5-13-032 EXHIBIT 8

Page 1 of 15

NEWPORT BANNING RANCH

MASTER DEVELOPMENT PLAN

City of Newport Beach - California

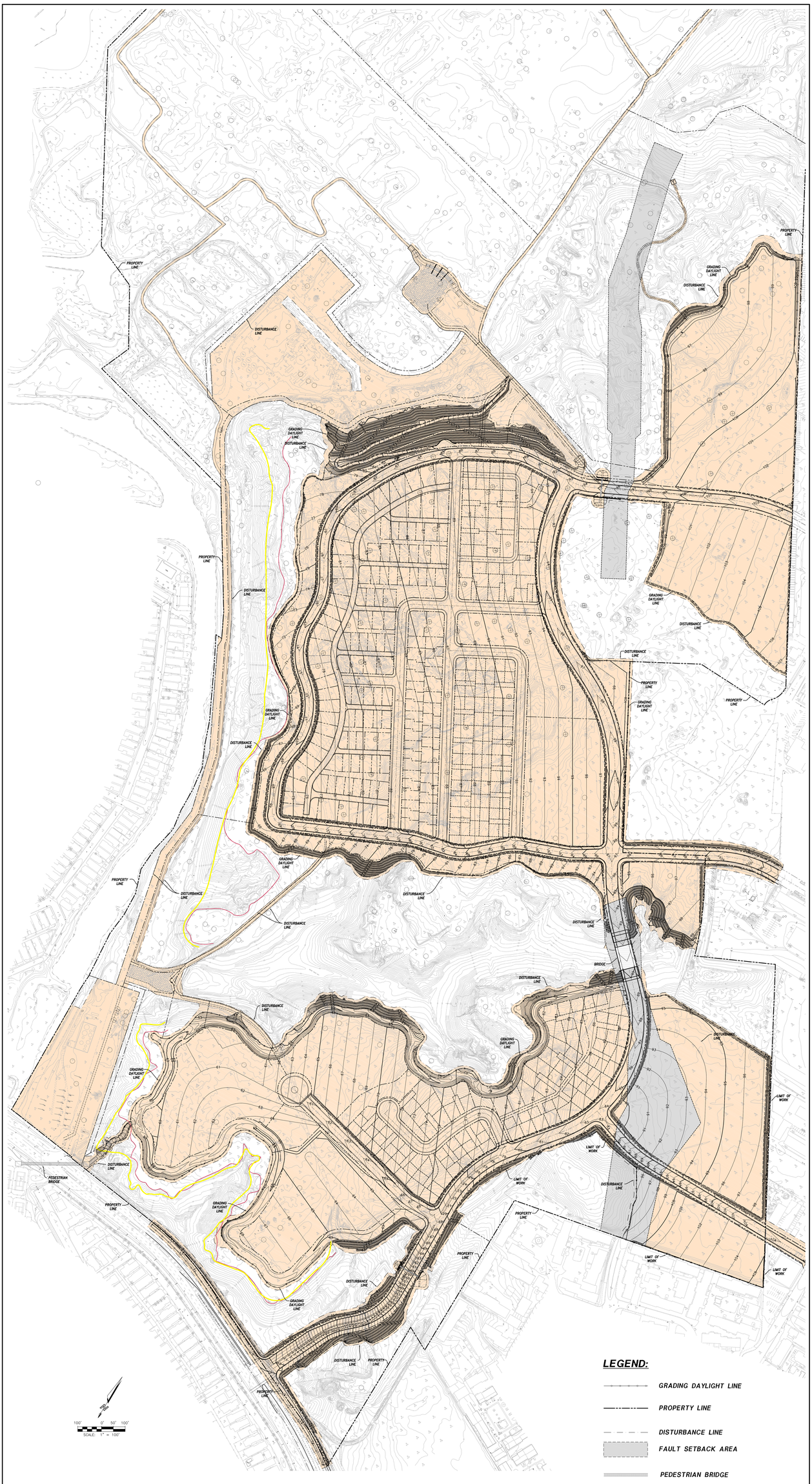
Cut and Fill Map

GLENN LUKOS ASSOCIATES

FUSCOE

FORMA

06 • 14 • 2011



LEGEND:

