inflow)
Center-of-Mass det. time= 22.5 min (812.7 - 790.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	406 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,016 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	635	0	0
15.60	635	1,016	1,016

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.93 hrs HW=14.02' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 21P: SCM K-1 Bioretention

Inflow Area = 9,273 sf, 87.86% Impervious, Inflow Depth = 1.02" for 85% event
Inflow = 0.12 cfs @ 9.96 hrs, Volume= 789 cf
Outflow = 0.01 cfs @ 8.12 hrs, Volume= 789 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.12 hrs, Volume= 789 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.46' @ 18.30 hrs Surf.Area= 1,126 sf Storage= 386 cf

Plug-Flow detention time= 603.5 min calculated for 789 cf (100% of inflow)
Center-of-Mass det. time= 603.5 min (1,346.6 - 743.1)

Volume	Invert	Avail.Storage	Storage Description
#1	11.60'	1,351 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
11.60	1,126	0.0	0	0
13.60	1,126	40.0	901	901
15.60	1,126	20.0	450	1,351

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.60'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.20'	**8.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir**

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 8.12 hrs HW=11.64' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=11.60' (Free Discharge)
├**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 24P: SCM L-1 Bioretetnion

Inflow Area = 13,204 sf, 95.42% Impervious, Inflow Depth = 1.09" for 85% event
Inflow = 0.19 cfs @ 9.96 hrs, Volume= 1,200 cf
Outflow = 0.01 cfs @ 23.99 hrs, Volume= 1,104 cf, Atten= 97%, Lag= 841.9 min
Discarded = 0.01 cfs @ 23.99 hrs, Volume= 1,104 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 11.56' @ 23.99 hrs Surf.Area= 605 sf Storage= 862 cf

Plug-Flow detention time= 1,528.7 min calculated for 1,104 cf (92% of inflow)
Center-of-Mass det. time= 1,477.8 min (2,217.6 - 739.8)

Volume	Invert	Avail.Storage	Storage Description
#1	8.00'	2,009 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
8.00	605	0.0	0	0	605
13.30	605	40.0	1,283	1,283	1,067
14.30	605	20.0	121	1,404	1,154
15.30	605	100.0	605	2,009	1,242

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.10'	**8.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 23.99 hrs HW=11.56' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=8.00' (Free Discharge)
├**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 26P: Culvert under Via Real

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 0.10" for 85% event
Inflow = 0.05 cfs @ 10.69 hrs, Volume= 765 cf
Primary = 0.05 cfs @ 10.69 hrs, Volume= 765 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 29P: Treated and Retained

Inflow Area = 74,332 sf, 66.17% Impervious, Inflow Depth = 0.00" for 85% event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 32P: SCM N-1

Inflow Area = 3,325 sf, 18.91% Impervious, Inflow Depth = 0.39" for 85% event
Inflow = 0.01 cfs @ 9.98 hrs, Volume= 108 cf
Outflow = 0.01 cfs @ 10.20 hrs, Volume= 108 cf, Atten= 37%, Lag= 13.5 min
Discarded = 0.01 cfs @ 10.20 hrs, Volume= 108 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 14.11' @ 10.20 hrs Surf.Area= 2,515 sf Storage= 8 cf

Plug-Flow detention time= 17.8 min calculated for 108 cf (100% of inflow)
Center-of-Mass det. time= 17.8 min (845.0 - 827.1)

Volume	Invert	Avail.Storage	Storage Description
#1	14.10'	1,559 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.10	2,515	0.0	0	0	2,515
15.65	2,515	40.0	1,559	1,559	2,791

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.10'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 10.20 hrs HW=14.11' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 34P: SCM O-1 Chamber

Inflow Area = 4,390 sf, 25.00% Impervious, Inflow Depth = 0.46" for 85% event
Inflow = 0.03 cfs @ 9.89 hrs, Volume= 170 cf
Outflow = 0.00 cfs @ 10.90 hrs, Volume= 170 cf, Atten= 87%, Lag= 60.5 min
Discarded = 0.00 cfs @ 10.90 hrs, Volume= 170 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 10.12' @ 10.90 hrs Surf.Area= 730 sf Storage= 34 cf

Plug-Flow detention time= 73.6 min calculated for 170 cf (100% of inflow)
Center-of-Mass det. time= 73.5 min (872.3 - 798.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	10.50'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	12.60'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	10.00'	**0.250 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.00 cfs @ 10.90 hrs HW=10.12' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=10.00' (Free Discharge)
1=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 36P: SCM P-1 Chamber

Inflow Area = 5,511 sf, 79.66% Impervious, Inflow Depth = 1.01" for 85% event
Inflow = 0.11 cfs @ 9.87 hrs, Volume= 463 cf
Outflow = 0.00 cfs @ 23.16 hrs, Volume= 463 cf, Atten= 98%, Lag= 797.1 min
Discarded = 0.00 cfs @ 23.16 hrs, Volume= 463 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 8.82' @ 23.16 hrs Surf.Area= 275 sf Storage= 314 cf

Plug-Flow detention time= 1,365.5 min calculated for 463 cf (100% of inflow)
Center-of-Mass det. time= 1,365.3 min (2,102.7 - 737.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.00'	329 cf	**11.00'W x 24.98'L x 4.00'H Field A** 1,099 cf Overall - 276 cf Embedded = 823 cf x 40.0% Voids
#2A	7.50'	276 cf	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	10.30'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.89'	**4.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.00 cfs @ 23.16 hrs HW=8.82' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=7.00' (Free Discharge)
├**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 39P: SCM Q-1 Chamber

Inflow Area = 8,450 sf, 97.61% Impervious, Inflow Depth = 1.12" for 85% event
Inflow = 0.19 cfs @ 9.87 hrs, Volume= 787 cf
Outflow = 0.00 cfs @ 20.81 hrs, Volume= 787 cf, Atten= 97%, Lag= 656.4 min
Discarded = 0.00 cfs @ 20.81 hrs, Volume= 787 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 9.56' @ 20.81 hrs Surf.Area= 730 sf Storage= 464 cf

Plug-Flow detention time= 933.5 min calculated for 787 cf (100% of inflow)
Center-of-Mass det. time= 933.6 min (1,660.8 - 727.2)

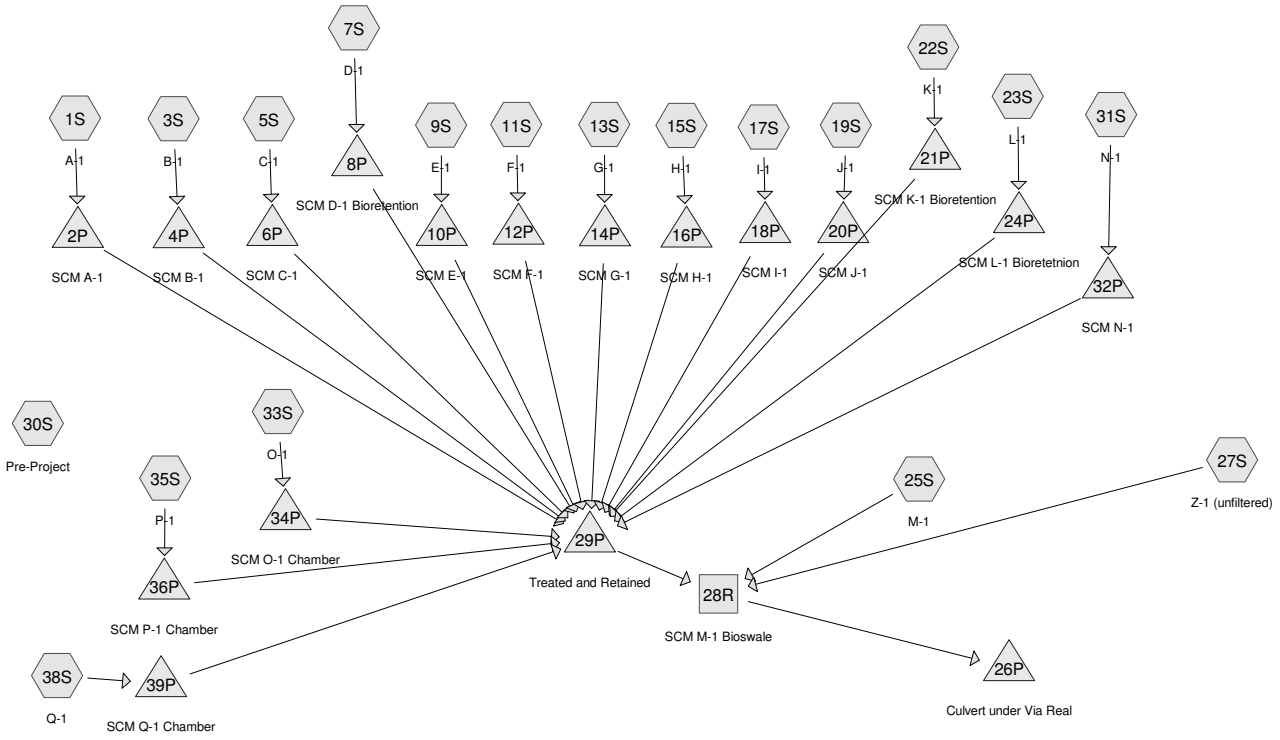
Volume	Invert	Avail.Storage	Storage Description
#1A	8.50'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	9.00'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.50'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	11.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.50'	**2.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 20.81 hrs HW=9.56' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=8.50' (Free Discharge)
├**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Subcat Reach Pond Link

Routing Diagram for Post Project Via Real Oct16
Prepared by Stantec Consulting Ltd., Printed 10/24/2016
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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
25,330	85	1/2 acre lots, 25% imp, HSG D (1S, 3S, 5S, 9S, 11S, 13S, 15S, 17S, 19S, 31S, 33S)
82,363	89	<50% Grass cover, Poor, HSG D (30S, 35S, 38S)
3,949	80	>75% Grass cover, Good, HSG D (7S, 22S, 23S, 31S)
13,800	84	Pasture/grassland/range, Fair, HSG D (25S, 27S)
36,101	98	Paved parking, HSG D (9S, 13S, 15S, 17S, 19S, 27S, 30S)
15,699	98	Paved roads w/curbs & sewers, HSG D (25S, 35S, 38S)
28,056	98	Roofs, HSG D (7S, 22S, 23S)
880	86	Woods/grass comb., Poor, HSG D (17S, 19S)
206,178	**91**	**TOTAL AREA**

Summary for Subcatchment 1S: A-1

Runoff = 0.09 cfs @ 9.97 hrs, Volume= 686 cf, Depth= 0.90"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
9,182	85	1/2 acre lots, 25% imp, HSG D
6,887	81	75.00% Pervious Area
2,296	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 3S: B-1

Runoff = 0.01 cfs @ 9.97 hrs, Volume= 61 cf, Depth= 0.90"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
811	85	1/2 acre lots, 25% imp, HSG D
608	81	75.00% Pervious Area
203	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 5S: C-1

Runoff = 0.01 cfs @ 9.97 hrs, Volume= 83 cf, Depth= 0.90"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
1,117	85	1/2 acre lots, 25% imp, HSG D
838	81	75.00% Pervious Area
279	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 7S: D-1

Runoff = 0.17 cfs @ 9.96 hrs, Volume= 1,147 cf, Depth= 1.58"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
7,310	98	Roofs, HSG D
1,408	80	>75% Grass cover, Good, HSG D
8,718	95	Weighted Average
1,408	80	16.15% Pervious Area
7,310	98	83.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 9S: E-1

Runoff = 0.06 cfs @ 9.97 hrs, Volume= 411 cf, Depth= 1.10"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
3,484	85	1/2 acre lots, 25% imp, HSG D
1,019	98	Paved parking, HSG D
4,503	88	Weighted Average
2,613	81	58.03% Pervious Area
1,890	98	41.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 11S: F-1

Runoff = 0.01 cfs @ 9.97 hrs, Volume= 50 cf, Depth= 0.90"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
673	85	1/2 acre lots, 25% imp, HSG D
505	81	75.00% Pervious Area
168	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 13S: G-1

Runoff = 0.01 cfs @ 9.97 hrs, Volume= 65 cf, Depth= 1.15"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
479	85	1/2 acre lots, 25% imp, HSG D
199	98	Paved parking, HSG D
678	89	Weighted Average
359	81	52.99% Pervious Area
319	98	47.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 15S: H-1

Runoff = 0.02 cfs @ 9.97 hrs, Volume= 166 cf, Depth= 1.09"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
1,424	85	1/2 acre lots, 25% imp, HSG D
403	98	Paved parking, HSG D
1,827	88	Weighted Average
1,068	81	58.46% Pervious Area
759	98	41.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 17S: I-1

Runoff = 0.01 cfs @ 9.97 hrs, Volume= 101 cf, Depth= 0.98"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
620	85	1/2 acre lots, 25% imp, HSG D
172	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,232	87	Weighted Average
905	83	73.46% Pervious Area
327	98	26.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 19S: J-1

Runoff = 0.02 cfs @ 9.97 hrs, Volume= 130 cf, Depth= 1.09"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
635	85	1/2 acre lots, 25% imp, HSG D
363	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,438	89	Weighted Average
916	83	63.72% Pervious Area
522	98	36.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 22S: K-1

Runoff = 0.19 cfs @ 9.96 hrs, Volume= 1,257 cf, Depth= 1.63"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
8,147	98	Roofs, HSG D
1,126	80	>75% Grass cover, Good, HSG D
9,273	96	Weighted Average
1,126	80	12.14% Pervious Area
8,147	98	87.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 23S: L-1

Runoff = 0.29 cfs @ 9.96 hrs, Volume= 1,891 cf, Depth= 1.72"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
12,599	98	Roofs, HSG D
605	80	>75% Grass cover, Good, HSG D
13,204	97	Weighted Average
605	80	4.58% Pervious Area
12,599	98	95.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 25S: M-1

Runoff = 0.29 cfs @ 9.89 hrs, Volume= 1,302 cf, Depth= 0.93"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
3,061	98	Paved roads w/curbs & sewers, HSG D
13,696	84	Pasture/grassland/range, Fair, HSG D
16,757	87	Weighted Average
13,696	84	81.73% Pervious Area
3,061	98	18.27% Impervious Area

Summary for Subcatchment 27S: Z-1 (unfiltered)

Runoff = 0.04 cfs @ 9.87 hrs, Volume= 164 cf, Depth= 1.68"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
1,067	98	Paved parking, HSG D
104	84	Pasture/grassland/range, Fair, HSG D
1,171	97	Weighted Average
104	84	8.88% Pervious Area
1,067	98	91.12% Impervious Area

Summary for Subcatchment 30S: Pre-Project

Runoff = 2.81 cfs @ 9.88 hrs, Volume= 11,804 cf, Depth= 1.24"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
32,878	98	Paved parking, HSG D
81,040	89	<50% Grass cover, Poor, HSG D
113,918	92	Weighted Average
81,040	89	71.14% Pervious Area
32,878	98	28.86% Impervious Area

Summary for Subcatchment 31S: N-1

Runoff = 0.03 cfs @ 9.97 hrs, Volume= 219 cf, Depth= 0.79"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
2,515	85	1/2 acre lots, 25% imp, HSG D
810	80	>75% Grass cover, Good, HSG D
3,325	84	Weighted Average
2,696	80	81.09% Pervious Area
629	98	18.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 33S: O-1

Runoff = 0.07 cfs @ 9.89 hrs, Volume= 328 cf, Depth= 0.90"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
4,390	85	1/2 acre lots, 25% imp, HSG D
3,293	81	75.00% Pervious Area
1,098	98	25.00% Impervious Area

Summary for Subcatchment 35S: P-1

Runoff = 0.18 cfs @ 9.87 hrs, Volume= 745 cf, Depth= 1.62"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
4,390	98	Paved roads w/curbs & sewers, HSG D
1,121	89	<50% Grass cover, Poor, HSG D
5,511	96	Weighted Average
1,121	89	20.34% Pervious Area
4,390	98	79.66% Impervious Area

Summary for Subcatchment 38S: Q-1

Runoff = 0.29 cfs @ 9.87 hrs, Volume= 1,237 cf, Depth= 1.76"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr 95% Rainfall=2.00"

Area (sf)	CN	Description
8,248	98	Paved roads w/curbs & sewers, HSG D
202	89	<50% Grass cover, Poor, HSG D
8,450	98	Weighted Average
202	89	2.39% Pervious Area
8,248	98	97.61% Impervious Area

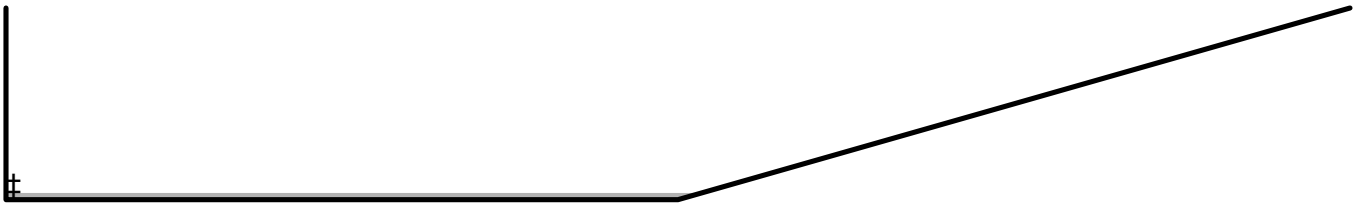
Summary for Reach 28R: SCM M-1 Bioswale

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 0.19" for 95% event
Inflow = 0.33 cfs @ 9.88 hrs, Volume= 1,496 cf
Outflow = 0.15 cfs @ 10.44 hrs, Volume= 1,496 cf, Atten= 54%, Lag= 33.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.12 fps, Min. Travel Time= 27.2 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 59.2 min

Peak Storage= 252 cf @ 9.99 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 3.00' Flow Area= 54.0 sf, Capacity= 45.65 cfs

12.00' x 3.00' deep channel, n= 0.200
Side Slope Z-value= 0.0 4.0 '/' Top Width= 24.00'
Length= 195.0' Slope= 0.0052 '/'
Inlet Invert= 9.60', Outlet Invert= 8.58'



Summary for Pond 2P: SCM A-1

Inflow Area = 9,182 sf, 25.00% Impervious, Inflow Depth = 0.90" for 95% event
Inflow = 0.09 cfs @ 9.97 hrs, Volume= 686 cf
Outflow = 0.05 cfs @ 10.04 hrs, Volume= 686 cf, Atten= 43%, Lag= 4.1 min
Discarded = 0.05 cfs @ 10.04 hrs, Volume= 686 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.02' @ 10.22 hrs Surf.Area= 9,182 sf Storage= 64 cf

Plug-Flow detention time= 17.5 min calculated for 686 cf (100% of inflow)
Center-of-Mass det. time= 17.5 min (816.2 - 798.7)

Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	4,591 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 11,478 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.00	9,182	0	0
14.00	9,182	9,182	9,182
14.50	1	2,296	11,478

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.45'	**0.5" x 20.0" Horiz. Orifice/Grate X 2.00 columns** X 24 rows C= 0.600 in 24.0" x 24.0" Grate (83% open area) Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 10.04 hrs HW=13.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 4P: SCM B-1

Inflow Area = 811 sf, 25.00% Impervious, Inflow Depth = 0.90" for 95% event
Inflow = 0.01 cfs @ 9.97 hrs, Volume= 61 cf
Outflow = 0.00 cfs @ 9.92 hrs, Volume= 61 cf, Atten= 43%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.92 hrs, Volume= 61 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.01' @ 10.22 hrs Surf.Area= 811 sf Storage= 4 cf

Plug-Flow detention time= 7.4 min calculated for 61 cf (100% of inflow)
Center-of-Mass det. time= 7.4 min (806.1 - 798.7)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	178 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 446 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
14.55	811	446	446

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.92 hrs HW=14.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: SCM C-1

Inflow Area = 1,117 sf, 25.00% Impervious, Inflow Depth = 0.90" for 95% event
Inflow = 0.01 cfs @ 9.97 hrs, Volume= 83 cf
Outflow = 0.01 cfs @ 9.92 hrs, Volume= 83 cf, Atten= 43%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.92 hrs, Volume= 83 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.01' @ 10.22 hrs Surf.Area= 1,117 sf Storage= 6 cf

Plug-Flow detention time= 7.4 min calculated for 83 cf (100% of inflow)
Center-of-Mass det. time= 7.4 min (806.1 - 798.7)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	246 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 614 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	1,117	0	0
14.55	1,117	614	614

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.92 hrs HW=14.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 8P: SCM D-1 Bioretention

Inflow Area = 8,718 sf, 83.85% Impervious, Inflow Depth = 1.58" for 95% event
Inflow = 0.17 cfs @ 9.96 hrs, Volume= 1,147 cf
Outflow = 0.01 cfs @ 7.31 hrs, Volume= 1,147 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 7.31 hrs, Volume= 1,147 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.77' @ 19.77 hrs Surf.Area= 1,408 sf Storage= 602 cf

Plug-Flow detention time= 722.1 min calculated for 1,147 cf (100% of inflow)
Center-of-Mass det. time= 722.2 min (1,454.9 - 732.7)

Volume	Invert	Avail.Storage	Storage Description
#1	12.70'	1,690 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.70	1,408	0.0	0	0
14.70	1,408	40.0	1,126	1,126
16.70	1,408	20.0	563	1,690

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.70'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	16.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 7.31 hrs HW=12.74' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.70' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 10P: SCM E-1

Inflow Area = 4,503 sf, 41.97% Impervious, Inflow Depth = 1.10" for 95% event
Inflow = 0.06 cfs @ 9.97 hrs, Volume= 411 cf
Outflow = 0.00 cfs @ 8.99 hrs, Volume= 411 cf, Atten= 92%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.99 hrs, Volume= 411 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.47' @ 15.33 hrs Surf.Area= 811 sf Storage= 152 cf

Plug-Flow detention time= 343.7 min calculated for 411 cf (100% of inflow)
Center-of-Mass det. time= 343.7 min (1,114.9 - 771.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,298 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
15.44	811	1,168	1,168
15.60	811	130	1,298

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.44'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.99 hrs HW=14.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 12P: SCM F-1

Inflow Area = 673 sf, 25.00% Impervious, Inflow Depth = 0.90" for 95% event
Inflow = 0.01 cfs @ 9.97 hrs, Volume= 50 cf
Outflow = 0.00 cfs @ 10.05 hrs, Volume= 50 cf, Atten= 43%, Lag= 4.7 min
Discarded = 0.00 cfs @ 10.05 hrs, Volume= 50 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.27' @ 10.22 hrs Surf.Area= 673 sf Storage= 5 cf

Plug-Flow detention time= 18.0 min calculated for 50 cf (100% of inflow)
Center-of-Mass det. time= 18.0 min (816.7 - 798.7)

Volume	Invert	Avail.Storage	Storage Description
#1	13.25'	417 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,043 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.25	673	0	0
14.80	673	1,043	1,043

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.75'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 10.05 hrs HW=13.27' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.25' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14P: SCM G-1

Inflow Area = 678 sf, 47.01% Impervious, Inflow Depth = 1.15" for 95% event
Inflow = 0.01 cfs @ 9.97 hrs, Volume= 65 cf
Outflow = 0.00 cfs @ 9.86 hrs, Volume= 65 cf, Atten= 71%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.86 hrs, Volume= 65 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.15' @ 10.55 hrs Surf.Area= 479 sf Storage= 10 cf

Plug-Flow detention time= 28.3 min calculated for 65 cf (100% of inflow)
Center-of-Mass det. time= 28.3 min (793.2 - 764.9)

Volume	Invert	Avail.Storage	Storage Description
#1	13.10'	297 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 742 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.10	479	0	0
14.65	479	742	742

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.61'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.86 hrs HW=13.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 16P: SCM H-1

Inflow Area = 1,827 sf, 41.54% Impervious, Inflow Depth = 1.09" for 95% event
Inflow = 0.02 cfs @ 9.97 hrs, Volume= 166 cf
Outflow = 0.01 cfs @ 9.90 hrs, Volume= 166 cf, Atten= 65%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.90 hrs, Volume= 166 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.14' @ 10.47 hrs Surf.Area= 1,424 sf Storage= 24 cf

Plug-Flow detention time= 24.2 min calculated for 166 cf (100% of inflow)
Center-of-Mass det. time= 24.2 min (796.0 - 771.8)

Volume	Invert	Avail.Storage	Storage Description
#1	12.10'	911 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,278 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.10	1,424	0	0
13.70	1,424	2,278	2,278

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	13.67'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.90 hrs HW=12.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 18P: SCM I-1

Inflow Area = 1,232 sf, 26.54% Impervious, Inflow Depth = 0.98" for 95% event
Inflow = 0.01 cfs @ 9.97 hrs, Volume= 101 cf
Outflow = 0.00 cfs @ 9.85 hrs, Volume= 101 cf, Atten= 75%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.85 hrs, Volume= 101 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.47' @ 10.72 hrs Surf.Area= 620 sf Storage= 18 cf

Plug-Flow detention time= 36.4 min calculated for 101 cf (100% of inflow)
Center-of-Mass det. time= 36.4 min (829.9 - 793.5)

Volume	Invert	Avail.Storage	Storage Description
#1	13.40'	397 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 992 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.40	620	0	0
15.00	620	992	992

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.40'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.90'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.85 hrs HW=13.42' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.40' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 20P: SCM J-1

Inflow Area = 1,438 sf, 36.28% Impervious, Inflow Depth = 1.09" for 95% event
Inflow = 0.02 cfs @ 9.97 hrs, Volume= 130 cf
Outflow = 0.00 cfs @ 9.77 hrs, Volume= 130 cf, Atten= 80%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.77 hrs, Volume= 130 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.11' @ 10.97 hrs Surf.Area= 635 sf Storage= 27 cf

Plug-Flow detention time= 54.8 min calculated for 130 cf (100% of inflow)
Center-of-Mass det. time= 54.8 min (833.2 - 778.4)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	406 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,016 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	635	0	0
15.60	635	1,016	1,016

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.77 hrs HW=14.02' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 21P: SCM K-1 Bioretention

Inflow Area = 9,273 sf, 87.86% Impervious, Inflow Depth = 1.63" for 95% event
Inflow = 0.19 cfs @ 9.96 hrs, Volume= 1,257 cf
Outflow = 0.01 cfs @ 6.22 hrs, Volume= 1,257 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 6.22 hrs, Volume= 1,257 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.34' @ 22.66 hrs Surf.Area= 1,126 sf Storage= 785 cf

Plug-Flow detention time= 1,111.4 min calculated for 1,257 cf (100% of inflow)
Center-of-Mass det. time= 1,111.3 min (1,841.6 - 730.3)

Volume	Invert	Avail.Storage	Storage Description
#1	11.60'	1,351 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
11.60	1,126	0.0	0	0
13.60	1,126	40.0	901	901
15.60	1,126	20.0	450	1,351

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.60'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.20'	**8.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir**

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 6.22 hrs HW=11.64' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=11.60' (Free Discharge)
├**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 24P: SCM L-1 Bioretetnion

Inflow Area = 13,204 sf, 95.42% Impervious, Inflow Depth = 1.72" for 95% event
Inflow = 0.29 cfs @ 9.96 hrs, Volume= 1,891 cf
Outflow = 0.01 cfs @ 24.04 hrs, Volume= 1,371 cf, Atten= 98%, Lag= 844.6 min
Discarded = 0.01 cfs @ 24.04 hrs, Volume= 1,371 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 14.41' @ 24.04 hrs Surf.Area= 605 sf Storage= 1,473 cf

Plug-Flow detention time= 1,629.3 min calculated for 1,371 cf (72% of inflow)
Center-of-Mass det. time= 1,489.9 min (2,216.1 - 726.1)

Volume	Invert	Avail.Storage	Storage Description
#1	8.00'	2,009 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
8.00	605	0.0	0	0	605
13.30	605	40.0	1,283	1,283	1,067
14.30	605	20.0	121	1,404	1,154
15.30	605	100.0	605	2,009	1,242

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.10'	**8.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 24.04 hrs HW=14.41' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=8.00' (Free Discharge)
├**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 26P: Culvert under Via Real

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 0.19" for 95% event
Inflow = 0.15 cfs @ 10.44 hrs, Volume= 1,496 cf
Primary = 0.15 cfs @ 10.44 hrs, Volume= 1,496 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 29P: Treated and Retained

Inflow Area = 74,332 sf, 66.17% Impervious, Inflow Depth = 0.00" for 95% event
Inflow = 0.00 cfs @ 18.84 hrs, Volume= 30 cf
Primary = 0.00 cfs @ 18.84 hrs, Volume= 30 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 32P: SCM N-1

Inflow Area = 3,325 sf, 18.91% Impervious, Inflow Depth = 0.79" for 95% event
Inflow = 0.03 cfs @ 9.97 hrs, Volume= 219 cf
Outflow = 0.01 cfs @ 10.30 hrs, Volume= 219 cf, Atten= 49%, Lag= 19.4 min
Discarded = 0.01 cfs @ 10.30 hrs, Volume= 219 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 14.12' @ 10.30 hrs Surf.Area= 2,515 sf Storage= 21 cf

Plug-Flow detention time= 18.5 min calculated for 219 cf (100% of inflow)
Center-of-Mass det. time= 18.6 min (831.9 - 813.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.10'	1,559 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.10	2,515	0.0	0	0	2,515
15.65	2,515	40.0	1,559	1,559	2,791

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.10'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 10.30 hrs HW=14.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 34P: SCM O-1 Chamber

Inflow Area = 4,390 sf, 25.00% Impervious, Inflow Depth = 0.90" for 95% event
Inflow = 0.07 cfs @ 9.89 hrs, Volume= 328 cf
Outflow = 0.00 cfs @ 13.85 hrs, Volume= 328 cf, Atten= 94%, Lag= 237.9 min
Discarded = 0.00 cfs @ 13.85 hrs, Volume= 328 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 10.38' @ 13.85 hrs Surf.Area= 730 sf Storage= 111 cf

Plug-Flow detention time= 281.1 min calculated for 328 cf (100% of inflow)
Center-of-Mass det. time= 281.1 min (1,067.8 - 786.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	10.50'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	12.60'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	10.00'	**0.250 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.00 cfs @ 13.85 hrs HW=10.38' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=10.00' (Free Discharge)
1=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 36P: SCM P-1 Chamber

Inflow Area = 5,511 sf, 79.66% Impervious, Inflow Depth = 1.62" for 95% event
Inflow = 0.18 cfs @ 9.87 hrs, Volume= 745 cf
Outflow = 0.01 cfs @ 18.84 hrs, Volume= 624 cf, Atten= 97%, Lag= 538.3 min
Discarded = 0.00 cfs @ 18.84 hrs, Volume= 594 cf
Primary = 0.00 cfs @ 18.84 hrs, Volume= 30 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 10.31' @ 18.84 hrs Surf.Area= 275 sf Storage= 529 cf

Plug-Flow detention time= 1,510.0 min calculated for 624 cf (84% of inflow)
Center-of-Mass det. time= 1,416.2 min (2,139.8 - 723.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.00'	329 cf	**11.00'W x 24.98'L x 4.00'H Field A** 1,099 cf Overall - 276 cf Embedded = 823 cf x 40.0% Voids
#2A	7.50'	276 cf	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	10.30'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.89'	**4.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.00 cfs @ 18.84 hrs HW=10.31' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 18.84 hrs HW=10.31' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.38 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 39P: SCM Q-1 Chamber

Inflow Area = 8,450 sf, 97.61% Impervious, Inflow Depth = 1.76" for 95% event
Inflow = 0.29 cfs @ 9.87 hrs, Volume= 1,237 cf
Outflow = 0.01 cfs @ 23.37 hrs, Volume= 1,228 cf, Atten= 98%, Lag= 810.2 min
Discarded = 0.01 cfs @ 23.37 hrs, Volume= 1,228 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 10.29' @ 23.37 hrs Surf.Area= 730 sf Storage= 857 cf

Plug-Flow detention time= 1,500.2 min calculated for 1,228 cf (99% of inflow)
Center-of-Mass det. time= 1,495.0 min (2,208.1 - 713.1)

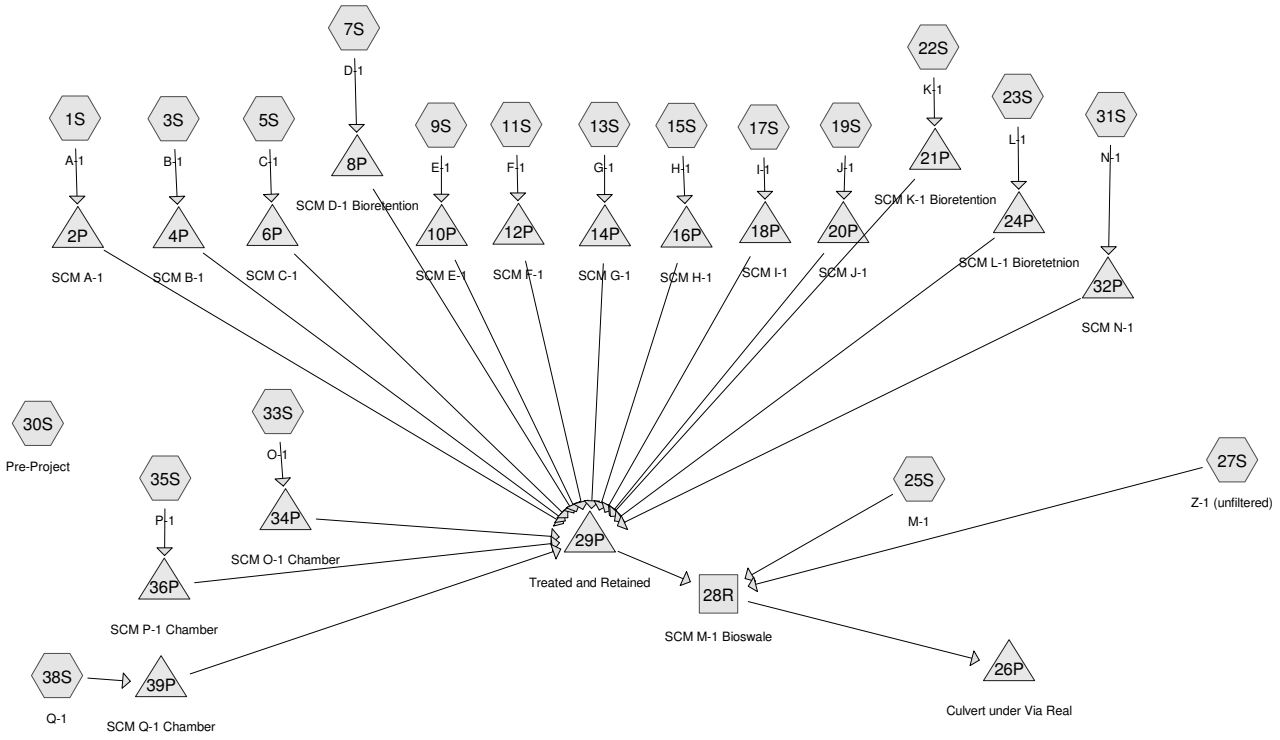
Volume	Invert	Avail.Storage	Storage Description
#1A	8.50'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	9.00'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.50'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	11.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.50'	**2.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 23.37 hrs HW=10.29' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=8.50' (Free Discharge)
├**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Subcat Reach Pond Link

Routing Diagram for Post Project Via Real Oct16
Prepared by Stantec Consulting Ltd., Printed 10/24/2016
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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
25,330	85	1/2 acre lots, 25% imp, HSG D (1S, 3S, 5S, 9S, 11S, 13S, 15S, 17S, 19S, 31S, 33S)
82,363	89	<50% Grass cover, Poor, HSG D (30S, 35S, 38S)
3,949	80	>75% Grass cover, Good, HSG D (7S, 22S, 23S, 31S)
13,800	84	Pasture/grassland/range, Fair, HSG D (25S, 27S)
36,101	98	Paved parking, HSG D (9S, 13S, 15S, 17S, 19S, 27S, 30S)
15,699	98	Paved roads w/curbs & sewers, HSG D (25S, 35S, 38S)
28,056	98	Roofs, HSG D (7S, 22S, 23S)
880	86	Woods/grass comb., Poor, HSG D (17S, 19S)
206,178	**91**	**TOTAL AREA**

Summary for Subcatchment 1S: A-1

Runoff = 0.21 cfs @ 9.97 hrs, Volume= 1,411 cf, Depth= 1.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
9,182	85	1/2 acre lots, 25% imp, HSG D
6,887	81	75.00% Pervious Area
2,296	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 3S: B-1

Runoff = 0.02 cfs @ 9.97 hrs, Volume= 125 cf, Depth= 1.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
811	85	1/2 acre lots, 25% imp, HSG D
608	81	75.00% Pervious Area
203	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 5S: C-1

Runoff = 0.03 cfs @ 9.97 hrs, Volume= 172 cf, Depth= 1.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
1,117	85	1/2 acre lots, 25% imp, HSG D
838	81	75.00% Pervious Area
279	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 7S: D-1

Runoff = 0.29 cfs @ 9.96 hrs, Volume= 1,972 cf, Depth= 2.71"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
7,310	98	Roofs, HSG D
1,408	80	>75% Grass cover, Good, HSG D
8,718	95	Weighted Average
1,408	80	16.15% Pervious Area
7,310	98	83.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 9S: E-1

Runoff = 0.12 cfs @ 9.97 hrs, Volume= 787 cf, Depth= 2.10"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
3,484	85	1/2 acre lots, 25% imp, HSG D
1,019	98	Paved parking, HSG D
4,503	88	Weighted Average
2,613	81	58.03% Pervious Area
1,890	98	41.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 11S: F-1

Runoff = 0.02 cfs @ 9.97 hrs, Volume= 103 cf, Depth= 1.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
673	85	1/2 acre lots, 25% imp, HSG D
505	81	75.00% Pervious Area
168	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 13S: G-1

Runoff = 0.02 cfs @ 9.97 hrs, Volume= 123 cf, Depth= 2.17"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
479	85	1/2 acre lots, 25% imp, HSG D
199	98	Paved parking, HSG D
678	89	Weighted Average
359	81	52.99% Pervious Area
319	98	47.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 15S: H-1

Runoff = 0.05 cfs @ 9.97 hrs, Volume= 318 cf, Depth= 2.09"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
1,424	85	1/2 acre lots, 25% imp, HSG D
403	98	Paved parking, HSG D
1,827	88	Weighted Average
1,068	81	58.46% Pervious Area
759	98	41.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 17S: I-1

Runoff = 0.03 cfs @ 9.97 hrs, Volume= 202 cf, Depth= 1.97"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
620	85	1/2 acre lots, 25% imp, HSG D
172	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,232	87	Weighted Average
905	83	73.46% Pervious Area
327	98	26.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 19S: J-1

Runoff = 0.04 cfs @ 9.97 hrs, Volume= 252 cf, Depth= 2.10"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
635	85	1/2 acre lots, 25% imp, HSG D
363	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,438	89	Weighted Average
916	83	63.72% Pervious Area
522	98	36.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 22S: K-1

Runoff = 0.32 cfs @ 9.96 hrs, Volume= 2,146 cf, Depth= 2.78"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
8,147	98	Roofs, HSG D
1,126	80	>75% Grass cover, Good, HSG D
9,273	96	Weighted Average
1,126	80	12.14% Pervious Area
8,147	98	87.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 23S: L-1

Runoff = 0.48 cfs @ 9.96 hrs, Volume= 3,186 cf, Depth= 2.90"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
12,599	98	Roofs, HSG D
605	80	>75% Grass cover, Good, HSG D
13,204	97	Weighted Average
605	80	4.58% Pervious Area
12,599	98	95.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 25S: M-1

Runoff = 0.64 cfs @ 9.88 hrs, Volume= 2,677 cf, Depth= 1.92"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
3,061	98	Paved roads w/curbs & sewers, HSG D
13,696	84	Pasture/grassland/range, Fair, HSG D
16,757	87	Weighted Average
13,696	84	81.73% Pervious Area
3,061	98	18.27% Impervious Area

Summary for Subcatchment 27S: Z-1 (unfiltered)

Runoff = 0.06 cfs @ 9.87 hrs, Volume= 278 cf, Depth= 2.85"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
1,067	98	Paved parking, HSG D
104	84	Pasture/grassland/range, Fair, HSG D
1,171	97	Weighted Average
104	84	8.88% Pervious Area
1,067	98	91.12% Impervious Area

Summary for Subcatchment 30S: Pre-Project

Runoff = 5.35 cfs @ 9.88 hrs, Volume= 22,188 cf, Depth= 2.34"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
32,878	98	Paved parking, HSG D
81,040	89	<50% Grass cover, Poor, HSG D
113,918	92	Weighted Average
81,040	89	71.14% Pervious Area
32,878	98	28.86% Impervious Area

Summary for Subcatchment 31S: N-1

Runoff = 0.07 cfs @ 9.97 hrs, Volume= 470 cf, Depth= 1.70"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
2,515	85	1/2 acre lots, 25% imp, HSG D
810	80	>75% Grass cover, Good, HSG D
3,325	84	Weighted Average
2,696	80	81.09% Pervious Area
629	98	18.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 33S: O-1

Runoff = 0.16 cfs @ 9.88 hrs, Volume= 674 cf, Depth= 1.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
4,390	85	1/2 acre lots, 25% imp, HSG D
3,293	81	75.00% Pervious Area
1,098	98	25.00% Impervious Area

Summary for Subcatchment 35S: P-1

Runoff = 0.30 cfs @ 9.87 hrs, Volume= 1,280 cf, Depth= 2.79"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
4,390	98	Paved roads w/curbs & sewers, HSG D
1,121	89	<50% Grass cover, Poor, HSG D
5,511	96	Weighted Average
1,121	89	20.34% Pervious Area
4,390	98	79.66% Impervious Area

Summary for Subcatchment 38S: Q-1

Runoff = 0.48 cfs @ 9.87 hrs, Volume= 2,075 cf, Depth= 2.95"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-002yr Rainfall=3.20"

Area (sf)	CN	Description
8,248	98	Paved roads w/curbs & sewers, HSG D
202	89	<50% Grass cover, Poor, HSG D
8,450	98	Weighted Average
202	89	2.39% Pervious Area
8,248	98	97.61% Impervious Area

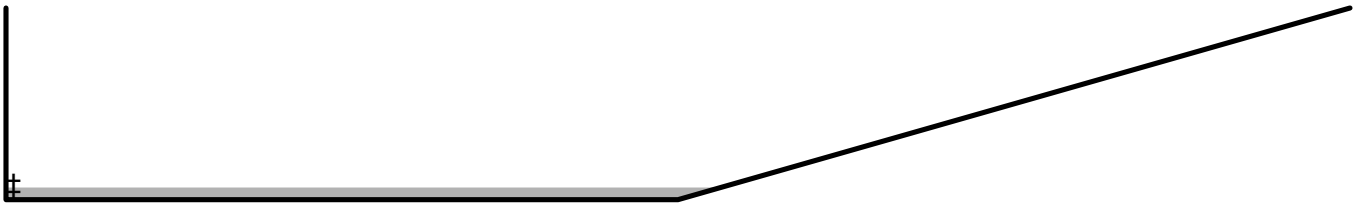
Summary for Reach 28R: SCM M-1 Bioswale

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 0.67" for SC-002yr event
Inflow = 0.70 cfs @ 9.88 hrs, Volume= 5,130 cf
Outflow = 0.41 cfs @ 10.28 hrs, Volume= 5,130 cf, Atten= 41%, Lag= 24.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.17 fps, Min. Travel Time= 18.7 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 45.4 min

Peak Storage= 463 cf @ 9.97 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 3.00' Flow Area= 54.0 sf, Capacity= 45.65 cfs

12.00' x 3.00' deep channel, n= 0.200
Side Slope Z-value= 0.0 4.0 '/' Top Width= 24.00'
Length= 195.0' Slope= 0.0052 '/'
Inlet Invert= 9.60', Outlet Invert= 8.58'



Summary for Pond 2P: SCM A-1

Inflow Area = 9,182 sf, 25.00% Impervious, Inflow Depth = 1.84" for SC-002yr event
Inflow = 0.21 cfs @ 9.97 hrs, Volume= 1,411 cf
Outflow = 0.05 cfs @ 9.83 hrs, Volume= 1,411 cf, Atten= 74%, Lag= 0.0 min
Discarded = 0.05 cfs @ 9.83 hrs, Volume= 1,411 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.07' @ 10.67 hrs Surf.Area= 9,182 sf Storage= 252 cf

Plug-Flow detention time= 34.4 min calculated for 1,411 cf (100% of inflow)
Center-of-Mass det. time= 34.4 min (815.2 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	4,591 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 11,478 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.00	9,182	0	0
14.00	9,182	9,182	9,182
14.50	1	2,296	11,478

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.45'	**0.5" x 20.0" Horiz. Orifice/Grate X 2.00 columns** X 24 rows C= 0.600 in 24.0" x 24.0" Grate (83% open area) Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 9.83 hrs HW=13.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 4P: SCM B-1

Inflow Area = 811 sf, 25.00% Impervious, Inflow Depth = 1.84" for SC-002yr event
Inflow = 0.02 cfs @ 9.97 hrs, Volume= 125 cf
Outflow = 0.00 cfs @ 9.76 hrs, Volume= 125 cf, Atten= 74%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.76 hrs, Volume= 125 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.06' @ 10.67 hrs Surf.Area= 811 sf Storage= 20 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 25.1 min (806.0 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	178 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 446 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
14.55	811	446	446

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.76 hrs HW=14.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: SCM C-1

Inflow Area = 1,117 sf, 25.00% Impervious, Inflow Depth = 1.84" for SC-002yr event
Inflow = 0.03 cfs @ 9.97 hrs, Volume= 172 cf
Outflow = 0.01 cfs @ 9.76 hrs, Volume= 172 cf, Atten= 74%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.76 hrs, Volume= 172 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.06' @ 10.67 hrs Surf.Area= 1,117 sf Storage= 28 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 25.1 min (806.0 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	246 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 614 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	1,117	0	0
14.55	1,117	614	614

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.76 hrs HW=14.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 8P: SCM D-1 Bioretention

Inflow Area = 8,718 sf, 83.85% Impervious, Inflow Depth = 2.71" for SC-002yr event
Inflow = 0.29 cfs @ 9.96 hrs, Volume= 1,972 cf
Outflow = 0.01 cfs @ 4.46 hrs, Volume= 1,972 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 4.46 hrs, Volume= 1,972 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.48' @ 24.01 hrs Surf.Area= 1,408 sf Storage= 1,345 cf

Plug-Flow detention time= 1,465.5 min calculated for 1,972 cf (100% of inflow)
Center-of-Mass det. time= 1,465.3 min (2,185.8 - 720.6)

Volume	Invert	Avail.Storage	Storage Description
#1	12.70'	1,690 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.70	1,408	0.0	0	0
14.70	1,408	40.0	1,126	1,126
16.70	1,408	20.0	563	1,690

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.70'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	16.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 4.46 hrs HW=12.74' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.70' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 10P: SCM E-1

Inflow Area = 4,503 sf, 41.97% Impervious, Inflow Depth = 2.10" for SC-002yr event
Inflow = 0.12 cfs @ 9.97 hrs, Volume= 787 cf
Outflow = 0.00 cfs @ 7.50 hrs, Volume= 787 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.00 cfs @ 7.50 hrs, Volume= 787 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.41' @ 22.63 hrs Surf.Area= 811 sf Storage= 457 cf

Plug-Flow detention time= 908.4 min calculated for 787 cf (100% of inflow)
Center-of-Mass det. time= 908.3 min (1,666.6 - 758.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,298 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
15.44	811	1,168	1,168
15.60	811	130	1,298

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.44'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 7.50 hrs HW=14.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 12P: SCM F-1

Inflow Area = 673 sf, 25.00% Impervious, Inflow Depth = 1.84" for SC-002yr event
Inflow = 0.02 cfs @ 9.97 hrs, Volume= 103 cf
Outflow = 0.00 cfs @ 9.84 hrs, Volume= 103 cf, Atten= 74%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.84 hrs, Volume= 103 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.32' @ 10.67 hrs Surf.Area= 673 sf Storage= 19 cf

Plug-Flow detention time= 34.8 min calculated for 103 cf (100% of inflow)
Center-of-Mass det. time= 34.8 min (815.7 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	13.25'	417 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,043 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.25	673	0	0
14.80	673	1,043	1,043

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.75'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.84 hrs HW=13.27' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.25' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 14P: SCM G-1

Inflow Area = 678 sf, 47.01% Impervious, Inflow Depth = 2.17" for SC-002yr event
Inflow = 0.02 cfs @ 9.97 hrs, Volume= 123 cf
Outflow = 0.00 cfs @ 9.61 hrs, Volume= 123 cf, Atten= 85%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.61 hrs, Volume= 123 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.26' @ 11.33 hrs Surf.Area= 479 sf Storage= 30 cf

Plug-Flow detention time= 84.6 min calculated for 123 cf (100% of inflow)
Center-of-Mass det. time= 84.6 min (837.2 - 752.6)

Volume	Invert	Avail.Storage	Storage Description
#1	13.10'	297 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 742 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.10	479	0	0
14.65	479	742	742

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.61'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.61 hrs HW=13.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 16P: SCM H-1

Inflow Area = 1,827 sf, 41.54% Impervious, Inflow Depth = 2.09" for SC-002yr event
Inflow = 0.05 cfs @ 9.97 hrs, Volume= 318 cf
Outflow = 0.01 cfs @ 9.70 hrs, Volume= 318 cf, Atten= 83%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.70 hrs, Volume= 318 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.23' @ 11.06 hrs Surf.Area= 1,424 sf Storage= 72 cf

Plug-Flow detention time= 65.7 min calculated for 318 cf (100% of inflow)
Center-of-Mass det. time= 65.7 min (824.5 - 758.8)

Volume	Invert	Avail.Storage	Storage Description
#1	12.10'	911 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,278 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.10	1,424	0	0
13.70	1,424	2,278	2,278

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	13.67'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.70 hrs HW=12.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 18P: SCM I-1

Inflow Area = 1,232 sf, 26.54% Impervious, Inflow Depth = 1.97" for SC-002yr event
Inflow = 0.03 cfs @ 9.97 hrs, Volume= 202 cf
Outflow = 0.00 cfs @ 9.47 hrs, Volume= 202 cf, Atten= 88%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.47 hrs, Volume= 202 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.64' @ 12.56 hrs Surf.Area= 620 sf Storage= 59 cf

Plug-Flow detention time= 154.6 min calculated for 202 cf (100% of inflow)
Center-of-Mass det. time= 154.6 min (929.5 - 774.9)

Volume	Invert	Avail.Storage	Storage Description
#1	13.40'	397 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 992 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.40	620	0	0
15.00	620	992	992

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.40'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.90'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.47 hrs HW=13.42' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.40' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 20P: SCM J-1

Inflow Area = 1,438 sf, 36.28% Impervious, Inflow Depth = 2.10" for SC-002yr event
Inflow = 0.04 cfs @ 9.97 hrs, Volume= 252 cf
Outflow = 0.00 cfs @ 9.17 hrs, Volume= 252 cf, Atten= 90%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.17 hrs, Volume= 252 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.33' @ 13.35 hrs Surf.Area= 635 sf Storage= 83 cf

Plug-Flow detention time= 226.8 min calculated for 252 cf (100% of inflow)
Center-of-Mass det. time= 226.8 min (989.6 - 762.8)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	406 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,016 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	635	0	0
15.60	635	1,016	1,016

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.17 hrs HW=14.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 21P: SCM K-1 Bioretention

Inflow Area = 9,273 sf, 87.86% Impervious, Inflow Depth = 2.78" for SC-002yr event
Inflow = 0.32 cfs @ 9.96 hrs, Volume= 2,146 cf
Outflow = 0.03 cfs @ 13.41 hrs, Volume= 2,005 cf, Atten= 92%, Lag= 206.8 min
Discarded = 0.01 cfs @ 3.54 hrs, Volume= 1,633 cf
Primary = 0.02 cfs @ 13.41 hrs, Volume= 371 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.21' @ 13.41 hrs Surf.Area= 1,126 sf Storage= 1,263 cf

Plug-Flow detention time= 1,335.4 min calculated for 2,005 cf (93% of inflow)
Center-of-Mass det. time= 1,291.9 min (2,009.8 - 717.9)

Volume	Invert	Avail.Storage	Storage Description
#1	11.60'	1,351 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
11.60	1,126	0.0	0	0
13.60	1,126	40.0	901	901
15.60	1,126	20.0	450	1,351

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.60'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.20'	**8.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir**

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 3.54 hrs HW=11.64' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 13.41 hrs HW=15.21' (Free Discharge)
├**2=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.28 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 24P: SCM L-1 Bioretetnion

Inflow Area = 13,204 sf, 95.42% Impervious, Inflow Depth = 2.90" for SC-002yr event
Inflow = 0.48 cfs @ 9.96 hrs, Volume= 3,186 cf
Outflow = 0.05 cfs @ 12.16 hrs, Volume= 2,371 cf, Atten= 89%, Lag= 132.1 min
Discarded = 0.01 cfs @ 12.16 hrs, Volume= 1,554 cf
Primary = 0.04 cfs @ 12.16 hrs, Volume= 818 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 15.11' @ 12.16 hrs Surf.Area= 605 sf Storage= 1,893 cf

Plug-Flow detention time= 1,207.8 min calculated for 2,371 cf (74% of inflow)
Center-of-Mass det. time= 1,074.1 min (1,787.1 - 713.0)

Volume	Invert	Avail.Storage	Storage Description
#1	8.00'	2,009 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
8.00	605	0.0	0	0	605
13.30	605	40.0	1,283	1,283	1,067
14.30	605	20.0	121	1,404	1,154
15.30	605	100.0	605	2,009	1,242

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.10'	**8.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 12.16 hrs HW=15.11' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.02 cfs @ 12.16 hrs HW=15.11' (Free Discharge)
├**2=Orifice/Grate** (Weir Controls 0.02 cfs @ 0.32 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 26P: Culvert under Via Real

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 0.67" for SC-002yr event
Inflow = 0.41 cfs @ 10.28 hrs, Volume= 5,130 cf
Primary = 0.41 cfs @ 10.28 hrs, Volume= 5,130 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 29P: Treated and Retained

Inflow Area = 74,332 sf, 66.17% Impervious, Inflow Depth = 0.35" for SC-002yr event
Inflow = 0.09 cfs @ 13.38 hrs, Volume= 2,174 cf
Primary = 0.09 cfs @ 13.38 hrs, Volume= 2,174 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 32P: SCM N-1

Inflow Area = 3,325 sf, 18.91% Impervious, Inflow Depth = 1.70" for SC-002yr event
Inflow = 0.07 cfs @ 9.97 hrs, Volume= 470 cf
Outflow = 0.01 cfs @ 10.89 hrs, Volume= 470 cf, Atten= 79%, Lag= 55.0 min
Discarded = 0.01 cfs @ 10.89 hrs, Volume= 470 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 14.19' @ 10.89 hrs Surf.Area= 2,515 sf Storage= 93 cf

Plug-Flow detention time= 47.6 min calculated for 470 cf (100% of inflow)
Center-of-Mass det. time= 47.6 min (840.5 - 792.8)

Volume	Invert	Avail.Storage	Storage Description
#1	14.10'	1,559 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.10	2,515	0.0	0	0	2,515
15.65	2,515	40.0	1,559	1,559	2,791

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.10'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 10.89 hrs HW=14.19' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 34P: SCM O-1 Chamber

Inflow Area = 4,390 sf, 25.00% Impervious, Inflow Depth = 1.84" for SC-002yr event
Inflow = 0.16 cfs @ 9.88 hrs, Volume= 674 cf
Outflow = 0.00 cfs @ 21.50 hrs, Volume= 674 cf, Atten= 97%, Lag= 696.9 min
Discarded = 0.00 cfs @ 21.50 hrs, Volume= 674 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 10.90' @ 21.50 hrs Surf.Area= 730 sf Storage= 374 cf

Plug-Flow detention time= 782.4 min calculated for 674 cf (100% of inflow)
Center-of-Mass det. time= 782.5 min (1,551.4 - 768.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	10.50'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	12.60'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	10.00'	**0.250 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.00 cfs @ 21.50 hrs HW=10.90' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=10.00' (Free Discharge)
1=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 36P: SCM P-1 Chamber

Inflow Area = 5,511 sf, 79.66% Impervious, Inflow Depth = 2.79" for SC-002yr event
Inflow = 0.30 cfs @ 9.87 hrs, Volume= 1,280 cf
Outflow = 0.06 cfs @ 10.09 hrs, Volume= 1,159 cf, Atten= 79%, Lag= 13.2 min
Discarded = 0.00 cfs @ 10.09 hrs, Volume= 613 cf
Primary = 0.06 cfs @ 10.09 hrs, Volume= 546 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 10.40' @ 10.09 hrs Surf.Area= 275 sf Storage= 539 cf

Plug-Flow detention time= 878.6 min calculated for 1,159 cf (91% of inflow)
Center-of-Mass det. time= 818.7 min (1,528.2 - 709.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.00'	329 cf	**11.00'W x 24.98'L x 4.00'H Field A** 1,099 cf Overall - 276 cf Embedded = 823 cf x 40.0% Voids
#2A	7.50'	276 cf	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	10.30'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.89'	**4.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.00 cfs @ 10.09 hrs HW=10.40' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.06 cfs @ 10.09 hrs HW=10.40' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.08 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 39P: SCM Q-1 Chamber

Inflow Area = 8,450 sf, 97.61% Impervious, Inflow Depth = 2.95" for SC-002yr event
Inflow = 0.48 cfs @ 9.87 hrs, Volume= 2,075 cf
Outflow = 0.03 cfs @ 12.88 hrs, Volume= 1,796 cf, Atten= 94%, Lag= 180.7 min
Discarded = 0.01 cfs @ 12.88 hrs, Volume= 1,357 cf
Primary = 0.02 cfs @ 12.88 hrs, Volume= 439 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 11.08' @ 12.88 hrs Surf.Area= 730 sf Storage= 1,227 cf

Plug-Flow detention time= 1,273.5 min calculated for 1,796 cf (87% of inflow)
Center-of-Mass det. time= 1,192.0 min (1,891.6 - 699.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	8.50'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	9.00'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.50'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	11.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.50'	**2.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 12.88 hrs HW=11.08' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.02 cfs @ 12.88 hrs HW=11.08' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 0.94 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S: A-1

Runoff = 0.36 cfs @ 9.97 hrs, Volume= 2,354 cf, Depth= 3.08"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
9,182	85	1/2 acre lots, 25% imp, HSG D
6,887	81	75.00% Pervious Area
2,296	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 3S: B-1

Runoff = 0.03 cfs @ 9.97 hrs, Volume= 208 cf, Depth= 3.08"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
811	85	1/2 acre lots, 25% imp, HSG D
608	81	75.00% Pervious Area
203	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 5S: C-1

Runoff = 0.04 cfs @ 9.97 hrs, Volume= 286 cf, Depth= 3.08"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
1,117	85	1/2 acre lots, 25% imp, HSG D
838	81	75.00% Pervious Area
279	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 7S: D-1

Runoff = 0.44 cfs @ 9.96 hrs, Volume= 2,964 cf, Depth= 4.08"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
7,310	98	Roofs, HSG D
1,408	80	>75% Grass cover, Good, HSG D
8,718	95	Weighted Average
1,408	80	16.15% Pervious Area
7,310	98	83.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 9S: E-1

Runoff = 0.19 cfs @ 9.96 hrs, Volume= 1,264 cf, Depth= 3.37"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
3,484	85	1/2 acre lots, 25% imp, HSG D
1,019	98	Paved parking, HSG D
4,503	88	Weighted Average
2,613	81	58.03% Pervious Area
1,890	98	41.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 11S: F-1

Runoff = 0.03 cfs @ 9.97 hrs, Volume= 173 cf, Depth= 3.08"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
673	85	1/2 acre lots, 25% imp, HSG D
505	81	75.00% Pervious Area
168	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 13S: G-1

Runoff = 0.03 cfs @ 9.96 hrs, Volume= 195 cf, Depth= 3.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
479	85	1/2 acre lots, 25% imp, HSG D
199	98	Paved parking, HSG D
678	89	Weighted Average
359	81	52.99% Pervious Area
319	98	47.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 15S: H-1

Runoff = 0.08 cfs @ 9.96 hrs, Volume= 512 cf, Depth= 3.36"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
1,424	85	1/2 acre lots, 25% imp, HSG D
403	98	Paved parking, HSG D
1,827	88	Weighted Average
1,068	81	58.46% Pervious Area
759	98	41.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 17S: I-1

Runoff = 0.05 cfs @ 9.97 hrs, Volume= 332 cf, Depth= 3.24"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
620	85	1/2 acre lots, 25% imp, HSG D
172	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,232	87	Weighted Average
905	83	73.46% Pervious Area
327	98	26.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 19S: J-1

Runoff = 0.06 cfs @ 9.96 hrs, Volume= 406 cf, Depth= 3.39"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
635	85	1/2 acre lots, 25% imp, HSG D
363	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,438	89	Weighted Average
916	83	63.72% Pervious Area
522	98	36.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 22S: K-1

Runoff = 0.48 cfs @ 9.96 hrs, Volume= 3,209 cf, Depth= 4.15"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
8,147	98	Roofs, HSG D
1,126	80	>75% Grass cover, Good, HSG D
9,273	96	Weighted Average
1,126	80	12.14% Pervious Area
8,147	98	87.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 23S: L-1

Runoff = 0.70 cfs @ 9.96 hrs, Volume= 4,721 cf, Depth= 4.29"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
12,599	98	Roofs, HSG D
605	80	>75% Grass cover, Good, HSG D
13,204	97	Weighted Average
605	80	4.58% Pervious Area
12,599	98	95.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 25S: M-1

Runoff = 1.07 cfs @ 9.88 hrs, Volume= 4,444 cf, Depth= 3.18"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
3,061	98	Paved roads w/curbs & sewers, HSG D
13,696	84	Pasture/grassland/range, Fair, HSG D
16,757	87	Weighted Average
13,696	84	81.73% Pervious Area
3,061	98	18.27% Impervious Area

Summary for Subcatchment 27S: Z-1 (unfiltered)

Runoff = 0.10 cfs @ 9.87 hrs, Volume= 414 cf, Depth= 4.24"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
1,067	98	Paved parking, HSG D
104	84	Pasture/grassland/range, Fair, HSG D
1,171	97	Weighted Average
104	84	8.88% Pervious Area
1,067	98	91.12% Impervious Area

Summary for Subcatchment 30S: Pre-Project

Runoff = 8.39 cfs @ 9.87 hrs, Volume= 34,943 cf, Depth= 3.68"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
32,878	98	Paved parking, HSG D
81,040	89	<50% Grass cover, Poor, HSG D
113,918	92	Weighted Average
81,040	89	71.14% Pervious Area
32,878	98	28.86% Impervious Area

Summary for Subcatchment 31S: N-1

Runoff = 0.12 cfs @ 9.97 hrs, Volume= 803 cf, Depth= 2.90"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
2,515	85	1/2 acre lots, 25% imp, HSG D
810	80	>75% Grass cover, Good, HSG D
3,325	84	Weighted Average
2,696	80	81.09% Pervious Area
629	98	18.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 33S: O-1

Runoff = 0.27 cfs @ 9.88 hrs, Volume= 1,125 cf, Depth= 3.08"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
4,390	85	1/2 acre lots, 25% imp, HSG D
3,293	81	75.00% Pervious Area
1,098	98	25.00% Impervious Area

Summary for Subcatchment 35S: P-1

Runoff = 0.44 cfs @ 9.87 hrs, Volume= 1,918 cf, Depth= 4.18"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
4,390	98	Paved roads w/curbs & sewers, HSG D
1,121	89	<50% Grass cover, Poor, HSG D
5,511	96	Weighted Average
1,121	89	20.34% Pervious Area
4,390	98	79.66% Impervious Area

Summary for Subcatchment 38S: Q-1

Runoff = 0.70 cfs @ 9.87 hrs, Volume= 3,064 cf, Depth= 4.35"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-005yr Rainfall=4.61"

Area (sf)	CN	Description
8,248	98	Paved roads w/curbs & sewers, HSG D
202	89	<50% Grass cover, Poor, HSG D
8,450	98	Weighted Average
202	89	2.39% Pervious Area
8,248	98	97.61% Impervious Area

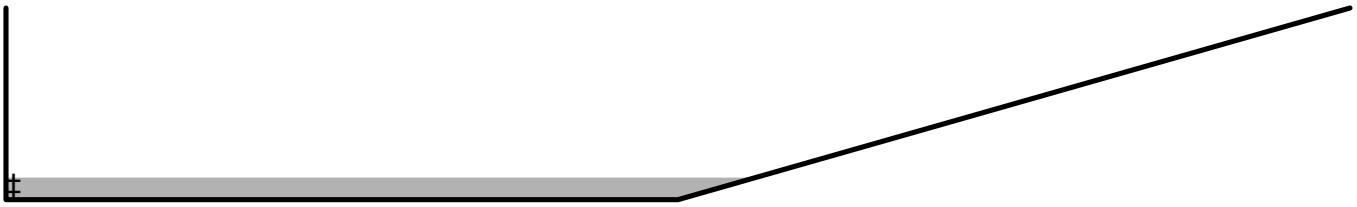
Summary for Reach 28R: SCM M-1 Bioswale

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 1.61" for SC-005yr event
Inflow = 1.61 cfs @ 9.88 hrs, Volume= 12,350 cf
Outflow = 1.10 cfs @ 10.19 hrs, Volume= 12,350 cf, Atten= 32%, Lag= 19.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.25 fps, Min. Travel Time= 13.0 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 36.9 min

Peak Storage= 855 cf @ 9.98 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 3.00' Flow Area= 54.0 sf, Capacity= 45.65 cfs

12.00' x 3.00' deep channel, n= 0.200
Side Slope Z-value= 0.0 4.0 '/' Top Width= 24.00'
Length= 195.0' Slope= 0.0052 '/'
Inlet Invert= 9.60', Outlet Invert= 8.58'



Summary for Pond 2P: SCM A-1

Inflow Area = 9,182 sf, 25.00% Impervious, Inflow Depth = 3.08" for SC-005yr event
Inflow = 0.36 cfs @ 9.97 hrs, Volume= 2,354 cf
Outflow = 0.05 cfs @ 9.62 hrs, Volume= 2,354 cf, Atten= 85%, Lag= 0.0 min
Discarded = 0.05 cfs @ 9.62 hrs, Volume= 2,354 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.16' @ 11.45 hrs Surf.Area= 9,182 sf Storage= 593 cf

Plug-Flow detention time= 90.4 min calculated for 2,353 cf (100% of inflow)
Center-of-Mass det. time= 90.4 min (856.7 - 766.3)

Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	4,591 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 11,478 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.00	9,182	0	0
14.00	9,182	9,182	9,182
14.50	1	2,296	11,478

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.45'	**0.5" x 20.0" Horiz. Orifice/Grate X 2.00 columns** X 24 rows C= 0.600 in 24.0" x 24.0" Grate (83% open area) Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 9.62 hrs HW=13.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 4P: SCM B-1

Inflow Area = 811 sf, 25.00% Impervious, Inflow Depth = 3.08" for SC-005yr event
Inflow = 0.03 cfs @ 9.97 hrs, Volume= 208 cf
Outflow = 0.00 cfs @ 9.50 hrs, Volume= 208 cf, Atten= 85%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.50 hrs, Volume= 208 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.15' @ 11.45 hrs Surf.Area= 811 sf Storage= 50 cf

Plug-Flow detention time= 80.7 min calculated for 208 cf (100% of inflow)
Center-of-Mass det. time= 80.7 min (847.0 - 766.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	178 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 446 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
14.55	811	446	446

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.50 hrs HW=14.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: SCM C-1

Inflow Area = 1,117 sf, 25.00% Impervious, Inflow Depth = 3.08" for SC-005yr event
Inflow = 0.04 cfs @ 9.97 hrs, Volume= 286 cf
Outflow = 0.01 cfs @ 9.50 hrs, Volume= 286 cf, Atten= 85%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.50 hrs, Volume= 286 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.15' @ 11.45 hrs Surf.Area= 1,117 sf Storage= 69 cf

Plug-Flow detention time= 80.7 min calculated for 286 cf (100% of inflow)
Center-of-Mass det. time= 80.7 min (847.0 - 766.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	246 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 614 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	1,117	0	0
14.55	1,117	614	614

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.50 hrs HW=14.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 8P: SCM D-1 Bioretention

Inflow Area = 8,718 sf, 83.85% Impervious, Inflow Depth = 4.08" for SC-005yr event
Inflow = 0.44 cfs @ 9.96 hrs, Volume= 2,964 cf
Outflow = 0.05 cfs @ 11.83 hrs, Volume= 2,787 cf, Atten= 88%, Lag= 112.1 min
Discarded = 0.01 cfs @ 2.93 hrs, Volume= 2,057 cf
Primary = 0.05 cfs @ 11.83 hrs, Volume= 730 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 16.30' @ 11.83 hrs Surf.Area= 1,408 sf Storage= 1,578 cf

Plug-Flow detention time= 1,215.8 min calculated for 2,787 cf (94% of inflow)
Center-of-Mass det. time= 1,175.5 min (1,888.2 - 712.7)

Volume	Invert	Avail.Storage	Storage Description
#1	12.70'	1,690 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.70	1,408	0.0	0	0
14.70	1,408	40.0	1,126	1,126
16.70	1,408	20.0	563	1,690

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.70'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	16.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 2.93 hrs HW=12.74' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 11.83 hrs HW=16.30' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.12 fps)

Summary for Pond 10P: SCM E-1

Inflow Area = 4,503 sf, 41.97% Impervious, Inflow Depth = 3.37" for SC-005yr event
Inflow = 0.19 cfs @ 9.96 hrs, Volume= 1,264 cf
Outflow = 0.05 cfs @ 10.63 hrs, Volume= 1,264 cf, Atten= 75%, Lag= 39.9 min
Discarded = 0.00 cfs @ 5.79 hrs, Volume= 828 cf
Primary = 0.04 cfs @ 10.63 hrs, Volume= 436 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.44' @ 10.63 hrs Surf.Area= 811 sf Storage= 468 cf

Plug-Flow detention time= 630.3 min calculated for 1,264 cf (100% of inflow)
Center-of-Mass det. time= 630.3 min (1,377.8 - 747.5)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,298 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
15.44	811	1,168	1,168
15.60	811	130	1,298

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.44'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 5.79 hrs HW=14.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.02 cfs @ 10.63 hrs HW=15.44' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.02 cfs @ 0.15 fps)

Summary for Pond 12P: SCM F-1

Inflow Area = 673 sf, 25.00% Impervious, Inflow Depth = 3.08" for SC-005yr event
Inflow = 0.03 cfs @ 9.97 hrs, Volume= 173 cf
Outflow = 0.00 cfs @ 9.62 hrs, Volume= 173 cf, Atten= 85%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.62 hrs, Volume= 173 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.41' @ 11.45 hrs Surf.Area= 673 sf Storage= 44 cf

Plug-Flow detention time= 90.9 min calculated for 172 cf (100% of inflow)
Center-of-Mass det. time= 90.9 min (857.2 - 766.3)

Volume	Invert	Avail.Storage	Storage Description
#1	13.25'	417 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,043 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.25	673	0	0
14.80	673	1,043	1,043

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.75'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.62 hrs HW=13.27' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.25' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14P: SCM G-1

Inflow Area = 678 sf, 47.01% Impervious, Inflow Depth = 3.46" for SC-005yr event
Inflow = 0.03 cfs @ 9.96 hrs, Volume= 195 cf
Outflow = 0.00 cfs @ 8.98 hrs, Volume= 195 cf, Atten= 91%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.98 hrs, Volume= 195 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.44' @ 13.21 hrs Surf.Area= 479 sf Storage= 65 cf

Plug-Flow detention time= 226.5 min calculated for 195 cf (100% of inflow)
Center-of-Mass det. time= 226.5 min (968.9 - 742.5)

Volume	Invert	Avail.Storage	Storage Description
#1	13.10'	297 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 742 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.10	479	0	0
14.65	479	742	742

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.61'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.98 hrs HW=13.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 16P: SCM H-1

Inflow Area = 1,827 sf, 41.54% Impervious, Inflow Depth = 3.36" for SC-005yr event
Inflow = 0.08 cfs @ 9.96 hrs, Volume= 512 cf
Outflow = 0.01 cfs @ 9.19 hrs, Volume= 512 cf, Atten= 89%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.19 hrs, Volume= 512 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.38' @ 12.69 hrs Surf.Area= 1,424 sf Storage= 158 cf

Plug-Flow detention time= 177.9 min calculated for 512 cf (100% of inflow)
Center-of-Mass det. time= 177.9 min (925.8 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	12.10'	911 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,278 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.10	1,424	0	0
13.70	1,424	2,278	2,278

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	13.67'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.19 hrs HW=12.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 18P: SCM I-1

Inflow Area = 1,232 sf, 26.54% Impervious, Inflow Depth = 3.24" for SC-005yr event
Inflow = 0.05 cfs @ 9.97 hrs, Volume= 332 cf
Outflow = 0.00 cfs @ 8.73 hrs, Volume= 332 cf, Atten= 93%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.73 hrs, Volume= 332 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.94' @ 15.41 hrs Surf.Area= 620 sf Storage= 135 cf

Plug-Flow detention time= 395.7 min calculated for 332 cf (100% of inflow)
Center-of-Mass det. time= 395.7 min (1,156.0 - 760.3)

Volume	Invert	Avail.Storage	Storage Description
#1	13.40'	397 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 992 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.40	620	0	0
15.00	620	992	992

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.40'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.90'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.73 hrs HW=13.42' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.40' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 20P: SCM J-1

Inflow Area = 1,438 sf, 36.28% Impervious, Inflow Depth = 3.39" for SC-005yr event
Inflow = 0.06 cfs @ 9.96 hrs, Volume= 406 cf
Outflow = 0.00 cfs @ 8.41 hrs, Volume= 406 cf, Atten= 94%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.41 hrs, Volume= 406 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.72' @ 17.63 hrs Surf.Area= 635 sf Storage= 182 cf

Plug-Flow detention time= 505.6 min calculated for 406 cf (100% of inflow)
Center-of-Mass det. time= 505.6 min (1,255.9 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	406 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,016 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	635	0	0
15.60	635	1,016	1,016

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.41 hrs HW=14.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 21P: SCM K-1 Bioretention

Inflow Area = 9,273 sf, 87.86% Impervious, Inflow Depth = 4.15" for SC-005yr event
Inflow = 0.48 cfs @ 9.96 hrs, Volume= 3,209 cf
Outflow = 0.23 cfs @ 10.26 hrs, Volume= 3,066 cf, Atten= 52%, Lag= 18.2 min
Discarded = 0.01 cfs @ 2.34 hrs, Volume= 1,651 cf
Primary = 0.22 cfs @ 10.26 hrs, Volume= 1,415 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.26' @ 10.26 hrs Surf.Area= 1,126 sf Storage= 1,275 cf

Plug-Flow detention time= 903.8 min calculated for 3,066 cf (96% of inflow)
Center-of-Mass det. time= 873.0 min (1,583.0 - 709.9)

Volume	Invert	Avail.Storage	Storage Description
#1	11.60'	1,351 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
11.60	1,126	0.0	0	0
13.60	1,126	40.0	901	901
15.60	1,126	20.0	450	1,351

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.60'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.20'	**8.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir**

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 2.34 hrs HW=11.64' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.21 cfs @ 10.26 hrs HW=15.26' (Free Discharge)
└**2=Orifice/Grate** (Weir Controls 0.21 cfs @ 0.82 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 24P: SCM L-1 Bioretetnion

Inflow Area = 13,204 sf, 95.42% Impervious, Inflow Depth = 4.29" for SC-005yr event
Inflow = 0.70 cfs @ 9.96 hrs, Volume= 4,721 cf
Outflow = 0.41 cfs @ 10.18 hrs, Volume= 3,905 cf, Atten= 42%, Lag= 13.0 min
Discarded = 0.01 cfs @ 10.18 hrs, Volume= 1,574 cf
Primary = 0.40 cfs @ 10.18 hrs, Volume= 2,331 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 15.17' @ 10.18 hrs Surf.Area= 605 sf Storage= 1,930 cf

Plug-Flow detention time= 781.6 min calculated for 3,905 cf (83% of inflow)
Center-of-Mass det. time= 680.7 min (1,385.7 - 705.0)

Volume	Invert	Avail.Storage	Storage Description
#1	8.00'	2,009 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
8.00	605	0.0	0	0	605
13.30	605	40.0	1,283	1,283	1,067
14.30	605	20.0	121	1,404	1,154
15.30	605	100.0	605	2,009	1,242

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.10'	**8.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 10.18 hrs HW=15.17' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.38 cfs @ 10.18 hrs HW=15.17' (Free Discharge)
├**2=Orifice/Grate** (Weir Controls 0.38 cfs @ 0.86 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 26P: Culvert under Via Real

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 1.61" for SC-005yr event
Inflow = 1.10 cfs @ 10.19 hrs, Volume= 12,350 cf
Primary = 1.10 cfs @ 10.19 hrs, Volume= 12,350 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 29P: Treated and Retained

Inflow Area = 74,332 sf, 66.17% Impervious, Inflow Depth = 1.21" for SC-005yr event
Inflow = 0.78 cfs @ 10.25 hrs, Volume= 7,493 cf
Primary = 0.78 cfs @ 10.25 hrs, Volume= 7,493 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 32P: SCM N-1

Inflow Area = 3,325 sf, 18.91% Impervious, Inflow Depth = 2.90" for SC-005yr event
Inflow = 0.12 cfs @ 9.97 hrs, Volume= 803 cf
Outflow = 0.01 cfs @ 12.39 hrs, Volume= 803 cf, Atten= 88%, Lag= 145.1 min
Discarded = 0.01 cfs @ 12.39 hrs, Volume= 803 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 14.33' @ 12.39 hrs Surf.Area= 2,515 sf Storage= 232 cf

Plug-Flow detention time= 146.5 min calculated for 803 cf (100% of inflow)
Center-of-Mass det. time= 146.5 min (922.9 - 776.4)

Volume	Invert	Avail.Storage	Storage Description
#1	14.10'	1,559 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.10	2,515	0.0	0	0	2,515
15.65	2,515	40.0	1,559	1,559	2,791

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.10'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 12.39 hrs HW=14.33' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.10' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 34P: SCM O-1 Chamber

Inflow Area = 4,390 sf, 25.00% Impervious, Inflow Depth = 3.08" for SC-005yr event
Inflow = 0.27 cfs @ 9.88 hrs, Volume= 1,125 cf
Outflow = 0.01 cfs @ 24.00 hrs, Volume= 1,125 cf, Atten= 98%, Lag= 847.3 min
Discarded = 0.01 cfs @ 24.00 hrs, Volume= 1,125 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 11.62' @ 24.00 hrs Surf.Area= 730 sf Storage= 771 cf

Plug-Flow detention time= 1,381.0 min calculated for 1,125 cf (100% of inflow)
Center-of-Mass det. time= 1,381.2 min (2,135.5 - 754.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	10.50'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	12.60'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	10.00'	**0.250 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.01 cfs @ 24.00 hrs HW=11.62' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=10.00' (Free Discharge)
└**1=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 36P: SCM P-1 Chamber

Inflow Area = 5,511 sf, 79.66% Impervious, Inflow Depth = 4.18" for SC-005yr event
Inflow = 0.44 cfs @ 9.87 hrs, Volume= 1,918 cf
Outflow = 0.44 cfs @ 9.88 hrs, Volume= 1,796 cf, Atten= 0%, Lag= 0.6 min
Discarded = 0.00 cfs @ 9.88 hrs, Volume= 621 cf
Primary = 0.44 cfs @ 9.88 hrs, Volume= 1,175 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 10.59' @ 9.88 hrs Surf.Area= 275 sf Storage= 560 cf

Plug-Flow detention time= 588.7 min calculated for 1,796 cf (94% of inflow)
Center-of-Mass det. time= 546.7 min (1,247.1 - 700.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.00'	329 cf	**11.00'W x 24.98'L x 4.00'H Field A** 1,099 cf Overall - 276 cf Embedded = 823 cf x 40.0% Voids
#2A	7.50'	276 cf	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	10.30'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.89'	**4.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.00 cfs @ 9.88 hrs HW=10.59' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.44 cfs @ 9.88 hrs HW=10.59' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 0.44 cfs @ 1.83 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 39P: SCM Q-1 Chamber

Inflow Area = 8,450 sf, 97.61% Impervious, Inflow Depth = 4.35" for SC-005yr event
Inflow = 0.70 cfs @ 9.87 hrs, Volume= 3,064 cf
Outflow = 0.25 cfs @ 9.99 hrs, Volume= 2,781 cf, Atten= 64%, Lag= 7.4 min
Discarded = 0.01 cfs @ 9.99 hrs, Volume= 1,376 cf
Primary = 0.25 cfs @ 9.99 hrs, Volume= 1,405 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 11.28' @ 9.99 hrs Surf.Area= 730 sf Storage= 1,302 cf

Plug-Flow detention time= 859.3 min calculated for 2,781 cf (91% of inflow)
Center-of-Mass det. time= 799.8 min (1,491.1 - 691.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	8.50'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	9.00'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.50'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	11.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.50'	**2.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.99 hrs HW=11.28' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.24 cfs @ 9.99 hrs HW=11.28' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 0.24 cfs @ 1.79 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S: A-1

Runoff = 0.46 cfs @ 9.97 hrs, Volume= 3,011 cf, Depth= 3.94"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
9,182	85	1/2 acre lots, 25% imp, HSG D
6,887	81	75.00% Pervious Area
2,296	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 3S: B-1

Runoff = 0.04 cfs @ 9.97 hrs, Volume= 266 cf, Depth= 3.94"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
811	85	1/2 acre lots, 25% imp, HSG D
608	81	75.00% Pervious Area
203	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 5S: C-1

Runoff = 0.06 cfs @ 9.97 hrs, Volume= 366 cf, Depth= 3.94"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
1,117	85	1/2 acre lots, 25% imp, HSG D
838	81	75.00% Pervious Area
279	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 7S: D-1

Runoff = 0.54 cfs @ 9.96 hrs, Volume= 3,632 cf, Depth= 5.00"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
7,310	98	Roofs, HSG D
1,408	80	>75% Grass cover, Good, HSG D
8,718	95	Weighted Average
1,408	80	16.15% Pervious Area
7,310	98	83.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 9S: E-1

Runoff = 0.24 cfs @ 9.96 hrs, Volume= 1,594 cf, Depth= 4.25"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
3,484	85	1/2 acre lots, 25% imp, HSG D
1,019	98	Paved parking, HSG D
4,503	88	Weighted Average
2,613	81	58.03% Pervious Area
1,890	98	41.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 11S: F-1

Runoff = 0.03 cfs @ 9.97 hrs, Volume= 221 cf, Depth= 3.94"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
673	85	1/2 acre lots, 25% imp, HSG D
505	81	75.00% Pervious Area
168	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 13S: G-1

Runoff = 0.04 cfs @ 9.96 hrs, Volume= 245 cf, Depth= 4.34"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
479	85	1/2 acre lots, 25% imp, HSG D
199	98	Paved parking, HSG D
678	89	Weighted Average
359	81	52.99% Pervious Area
319	98	47.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 15S: H-1

Runoff = 0.10 cfs @ 9.96 hrs, Volume= 645 cf, Depth= 4.24"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
1,424	85	1/2 acre lots, 25% imp, HSG D
403	98	Paved parking, HSG D
1,827	88	Weighted Average
1,068	81	58.46% Pervious Area
759	98	41.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 17S: I-1

Runoff = 0.06 cfs @ 9.96 hrs, Volume= 422 cf, Depth= 4.11"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
620	85	1/2 acre lots, 25% imp, HSG D
172	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,232	87	Weighted Average
905	83	73.46% Pervious Area
327	98	26.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 19S: J-1

Runoff = 0.08 cfs @ 9.96 hrs, Volume= 512 cf, Depth= 4.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
635	85	1/2 acre lots, 25% imp, HSG D
363	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,438	89	Weighted Average
916	83	63.72% Pervious Area
522	98	36.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 22S: K-1

Runoff = 0.58 cfs @ 9.96 hrs, Volume= 3,924 cf, Depth= 5.08"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
8,147	98	Roofs, HSG D
1,126	80	>75% Grass cover, Good, HSG D
9,273	96	Weighted Average
1,126	80	12.14% Pervious Area
8,147	98	87.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 23S: L-1

Runoff = 0.85 cfs @ 9.96 hrs, Volume= 5,748 cf, Depth= 5.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
12,599	98	Roofs, HSG D
605	80	>75% Grass cover, Good, HSG D
13,204	97	Weighted Average
605	80	4.58% Pervious Area
12,599	98	95.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 25S: M-1

Runoff = 1.37 cfs @ 9.88 hrs, Volume= 5,666 cf, Depth= 4.06"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
3,061	98	Paved roads w/curbs & sewers, HSG D
13,696	84	Pasture/grassland/range, Fair, HSG D
16,757	87	Weighted Average
13,696	84	81.73% Pervious Area
3,061	98	18.27% Impervious Area

Summary for Subcatchment 27S: Z-1 (unfiltered)

Runoff = 0.12 cfs @ 9.87 hrs, Volume= 505 cf, Depth= 5.18"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
1,067	98	Paved parking, HSG D
104	84	Pasture/grassland/range, Fair, HSG D
1,171	97	Weighted Average
104	84	8.88% Pervious Area
1,067	98	91.12% Impervious Area

Summary for Subcatchment 30S: Pre-Project

Runoff = 10.43 cfs @ 9.87 hrs, Volume= 43,598 cf, Depth= 4.59"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
32,878	98	Paved parking, HSG D
81,040	89	<50% Grass cover, Poor, HSG D
113,918	92	Weighted Average
81,040	89	71.14% Pervious Area
32,878	98	28.86% Impervious Area

Summary for Subcatchment 31S: N-1

Runoff = 0.16 cfs @ 9.97 hrs, Volume= 1,037 cf, Depth= 3.74"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
2,515	85	1/2 acre lots, 25% imp, HSG D
810	80	>75% Grass cover, Good, HSG D
3,325	84	Weighted Average
2,696	80	81.09% Pervious Area
629	98	18.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 33S: O-1

Runoff = 0.34 cfs @ 9.88 hrs, Volume= 1,440 cf, Depth= 3.94"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
4,390	85	1/2 acre lots, 25% imp, HSG D
3,293	81	75.00% Pervious Area
1,098	98	25.00% Impervious Area

Summary for Subcatchment 35S: P-1

Runoff = 0.54 cfs @ 9.87 hrs, Volume= 2,345 cf, Depth= 5.11"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
4,390	98	Paved roads w/curbs & sewers, HSG D
1,121	89	<50% Grass cover, Poor, HSG D
5,511	96	Weighted Average
1,121	89	20.34% Pervious Area
4,390	98	79.66% Impervious Area

Summary for Subcatchment 38S: Q-1

Runoff = 0.85 cfs @ 9.87 hrs, Volume= 3,724 cf, Depth= 5.29"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-010yr Rainfall=5.55"

Area (sf)	CN	Description
8,248	98	Paved roads w/curbs & sewers, HSG D
202	89	<50% Grass cover, Poor, HSG D
8,450	98	Weighted Average
202	89	2.39% Pervious Area
8,248	98	97.61% Impervious Area

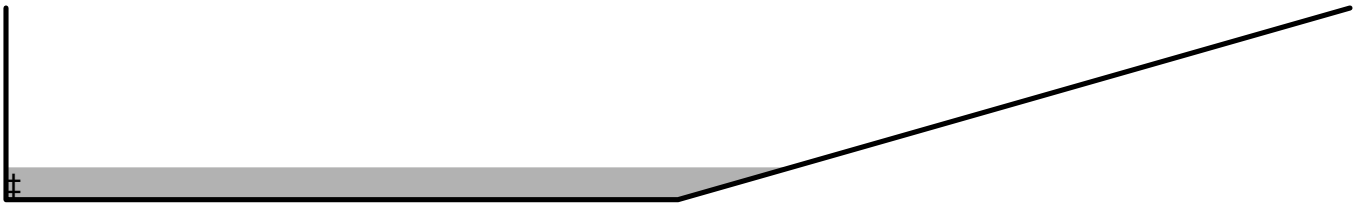
Summary for Reach 28R: SCM M-1 Bioswale

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 2.27" for SC-010yr event
Inflow = 2.62 cfs @ 9.90 hrs, Volume= 17,434 cf
Outflow = 2.07 cfs @ 10.20 hrs, Volume= 17,434 cf, Atten= 21%, Lag= 18.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.32 fps, Min. Travel Time= 10.3 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 33.9 min

Peak Storage= 1,281 cf @ 10.03 hrs
Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 3.00' Flow Area= 54.0 sf, Capacity= 45.65 cfs

12.00' x 3.00' deep channel, n= 0.200
Side Slope Z-value= 0.0 4.0 '/' Top Width= 24.00'
Length= 195.0' Slope= 0.0052 '/'
Inlet Invert= 9.60', Outlet Invert= 8.58'



Summary for Pond 2P: SCM A-1

Inflow Area = 9,182 sf, 25.00% Impervious, Inflow Depth = 3.94" for SC-010yr event
Inflow = 0.46 cfs @ 9.97 hrs, Volume= 3,011 cf
Outflow = 0.05 cfs @ 9.32 hrs, Volume= 3,011 cf, Atten= 88%, Lag= 0.0 min
Discarded = 0.05 cfs @ 9.32 hrs, Volume= 3,011 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.24' @ 12.37 hrs Surf.Area= 9,182 sf Storage= 892 cf

Plug-Flow detention time= 153.1 min calculated for 3,011 cf (100% of inflow)
Center-of-Mass det. time= 153.1 min (912.1 - 759.0)

Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	4,591 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 11,478 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.00	9,182	0	0
14.00	9,182	9,182	9,182
14.50	1	2,296	11,478

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.45'	**0.5" x 20.0" Horiz. Orifice/Grate X 2.00 columns** X 24 rows C= 0.600 in 24.0" x 24.0" Grate (83% open area) Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 9.32 hrs HW=13.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 4P: SCM B-1

Inflow Area = 811 sf, 25.00% Impervious, Inflow Depth = 3.94" for SC-010yr event
Inflow = 0.04 cfs @ 9.97 hrs, Volume= 266 cf
Outflow = 0.00 cfs @ 9.17 hrs, Volume= 266 cf, Atten= 88%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.17 hrs, Volume= 266 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.23' @ 12.37 hrs Surf.Area= 811 sf Storage= 76 cf

Plug-Flow detention time= 143.4 min calculated for 266 cf (100% of inflow)
Center-of-Mass det. time= 143.4 min (902.4 - 759.0)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	178 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 446 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
14.55	811	446	446

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.17 hrs HW=14.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: SCM C-1

Inflow Area = 1,117 sf, 25.00% Impervious, Inflow Depth = 3.94" for SC-010yr event
Inflow = 0.06 cfs @ 9.97 hrs, Volume= 366 cf
Outflow = 0.01 cfs @ 9.17 hrs, Volume= 366 cf, Atten= 88%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.17 hrs, Volume= 366 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.23' @ 12.37 hrs Surf.Area= 1,117 sf Storage= 105 cf

Plug-Flow detention time= 143.4 min calculated for 366 cf (100% of inflow)
Center-of-Mass det. time= 143.4 min (902.4 - 759.0)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	246 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 614 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	1,117	0	0
14.55	1,117	614	614

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.17 hrs HW=14.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 8P: SCM D-1 Bioretention

Inflow Area = 8,718 sf, 83.85% Impervious, Inflow Depth = 5.00" for SC-010yr event
Inflow = 0.54 cfs @ 9.96 hrs, Volume= 3,632 cf
Outflow = 0.18 cfs @ 10.45 hrs, Volume= 3,454 cf, Atten= 67%, Lag= 29.3 min
Discarded = 0.01 cfs @ 2.34 hrs, Volume= 2,067 cf
Primary = 0.17 cfs @ 10.45 hrs, Volume= 1,387 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 16.31' @ 10.45 hrs Surf.Area= 1,408 sf Storage= 1,579 cf

Plug-Flow detention time= 996.6 min calculated for 3,454 cf (95% of inflow)
Center-of-Mass det. time= 963.2 min (1,672.2 - 709.1)

Volume	Invert	Avail.Storage	Storage Description
#1	12.70'	1,690 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.70	1,408	0.0	0	0
14.70	1,408	40.0	1,126	1,126
16.70	1,408	20.0	563	1,690

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.70'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	16.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 2.34 hrs HW=12.74' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.08 cfs @ 10.45 hrs HW=16.31' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.08 cfs @ 0.23 fps)

Summary for Pond 10P: SCM E-1

Inflow Area = 4,503 sf, 41.97% Impervious, Inflow Depth = 4.25" for SC-010yr event
Inflow = 0.24 cfs @ 9.96 hrs, Volume= 1,594 cf
Outflow = 0.15 cfs @ 10.16 hrs, Volume= 1,594 cf, Atten= 38%, Lag= 11.7 min
Discarded = 0.00 cfs @ 4.22 hrs, Volume= 840 cf
Primary = 0.14 cfs @ 10.16 hrs, Volume= 753 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.45' @ 10.16 hrs Surf.Area= 811 sf Storage= 471 cf

Plug-Flow detention time= 507.6 min calculated for 1,594 cf (100% of inflow)
Center-of-Mass det. time= 507.6 min (1,249.6 - 741.9)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,298 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
15.44	811	1,168	1,168
15.60	811	130	1,298

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.44'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 4.22 hrs HW=14.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 10.16 hrs HW=15.45' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.12 cfs @ 0.26 fps)

Summary for Pond 12P: SCM F-1

Inflow Area = 673 sf, 25.00% Impervious, Inflow Depth = 3.94" for SC-010yr event
Inflow = 0.03 cfs @ 9.97 hrs, Volume= 221 cf
Outflow = 0.00 cfs @ 9.33 hrs, Volume= 221 cf, Atten= 88%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.33 hrs, Volume= 221 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.49' @ 12.37 hrs Surf.Area= 673 sf Storage= 66 cf

Plug-Flow detention time= 153.6 min calculated for 221 cf (100% of inflow)
Center-of-Mass det. time= 153.6 min (912.6 - 759.0)

Volume	Invert	Avail.Storage	Storage Description
#1	13.25'	417 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,043 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.25	673	0	0
14.80	673	1,043	1,043

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.75'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 9.33 hrs HW=13.27' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.25' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14P: SCM G-1

Inflow Area = 678 sf, 47.01% Impervious, Inflow Depth = 4.34" for SC-010yr event
Inflow = 0.04 cfs @ 9.96 hrs, Volume= 245 cf
Outflow = 0.00 cfs @ 8.62 hrs, Volume= 245 cf, Atten= 93%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.62 hrs, Volume= 245 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.59' @ 14.05 hrs Surf.Area= 479 sf Storage= 94 cf

Plug-Flow detention time= 340.1 min calculated for 245 cf (100% of inflow)
Center-of-Mass det. time= 340.1 min (1,077.5 - 737.3)

Volume	Invert	Avail.Storage	Storage Description
#1	13.10'	297 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 742 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.10	479	0	0
14.65	479	742	742

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.61'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.62 hrs HW=13.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 16P: SCM H-1

Inflow Area = 1,827 sf, 41.54% Impervious, Inflow Depth = 4.24" for SC-010yr event
Inflow = 0.10 cfs @ 9.96 hrs, Volume= 645 cf
Outflow = 0.01 cfs @ 8.82 hrs, Volume= 645 cf, Atten= 92%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.82 hrs, Volume= 645 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.51' @ 13.65 hrs Surf.Area= 1,424 sf Storage= 231 cf

Plug-Flow detention time= 279.8 min calculated for 645 cf (100% of inflow)
Center-of-Mass det. time= 279.8 min (1,022.1 - 742.3)

Volume	Invert	Avail.Storage	Storage Description
#1	12.10'	911 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,278 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.10	1,424	0	0
13.70	1,424	2,278	2,278

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	13.67'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 8.82 hrs HW=12.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 18P: SCM I-1

Inflow Area = 1,232 sf, 26.54% Impervious, Inflow Depth = 4.11" for SC-010yr event
Inflow = 0.06 cfs @ 9.96 hrs, Volume= 422 cf
Outflow = 0.00 cfs @ 8.31 hrs, Volume= 422 cf, Atten= 94%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.31 hrs, Volume= 422 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.21' @ 18.50 hrs Surf.Area= 620 sf Storage= 200 cf

Plug-Flow detention time= 565.1 min calculated for 422 cf (100% of inflow)
Center-of-Mass det. time= 565.1 min (1,318.3 - 753.1)

Volume	Invert	Avail.Storage	Storage Description
#1	13.40'	397 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 992 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.40	620	0	0
15.00	620	992	992

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.40'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.90'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.31 hrs HW=13.42' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.40' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 20P: SCM J-1

Inflow Area = 1,438 sf, 36.28% Impervious, Inflow Depth = 4.27" for SC-010yr event
Inflow = 0.08 cfs @ 9.96 hrs, Volume= 512 cf
Outflow = 0.00 cfs @ 7.52 hrs, Volume= 512 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.00 cfs @ 7.52 hrs, Volume= 512 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.05' @ 20.14 hrs Surf.Area= 635 sf Storage= 266 cf

Plug-Flow detention time= 702.6 min calculated for 512 cf (100% of inflow)
Center-of-Mass det. time= 702.6 min (1,446.8 - 744.1)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	406 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,016 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	635	0	0
15.60	635	1,016	1,016

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 7.52 hrs HW=14.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 21P: SCM K-1 Bioretention

Inflow Area = 9,273 sf, 87.86% Impervious, Inflow Depth = 5.08" for SC-010yr event
Inflow = 0.58 cfs @ 9.96 hrs, Volume= 3,924 cf
Outflow = 0.51 cfs @ 10.03 hrs, Volume= 3,780 cf, Atten= 12%, Lag= 4.0 min
Discarded = 0.01 cfs @ 1.88 hrs, Volume= 1,658 cf
Primary = 0.51 cfs @ 10.03 hrs, Volume= 2,122 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.31' @ 10.03 hrs Surf.Area= 1,126 sf Storage= 1,286 cf

Plug-Flow detention time= 744.3 min calculated for 3,780 cf (96% of inflow)
Center-of-Mass det. time= 718.6 min (1,424.9 - 706.4)

Volume	Invert	Avail.Storage	Storage Description
#1	11.60'	1,351 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
11.60	1,126	0.0	0	0
13.60	1,126	40.0	901	901
15.60	1,126	20.0	450	1,351

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.60'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.20'	**8.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir**

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 1.88 hrs HW=11.64' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.50 cfs @ 10.03 hrs HW=15.31' (Free Discharge)
└**2=Orifice/Grate** (Weir Controls 0.50 cfs @ 1.08 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 24P: SCM L-1 Bioretetnion

Inflow Area = 13,204 sf, 95.42% Impervious, Inflow Depth = 5.22" for SC-010yr event
Inflow = 0.85 cfs @ 9.96 hrs, Volume= 5,748 cf
Outflow = 0.80 cfs @ 10.00 hrs, Volume= 4,931 cf, Atten= 6%, Lag= 2.6 min
Discarded = 0.01 cfs @ 10.00 hrs, Volume= 1,584 cf
Primary = 0.79 cfs @ 10.00 hrs, Volume= 3,347 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 15.21' @ 10.00 hrs Surf.Area= 605 sf Storage= 1,955 cf

Plug-Flow detention time= 637.4 min calculated for 4,931 cf (86% of inflow)
Center-of-Mass det. time= 551.0 min (1,252.5 - 701.5)

Volume	Invert	Avail.Storage	Storage Description
#1	8.00'	2,009 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
8.00	605	0.0	0	0	605
13.30	605	40.0	1,283	1,283	1,067
14.30	605	20.0	121	1,404	1,154
15.30	605	100.0	605	2,009	1,242

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.10'	**8.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 10.00 hrs HW=15.21' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.77 cfs @ 10.00 hrs HW=15.21' (Free Discharge)
├**2=Orifice/Grate** (Weir Controls 0.77 cfs @ 1.09 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 26P: Culvert under Via Real

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 2.27" for SC-010yr event
Inflow = 2.07 cfs @ 10.20 hrs, Volume= 17,434 cf
Primary = 2.07 cfs @ 10.20 hrs, Volume= 17,434 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 29P: Treated and Retained

Inflow Area = 74,332 sf, 66.17% Impervious, Inflow Depth = 1.82" for SC-010yr event
Inflow = 1.86 cfs @ 10.01 hrs, Volume= 11,263 cf
Primary = 1.86 cfs @ 10.01 hrs, Volume= 11,263 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 32P: SCM N-1

Inflow Area = 3,325 sf, 18.91% Impervious, Inflow Depth = 3.74" for SC-010yr event
Inflow = 0.16 cfs @ 9.97 hrs, Volume= 1,037 cf
Outflow = 0.01 cfs @ 13.46 hrs, Volume= 1,037 cf, Atten= 91%, Lag= 209.9 min
Discarded = 0.01 cfs @ 13.46 hrs, Volume= 1,037 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 14.45' @ 13.46 hrs Surf.Area= 2,515 sf Storage= 357 cf

Plug-Flow detention time= 246.7 min calculated for 1,037 cf (100% of inflow)
Center-of-Mass det. time= 246.7 min (1,014.9 - 768.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.10'	1,559 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.10	2,515	0.0	0	0	2,515
15.65	2,515	40.0	1,559	1,559	2,791

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.10'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 13.46 hrs HW=14.45' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 34P: SCM O-1 Chamber

Inflow Area = 4,390 sf, 25.00% Impervious, Inflow Depth = 3.94" for SC-010yr event
Inflow = 0.34 cfs @ 9.88 hrs, Volume= 1,440 cf
Outflow = 0.01 cfs @ 24.00 hrs, Volume= 1,276 cf, Atten= 98%, Lag= 847.3 min
Discarded = 0.01 cfs @ 24.00 hrs, Volume= 1,276 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.19' @ 24.00 hrs Surf.Area= 730 sf Storage= 1,056 cf

Plug-Flow detention time= 1,554.4 min calculated for 1,276 cf (89% of inflow)
Center-of-Mass det. time= 1,485.9 min (2,232.9 - 747.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	10.50'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	12.60'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	10.00'	**0.250 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.01 cfs @ 24.00 hrs HW=12.19' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=10.00' (Free Discharge)
1=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 36P: SCM P-1 Chamber

Inflow Area = 5,511 sf, 79.66% Impervious, Inflow Depth = 5.11" for SC-010yr event
Inflow = 0.54 cfs @ 9.87 hrs, Volume= 2,345 cf
Outflow = 0.54 cfs @ 9.88 hrs, Volume= 2,224 cf, Atten= 0%, Lag= 0.6 min
Discarded = 0.00 cfs @ 9.88 hrs, Volume= 626 cf
Primary = 0.53 cfs @ 9.88 hrs, Volume= 1,598 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 10.62' @ 9.88 hrs Surf.Area= 275 sf Storage= 563 cf

Plug-Flow detention time= 486.5 min calculated for 2,223 cf (95% of inflow)
Center-of-Mass det. time= 451.5 min (1,147.8 - 696.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.00'	329 cf	**11.00'W x 24.98'L x 4.00'H Field A** 1,099 cf Overall - 276 cf Embedded = 823 cf x 40.0% Voids
#2A	7.50'	276 cf	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	10.30'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.89'	**4.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.00 cfs @ 9.88 hrs HW=10.62' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.53 cfs @ 9.88 hrs HW=10.62' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 0.53 cfs @ 1.92 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 39P: SCM Q-1 Chamber

Inflow Area =	8,450 sf,	97.61% Impervious,	Inflow Depth =	5.29"	for SC-010yr event
Inflow =	0.85 cfs @	9.87 hrs,	Volume=	3,724 cf	
Outflow =	0.71 cfs @	9.93 hrs,	Volume=	3,440 cf,	Atten= 16%, Lag= 3.7 min
Discarded =	0.01 cfs @	9.93 hrs,	Volume=	1,384 cf	
Primary =	0.71 cfs @	9.93 hrs,	Volume=	2,055 cf	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 11.51' @ 9.93 hrs Surf.Area= 730 sf Storage= 1,376 cf

Plug-Flow detention time= 709.7 min calculated for 3,440 cf (92% of inflow)
Center-of-Mass det. time= 658.9 min (1,346.7 - 687.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	8.50'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	9.00'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.50'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	11.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.50'	**2.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.93 hrs HW=11.51' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.71 cfs @ 9.93 hrs HW=11.51' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 0.71 cfs @ 2.44 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S: A-1

Runoff = 0.59 cfs @ 9.96 hrs, Volume= 3,841 cf, Depth= 5.02"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
9,182	85	1/2 acre lots, 25% imp, HSG D
6,887	81	75.00% Pervious Area
2,296	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 3S: B-1

Runoff = 0.05 cfs @ 9.96 hrs, Volume= 339 cf, Depth= 5.02"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
811	85	1/2 acre lots, 25% imp, HSG D
608	81	75.00% Pervious Area
203	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 5S: C-1

Runoff = 0.07 cfs @ 9.96 hrs, Volume= 467 cf, Depth= 5.02"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
1,117	85	1/2 acre lots, 25% imp, HSG D
838	81	75.00% Pervious Area
279	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 7S: D-1

Runoff = 0.66 cfs @ 9.96 hrs, Volume= 4,462 cf, Depth= 6.14"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
7,310	98	Roofs, HSG D
1,408	80	>75% Grass cover, Good, HSG D
8,718	95	Weighted Average
1,408	80	16.15% Pervious Area
7,310	98	83.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 9S: E-1

Runoff = 0.30 cfs @ 9.96 hrs, Volume= 2,007 cf, Depth= 5.35"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
3,484	85	1/2 acre lots, 25% imp, HSG D
1,019	98	Paved parking, HSG D
4,503	88	Weighted Average
2,613	81	58.03% Pervious Area
1,890	98	41.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 11S: F-1

Runoff = 0.04 cfs @ 9.96 hrs, Volume= 282 cf, Depth= 5.02"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
673	85	1/2 acre lots, 25% imp, HSG D
505	81	75.00% Pervious Area
168	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 13S: G-1

Runoff = 0.05 cfs @ 9.96 hrs, Volume= 308 cf, Depth= 5.45"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
479	85	1/2 acre lots, 25% imp, HSG D
199	98	Paved parking, HSG D
678	89	Weighted Average
359	81	52.99% Pervious Area
319	98	47.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 15S: H-1

Runoff = 0.12 cfs @ 9.96 hrs, Volume= 813 cf, Depth= 5.34"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
1,424	85	1/2 acre lots, 25% imp, HSG D
403	98	Paved parking, HSG D
1,827	88	Weighted Average
1,068	81	58.46% Pervious Area
759	98	41.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 17S: I-1

Runoff = 0.08 cfs @ 9.96 hrs, Volume= 535 cf, Depth= 5.21"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
620	85	1/2 acre lots, 25% imp, HSG D
172	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,232	87	Weighted Average
905	83	73.46% Pervious Area
327	98	26.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 19S: J-1

Runoff = 0.10 cfs @ 9.96 hrs, Volume= 644 cf, Depth= 5.38"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
635	85	1/2 acre lots, 25% imp, HSG D
363	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,438	89	Weighted Average
916	83	63.72% Pervious Area
522	98	36.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 22S: K-1

Runoff = 0.71 cfs @ 9.96 hrs, Volume= 4,809 cf, Depth= 6.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
8,147	98	Roofs, HSG D
1,126	80	>75% Grass cover, Good, HSG D
9,273	96	Weighted Average
1,126	80	12.14% Pervious Area
8,147	98	87.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 23S: L-1

Runoff = 1.03 cfs @ 9.96 hrs, Volume= 7,017 cf, Depth= 6.38"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
12,599	98	Roofs, HSG D
605	80	>75% Grass cover, Good, HSG D
13,204	97	Weighted Average
605	80	4.58% Pervious Area
12,599	98	95.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 25S: M-1

Runoff = 1.74 cfs @ 9.87 hrs, Volume= 7,203 cf, Depth= 5.16"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
3,061	98	Paved roads w/curbs & sewers, HSG D
13,696	84	Pasture/grassland/range, Fair, HSG D
16,757	87	Weighted Average
13,696	84	81.73% Pervious Area
3,061	98	18.27% Impervious Area

Summary for Subcatchment 27S: Z-1 (unfiltered)

Runoff = 0.14 cfs @ 9.87 hrs, Volume= 618 cf, Depth= 6.33"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
1,067	98	Paved parking, HSG D
104	84	Pasture/grassland/range, Fair, HSG D
1,171	97	Weighted Average
104	84	8.88% Pervious Area
1,067	98	91.12% Impervious Area

Summary for Subcatchment 30S: Pre-Project

Runoff = 12.93 cfs @ 9.87 hrs, Volume= 54,369 cf, Depth= 5.73"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
32,878	98	Paved parking, HSG D
81,040	89	<50% Grass cover, Poor, HSG D
113,918	92	Weighted Average
81,040	89	71.14% Pervious Area
32,878	98	28.86% Impervious Area

Summary for Subcatchment 31S: N-1

Runoff = 0.21 cfs @ 9.97 hrs, Volume= 1,334 cf, Depth= 4.81"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
2,515	85	1/2 acre lots, 25% imp, HSG D
810	80	>75% Grass cover, Good, HSG D
3,325	84	Weighted Average
2,696	80	81.09% Pervious Area
629	98	18.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 33S: O-1

Runoff = 0.44 cfs @ 9.88 hrs, Volume= 1,836 cf, Depth= 5.02"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
4,390	85	1/2 acre lots, 25% imp, HSG D
3,293	81	75.00% Pervious Area
1,098	98	25.00% Impervious Area

Summary for Subcatchment 35S: P-1

Runoff = 0.66 cfs @ 9.87 hrs, Volume= 2,874 cf, Depth= 6.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
4,390	98	Paved roads w/curbs & sewers, HSG D
1,121	89	<50% Grass cover, Poor, HSG D
5,511	96	Weighted Average
1,121	89	20.34% Pervious Area
4,390	98	79.66% Impervious Area

Summary for Subcatchment 38S: Q-1

Runoff = 1.03 cfs @ 9.87 hrs, Volume= 4,539 cf, Depth= 6.45"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-025yr Rainfall=6.71"

Area (sf)	CN	Description
8,248	98	Paved roads w/curbs & sewers, HSG D
202	89	<50% Grass cover, Poor, HSG D
8,450	98	Weighted Average
202	89	2.39% Pervious Area
8,248	98	97.61% Impervious Area

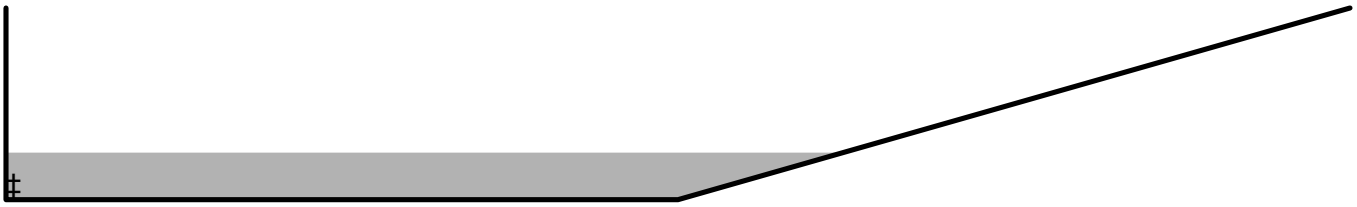
Summary for Reach 28R: SCM M-1 Bioswale

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 3.12" for SC-025yr event
Inflow = 4.88 cfs @ 9.90 hrs, Volume= 23,950 cf
Outflow = 3.92 cfs @ 10.12 hrs, Volume= 23,950 cf, Atten= 20%, Lag= 13.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.39 fps, Min. Travel Time= 8.2 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 31.2 min

Peak Storage= 1,937 cf @ 9.99 hrs
Average Depth at Peak Storage= 0.74'
Bank-Full Depth= 3.00' Flow Area= 54.0 sf, Capacity= 45.65 cfs

12.00' x 3.00' deep channel, n= 0.200
Side Slope Z-value= 0.0 4.0 '/' Top Width= 24.00'
Length= 195.0' Slope= 0.0052 '/'
Inlet Invert= 9.60', Outlet Invert= 8.58'



Summary for Pond 2P: SCM A-1

Inflow Area = 9,182 sf, 25.00% Impervious, Inflow Depth = 5.02" for SC-025yr event
Inflow = 0.59 cfs @ 9.96 hrs, Volume= 3,841 cf
Outflow = 0.05 cfs @ 8.95 hrs, Volume= 3,841 cf, Atten= 91%, Lag= 0.0 min
Discarded = 0.05 cfs @ 8.95 hrs, Volume= 3,841 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.36' @ 13.42 hrs Surf.Area= 9,182 sf Storage= 1,338 cf

Plug-Flow detention time= 251.3 min calculated for 3,840 cf (100% of inflow)
Center-of-Mass det. time= 251.3 min (1,003.0 - 751.7)

Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	4,591 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 11,478 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.00	9,182	0	0
14.00	9,182	9,182	9,182
14.50	1	2,296	11,478

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.45'	**0.5" x 20.0" Horiz. Orifice/Grate X 2.00 columns** X 24 rows C= 0.600 in 24.0" x 24.0" Grate (83% open area) Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 8.95 hrs HW=13.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 4P: SCM B-1

Inflow Area = 811 sf, 25.00% Impervious, Inflow Depth = 5.02" for SC-025yr event
Inflow = 0.05 cfs @ 9.96 hrs, Volume= 339 cf
Outflow = 0.00 cfs @ 8.79 hrs, Volume= 339 cf, Atten= 91%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.79 hrs, Volume= 339 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.36' @ 13.42 hrs Surf.Area= 811 sf Storage= 116 cf

Plug-Flow detention time= 241.6 min calculated for 339 cf (100% of inflow)
Center-of-Mass det. time= 241.6 min (993.3 - 751.7)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	178 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 446 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
14.55	811	446	446

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.79 hrs HW=14.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: SCM C-1

Inflow Area = 1,117 sf, 25.00% Impervious, Inflow Depth = 5.02" for SC-025yr event
Inflow = 0.07 cfs @ 9.96 hrs, Volume= 467 cf
Outflow = 0.01 cfs @ 8.79 hrs, Volume= 467 cf, Atten= 91%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.79 hrs, Volume= 467 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.36' @ 13.42 hrs Surf.Area= 1,117 sf Storage= 159 cf

Plug-Flow detention time= 241.6 min calculated for 467 cf (100% of inflow)
Center-of-Mass det. time= 241.6 min (993.3 - 751.7)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	246 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 614 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	1,117	0	0
14.55	1,117	614	614

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 8.79 hrs HW=14.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 8P: SCM D-1 Bioretention

Inflow Area = 8,718 sf, 83.85% Impervious, Inflow Depth = 6.14" for SC-025yr event
Inflow = 0.66 cfs @ 9.96 hrs, Volume= 4,462 cf
Outflow = 0.60 cfs @ 10.08 hrs, Volume= 4,282 cf, Atten= 9%, Lag= 7.3 min
Discarded = 0.01 cfs @ 1.85 hrs, Volume= 2,075 cf
Primary = 0.59 cfs @ 10.08 hrs, Volume= 2,207 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 16.33' @ 10.08 hrs Surf.Area= 1,408 sf Storage= 1,585 cf

Plug-Flow detention time= 815.7 min calculated for 4,281 cf (96% of inflow)
Center-of-Mass det. time= 787.9 min (1,493.6 - 705.7)

Volume	Invert	Avail.Storage	Storage Description
#1	12.70'	1,690 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.70	1,408	0.0	0	0
14.70	1,408	40.0	1,126	1,126
16.70	1,408	20.0	563	1,690

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.70'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	16.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 1.85 hrs HW=12.74' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.42 cfs @ 10.08 hrs HW=16.33' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.42 cfs @ 0.40 fps)

Summary for Pond 10P: SCM E-1

Inflow Area = 4,503 sf, 41.97% Impervious, Inflow Depth = 5.35" for SC-025yr event
Inflow = 0.30 cfs @ 9.96 hrs, Volume= 2,007 cf
Outflow = 0.31 cfs @ 9.97 hrs, Volume= 2,007 cf, Atten= 0%, Lag= 0.4 min
Discarded = 0.00 cfs @ 3.18 hrs, Volume= 850 cf
Primary = 0.31 cfs @ 9.97 hrs, Volume= 1,157 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.46' @ 9.97 hrs Surf.Area= 811 sf Storage= 474 cf

Plug-Flow detention time= 410.5 min calculated for 2,007 cf (100% of inflow)
Center-of-Mass det. time= 410.5 min (1,146.9 - 736.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,298 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
15.44	811	1,168	1,168
15.60	811	130	1,298

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.44'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 3.18 hrs HW=14.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.30 cfs @ 9.97 hrs HW=15.46' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.30 cfs @ 0.35 fps)

Summary for Pond 12P: SCM F-1

Inflow Area = 673 sf, 25.00% Impervious, Inflow Depth = 5.02" for SC-025yr event
Inflow = 0.04 cfs @ 9.96 hrs, Volume= 282 cf
Outflow = 0.00 cfs @ 8.95 hrs, Volume= 282 cf, Atten= 91%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.95 hrs, Volume= 282 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.61' @ 13.42 hrs Surf.Area= 673 sf Storage= 98 cf

Plug-Flow detention time= 251.8 min calculated for 281 cf (100% of inflow)
Center-of-Mass det. time= 251.7 min (1,003.5 - 751.7)

Volume	Invert	Avail.Storage	Storage Description
#1	13.25'	417 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,043 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.25	673	0	0
14.80	673	1,043	1,043

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.75'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.95 hrs HW=13.27' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.25' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14P: SCM G-1

Inflow Area = 678 sf, 47.01% Impervious, Inflow Depth = 5.45" for SC-025yr event
Inflow = 0.05 cfs @ 9.96 hrs, Volume= 308 cf
Outflow = 0.00 cfs @ 8.15 hrs, Volume= 308 cf, Atten= 94%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.15 hrs, Volume= 308 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.80' @ 16.83 hrs Surf.Area= 479 sf Storage= 135 cf

Plug-Flow detention time= 484.7 min calculated for 308 cf (100% of inflow)
Center-of-Mass det. time= 484.8 min (1,216.9 - 732.1)

Volume	Invert	Avail.Storage	Storage Description
#1	13.10'	297 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 742 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.10	479	0	0
14.65	479	742	742

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.61'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.15 hrs HW=13.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 16P: SCM H-1

Inflow Area = 1,827 sf, 41.54% Impervious, Inflow Depth = 5.34" for SC-025yr event
Inflow = 0.12 cfs @ 9.96 hrs, Volume= 813 cf
Outflow = 0.01 cfs @ 8.45 hrs, Volume= 813 cf, Atten= 93%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.45 hrs, Volume= 813 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.69' @ 15.23 hrs Surf.Area= 1,424 sf Storage= 334 cf

Plug-Flow detention time= 409.8 min calculated for 813 cf (100% of inflow)
Center-of-Mass det. time= 409.8 min (1,146.5 - 736.7)

Volume	Invert	Avail.Storage	Storage Description
#1	12.10'	911 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,278 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.10	1,424	0	0
13.70	1,424	2,278	2,278

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	13.67'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 8.45 hrs HW=12.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 18P: SCM I-1

Inflow Area = 1,232 sf, 26.54% Impervious, Inflow Depth = 5.21" for SC-025yr event
Inflow = 0.08 cfs @ 9.96 hrs, Volume= 535 cf
Outflow = 0.00 cfs @ 7.31 hrs, Volume= 535 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.00 cfs @ 7.31 hrs, Volume= 535 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.58' @ 20.85 hrs Surf.Area= 620 sf Storage= 292 cf

Plug-Flow detention time= 784.3 min calculated for 535 cf (100% of inflow)
Center-of-Mass det. time= 784.3 min (1,530.3 - 746.0)

Volume	Invert	Avail.Storage	Storage Description
#1	13.40'	397 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 992 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.40	620	0	0
15.00	620	992	992

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.40'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.90'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 7.31 hrs HW=13.42' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.40' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 20P: SCM J-1

Inflow Area = 1,438 sf, 36.28% Impervious, Inflow Depth = 5.38" for SC-025yr event
Inflow = 0.10 cfs @ 9.96 hrs, Volume= 644 cf
Outflow = 0.00 cfs @ 6.77 hrs, Volume= 644 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.00 cfs @ 6.77 hrs, Volume= 644 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.50' @ 22.13 hrs Surf.Area= 635 sf Storage= 380 cf

Plug-Flow detention time= 960.4 min calculated for 644 cf (100% of inflow)
Center-of-Mass det. time= 960.5 min (1,698.5 - 738.0)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	406 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,016 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	635	0	0
15.60	635	1,016	1,016

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 6.77 hrs HW=14.02' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 21P: SCM K-1 Bioretention

Inflow Area = 9,273 sf, 87.86% Impervious, Inflow Depth = 6.22" for SC-025yr event
Inflow = 0.71 cfs @ 9.96 hrs, Volume= 4,809 cf
Outflow = 0.71 cfs @ 9.97 hrs, Volume= 4,664 cf, Atten= 0%, Lag= 0.5 min
Discarded = 0.01 cfs @ 1.52 hrs, Volume= 1,663 cf
Primary = 0.70 cfs @ 9.97 hrs, Volume= 3,001 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.34' @ 9.97 hrs Surf.Area= 1,126 sf Storage= 1,292 cf

Plug-Flow detention time= 613.9 min calculated for 4,664 cf (97% of inflow)
Center-of-Mass det. time= 592.5 min (1,295.6 - 703.1)

Volume	Invert	Avail.Storage	Storage Description
#1	11.60'	1,351 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
11.60	1,126	0.0	0	0
13.60	1,126	40.0	901	901
15.60	1,126	20.0	450	1,351

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.60'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.20'	**8.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir**

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 1.52 hrs HW=11.64' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.70 cfs @ 9.97 hrs HW=15.34' (Free Discharge)
├**2=Orifice/Grate** (Weir Controls 0.70 cfs @ 1.21 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 24P: SCM L-1 Bioretetnion

Inflow Area = 13,204 sf, 95.42% Impervious, Inflow Depth = 6.38" for SC-025yr event
Inflow = 1.03 cfs @ 9.96 hrs, Volume= 7,017 cf
Outflow = 1.02 cfs @ 9.97 hrs, Volume= 6,200 cf, Atten= 1%, Lag= 0.8 min
Discarded = 0.01 cfs @ 9.97 hrs, Volume= 1,595 cf
Primary = 1.02 cfs @ 9.97 hrs, Volume= 4,604 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 15.23' @ 9.97 hrs Surf.Area= 605 sf Storage= 1,969 cf

Plug-Flow detention time= 523.2 min calculated for 6,199 cf (88% of inflow)
Center-of-Mass det. time= 449.8 min (1,148.1 - 698.3)

Volume	Invert	Avail.Storage	Storage Description
#1	8.00'	2,009 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
8.00	605	0.0	0	0	605
13.30	605	40.0	1,283	1,283	1,067
14.30	605	20.0	121	1,404	1,154
15.30	605	100.0	605	2,009	1,242

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.10'	**8.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.97 hrs HW=15.23' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=1.01 cfs @ 9.97 hrs HW=15.23' (Free Discharge)
├**2=Orifice/Grate** (Weir Controls 1.01 cfs @ 1.20 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 26P: Culvert under Via Real

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 3.12" for SC-025yr event
Inflow = 3.92 cfs @ 10.12 hrs, Volume= 23,950 cf
Primary = 3.92 cfs @ 10.12 hrs, Volume= 23,950 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 29P: Treated and Retained

Inflow Area = 74,332 sf, 66.17% Impervious, Inflow Depth = 2.60" for SC-025yr event
Inflow = 3.27 cfs @ 9.97 hrs, Volume= 16,129 cf
Primary = 3.27 cfs @ 9.97 hrs, Volume= 16,129 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 32P: SCM N-1

Inflow Area = 3,325 sf, 18.91% Impervious, Inflow Depth = 4.81" for SC-025yr event
Inflow = 0.21 cfs @ 9.97 hrs, Volume= 1,334 cf
Outflow = 0.02 cfs @ 14.57 hrs, Volume= 1,334 cf, Atten= 93%, Lag= 276.1 min
Discarded = 0.02 cfs @ 14.57 hrs, Volume= 1,334 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 14.63' @ 14.57 hrs Surf.Area= 2,515 sf Storage= 534 cf

Plug-Flow detention time= 374.5 min calculated for 1,334 cf (100% of inflow)
Center-of-Mass det. time= 374.5 min (1,134.6 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1	14.10'	1,559 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.10	2,515	0.0	0	0	2,515
15.65	2,515	40.0	1,559	1,559	2,791

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.10'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.02 cfs @ 14.57 hrs HW=14.63' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.10' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 34P: SCM O-1 Chamber

Inflow Area = 4,390 sf, 25.00% Impervious, Inflow Depth = 5.02" for SC-025yr event
Inflow = 0.44 cfs @ 9.88 hrs, Volume= 1,836 cf
Outflow = 0.02 cfs @ 17.77 hrs, Volume= 1,523 cf, Atten= 96%, Lag= 473.9 min
Discarded = 0.01 cfs @ 17.77 hrs, Volume= 1,347 cf
Primary = 0.01 cfs @ 17.77 hrs, Volume= 176 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.64' @ 17.77 hrs Surf.Area= 730 sf Storage= 1,254 cf

Plug-Flow detention time= 1,451.6 min calculated for 1,523 cf (83% of inflow)
Center-of-Mass det. time= 1,354.7 min (2,094.4 - 739.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	10.50'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	12.60'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	10.00'	**0.250 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.01 cfs @ 17.77 hrs HW=12.64' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 17.77 hrs HW=12.64' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.71 fps)

Summary for Pond 36P: SCM P-1 Chamber

Inflow Area = 5,511 sf, 79.66% Impervious, Inflow Depth = 6.26" for SC-025yr event
Inflow = 0.66 cfs @ 9.87 hrs, Volume= 2,874 cf
Outflow = 0.66 cfs @ 9.88 hrs, Volume= 2,753 cf, Atten= 0%, Lag= 0.5 min
Discarded = 0.00 cfs @ 9.88 hrs, Volume= 631 cf
Primary = 0.65 cfs @ 9.88 hrs, Volume= 2,122 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 10.66' @ 9.88 hrs Surf.Area= 275 sf Storage= 567 cf

Plug-Flow detention time= 402.8 min calculated for 2,752 cf (96% of inflow)
Center-of-Mass det. time= 373.7 min (1,066.2 - 692.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.00'	329 cf	**11.00'W x 24.98'L x 4.00'H Field A** 1,099 cf Overall - 276 cf Embedded = 823 cf x 40.0% Voids
#2A	7.50'	276 cf	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	10.30'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.89'	**4.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.00 cfs @ 9.88 hrs HW=10.66' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.65 cfs @ 9.88 hrs HW=10.66' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 0.65 cfs @ 2.03 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 39P: SCM Q-1 Chamber

Inflow Area =	8,450 sf,	97.61% Impervious,	Inflow Depth =	6.45"	for SC-025yr event
Inflow =	1.03 cfs @	9.87 hrs,	Volume=	4,539 cf	
Outflow =	0.95 cfs @	9.91 hrs,	Volume=	4,254 cf,	Atten= 7%, Lag= 2.5 min
Discarded =	0.01 cfs @	9.91 hrs,	Volume=	1,392 cf	
Primary =	0.95 cfs @	9.91 hrs,	Volume=	2,862 cf	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 11.65' @ 9.91 hrs Surf.Area= 730 sf Storage= 1,415 cf

Plug-Flow detention time= 587.7 min calculated for 4,254 cf (94% of inflow)
Center-of-Mass det. time= 544.9 min (1,229.5 - 684.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	8.50'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	9.00'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.50'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	11.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.50'	**2.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.91 hrs HW=11.65' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.95 cfs @ 9.91 hrs HW=11.65' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 0.95 cfs @ 2.74 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S: A-1

Runoff = 0.69 cfs @ 9.96 hrs, Volume= 4,458 cf, Depth= 5.83"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
9,182	85	1/2 acre lots, 25% imp, HSG D
6,887	81	75.00% Pervious Area
2,296	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 3S: B-1

Runoff = 0.06 cfs @ 9.96 hrs, Volume= 394 cf, Depth= 5.83"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
811	85	1/2 acre lots, 25% imp, HSG D
608	81	75.00% Pervious Area
203	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 5S: C-1

Runoff = 0.08 cfs @ 9.96 hrs, Volume= 542 cf, Depth= 5.83"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
1,117	85	1/2 acre lots, 25% imp, HSG D
838	81	75.00% Pervious Area
279	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 7S: D-1

Runoff = 0.75 cfs @ 9.96 hrs, Volume= 5,071 cf, Depth= 6.98"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
7,310	98	Roofs, HSG D
1,408	80	>75% Grass cover, Good, HSG D
8,718	95	Weighted Average
1,408	80	16.15% Pervious Area
7,310	98	83.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 9S: E-1

Runoff = 0.35 cfs @ 9.96 hrs, Volume= 2,313 cf, Depth= 6.16"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
3,484	85	1/2 acre lots, 25% imp, HSG D
1,019	98	Paved parking, HSG D
4,503	88	Weighted Average
2,613	81	58.03% Pervious Area
1,890	98	41.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 11S: F-1

Runoff = 0.05 cfs @ 9.96 hrs, Volume= 327 cf, Depth= 5.83"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
673	85	1/2 acre lots, 25% imp, HSG D
505	81	75.00% Pervious Area
168	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 13S: G-1

Runoff = 0.05 cfs @ 9.96 hrs, Volume= 354 cf, Depth= 6.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
479	85	1/2 acre lots, 25% imp, HSG D
199	98	Paved parking, HSG D
678	89	Weighted Average
359	81	52.99% Pervious Area
319	98	47.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 15S: H-1

Runoff = 0.14 cfs @ 9.96 hrs, Volume= 937 cf, Depth= 6.16"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
1,424	85	1/2 acre lots, 25% imp, HSG D
403	98	Paved parking, HSG D
1,827	88	Weighted Average
1,068	81	58.46% Pervious Area
759	98	41.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 17S: I-1

Runoff = 0.10 cfs @ 9.96 hrs, Volume= 619 cf, Depth= 6.03"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
620	85	1/2 acre lots, 25% imp, HSG D
172	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,232	87	Weighted Average
905	83	73.46% Pervious Area
327	98	26.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 19S: J-1

Runoff = 0.11 cfs @ 9.96 hrs, Volume= 743 cf, Depth= 6.20"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
635	85	1/2 acre lots, 25% imp, HSG D
363	98	Paved parking, HSG D
440	86	Woods/grass comb., Poor, HSG D
1,438	89	Weighted Average
916	83	63.72% Pervious Area
522	98	36.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 22S: K-1

Runoff = 0.80 cfs @ 9.96 hrs, Volume= 5,459 cf, Depth= 7.06"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
8,147	98	Roofs, HSG D
1,126	80	>75% Grass cover, Good, HSG D
9,273	96	Weighted Average
1,126	80	12.14% Pervious Area
8,147	98	87.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 23S: L-1

Runoff = 1.16 cfs @ 9.96 hrs, Volume= 7,949 cf, Depth= 7.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
12,599	98	Roofs, HSG D
605	80	>75% Grass cover, Good, HSG D
13,204	97	Weighted Average
605	80	4.58% Pervious Area
12,599	98	95.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 25S: M-1

Runoff = 2.01 cfs @ 9.87 hrs, Volume= 8,343 cf, Depth= 5.97"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
3,061	98	Paved roads w/curbs & sewers, HSG D
13,696	84	Pasture/grassland/range, Fair, HSG D
16,757	87	Weighted Average
13,696	84	81.73% Pervious Area
3,061	98	18.27% Impervious Area

Summary for Subcatchment 27S: Z-1 (unfiltered)

Runoff = 0.16 cfs @ 9.87 hrs, Volume= 700 cf, Depth= 7.17"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
1,067	98	Paved parking, HSG D
104	84	Pasture/grassland/range, Fair, HSG D
1,171	97	Weighted Average
104	84	8.88% Pervious Area
1,067	98	91.12% Impervious Area

Summary for Subcatchment 30S: Pre-Project

Runoff = 14.75 cfs @ 9.87 hrs, Volume= 62,303 cf, Depth= 6.56"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
32,878	98	Paved parking, HSG D
81,040	89	<50% Grass cover, Poor, HSG D
113,918	92	Weighted Average
81,040	89	71.14% Pervious Area
32,878	98	28.86% Impervious Area

Summary for Subcatchment 31S: N-1

Runoff = 0.24 cfs @ 9.96 hrs, Volume= 1,555 cf, Depth= 5.61"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
2,515	85	1/2 acre lots, 25% imp, HSG D
810	80	>75% Grass cover, Good, HSG D
3,325	84	Weighted Average
2,696	80	81.09% Pervious Area
629	98	18.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 33S: O-1

Runoff = 0.51 cfs @ 9.87 hrs, Volume= 2,131 cf, Depth= 5.83"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
4,390	85	1/2 acre lots, 25% imp, HSG D
3,293	81	75.00% Pervious Area
1,098	98	25.00% Impervious Area

Summary for Subcatchment 35S: P-1

Runoff = 0.74 cfs @ 9.87 hrs, Volume= 3,262 cf, Depth= 7.10"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
4,390	98	Paved roads w/curbs & sewers, HSG D
1,121	89	<50% Grass cover, Poor, HSG D
5,511	96	Weighted Average
1,121	89	20.34% Pervious Area
4,390	98	79.66% Impervious Area

Summary for Subcatchment 38S: Q-1

Runoff = 1.16 cfs @ 9.87 hrs, Volume= 5,137 cf, Depth= 7.30"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type I 24-hr SC-050yr Rainfall=7.56"

Area (sf)	CN	Description
8,248	98	Paved roads w/curbs & sewers, HSG D
202	89	<50% Grass cover, Poor, HSG D
8,450	98	Weighted Average
202	89	2.39% Pervious Area
8,248	98	97.61% Impervious Area

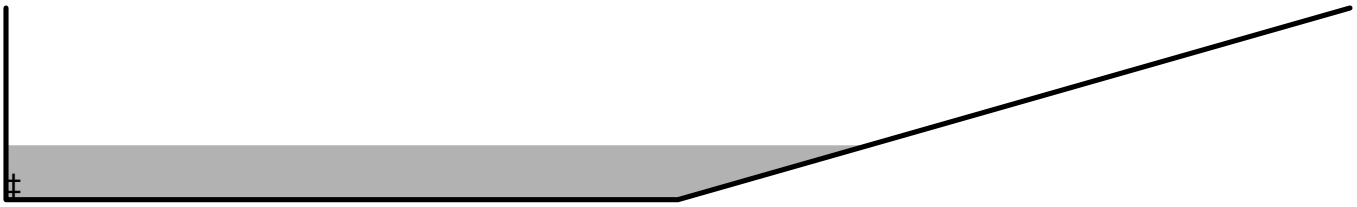
Summary for Reach 28R: SCM M-1 Bioswale

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 3.77" for SC-050yr event
Inflow = 5.87 cfs @ 9.91 hrs, Volume= 28,996 cf
Outflow = 5.02 cfs @ 10.12 hrs, Volume= 28,996 cf, Atten= 14%, Lag= 12.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.43 fps, Min. Travel Time= 7.6 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 29.5 min

Peak Storage= 2,283 cf @ 9.99 hrs
Average Depth at Peak Storage= 0.85'
Bank-Full Depth= 3.00' Flow Area= 54.0 sf, Capacity= 45.65 cfs

12.00' x 3.00' deep channel, n= 0.200
Side Slope Z-value= 0.0 4.0 '/' Top Width= 24.00'
Length= 195.0' Slope= 0.0052 '/'
Inlet Invert= 9.60', Outlet Invert= 8.58'



Summary for Pond 2P: SCM A-1

Inflow Area = 9,182 sf, 25.00% Impervious, Inflow Depth = 5.83" for SC-050yr event
Inflow = 0.69 cfs @ 9.96 hrs, Volume= 4,458 cf
Outflow = 0.05 cfs @ 8.71 hrs, Volume= 4,458 cf, Atten= 92%, Lag= 0.0 min
Discarded = 0.05 cfs @ 8.71 hrs, Volume= 4,458 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.46' @ 13.94 hrs Surf.Area= 9,182 sf Storage= 1,701 cf

Plug-Flow detention time= 326.0 min calculated for 4,458 cf (100% of inflow)
Center-of-Mass det. time= 326.0 min (1,073.3 - 747.3)

Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	4,591 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 11,478 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.00	9,182	0	0
14.00	9,182	9,182	9,182
14.50	1	2,296	11,478

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.45'	**0.5" x 20.0" Horiz. Orifice/Grate X 2.00 columns** X 24 rows C= 0.600 in 24.0" x 24.0" Grate (83% open area) Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 8.71 hrs HW=13.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 4P: SCM B-1

Inflow Area = 811 sf, 25.00% Impervious, Inflow Depth = 5.83" for SC-050yr event
Inflow = 0.06 cfs @ 9.96 hrs, Volume= 394 cf
Outflow = 0.00 cfs @ 8.57 hrs, Volume= 394 cf, Atten= 92%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.57 hrs, Volume= 394 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.45' @ 13.94 hrs Surf.Area= 811 sf Storage= 148 cf

Plug-Flow detention time= 316.2 min calculated for 394 cf (100% of inflow)
Center-of-Mass det. time= 316.2 min (1,063.5 - 747.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	178 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 446 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
14.55	811	446	446

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.57 hrs HW=14.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: SCM C-1

Inflow Area = 1,117 sf, 25.00% Impervious, Inflow Depth = 5.83" for SC-050yr event
Inflow = 0.08 cfs @ 9.96 hrs, Volume= 542 cf
Outflow = 0.01 cfs @ 8.57 hrs, Volume= 542 cf, Atten= 92%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.57 hrs, Volume= 542 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.45' @ 13.94 hrs Surf.Area= 1,117 sf Storage= 203 cf

Plug-Flow detention time= 316.2 min calculated for 542 cf (100% of inflow)
Center-of-Mass det. time= 316.2 min (1,063.5 - 747.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	246 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 614 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	1,117	0	0
14.55	1,117	614	614

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 8.57 hrs HW=14.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 8P: SCM D-1 Bioretention

Inflow Area = 8,718 sf, 83.85% Impervious, Inflow Depth = 6.98" for SC-050yr event
Inflow = 0.75 cfs @ 9.96 hrs, Volume= 5,071 cf
Outflow = 0.74 cfs @ 9.98 hrs, Volume= 4,891 cf, Atten= 1%, Lag= 1.1 min
Discarded = 0.01 cfs @ 1.61 hrs, Volume= 2,079 cf
Primary = 0.73 cfs @ 9.98 hrs, Volume= 2,812 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 16.34' @ 9.98 hrs Surf.Area= 1,408 sf Storage= 1,588 cf

Plug-Flow detention time= 721.3 min calculated for 4,890 cf (96% of inflow)
Center-of-Mass det. time= 696.5 min (1,400.2 - 703.7)

Volume	Invert	Avail.Storage	Storage Description
#1	12.70'	1,690 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.70	1,408	0.0	0	0
14.70	1,408	40.0	1,126	1,126
16.70	1,408	20.0	563	1,690

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.70'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	16.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 1.61 hrs HW=12.74' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.71 cfs @ 9.98 hrs HW=16.34' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.71 cfs @ 0.47 fps)

Summary for Pond 10P: SCM E-1

Inflow Area = 4,503 sf, 41.97% Impervious, Inflow Depth = 6.16" for SC-050yr event
Inflow = 0.35 cfs @ 9.96 hrs, Volume= 2,313 cf
Outflow = 0.35 cfs @ 9.97 hrs, Volume= 2,313 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 2.63 hrs, Volume= 855 cf
Primary = 0.35 cfs @ 9.97 hrs, Volume= 1,458 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.46' @ 9.97 hrs Surf.Area= 811 sf Storage= 474 cf

Plug-Flow detention time= 361.2 min calculated for 2,313 cf (100% of inflow)
Center-of-Mass det. time= 361.2 min (1,094.1 - 732.9)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,298 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	811	0	0
15.44	811	1,168	1,168
15.60	811	130	1,298

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.44'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 2.63 hrs HW=14.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.33 cfs @ 9.97 hrs HW=15.46' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.33 cfs @ 0.37 fps)

Summary for Pond 12P: SCM F-1

Inflow Area = 673 sf, 25.00% Impervious, Inflow Depth = 5.83" for SC-050yr event
Inflow = 0.05 cfs @ 9.96 hrs, Volume= 327 cf
Outflow = 0.00 cfs @ 8.72 hrs, Volume= 327 cf, Atten= 92%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.72 hrs, Volume= 327 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.71' @ 13.94 hrs Surf.Area= 673 sf Storage= 125 cf

Plug-Flow detention time= 326.5 min calculated for 327 cf (100% of inflow)
Center-of-Mass det. time= 326.5 min (1,073.8 - 747.3)

Volume	Invert	Avail.Storage	Storage Description
#1	13.25'	417 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,043 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.25	673	0	0
14.80	673	1,043	1,043

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.75'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 8.72 hrs HW=13.27' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.25' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14P: SCM G-1

Inflow Area = 678 sf, 47.01% Impervious, Inflow Depth = 6.26" for SC-050yr event
Inflow = 0.05 cfs @ 9.96 hrs, Volume= 354 cf
Outflow = 0.00 cfs @ 7.40 hrs, Volume= 354 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.00 cfs @ 7.40 hrs, Volume= 354 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 13.98' @ 18.54 hrs Surf.Area= 479 sf Storage= 169 cf

Plug-Flow detention time= 595.9 min calculated for 354 cf (100% of inflow)
Center-of-Mass det. time= 596.0 min (1,324.9 - 728.9)

Volume	Invert	Avail.Storage	Storage Description
#1	13.10'	297 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 742 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.10	479	0	0
14.65	479	742	742

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.61'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 7.40 hrs HW=13.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 16P: SCM H-1

Inflow Area = 1,827 sf, 41.54% Impervious, Inflow Depth = 6.16" for SC-050yr event
Inflow = 0.14 cfs @ 9.96 hrs, Volume= 937 cf
Outflow = 0.01 cfs @ 8.05 hrs, Volume= 937 cf, Atten= 94%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.05 hrs, Volume= 937 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.84' @ 17.19 hrs Surf.Area= 1,424 sf Storage= 420 cf

Plug-Flow detention time= 507.4 min calculated for 937 cf (100% of inflow)
Center-of-Mass det. time= 507.4 min (1,240.7 - 733.2)

Volume	Invert	Avail.Storage	Storage Description
#1	12.10'	911 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,278 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.10	1,424	0	0
13.70	1,424	2,278	2,278

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.10'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	13.67'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 8.05 hrs HW=12.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 18P: SCM I-1

Inflow Area = 1,232 sf, 26.54% Impervious, Inflow Depth = 6.03" for SC-050yr event
Inflow = 0.10 cfs @ 9.96 hrs, Volume= 619 cf
Outflow = 0.00 cfs @ 6.86 hrs, Volume= 619 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.00 cfs @ 6.86 hrs, Volume= 619 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 14.87' @ 22.05 hrs Surf.Area= 620 sf Storage= 365 cf

Plug-Flow detention time= 951.8 min calculated for 619 cf (100% of inflow)
Center-of-Mass det. time= 951.9 min (1,693.7 - 741.7)

Volume	Invert	Avail.Storage	Storage Description
#1	13.40'	397 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 992 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.40	620	0	0
15.00	620	992	992

Device	Routing	Invert	Outlet Devices
#1	Discarded	13.40'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	14.90'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 6.86 hrs HW=13.42' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.40' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 20P: SCM J-1

Inflow Area = 1,438 sf, 36.28% Impervious, Inflow Depth = 6.20" for SC-050yr event
Inflow = 0.11 cfs @ 9.96 hrs, Volume= 743 cf
Outflow = 0.01 cfs @ 13.29 hrs, Volume= 743 cf, Atten= 91%, Lag= 199.6 min
Discarded = 0.00 cfs @ 6.27 hrs, Volume= 655 cf
Primary = 0.01 cfs @ 13.29 hrs, Volume= 88 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.50' @ 13.29 hrs Surf.Area= 635 sf Storage= 381 cf

Plug-Flow detention time= 872.1 min calculated for 743 cf (100% of inflow)
Center-of-Mass det. time= 872.1 min (1,606.3 - 734.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	406 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,016 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.00	635	0	0
15.60	635	1,016	1,016

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.50'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 6.27 hrs HW=14.02' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 13.29 hrs HW=15.50' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.08 fps)

Summary for Pond 21P: SCM K-1 Bioretention

Inflow Area = 9,273 sf, 87.86% Impervious, Inflow Depth = 7.06" for SC-050yr event
Inflow = 0.80 cfs @ 9.96 hrs, Volume= 5,459 cf
Outflow = 0.80 cfs @ 9.97 hrs, Volume= 5,314 cf, Atten= 0%, Lag= 0.5 min
Discarded = 0.01 cfs @ 1.34 hrs, Volume= 1,666 cf
Primary = 0.79 cfs @ 9.97 hrs, Volume= 3,648 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 15.35' @ 9.97 hrs Surf.Area= 1,126 sf Storage= 1,295 cf

Plug-Flow detention time= 545.3 min calculated for 5,313 cf (97% of inflow)
Center-of-Mass det. time= 526.5 min (1,227.6 - 701.1)

Volume	Invert	Avail.Storage	Storage Description
#1	11.60'	1,351 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
11.60	1,126	0.0	0	0
13.60	1,126	40.0	901	901
15.60	1,126	20.0	450	1,351

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.60'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	15.20'	**8.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir**

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 1.34 hrs HW=11.64' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.79 cfs @ 9.97 hrs HW=15.35' (Free Discharge)
├**2=Orifice/Grate** (Weir Controls 0.79 cfs @ 1.26 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 24P: SCM L-1 Bioretetnion

Inflow Area = 13,204 sf, 95.42% Impervious, Inflow Depth = 7.22" for SC-050yr event
Inflow = 1.16 cfs @ 9.96 hrs, Volume= 7,949 cf
Outflow = 1.16 cfs @ 9.97 hrs, Volume= 7,131 cf, Atten= 1%, Lag= 0.8 min
Discarded = 0.01 cfs @ 9.97 hrs, Volume= 1,602 cf
Primary = 1.15 cfs @ 9.97 hrs, Volume= 5,528 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 15.24' @ 9.97 hrs Surf.Area= 605 sf Storage= 1,975 cf

Plug-Flow detention time= 464.5 min calculated for 7,131 cf (90% of inflow)
Center-of-Mass det. time= 398.1 min (1,094.6 - 696.5)

Volume	Invert	Avail.Storage	Storage Description
#1	8.00'	2,009 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
8.00	605	0.0	0	0	605
13.30	605	40.0	1,283	1,283	1,067
14.30	605	20.0	121	1,404	1,154
15.30	605	100.0	605	2,009	1,242

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.10'	**8.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	15.30'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.97 hrs HW=15.24' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=1.13 cfs @ 9.97 hrs HW=15.24' (Free Discharge)
├**2=Orifice/Grate** (Weir Controls 1.13 cfs @ 1.24 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 26P: Culvert under Via Real

Inflow Area = 92,260 sf, 57.78% Impervious, Inflow Depth = 3.77" for SC-050yr event
Inflow = 5.02 cfs @ 10.12 hrs, Volume= 28,996 cf
Primary = 5.02 cfs @ 10.12 hrs, Volume= 28,996 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 29P: Treated and Retained

Inflow Area = 74,332 sf, 66.17% Impervious, Inflow Depth = 3.22" for SC-050yr event
Inflow = 4.48 cfs @ 9.97 hrs, Volume= 19,953 cf
Primary = 4.48 cfs @ 9.97 hrs, Volume= 19,953 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 32P: SCM N-1

Inflow Area = 3,325 sf, 18.91% Impervious, Inflow Depth = 5.61" for SC-050yr event
Inflow = 0.24 cfs @ 9.96 hrs, Volume= 1,555 cf
Outflow = 0.02 cfs @ 16.58 hrs, Volume= 1,555 cf, Atten= 94%, Lag= 396.7 min
Discarded = 0.02 cfs @ 16.58 hrs, Volume= 1,555 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 14.78' @ 16.58 hrs Surf.Area= 2,515 sf Storage= 680 cf

Plug-Flow detention time= 468.1 min calculated for 1,555 cf (100% of inflow)
Center-of-Mass det. time= 468.2 min (1,223.3 - 755.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.10'	1,559 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.10	2,515	0.0	0	0	2,515
15.65	2,515	40.0	1,559	1,559	2,791

Device	Routing	Invert	Outlet Devices
#1	Discarded	14.10'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	15.60'	**40.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.02 cfs @ 16.58 hrs HW=14.78' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 34P: SCM O-1 Chamber

Inflow Area = 4,390 sf, 25.00% Impervious, Inflow Depth = 5.83" for SC-050yr event
Inflow = 0.51 cfs @ 9.87 hrs, Volume= 2,131 cf
Outflow = 0.03 cfs @ 13.62 hrs, Volume= 1,818 cf, Atten= 95%, Lag= 224.6 min
Discarded = 0.01 cfs @ 13.62 hrs, Volume= 1,359 cf
Primary = 0.02 cfs @ 13.62 hrs, Volume= 458 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 12.67' @ 13.62 hrs Surf.Area= 730 sf Storage= 1,263 cf

Plug-Flow detention time= 1,256.5 min calculated for 1,817 cf (85% of inflow)
Center-of-Mass det. time= 1,170.7 min (1,905.9 - 735.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	10.50'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	12.60'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	10.00'	**0.250 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.01 cfs @ 13.62 hrs HW=12.67' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.02 cfs @ 13.62 hrs HW=12.67' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.02 cfs @ 0.88 fps)

Summary for Pond 36P: SCM P-1 Chamber

Inflow Area = 5,511 sf, 79.66% Impervious, Inflow Depth = 7.10" for SC-050yr event
Inflow = 0.74 cfs @ 9.87 hrs, Volume= 3,262 cf
Outflow = 0.74 cfs @ 9.88 hrs, Volume= 3,141 cf, Atten= 0%, Lag= 0.5 min
Discarded = 0.00 cfs @ 9.88 hrs, Volume= 634 cf
Primary = 0.74 cfs @ 9.88 hrs, Volume= 2,507 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 10.68' @ 9.88 hrs Surf.Area= 275 sf Storage= 570 cf

Plug-Flow detention time= 358.9 min calculated for 3,141 cf (96% of inflow)
Center-of-Mass det. time= 332.6 min (1,022.9 - 690.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.00'	329 cf	**11.00'W x 24.98'L x 4.00'H Field A** 1,099 cf Overall - 276 cf Embedded = 823 cf x 40.0% Voids
#2A	7.50'	276 cf	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	10.30'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.89'	**4.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.00 cfs @ 9.88 hrs HW=10.68' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.73 cfs @ 9.88 hrs HW=10.68' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 0.73 cfs @ 2.09 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 39P: SCM Q-1 Chamber

Inflow Area = 8,450 sf, 97.61% Impervious, Inflow Depth = 7.30" for SC-050yr event
Inflow = 1.16 cfs @ 9.87 hrs, Volume= 5,137 cf
Outflow = 1.06 cfs @ 9.91 hrs, Volume= 4,851 cf, Atten= 8%, Lag= 2.7 min
Discarded = 0.01 cfs @ 9.91 hrs, Volume= 1,397 cf
Primary = 1.06 cfs @ 9.91 hrs, Volume= 3,455 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 11.73' @ 9.91 hrs Surf.Area= 730 sf Storage= 1,438 cf

Plug-Flow detention time= 523.7 min calculated for 4,851 cf (94% of inflow)
Center-of-Mass det. time= 485.3 min (1,168.1 - 682.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	8.50'	691 cf	**15.75'W x 46.34'L x 3.50'H Field A** 2,554 cf Overall - 827 cf Embedded = 1,727 cf x 40.0% Voids
#2A	9.00'	827 cf	**ADS_StormTech SC-740 +Cap** x 18 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 6 Chambers
		1,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.50'	**0.250 in/hr Exfiltration over Wetted area**
#2	Primary	11.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	13.50'	**2.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 9.91 hrs HW=11.73' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=1.06 cfs @ 9.91 hrs HW=11.73' (Free Discharge)
├**2=Orifice/Grate** (Orifice Controls 1.06 cfs @ 3.02 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

APPENDIX G

Sound Level Assessment for
Proposed Via Real Hotel
4110 Via Real
Carpinteria, CA

prepared for
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P.O. Box 52098
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July 1, 2016
revised August 18, 2016

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Sound Level Assessment for
Proposed Via Real Hotel
4110 Via Real
Carpinteria, CA

1.0 Description

This report describes the sound level assessment for the proposed Via Real Hotel, located at 4110 Via Real, Carpinteria, CA. The report is intended to define all off-site and on-site noise impacts associated with the proposed project. The following topics are presented in this report:

- A description of the study area, project site, and proposed project.
- A description of the regulatory setting, including guidelines and standards.
- An evaluation of the existing noise environment.
- An assessment of potential short-term construction-related noise and vibration impacts.
- An assessment of future potential noise and vibration impacts.
- Information on fundamentals of noise and vibration.

2.0 Location and Acoustic Setting

The general vicinity of the site is in southern Santa Barbara County, within the city of Carpinteria, CA. The vicinity of the site is shown in “Figure 2. Site Plan, vicinity” on page 10.

The site location in relation to the nearest lane of US Highway 101 is shown “Figure 4. Site Relationship to Noise Source.” on page 12. The site of the future Via Real Hotel is separated from the major noise source, US Highway 101, by the frontage road, Via Real. The south boundary of the site is approximately 103 feet from the nearest lane of the highway. The grade level of the highway lanes are at approximately the same level as the site. The flow of traffic is relatively straight and uniform in an east-west direction. The approximate daily traffic flow, published by Caltrans, is shown in “Figure 9. Average Daily Traffic, ADT” on page 16.

3.0 Regulatory Setting

The proposed project will be located in the City of Carpinteria. Noise regulations are addressed by federal, state, and local government agencies, discussed below. Local policies are generally adaptations of federal and state guidelines, adjusted to prevailing local condition.

3.1 Federal Regulation

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

(a) Promulgating noise emission standards for interstate commerce.

(b) Assisting state and local abatement efforts.

(c) Promoting noise education and research.

The Department of Transportation (DOT) assumed a significant role in noise control. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by the Federal Transit Administration (FTA). Freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA).

3.2 State Regulation

California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regulatory tools to control and abate noise for use by local agencies. One significant model, which is shown in "Figure 1. Regulatory Matrix" on page 4, depicts land use compatibility for community noise environments, which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60 dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45 dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms shall have an interior CNEL of 45 dBA or less due to aircraft noise.

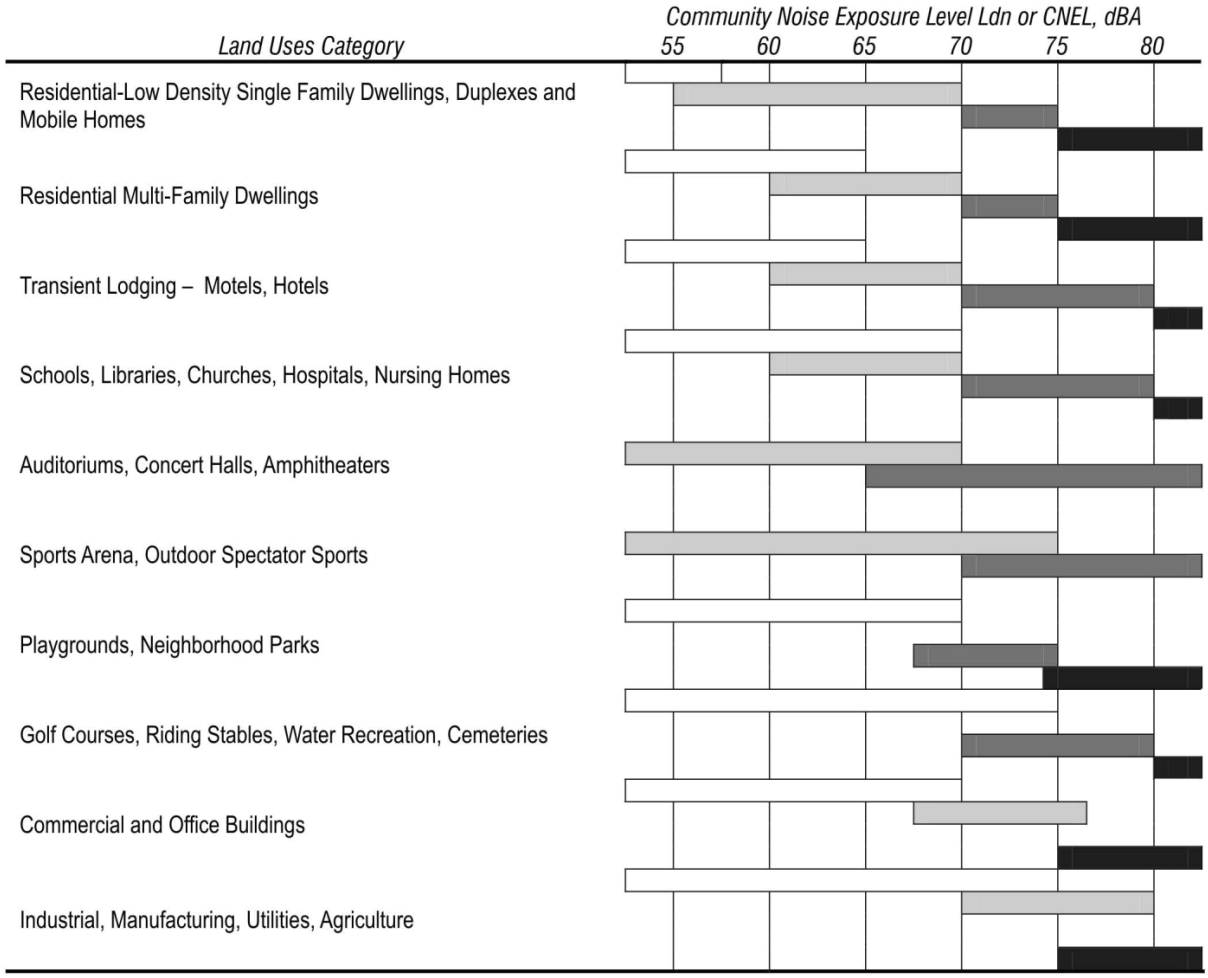
Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

3.3 Local Regulation

The City of Carpinteria Noise Element of the General Plan establishes the following applicable conclusions, recommendations, standards, policies, and regulations regarding potential noise and vibration impacts.

Figure 1. Regulatory Matrix

Land Uses Category and Community Noise Exposure Level (Ldn or CNEL) dBA.



Explanatory Notes

Normally Acceptable:
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply system or air conditioning will normally suffice. Outdoor environment will seem noisy.

Normally Unacceptable:
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.

Clearly Unacceptable:
New construction or development should generally not be undertaken. Construction cost to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

4.0 Existing Sound Level

To ascertain the existing sound levels at and adjacent to the project site, field monitoring was conducted between for a 24-hour period during June 21/22, 2016. Sound levels were measured continuously near the Via Real boundary of the property, south of the proposed building site. By observation it was noted that ambient noise within the project area is characterized and heavily dominated by U.S. Highway 101 traffic running parallel to the boundary south of the proposed building site.

Sound level monitoring was performed using a Larson Davis Model 820, Type 1 integrating sound level meter. The Larson Davis meter was programmed in A-weighted "slow" mode to record the sound pressure level at Leq = 10-second intervals. The sound level meter and microphone was mounted approximately five feet above the ground and equipped with a windscreen during all measurements. See "9.0 Measurements, Calculations and Modeling" on page 26 for further details on sound level measurement and protocol. Weather data was collected periodically at the measurement locations. Weather data was also correlated with weather conditions at the closest weather station.

The sound level monitoring location was selected in order to measure the existing noise source impacting the project site and to provide a baseline for any potential noise impacts that may be created by construction, development and operation of the proposed project. The measurement location is shown in "Figure 5. Sound Level Measurement Location." on page 13.

The existing sound level measurement includes a typical workday commute time period. Recorded sound level data consist of average Leq 1 hour sound levels, dBA. Results are shown in "Figure 7. Measurement Results." on page 15 and in "Figure 8. Hourly Average Sound Levels, Leq 1 hr." on page 16. From the measured data, existing hourly LEQ values were calculated. For an explanation of technical definitions, see "7.0 APPENDIX A: Glossary of Acoustical Terms" on page 9.

5.0 Future Sound Levels

5.1 Short Term Construction Noise

Short-term noise impacts could potentially occur during project construction activities from either the noise impacts created from the transport of workers and movement of construction materials to and from the project site, or from the noise generated on-site during demolition and ground clearing activities; excavation, grading, and similar ground-disturbing activities; and construction activities.

Construction noise levels vary significantly based upon the size and topographical features of the active construction zone, duration of the workday, and types of equipment employed, as indicated in "Table 3. Construction Equipment Vibration Levels" on page 22. A typical eight-hour construction day may generate 84 dBA CNEL at a distance of 50 feet from the noise source. Typical operating cycles may involve a short period of full power operation followed by a longer period at lower power settings. Although there would be potential for a

relatively high single-event noise exposure, resulting in potential short-term intermittent annoyances, the effect on long-term ambient noise levels would be nominal when averaged over a longer period. As shown by the ambient noise level measurements in "Table 1. Existing Sound Level Measurements" on page 8, maximum noise levels in project vicinity are already up to 82 dBA Lmax.

Project construction is anticipated to utilize a mix of construction equipment on the project site, including tractors for excavation and grading activities, backhoes for trenching, earth rollers for compaction, and asphalt rollers for paving.

The Federal Highway Administration (FHWA) Roadway Construction Model (RCNM Version 1.1), allows the preliminary prediction of construction noise levels for a variety of construction operations based on a compilation of empirical data and the application of acoustical propagation formulas.

"Table 1. Construction Equipment Noise Levels" on page 6 shows the calculated noise levels at 150 feet for typical items of equipment to be utilized on the project site. The results of modeling show that the average (Leq) noise level of the backhoe, paver, and roller are less than 60 dBA. The tractor will generate a noise level of 64 dBA Leq, below the 65 dBA standard for sensitive receptors.

Table 1. Construction Equipment Noise Levels

Equipment	*calculated dBA at 150 feet from source*	
	Lmax	Leq
Backhoe	62	58
Paver	61	57
Roller	65	57
Tractor	69	64
Total	69	65
Source: FHWA Roadway Construction Model, RCNM ver. 1.1, 2012		

5.2 Short Term Construction Vibration

Potential construction vibration from the project would be a localized event and is typically only perceptible to a receptor that is in close proximity to the vibration source. As an example, the potential vibration from worst-case construction equipment, a small bulldozer: is: PPV at 100 feet = 0.0004 inches / second. This vibration level is far below the Federal Transit Administration Significant Impact guideline maximum of 0.2 inches / second.

A vibration impact would be generally considered significant if it involves any construction-related or operations-related impacts in excess of 78 VdB at sensitive receptors. The construction and operations-related vibration impacts have been analyzed separately below. Construction activities can produce vibration that may be felt by adjacent uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which

are known to generate substantial construction vibration levels. The project site is relatively small—approximately 0.68 acre—and will not utilize many pieces of construction equipment. The primary source of vibration during project construction would likely be from a bulldozer (tractor), which would generate 0.089 inch per second PPV at 25 feet with an approximate vibration level of 87 VdB.

It is anticipated that vibration levels generated by a bulldozer operating on the periphery of the area of disturbance during project construction and experienced at the nearest off-site structure will be approximately 69 VdB, which is below the acceptable threshold of 78 VdB for residential (sensitive) uses during the day.

The City of Carpinteria does not have any specific provisions regarding vibration that would be applicable to the project site as currently zoned; nonetheless, the increase in off-site vibration generated by on-site construction activities would represent only a nominal increase whose impact would not be considered significant. Therefore, impacts associated with construction vibration would be considered less than significant.

5.3 Future Noise Level

Future traffic noise on U.S. Highway 101 is expected to increase by the year 2035 at a 1.25 percent annual growth rate. The resulting sound level will be one to two decibels above existing sound level. The increase in surrounding traffic flow attributable to the proposed project would result in an increase in sound level less than one dBA, and is therefore judged to be a less than significant increase.

5.4 Noise Mitigation

As the noise levels at the south elevation of the building are "conditionally acceptable," it will be necessary to take protective measures in the design and construction of the building envelope or wall / roof-ceiling on the south side of the proposed hotel in order to meet requirements of the 2013 California Green Building Standards Code which governs exterior noise transmission requirements for construction in areas above CNEL = 65 dBA, as follows:

Prescriptive Method:

"5.507.4.1 Exterior noise transmission, prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30

Performance Method:

"...5.507.4.2 Performance method. Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (Leq -1Hr) of 50 dBA in occupied areas during any hour of operation

If the Performance Method is chosen, the noisiest hour at this location is at 4 pm, when exterior sound level = Leq 1 hr. 68 dBA. A composite wall and roof-ceiling of STC = 50 and exterior window assemblies facing the noise source of STC = 35 will satisfy the Performance Method requirement.

Exterior Walls:

An example of a typical exterior wall construction which would satisfy the requirements would consist of wood frame, composed of 7/8" stucco, 30 lb felt vapor barrier, 6" studs with R-13 or thicker batt insulation and two layers of 5/8" type X gypsum board wall for the interior face, with a minimum Outside Inside Transmission Class (OITC) 40 (comparable to STC 50).

Ceiling/Roof:

Standard construction techniques (roofing, 30 lb. felt, truss or joists, R-30 insulation and 5/8" gypsum board) will provide the necessary 20 dBA noise reduction.

Windows/Doors:

Glazing for all sound rated windows should be of unequal thickness, or with one glazing light of laminated glass, in order avoid harmonic resonance at certain low frequencies. The windows should have the performance characteristics listed below to provide the required (or recommended) noise reduction for the south elevation.

In addition to specifying the required Sound Transmission Class of building assemblies, flanking paths for noise should be reduced by sealing all potential leaks in construction by use of acoustical sealant and putty pads. We recommend that notes and details be included on the design drawings to insure that the construction details achieve the sound insulation potential of the basic building assemblies. The following are recommended additional notes and details:

- Use permanently non-hardening acoustical sealant around perimeter of window frames and at joints of all wall and roof/ceiling building assemblies. Gypsum board seams and joints should be sealed with acoustical sealant to prevent all air leaks. If double-layer gypsum board is used, panels should be staggered.

- Select window assemblies with effective, airtight, nonporous gaskets or weatherstripping to minimize air infiltration and sound leakage.

- Provide airtight construction at all exterior walls with acoustical sealant at interior and exterior of sole plates and sill plates, headers and top plate, where warping and drying may open construction joints over time.

- Use door jamb and head gasketing and door bottom gasketing at entry doors to seal solid core doors against weather and sound. Caulk entry door thresholds as they are placed, provide rubber-seal door thresholds, such as those by Trademark Hardware.

Some of the above steps are also necessary for compliance with CCR Title 24 Thermal Insulation requirements.

HVAC:

A central HVAC system is far superior to unitary, through-the-wall systems in the noisy environment of the elevation facing Highway 101. Unlined ventilation or exhaust ducts directly exposed to exterior noise sources can readily transmit that noise to the interior of the building. Therefore, unlined ducts or other elements having unshielded exterior openings with a line-of-sight to the highway noise source are not recommended. To the extent feasible, any penetrations in the exterior walls having a direct exposure to traffic, outdoor air intakes, exhaust openings and roof venting should be located on the side the building away from the noise source. Alternately Z-ducts can be used to provide silencing of air flow, such as those by Vibro-Acoustics, IAC or Silence-Air.

6.0 Discussion and Conclusions

The 24-hour existing sound levels on the undeveloped site and future sound levels for the developed project are shown in relation to U.S. Highway 101. Careful design detailing and construction of windows, doors, HVAC and wall and roof /ceiling for habitable spaces on first and second floor facing the highway will result in all habitable spaces that meet minimum standards. This project will therefore be compatible with the City of Carpinteria General Plan Noise Element. The proposed project is in compliance with applicable regulations governing noise and vibration.

Figure 2. Site Plan, vicinity

The vicinity site plan shows the proposed mixed use project, with adjacent ground transportation noise sources. U.S. Highway 101 is located to the south of the project.



Figure 3. Site Relation to Noise Contours

This figure shows the proposed location of the hotel in relation to existing noise contours. From City of Carpinteria General Plan Noise Element, Fig. N-1.

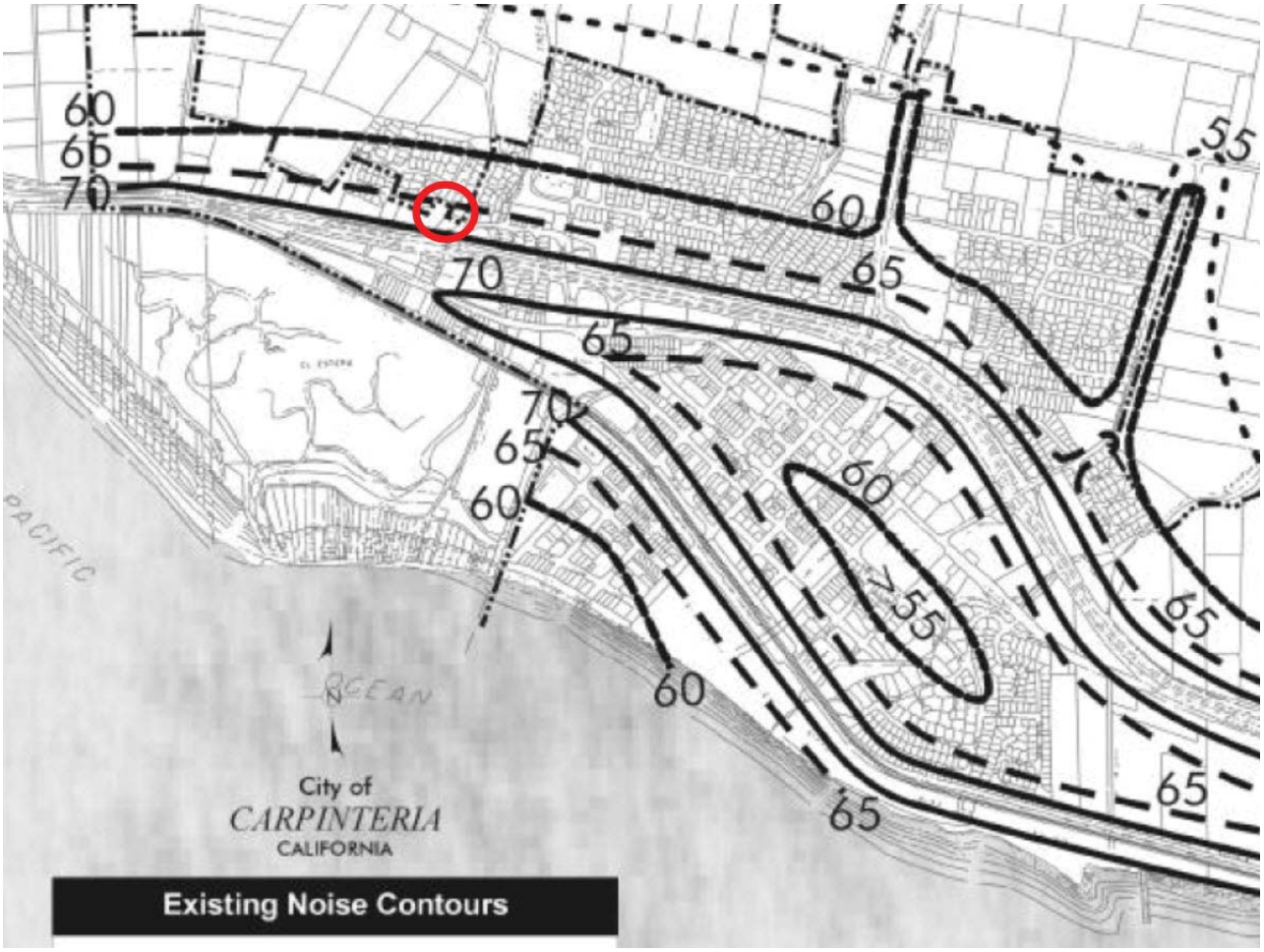


Figure 4. Site Relationship to Noise Source.

The site is near the Carpinteria Road exit from U.S. Highway 101. Relationship of the site to the primary noise source is shown below. Also shown is the location of the sound level measurement station.



Figure 5. Sound Level Measurement Location.

Location of the sound level measurement is shown below, in relation to the proposed building and the nearest lane of U.S. Highway 101 to the south.

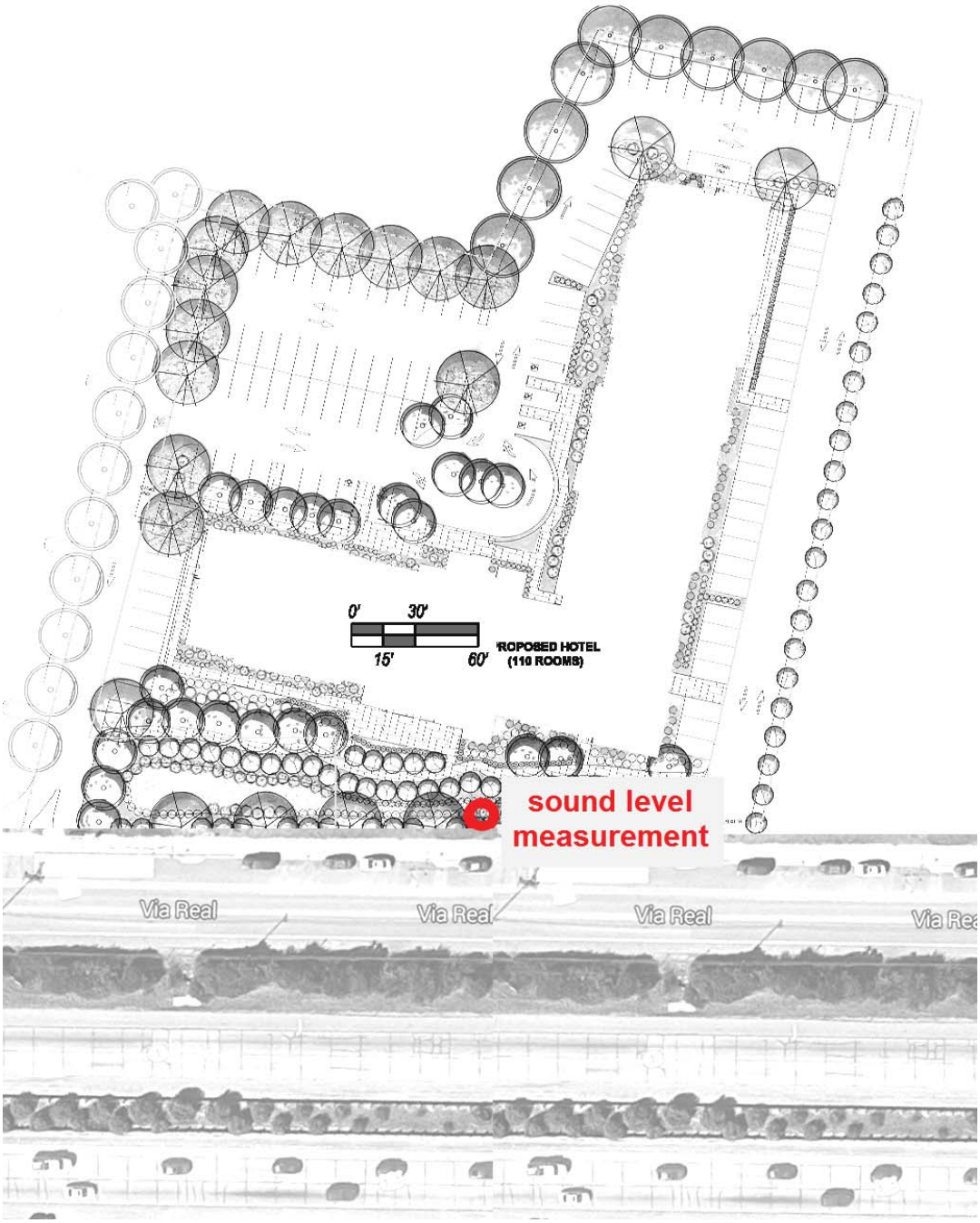


Figure 6. Site Vicinity, Airport Distance.

This figure shows the relationship of the site to Santa Barbara Airport, located to the west. The airport is not considered to be a significant source of noise at the proposed site. However, weather data from the airport was used for documentation during the sound level measurement period.

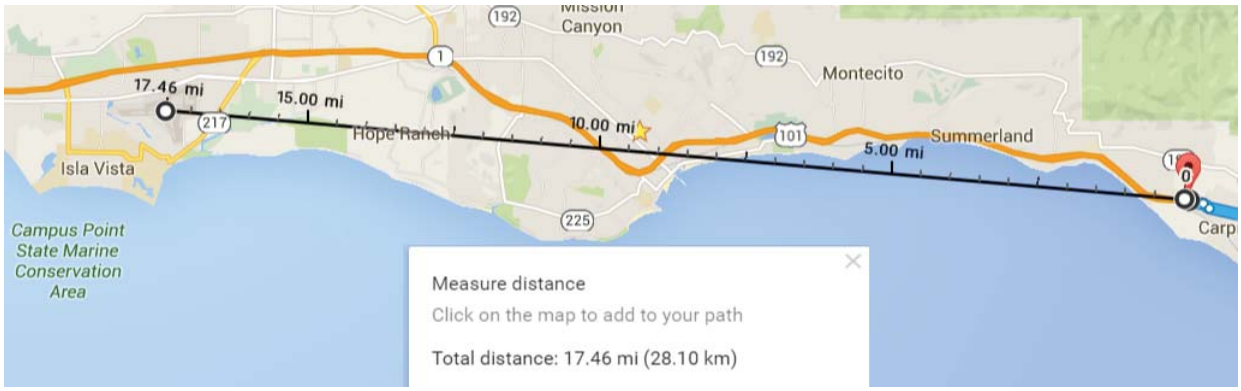


Figure 7. Measurement Results.

Measurement of Existing Sound Level shown on this chart.

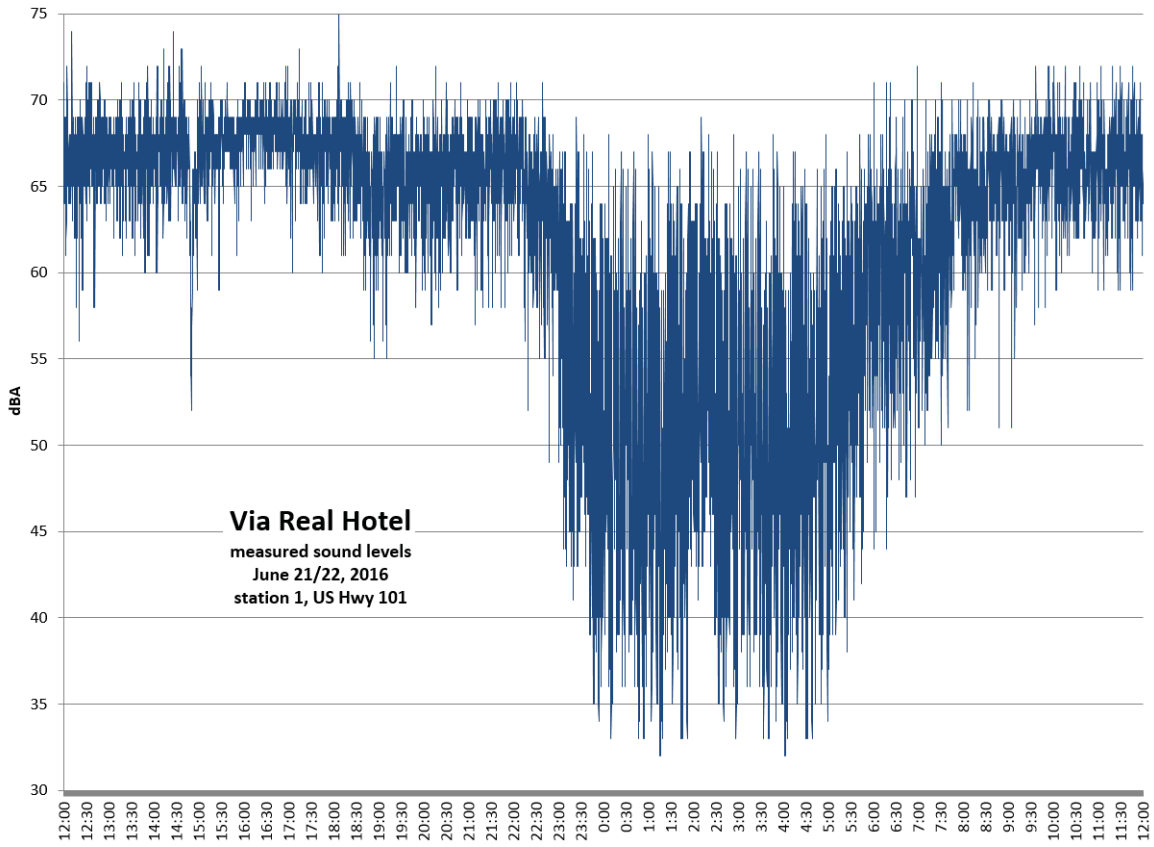


Figure 8. Hourly Average Sound Levels, Leq 1 hr.

The 10 second sound level readings shown previously are averaged to show "equivalent sound level" for each hour.

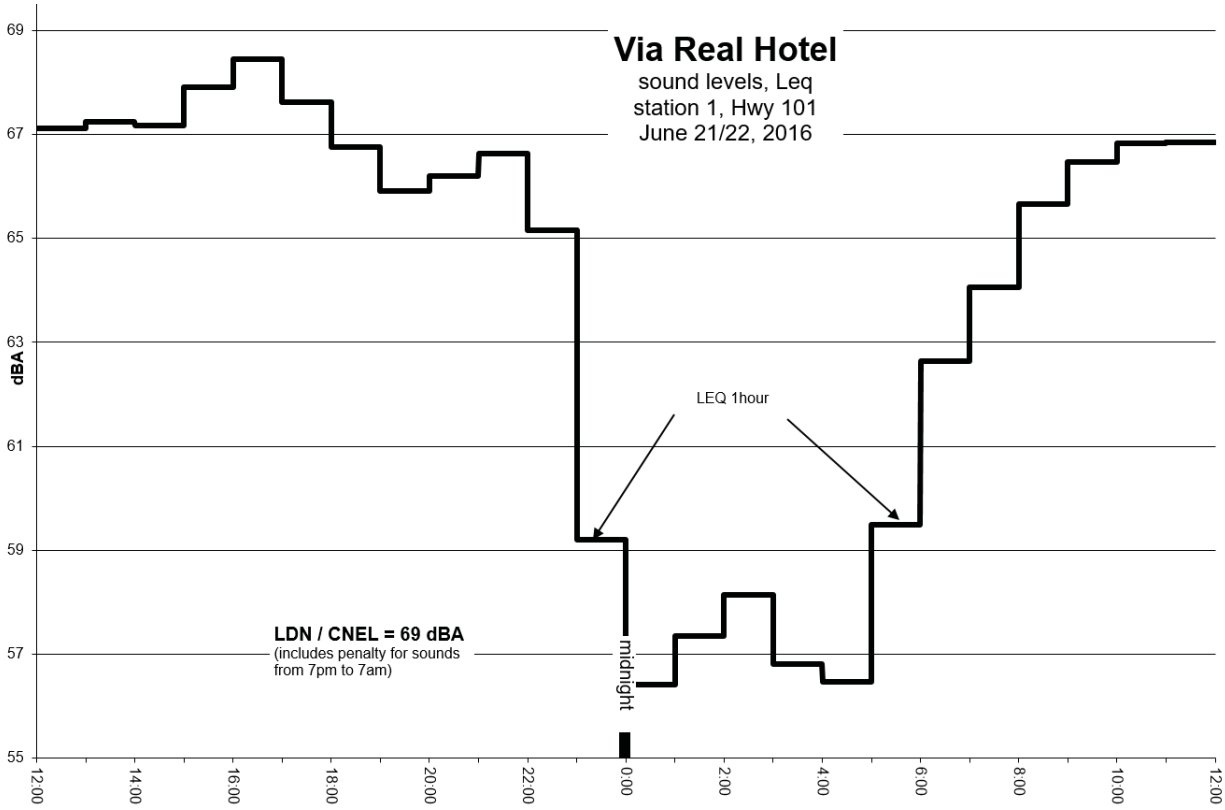


Figure 9. Average Daily Traffic, ADT

Caltrans provides traffic counts for each segment of US Highway 101. The site is nearest Linden Avenue segment shown below.

Traffic Data Branch
2014 All Traffic Volumes on CSHS

Dist	Rte	CO	Post Mile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
5	101	SB	2.64	CARPINTERIA, CASITAS PASS ROAD	6000	72000	67500	6200	68000	62900
5	101	SB	3.059	CARPINTERIA, LINDEN AVENUE	6200	68000	62900	6400	73000	67400
5	101	SB	3.773	CARPINTERIA, SANTA MONICA ROAD	6400	73000	67400	6200	68000	62800

Figure 10. CNEL Calculation.

The location of Existing Sound Level measurements is shown on this plan as “station 1” and “station 2”.

Via Real Hotel
Carpinteria, CA

Hwy 101 Station 1 June 21\22, 2016

LEQ (hour) calculated from 10-second continuous measurements

	dBA	hour
Calculated DAY LEQ:	**64.1**	**0700**
Calculated DAY LEQ:	**65.7**	**0800**
Calculated DAY LEQ:	**66.5**	**0900**
Calculated DAY LEQ:	**66.8**	**1000**
Calculated DAY LEQ:	**66.9**	**1100**
Calculated DAY LEQ:	**67.1**	**1200**
Calculated DAY LEQ:	**67.2**	**1300**
Calculated DAY LEQ:	**67.2**	**1400**
Calculated DAY LEQ:	**67.9**	**1500**
Calculated DAY LEQ:	**68.5**	**1600**
Calculated DAY LEQ:	**67.6**	**1700**
Calculated DAY LEQ:	**66.8**	**1800**
Calculated DAY/EVE. LEQ:	**65.9**	**1900**
Calculated DAY/EVE. LEQ:	**66.2**	**2000**
Calculated DAY/EVE. LEQ:	**66.6**	**2100**
Calculated NIGHT LEQ:	**65.2**	**2200**
Calculated NIGHT LEQ:	**59.2**	**2300**
Calculated NIGHT LEQ:	**56.4**	**0000**
Calculated NIGHT LEQ:	**57.3**	**0100**
Calculated NIGHT LEQ:	**58.1**	**0200**
Calculated NIGHT LEQ:	**56.8**	**0300**
Calculated NIGHT LEQ:	**56.5**	**0400**
Calculated NIGHT LEQ:	**59.5**	**0500**
Calculated NIGHT LEQ:	**62.6**	**0600**

65.3 LEQ 24 hrs:
66.8 LEQ Day 15hr:
67.0 LEQ Day 12hr:
60.2 LEQ Night 9hr:
66.3 LEQ Eve 3hr:

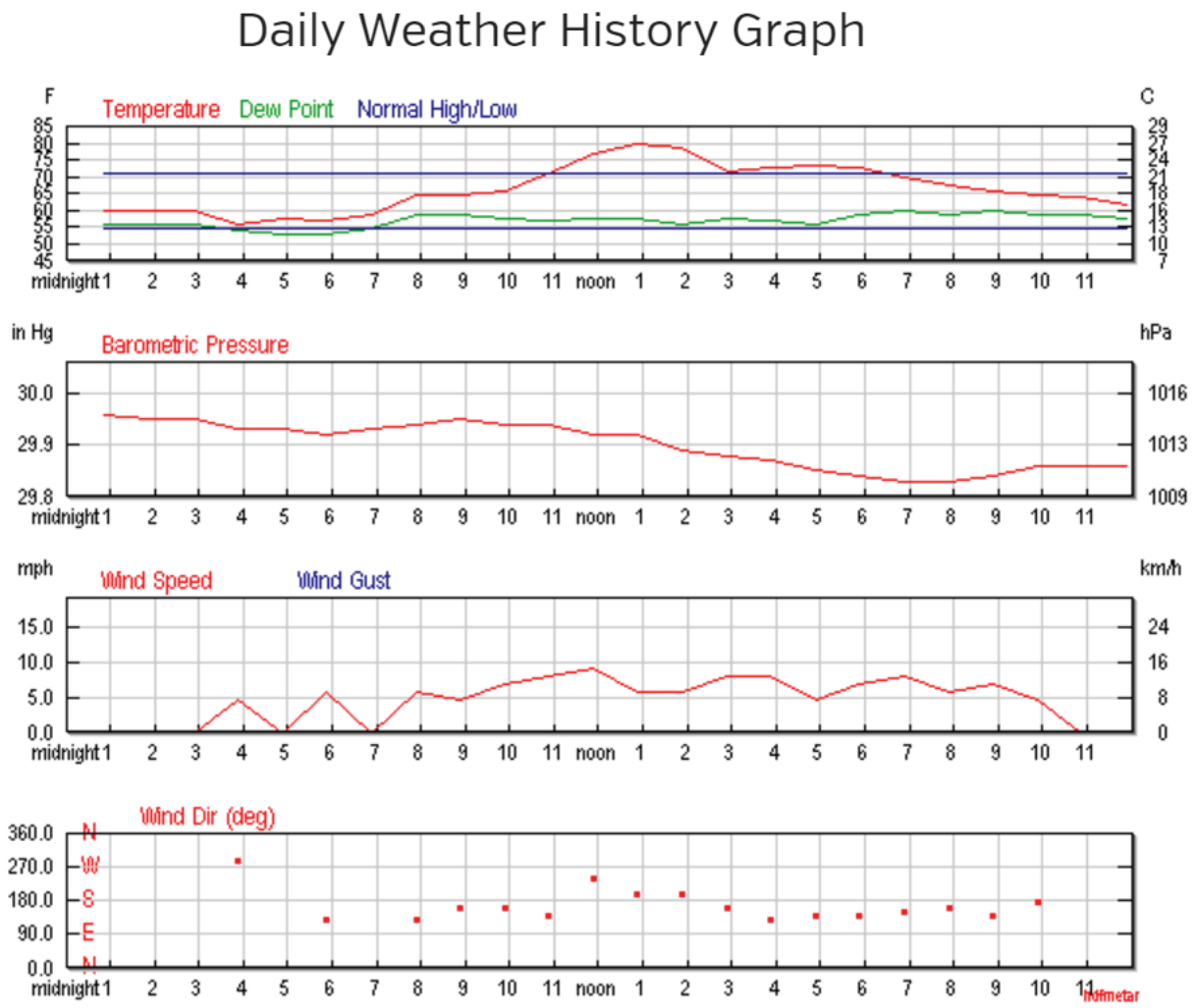
(penalty added for evening or night hours)

LDN: 68.4 dBA Day / Night Level Calculation
C.N.E.L.: 69.1 dBA Community Noise Equivalent Level Calculation

LDN Calculation from continuous sound level measurements

Figure 11. Average Weather Conditions

Sound measurement and sound propagation can be influenced by the wind speed and wind direction. The data graphed below represent average conditions at Santa Barbara Airport, for one day of the June 21/22, 2016 period. During the time of measurement over a 24 hour period, wind speed was less than 10 mph from the south to southwest, and therefore had a less than significant impact on the measurement accuracy.



7.0 Sound and Vibration Fundamentals

7.1 Terminology / Noise Descriptors

Noise is most often defined as unwanted sound. Although sound can be easily and objectively measured, the perception of noise and the physical, subjective response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as “noisiness” or “loudness.”

The following are brief definitions of terminology used in this report:

- Sound. A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- Noise. Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- Decibel (“dB”). A unitless measure of sound on a logarithmic scale.

- A-Weighted Decibel (“dBA”). An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- Equivalent Continuous Noise Level (“Leq”). The mean of the noise level averaged over the measurement period, regarded as an average level.

- Day-Night Level (“Ldn”). The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

- Community Noise Equivalent Level (“CNEL”). The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the levels occurring during the period from 7:00 PM to 10:00 PM and 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

Note that Ldn and CNEL values rarely differ by more than 1 dB. As a matter of practice, Ldn and CNEL values are considered to be equivalent and are treated as such in this assessment.

7.2 Characteristics of Sound

When an object vibrates, it radiates part of its energy as acoustical pressure in the form of a sound wave. Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate this human, frequency-dependent response, the A-weighted filter system is used to adjust measured soundlevels. The normal range of human hearing extends from approximately 0 dBA to 140 dBA.Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representingpoints on a sharply rising curve. Because of

the physical characteristics of noise transmission and of noiseperception, the relative loudness of sound does not closely match the actual amounts of sound energy.

"Table 3." below presents the subjective effect of changes in sound pressure levels.

Table 2. Decibel Changes

Decibel Changes, Loudness, Energy Loss		
Sound level change	***Relative Loudness***	***Acoustic Energy Loss***
0 dBA	Reference	0%
-3 dBA	Barely Perceptible Change	50%
-5 dBA	Readily Perceptible Change	67%
-10 dBA	Half as Loud	90%
-20 dBA	1/4 as Loud	99%
-30 dBA	1/8 as Loud	99.9%
Source: Highway Traffic Noise Analysis and Abatement Policy and Guidance, U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch, June 1995.		

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as spreading loss. Generally, sound levels from a point source will decrease by 6.0 dBA for each doubling of distance. Sound levels for a highway line source vary differently with distance because sound pressure waves propagate along the line and overlap at the point of measurement. A closely spaced, continuous line of vehicles along a roadway becomes a line source and produces a 3.0 dBA decrease in sound level for each doubling of distance. However, experimental evidence has shown that where sound from a highway propagates close to "soft" ground (e.g., plowed farmland, grass, crops, etc.), a more suitable drop-off rate to use is not 3.0 dBA but rather 4.5 dBA per distance doubling (FHWA 2010).

When sound is measured for distinct time intervals, the statistical distribution of the overall sound level during that period can be obtained. The Leq is the most common parameter associated with such measurements. The Leq metric is a single-number noise descriptor that represents the average sound level over a given period of time. For example, the L50 noise level is the level that is exceeded 50 percent of the time. This level is also the level that is exceeded 30 minutes in an hour. Similarly, the L02, L08 and L25 values are the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. Other values typically noted during a noise survey are the Lmin and Lmax. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, State law requires that, for planning purposes, an artificial dB increment be added to quiet-time noise levels in a 24-hour noise descriptor called the CNEL or Ldn. This increment is incorporated in the calculation of CNEL or Ldn, described earlier.

7.3 Characteristics of Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities such as railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. Vibration displacement is the distance that a point on a surface moves away from its original static position. The instantaneous speed that a point on a surface moves is described as the velocity and the rate of change of the speed is described as the acceleration. Each of these descriptors can be used to correlate vibration to building damage, and acceptable equipment vibration levels.

During construction of a development project, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may experience annoyance due to noise generated from vibration of a structure or items within a structure. This type of vibration is best measured in velocity and acceleration.

The three main wave types of concern in the propagation of groundborne vibrations are surface or Rayleigh waves, compression or P-waves, and shear or S-waves.

- Surface or Rayleigh waves travel along the ground surface. They carry most of their energy along an expanding cylindrical wave front, similar to the ripples produced by throwing a rock into a lake. The particle motion is more or less perpendicular to the direction of propagation (known as retrograde elliptical).

- Compression or P-waves are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal, in a push-pull motion. P-waves are analogous to airborne sound waves.

- Shear or S-waves are also body waves, carrying their energy along an expanding spherical wave front. Unlike P-waves, however, the particle motion is transverse, or perpendicular to the direction of propagation.

The peak particle velocity ("PPV") or the root mean square ("RMS") velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal and RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage.

The units for PPV velocity is normally inches per second (in/sec). Often, vibration is presented and discussed in dB units in order to compress the range of numbers required to describe the vibration. In this study, all PPV and RMS velocity levels are in in/sec and all vibration levels are in dB relative to one microinch per second (abbreviated as VdB). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Even the more persistent Rayleigh waves decrease relatively quickly as they move away from the source of the vibration. Human-made vibration problems are, therefore, usually confined to short distances (500 feet or less) from the source.

Construction operations generally include a wide range of activities that can generate groundborne vibration. In general, blasting and demolition of structures generate the highest vibrations. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at distances within 200 feet of the vibration sources. Heavy trucks can also generate groundborne vibrations, which vary depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, differential settlement of pavement, etc., all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration of normal traffic on streets and freeways with smooth pavement conditions. Trains generate substantial quantities of vibration due to the mass and momentum of their engines, vibration transmission from steel wheels to steel track, and heavy loads.

Table 3. Construction Equipment Vibration Levels

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level (L_V) at 25 feet
Pile driver (impact)	1.518 (upper range) 0.644 (typical)	112 104
Pile driver (sonic)	0.734 upper range 0.170 typical	105 93
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall)	0.008 in soil 0.017 in rock	66 75
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58
Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.		

8.0 Appendix: Glossary of Acoustical Terms

A-Weighted Sound Level (dBA)

The sound pressure level in decibels as measured on a sound level meter using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made. A-weighting de-emphasizes the low and very high frequency components of the sound in a manner similar to the response of the average human ear. A-weighted sound levels correlate well with subjective reactions of people to noise and are universally used for community noise evaluations.

Airborne Sound

Sound that travels through the air, differentiated from structure-borne sound.

Ambient Sound Level

The prevailing general sound level existing at a location or in a space, which usually consists of a composite of sounds from many sources near and far. The ambient level is typically defined by the Leq level.

Background Sound Level

The underlying, ever-present lower level noise that remains in the absence of intrusive or intermittent sounds. Distant sources, such as traffic, typically make up the background. The background level is generally defined by the L90 percentile noise level.

Community Noise Equivalent Level (CNEL):

The Leq of the A-weighted noise level over a 24-hour period with a 5 dB penalty applied to noise levels between 7 p.m. and 10 p.m. and a 10 dB penalty applied to noise levels between 10 p.m. and 7 a.m.

Day-Night Sound Level (Ldn):

The Leq of the A-weighted noise level over a 24-hour period with a 10 dB penalty applied to noise levels between 10 p.m. and 7 a.m.

Decibel (dB):

The decibel is a measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power, sound intensity) with respect to a reference quantity.

DBA or dB(A)

A-weighted sound level. The ear does not respond equally to all frequencies, but is less

sensitive at low and high frequencies than it is at medium or speech range frequencies. Thus, to obtain a single number representing the sound level of a noise containing a wide range of frequencies in a manner representative of the ear's response, it is necessary to reduce the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted, and the units are dBA. The A-weighted sound level is also called the noise level.

Energy Equivalent Level (LEQ):

Because sound levels can vary markedly in intensity over a short period of time, some method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, one describes ambient sounds in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called LEQ. In this report, an hourly period is used.

Field Sound Transmission Class (FSTC):

A single number rating similar to STC, except that the transmission loss values used to derive the FSTC are measured in the field. All sound transmitted from the source room to the receiving room is assumed to be through the separating wall or floor-ceiling assembly.

Outdoor-Indoor Transmission Class (OITC):

A single number classification, specified by the American Society for Testing and Materials (ASTM E 1332 issued 1994), that establishes the A-weighted sound level reduction provided by building facade components (walls, doors, windows, and combinations thereof), based upon a reference sound spectra that is an average of typical air, road, and rail transportation sources. The OITC is the preferred rating when exterior facade components are exposed to a noise environment dominated by transportation sources.

Percentile Sound Level, Ln:

The noise level exceeded during *n* percent of the measurement period, where *n* is a number between 0 and 100 (e.g., L10 or L90)

Sound Transmission Class (STC):

STC is a single number rating, specified by the American Society for Testing and Materials, which can be used to measure the sound insulation properties for comparing the sound transmission capability, in decibels, of interior building partitions for noise sources such as speech, radio, and television. It is used extensively for rating sound insulation characteristics of building materials and products.

Structure-Borne Sound:

Sound propagating through building structure. Rapidly fluctuating elastic waves in gypsum board, joists, studs, etc.

Sound Exposure Level (SEL)

SEL is the sound exposure level, defined as a single number rating indicating the total energy of a discrete noise-generating event (e.g., an aircraft flyover) compressed into a 1-

second time duration. This level is handy as a consistent rating method that may be combined with other SEL and Leq readings to provide a complete noise scenario for measurements and predictions. However, care must be taken in the use of these values since they may be misleading because their numeric value is higher than any sound level which existed during the measurement period.

Subjective Loudness Level

In addition to precision measurement of sound level changes, there is a subjective characteristic which describes how most people respond to sound:

•A change in sound level of 3 dBA is *barely perceptible* by most listeners.

•A change in level of 6 dBA is *clearly perceptible*.

•A change of 10 dBA is perceived by most people as being *twice* (or *half*) as loud.

9.0 Measurements, Calculations and Modeling

9.1 Wind Measurement

Sound level measurements become less reliable when average wind speed is greater than 11 m.p.h. at the measurement site. Therefore, wind speed and direction were measured periodically at the measurement site and the results are correlated with wind data from a nearby established weather station. A Larson Davis WS 001 windscreen is used as wind protection for all microphones and is left in place at all times.

Wind speed and direction were noted throughout the measurement period and compared with data from the nearby National Weather Service weather station at Santa Barbara Airport. A Davis Turbo Wind meter was used to measure wind speed at the measurement site to cross-check wind speeds at the airport. The Turbo Wind meter is a high performance wind speed indicator with exceptional accuracy.

9.2 Precision of Sound Level Meters.

The American National Standards Institute (ANSI) specifies several types of sound level meters according to their precision. Types 1,2, and 3 are referred to as "precision," "general purpose," and "survey" meters, respectively. Most measurements carefully taken with a type 1 sound level meter will have an error not exceeding 1 dB. The corresponding error for a type 2 sound level meter is about 2 dB.

The sound level meters used for measurements shown in this report are Larson-Davis Laboratories Model 820, and Norsonic Model 140, used for spot-checking. These sound level meters meet all requirements of ANSI s1.4, IEC 651 for Type 1 accuracy and include the following features: 110 dB dynamic range for error free measurements. Measures FAST, SLOW, Unweighted PEAK, Weighted PEAK, Impulse, Leq, LDOD, LOSHA, Dose, Time Weighted Average, SEL, Lmax, Lmin, Ldn. Time history sampling periods from 32 samples per second up to one sample every 255 seconds.

Field calibration of each sound level meter with an external Type 1 calibrator is accomplished before and after all field measurements. Laboratory calibration accuracy of the all instruments can be traced to the U.S. National Institute of Science and Technology standard.

9.3 Sound Level Measurement Method

The accepted method for conducting sound level measurements is described in detail by the American Society for Testing and Materials (ASTM) in their E 1014 "Measurement of Outdoor A-Weighted Sound Levels"publication and the CalTrans Traffic Noise Analysis Protocol. The procedures and standards in those documents are met or exceeded for sound level measurements shown in this report. The standards of ASTM E 1014 are exceeded by using Type 1 sound level meters for all measurements in this report instead of the less accurate Type 2 meters. Therefore, the precision of the measurements in this report is likely to be better than +/- 2 dB as stated in ASTM E1014. Particular and specific local sound sources are identified by listening to synchronous audio recordings of peak sound level events.

Caltrans Noise Measurement Guidelines: Caltrans makes available general guidelines for taking into account environmental elements in noise measurements. The following is an excerpt from their guidelines. The Traffic Noise Analysis Protocol contains Caltrans noise policies, which fulfill the highway noise analysis and abatement/mitigation requirements stemming from the following State and Federal environmental statutes:

- California Environmental Quality Act (CEQA)
- National Environmental Policy Act (NEPA)
- Title 23 United States Code of Federal Regulations, Part 772 "Procedures for Abatement of Highway Traffi c Noise and Construction Noise" (23 CFR 772)
- Section 216 et seq. of the California Streets and Highways Code

Noise Contour Modeling

Noise contours incorporating the measured sound level values were generated for this assessment using CADNA/A, an acoustical modeling program that is in conformance with the TNM 2.5 algorithms, and which was developed to predict hourly Leq values for free-flowing traffic conditions. This computer modeling tool, made by Datakustik GmbH, is an internationally accepted acoustical modeling software program, used by many acoustics and noise control professional offices in the U.S. and abroad. The software has been validated by comparison with actual values in many different settings. The program has a high level of reliability and follows methods specified by the International Standards Organization in their ISO 9613-2 standard, "Acoustics – Attenuation of sound during propagation outdoors, Part 2: General Method of Calculation." The standard states that, "this part of ISO 9613 specifies an engineering method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at a distance from a variety of sources. The method predicts the equivalent continuous A-weighted sound pressure level under meteorological conditions favorable to propagation from sources of known sound emissions. These conditions are for downwind propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs at night."

The computer modeling software takes into account source sound power levels, surface reflection and absorption, atmospheric absorption, geometric divergence, meteorological conditions, walls, barriers, berms, and terrain variations. The CADNA/A software uses a grid of receivers covering the project site.

10.0 References

1. American National Standards Institute, Inc. 2004. *ANSI 1994 American National Standard Acoustical Terminology*. ANSI S.1.-1994, (R2004) , New York, NY.

2. American Society for Testing and Materials. 2004. *ASTM E 1014 - 84 (Reapproved 2000) Standard Guide for Measurement of Outdoor A-Weighted Sound Levels.*

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9. City of Carpinteria. *General Plan/Local Coastal Land Use Plan & Environmental Impact Report*. April 2003

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APPENDIX H

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Since 1978

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July 26, 2019 1302602.L03

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TRAFFIC AND PARKING ASSESMENT FOR THE REVISED PATEL HOTEL PROJECT – CITY OF CARPINTERIA, CA

Associated Transportation Engineers (ATE) prepared a Traffic, Circulation and Parking Study for the Patel Hotel Project in February 2016. That study, which was used to complete the environmental review documents, was based on a 110-room hotel with 110 parking spaces. The revised project includes 72 rooms and 77 parking spaces. Exhibit A1 (attached) shows the revised site plan.

TRIP GENERATION COMPARISON

Table 1 compares the trip generation estimates for the current Project (72 rooms) with the previously analyzed project (110 rooms). The trip generation analysis is based on rates contained in the current 10th edition of the Institute of Transportation Engineers (ITE) Trip Generation manual, which are slightly different than the rates used in the previous analysis.[1]

Table 1
Project Trip Generation

Land Use	Size	ADT		AM Peak Hour		PM Peak Hour	
		Rate	Trips	Rate	Trips	Rate	Trips
Current Project	72 Rooms	8.36	602	0.47	34	0.60	43
Previous Project	110 Rooms	8.36	912	0.47	52	0.60	66
Net Change	**-38 Rooms**		**-310**		**-18**		**-23**

[1] Trip Generation, Institute of Transportation Engineers, 10th Edition, 2017.

The data presented in Table 1 show that currently proposed Project (decrease in 38 rooms) will generate 310 fewer average daily trips (ADT), 18 fewer AM peak hour trips, and 23 fewer PM peak hour trips. Thus, the traffic impact analysis completed for the previous project is conservative since the currently proposed 72-room project generates less traffic than was analyzed in the study prepared for the 110-room project.

PARKING ANALYSIS

The current project includes 77 parking spaces in a surface-level parking lot with 72 spaces provided for hotel guests and 5 spaces provided for employees (including 4 accessible spaces - see attached site plan). The parking supply also include 2 loading spaces. The City's Zoning Ordinance requires 1 parking space per hotel room plus 1 parking space per employee. Table 2 presents the Zoning Ordinance parking requirement for the currently proposed project.

Table 2
Zoning Ordinance Parking Requirement

Variable	Size	Parking Rate	Required Parking	Parking Provided
Hotel Rooms	72 Rooms	1 Space/Room	72 spaces	72 spaces
Hotel Employees	5 Employees	1 Space/Employee	5 spaces	5 spaces
Total:			***77 spaces***	***77 Spaces***

As shown in Table 2, the Zoning Ordinance parking requirement for the proposed project is 77 spaces. The proposed parking supply of 7 spaces therefore meets the City's Zoning Ordinance requirement.

Associated Transportation Engineers

Scott A. Schell, AICP, PTP
Principal Transportation Planner

SAS/DLD

Attachment



PROPOSED PROJECT:

HOTEL - 72 GUESTROOMS
PARKING - 77 SPACES PROVIDED

ARCHITECT:
nKLOSURES, Inc.
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RAM HOTELS

21 PRESTWICK LANE,
AMARILLO, TX 79124

VIA REAL HOTEL

4110 VIA REAL, CARPINTERIA
JUNE 10, 2019

(PRELIMINARY) PROPOSED LEVEL 01 PLAN

EXHIBIT
A1

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APPENDIX I

Appendix I: Mitigation, Monitoring and Reporting Program

Mitigation Measure	Monitoring Responsibility	Monitoring/Reporting Action & Schedule	Monitoring Compliance Complete (Name/Date)
1. AESTHETICS			
AES-1. Architectural Review Board (ARB) Review. The design, scale, character, colors, and materials of the project architecture shall be compatible with vicinity development and consistent with the City's "small beach town" character.	City of Carpinteria Community Development Department (CDD) staff	**Plan Requirement and Timing:** The applicant shall submit plans for the project for review by the Architectural Review Board prior to approval of any Building Permit for physical development. **Monitoring:** Community Development Department staff (CDD) shall review submitted plans, provide direction to the ARB regarding this mitigation measure and site inspect during the construction phase for compliance with the approved plans.	
AES-2. Equipment Screening. All mechanical equipment, including but not limited to, heating and air conditioning units, and trash receptacle areas, shall be completely screened from surrounding properties by use of a wall or fence, or shall be enclosed within a building or roof parapet/equipment well.	CDD staff Architectural Review Board (ARB) Building Inspector	**Plan Requirements:** The locations of all exterior mechanical equipment shall be depicted on a Roof and/or Mechanical Equipment Plan to be reviewed and approved by CDD with input from the ARB. **Monitoring:** CDD and ARB shall review the Roof and/or Mechanical Equipment Plan for compliance with this measure prior to approval of a Building Permit for structures. Building Inspector/CDD staff shall inspect structures upon completion to ensure that mechanical equipment has been installed consistent with the approved Plan.	
AES-3. Lighting. Any exterior night lighting installed on the project site shall be of low intensity, low glare design, minimum height, and shall be hooded to direct light downward onto the subject parcel and	CDD staff ARB Building Inspector	**Plan Requirements:** Specifications for all selected exterior lighting fixtures shall be included in the plans. The locations of all exterior lighting fixtures and photometric exhibit showing the direction and	

prevent spill-over onto adjacent parcels and into the protected riparian habitats and their associated buffers. Applicant shall develop a Lighting Plan incorporating these requirements and provisions for dimming lights after 10:00 pm.		intensity of light being cast by each fixture and the height of the fixtures shall be depicted on a Lighting Plan to be reviewed and approved by CDD with input from the ARB. **Monitoring:** CDD and ARB shall review a Lighting Plan for compliance with this measure prior to approval of a building permit for structures. Building Inspector/CDD staff shall inspect structures upon completion to ensure that exterior lighting fixtures have been installed consistent with their depiction on the final Lighting Plan.	
AES-4. Illuminated Signs. Building and grounds signage shall be reviewed by the Architectural Review Board to ensure the size, design, colors, and intensity of signage is appropriate to the neighborhood setting and does not create distracting or intrusive impacts on surrounding uses.	CDD staff	**Plan Requirements:** Detailed sign plans, depicting the location, construction, size, and dimensions of all project-related signage shall be submitted to the Architectural Review Board for review and approval prior to Building Permit issuance. All illuminated signage shall be outfitted with dimmable controls to control light intensity. **Monitoring:** CDD staff shall ensure compliance with the Architectural Review Board-approved sign plans during Building Permit review and prior to occupancy clearance.	
2. AGRICULTURAL & FORESTRY RESOURCES			
AG-1. Right to Farm Notification. The following informational notice shall be recorded with the Santa Barbara County Clerk Recorder's office for appearance on any future property owners' Title Reports; shared with hotel employees; and disclosed to hotel guests prior to check-in:	CDD staff	**Plan Requirements:** The applicant shall prepare and submit to the Community Development Department for review and approval the informational notice containing the above disclosure statement. The notice shall be recorded prior to granting of occupancy clearance by the City of Carpinteria. Hotel operator shall	

IMPORTANT: PROPERTY OWNER, EMPLOYEE & HOTEL GUEST NOTIFICATION *This property is located adjacent to property zoned for agriculture and is located in an area that has been planned for agricultural uses. Existing agricultural growing operations are located north of the property. Vehicles associated with the agricultural use of this property utilize the adjacent driveway located immediately west and north of this property to access agricultural lands. While the Via Real Hotel project design includes landscape buffers and physical setbacks from the adjacent agricultural lands to reduce possible noise, light, odors and dust from impacting guests and employees of the Via Real Hotel project, property/business owners, employees and guests are to be notified that these are existing conditions and will not be considered by the City of Carpinteria to be a nuisance requiring extraordinary actions by the adjacent agricultural operators or landowners. It is in the public interest to preserve agricultural land and operations within the Carpinteria Valley and to specifically protect these lands for exclusive agricultural use. Any inconvenience or discomfort from properly conducted agricultural operations, including noise, lights, odors, dust, and chemicals, will not be deemed a nuisance.*		be made aware of this disclosure requirement in writing and shall provide a copy of the disclosure document(s) used to notify hotel guests and employees of the adjacent agricultural land's "right to farm" protections. **Monitoring:** Following recordation and prior to granting of occupancy clearance, CDD staff shall be provided with a conformed copy of the recorded informational notice, and a copy of the disclosure document that will be used to notify hotel guests and employees.	
4. BIOLOGICAL RESOURCES			
BIO-1. Nesting Bird Surveys. To avoid disturbance of nesting and special-status birds, including raptor species protected by the MBTA and CFGC, activities	CDD staff Project Biologist	**Plan Requirements:** The most suitable bird nesting habitat shall be identified on the building and grading plans. This Measure shall	

related to the project including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (February 1 through August 30), if feasible. If construction must begin during the breeding season, then a pre-construction nesting bird survey shall be conducted no more than 14 days prior to initiation of ground disturbance and vegetation removal activities. The nesting bird pre-construction survey shall be conducted on foot inside the Project Boundary, including a 300-foot buffer (500-foot for raptors), and in inaccessible areas (e.g., private lands) from afar using binoculars to the extent practical. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California coastal communities. If nests are found, an avoidance buffer (dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within this buffer until the avian biologist has confirmed that breeding/ nesting is completed, and the young have fledged the nest. Encroachment		be printed on all building and grading plans. **Timing:** A Qualified Biologist will conduct a pre-construction nesting bird survey, no more than 14 days prior to the initiation of construction. **Monitoring:** City of Carpinteria's Community Development Department (CDD) shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field. The qualified biologist shall attend the pre-grading meeting with the grading contractors to explain and coordinate the requirements of the monitoring program. A report summarizing the results of the nesting bird survey and monitoring activities shall be prepared and submitted to the City, once all survey and monitoring activities are completed.	

into the buffer shall occur only at the discretion of the qualified biologist.			
BIO-2. Riparian Habitat Restoration Plan. In adherence to LCP/LUP goals and Policies, City's Creek Preservation Program and CCC requirements, the project will restore and enhance the riparian habitat associated with drainage swales A and B. Enhancement would include removal of non-native plants and planting of native plants such as arroyo and red willows. As part of this MM, a Riparian Habitat Restoration / Enhancement Plan (Plan) will be prepared for the project. This Plan will provide details on the restoration of the riparian areas associated with swales A and B and will include such elements as a planting plan, location of enhancement/restoration, irrigation (if needed), and success and monitoring criteria. The Plan will also incorporate biological aspects of the stormwater wetland treatment system (see MM BIO-3); that will be created to enhance stormwater quality. Details such as design of the wetland treatment system, planting plan and monitoring of this water quality enhancement; will be included in the Plan.	CDD staff Project Biologist	**Plan Requirements/Timing:** The Applicant shall provide a copy of the Riparian Habitat Restoration Plan (Plan) to the CDD for review and approval, prior to issuance of building permits, and will require that the restoration work be completed prior to Occupancy clearance for the building. The Plan must also outline protective measures for the riparian habitats that must be implemented during construction (i.e., fencing, exclusion zones, etc.) to avoid potential impacts to sensitive riparian habitats. The Restoration Plan will also require approval from CDFW as a Streambed Alteration Agreement will be required. **Monitoring:** Following the enhancement/restoration of the riparian habitat, a qualified biologist will conduct one (1) annual inspection of Swales A and B and associated riparian habitat for 5 years, to document that the habitat is viable and providing the intended ecological functions and values. The monitoring frequency for the riparian habitat restoration/enhancement associated with Swales A and B may be conducted in tandem with the monitoring for the Stormwater Treatment Wetland Habitat (MM BIO-3). The monitoring & reporting elements will be detailed in the Plan. The Biologist will submit annual reports to CDD, based on the annual monitoring criteria. The CDD shall inspect the wetland	

		habitat once a year after construction of the habitat, with the final inspection at the end of the 5 years.	
BIO-3. Stormwater Treatment Wetland. In adherence to LCP/LUP goals and Policies, City's Creek Preservation Program and CCC requirements, the project will design and construct a stormwater treatment wetland habitat as part of the proposed treatment swale to enhance stormwater quality. The small freshwater wetland will be designed to provide both enhancement of stormwater quality and serve as a wetland habitat for wildlife.	CDD staff	**Plan Requirements/Timing:** The Applicant will provide the final design plans showing the stormwater treatment wetland, on all grading plans submitted to the City, for review and approval prior to issuance of any permits for construction. The biological aspects of the stormwater treatment wetland habitat (including planting plan); will be detailed in the Riparian Habitat Restoration / Enhancement Plan (Plan), as identified in MM BIO-2. The Stormwater Treatment Wetland Plan will also require approval from the RWQCB, if a Section 402 water quality certification or other regulatory permitting is required. **Monitoring:** Following the construction of the treatment wetland, a qualified biologist will conduct one (1) annual inspection of the treatment wetland and swale, for 5 years, to document that the system is viable and providing the intended ecological functions and values. CDD shall review and approve the design, prior to the issuance of grading or building permits. The monitoring and reporting program for the treatment wetland can be integrated with the Riparian Habitat Enchantment/Creation program (MM BIO-2). The CDD shall inspect the wetland habitat once a year after construction of the habitat, with the final inspection at the end of the 5 years.	

Appendix I: Mitigation, Monitoring and Reporting Program

5. CULTURAL RESOURCES			
CR-1. Cultural Resources Discovery. In the event archaeological remains are encountered during grading, work shall be stopped immediately or redirected until a CDD-qualified archaeologist and Native American representative are retained by the applicant to evaluate the significance of the find pursuant to Phase 2 investigation specifications of the City Archaeological Guidelines. If remains are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with City Archaeological Guidelines and funded by the applicant.	CDD staff	**Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field. In the event that potentially significant cultural or archaeological resources are uncovered during ground-disturbing activities, all work on the site will cease and a qualified archaeologist will be contacted in addition to the Native American Heritage Commission.	
7. GEOLOGY & SOILS			
GEO-1. Geotechnical Report Compliance. Project construction and grading shall comply with all recommendations for Grading, Foundations and Retaining Walls, contained in the Geotechnical Engineering Report prepared by Pacific Materials Laboratory, to the satisfaction of the City Engineer.	City Engineer Building Inspector	**Plan Requirements:** Grading and building plans shall include all required measures as determined by the City Engineer. **Timing:** Prior to issuance of building and grading permits and during grading and construction. **Monitoring:** The City Engineer shall site inspect during grading. The City Building Inspector shall ensure that all recommendations are implemented during construction, by conducting periodic site inspections during and at the completion of construction.	
10. HYDROLOGY & WATER QUALITY			
WQ-1 Implementation of Low Impact Design (LID) Development Measures. The following LID measures will be incorporated with the stormwater treatment design for the project:	CDD staff Public Works (PW) staff	**Plan Requirements:** The set back from the existing drainage, LID and all storm water treatment design features shall be depicted on all building and grading plans. A final copy of the design plans showing these features will be	

• *Limitation of development envelope*. The project development footprint will be limited to provide areas for treatment and retention of stormwater runoff by means of a treatment swale along the southerly boundary, high groundwater, and preservation of historic drainage patterns. • *Preservation of natural drainage features*. The drainage runoff from the northerly adjacent properties is currently draining along the western side of the property in a drainage swale. This drainage pattern is proposed to be preserved. A 50-foot setback from the existing drainage swales will be accommodated and depicted on project designs. • *Incorporation of existing drainage into stormwater treatment design/treatment wetland*. The stormwater treatment system for the project will be so designed to direct all stormwater runoff into the existing drainages and into a stormwater treatment swale along the southern property line. The vegetated stormwater treatment will act as an aesthetic feature at the entry to the property. A freshwater treatment wetland will also be created at the end of the detention basin, to further clarify water and to provide a habitat for wildlife.		submitted to CDD and Public Works for review and approval. **Timing:** All stormwater treatment measures shall be completed prior to occupancy clearance. **Monitoring:** City of Carpinteria's Community Development Department (CDD) and Public Works Department shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.	

• *Minimization of imperviousness*. The project will utilize porous pavement within the northwesterly parking lot to reduce the amount of impervious material. • *Use of permeable pavements*. The project utilizes porous asphalt concrete pavement at various locations on the site to allow infiltration of the parking areas, treat stormwater, and minimize runoff. • *Dispersal of runoff to pervious areas*. To meet the Tier 3 requirement for retaining 95th percentile rainfall intensity on the site, a large percentage of roof water will be discharged to bioretention devices. The remaining drainage runoff will be directed to the existing swales along the eastern and western sides of the project site, which will then be routed through the treatment swale and wetlands, before it discharges off-site. In addition to the stormwater treatment, the vegetated swale will be designed to promote infiltration of water during rainfall events.			
WQ-2. Compliance with NPDES Permit Requirements. The project shall comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) stormwater permitting program. Since the project would disturb one or more acres from construction activities, the construction	CDD staff PW staff	**Plan Requirements:** The BMPs will be depicted on all building and grading plans and will be submitted to the CDD and Public Works for review and approval. The Applicant shall prepare a SWPPP and provide a copy of the document and a copy of the project's NPDES Construction	

operators must obtain coverage under a NPDES permit, which is administered by the State, prior to the start of construction. In order to obtain an NPDES permit, the project Applicant must prepare a Stormwater Pollution Prevention Plan (SWPPP). The following measures are examples of construction Best Management Practices (BMPs) that may be included in the SWPPP: • *Stockpiling of Soil*. City Ordinance requires operators to preserve native topsoil on-site unless infeasible and protect all soil storage piles from run-on and runoff. For smaller stockpiles, covering the entire pile with a tarp may be sufficient. • *Protecting Construction Materials from Run-On and Runoff*. At the end of every workday and during precipitation events, contractors must provide cover for materials that could leach pollutants. • *Designating Waste Disposal Areas*. Clearly identify separate waste disposal areas on-site for hazardous waste, construction waste, and domestic waste by designating with signage, and protect from run-on and runoff. • *Installing Perimeter Controls on Downhill Lot Line*. Install perimeter controls such as sediment filter logs or silt fences around the downhill boundaries of your site.		General Permit to the CDD and Public Works Department. **Timing:** All stormwater treatment measures and structural BMPs shall be in place prior to commencement of construction. **Monitoring:** City of Carpinteria's Community Development Department (CDD) and Public Works Department shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.	

• *Maintaining a Stabilized Exit Pad*. Minimize sediment track-out from vehicles exiting the site by maintaining an exit pad made of crushed rock spread over geotextile fabric. If sediment track- out occurs, remove deposited sediment by the end of the same workday.			
WQ-3. Soil Erosion & Sediment Control Plan. To control erosion and potential discharge of soil during construction into the drainage swales, the applicant shall prepare a Soil Erosion and Sediment Control Plan. This plan can be part of the SWPPP.	CDD staff PW staff	**Plan Requirements:** Specific BMPs that would be implemented from the Soil and Erosion Control Plan that are not otherwise covered under the SWPPP shall also be depicted on all grading plans. **Timing:** All Soil Erosion & Sediment Control BMPs shall be in place prior to commencement of construction. **Monitoring:** City of Carpinteria's Community Development Department (CDD) and Public Works Department shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.	
WQ-4. Minimum Finished Floor Elevation. The project shall be designed to have a minimum finished floor elevation of 17.0. Applicant shall obtain a Letter of Map Revision based on fill from FEMA to remove the new structure built on the property from the Special Flood Hazard Area (SFHA).	CDD staff PW staff	**Plan Requirements:** Project plans submitted for Building and Engineering Permits shall depict a minimum finished floor elevation of 17.0 feet. A copy of the Letter of Map Revision based on fill shall be submitted to the City for review and approval prior to submittal to the Federal Emergency Management Agency (FEMA) for approval and issuance of a Letter of Map Revision Based on Fill Determination Document (LOMR). **Timing:** Project plans depicting the minimum required finished	

		floor elevation shall be submitted prior to Building and Engineering Permit approvals. A copy of the application for LOMR shall be submitted to City prior to submittal to FEMA. A copy of the approved LOMR shall be submitted to the City following FEMA approval. **Monitoring:** CDD and Public Works shall review building and engineering plans for conformance with this Measure. Public Works staff shall review and approve submittal of LOMR request to FEMA prior to submittal.	
WS-1. Compliance for Carpinteria Valley Water District Requirements. The Project will comply with the requirements of the Carpinteria Valley Water District (District) to ensure domestic water supply for the project. The following items shall be submitted to the District for their review and approval: • Final design plan set that shows profiles for water, sewer, and storm drainage • Signed plans set by the City of Carpinteria planning department and public work department. • The City completed Plan Set shall include all of the District's comments • All required fees (including the Capital Cost Recovery Fee [CCRF], and any fees associated with inspection of the installation or cost to cover any system improvement required by the project shall be paid prior to Plan set submittal.	Carpinteria Valley Water District (CVWD) staff CDD staff	**Plan Requirements:** Profiles for water, sewer, and storm drainage shall be depicted on all final Plan set for submittal to the District. **Timing:** Final Plan set, and applicable fees shall be submitted to the District, prior to obtaining a grading permit for the project. **Monitoring:** The Applicant shall provide proof of District approval/sign-off prior to issuance of building permits.	

• Main Extension Agreement with the District for the Construction of any new water mains or other facilities requiring upgrades or improvements to meet the demand for the project shall be completed prior to final Plan set submittal. • Construction deposits and bonds per the main extension agreement shall also be paid prior to final Plan set submittal			
13. NOISE			
N-1. Construction Hours. Construction activity for site preparation and for future development shall be limited to the hours between 7:00 a.m. and 5:00 p.m., Monday through Friday. No construction shall occur on State holidays (e.g. Thanksgiving, Labor Day). Construction equipment maintenance shall be limited to the same hours. Non-noise generating construction activities such as interior painting are not subject to these restrictions.	Building Inspector	**Plan Requirements:** Two signs stating these restrictions shall be provided to the applicant and posted on site. **Timing:** Signs shall be in place prior to the beginning of and throughout all grading and construction activities. Violations may result in suspension of permits. **Monitoring:** Building Inspector shall spot check and respond to complaints.	
N-2. Mechanical Equipment. Construction equipment shall be properly maintained and all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds, as applicable, shall be in good condition and appropriate for the equipment. Equipment engine shrouds shall be closed during equipment operation. Whenever feasible, electrical power shall be used to run air compressors and similar power tools rather than diesel equipment. The developer shall require all contractors, as a	CDD staff	**Plan Requirements:** The notes on all building and grading plans shall include these requirements. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.	

condition of contract, to maintain and tune-up all construction equipment to minimize noise emissions.			
N-3. Construction Vehicles. Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use.	CDD staff	**Plan Requirements:** The notes on all building and grading plans shall include these requirements. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.	
N-4. Stationary Equipment. Stationary construction equipment that generates noise that exceeds 60 dBA Leq at the boundaries of the nearby residential uses shall be shielded.	CDD staff	**Plan Requirements:** Temporary noise barriers used during construction activity shall be made of noise resistant material sufficient to achieve a Sound Transmission Class (STC) rating of STC 40 or greater, based on sound transmission loss data taken according to ASTM Test Method E90. Such a barrier may provide as much as a 10 dB insertion loss, provided it is positioned as close as possible to the noise source or to the receptors. To be effective, the barrier must be long and tall enough (a minimum height of eight feet) to completely block the line-of-site between the noise source and the receptors. The gaps between adjacent panels must be filled-in to avoid having noise penetrate directly through the barrier. The recommended minimum noise barrier or sound blanket requirements would reduce construction noise levels by at least 10 dBA. **Timing/Monitoring:** The equipment area with appropriate acoustical shielding shall be designated on building and grading plans. Equipment and shielding shall remain in the	

		designated location throughout construction activities.	
N-5. Sound Curtains. Temporary sound curtains shall be installed for the closest sensitive receptors if construction-related noise would exceed City thresholds. A sound curtain shall be installed and maintained along the easterly and northerly property lines throughout the duration of all construction activities on the project site.	CDD staff Building Inspector	**Plan Requirements:** The notes on all building and grading plans shall include these requirements. Applicant shall provide an acoustical analysis prepared by a licensed acoustical engineer to demonstrate whether earthwork and/or construction activities would exceed City noise thresholds for nearby sensitive receptors. **Timing:** The acoustical analysis shall be submitted prior to issuance of any building or engineering permits. If the use of a sound curtain is found to be necessary to mitigate construction-related noise, the sound curtain(s) shall be in place prior to the beginning of and throughout all demolition, grading, and construction activities. **Monitoring:** CDD shall be responsible for receipt and review of the acoustical analysis. If sound curtains are required, CDD shall ensure sound curtains are in place prior to start of construction. Building inspector shall spot check and respond to complaints.	
N-6. Noise Monitor. A disturbance coordinator shall be designated by the contractor. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g. starting too early, bad muffler, etc.) and shall require that	CDD staff	**Plan Requirements:** A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.	

reasonable measures warranted to correct the problem be implemented.			
N-7. Exterior Walls Construction. The exterior wall construction shall consist of wood frame, composed of 7/8" stucco, 30 lbs. felt vapor barrier, 6" studs with R-13 or thicker batt insulation and two layers of 5/8" type X gypsum board wall for the interior face, with a minimum Outside Inside Transmission Class (OITC) 40 (comparable to STC 50).	CDD staff Building Inspector	**Plan Requirements:** The exterior wall specifications shall be shown on all building construction plans. **Timing:** Final exterior wall specifications shall be provided to CDD for verification, prior to initiation of project construction activities. **Monitoring:** CDD/Building Inspector check plans prior to issuance of grading permit.	
N-8. Ceiling/Roof Construction. Standard construction techniques shall be implemented (roofing, 30 lb. felt, truss or joists, R-30 insulation and 5/8" gypsum board) to provide the necessary 20 dBA noise reduction.	CDD staff Building Inspector	**Plan Requirements:** The construction techniques/specifications shall be shown on all building construction plans. **Timing:** Construction techniques for ceiling/roof shall be provided to CDD for verification, prior to initiating project construction activities. **Monitoring:** CDD/Building Inspector check construction techniques/specifications prior to issuance of grading permit.	
N-9. Windows/Doors Specifications. Glazing for all sound rated windows shall be of unequal thickness, or with one glazing light of laminated glass, in order avoid harmonic resonance at certain low frequencies. The windows should have the performance characteristics listed below to provide the required (or recommended) noise reduction for the south elevation. In addition to specifying the required Sound Transmission Class of building assemblies, flanking paths for	CDD staff Building Inspector	**Plan Requirements:** The windows/doors specifications shall be shown on all building construction plans. **Timing:** Final exterior wall specifications shall be provided to CDD for verification, prior to initiation of project construction activities. **Monitoring:** CDD/Building Inspector check plans prior to issuance of grading permit.	

noise should be reduced by sealing all potential leaks in construction by use of acoustical sealant and putty pads. Notes and details shall be included on the design drawings to insure that the construction details achieve the sound insulation potential of the basic building assemblies. The following are recommended additional notes and details that shall be followed: • Use permanently non-hardening acoustical sealant around perimeter of window frames and at joints of all wall and roof/ceiling building assemblies. Gypsum board seams and joints should be sealed with acoustical sealant to prevent all air leaks. If double-layer gypsum board is used, panels should be staggered. • Select window assemblies with effective, airtight, nonporous gaskets or weather stripping to minimize air infiltration and sound leakage. • Provide airtight construction at all exterior walls with acoustical sealant at interior and exterior of sole plates and sill plates, headers and top plate, where warping and drying may open construction joints over time. • Use door jamb and head gasketing and door bottom gasketing at entry doors to seal solid core doors against weather and sound. Caulk entry door thresholds as they are placed, provide rubber-seal door thresholds,			

such as those by Trademark Hardware. Some of the above steps are also necessary for compliance with CCR Title 24 Thermal Insulation requirements.			