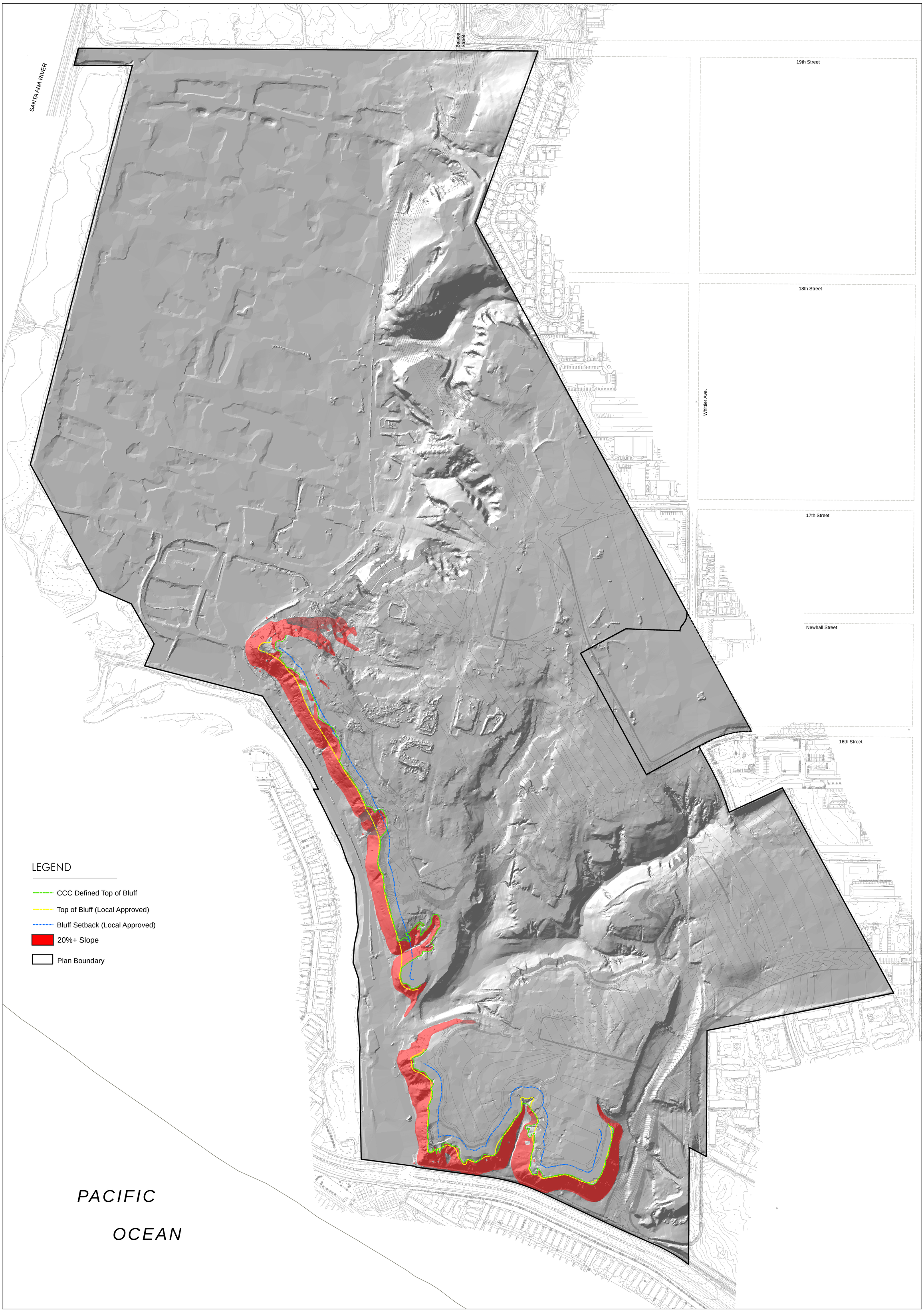
- GRADING DAYLIGHT LINE
- PROPERTY LINE
- DISTURBANCE LINE
- FAULT SETBACK AREA
- PEDESTRIAN BRIDGE
- BRIDGE
- TOP OF BLUFF (LOCAL APPROVAL)
- TOP OF BLUFF (COASTAL COMMISSION MARCH 2014)

NEWPORT BANNING RANCH
GRADING PLAN EXHIBIT

08/28/2015

NEWPORT BANNING RANCH

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 • fax 949.474.5315
www.fuscoe.com



NEWPORT BANNING RANCH

Slope Analysis / Bluff Delineation

0 200 400 800

GLENN LUKOS ASSOCIATES FORMA FUSCOE ENGINEERING

03-29-13

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NEWPORT BANNING RANCH
GRADING PLAN

TENTATIVE TRACT MAP NO.17308 WEST COAST HIGHWAY
NEWPORT BEACH, CA. 92660

GRADING GENERAL NOTES

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO CHAPTER 15 OF THE NEWPORT BEACH MUNICIPAL CODE (NBMC), THE PROJECT SOILS REPORT AND SPECIAL REQUIREMENTS OF THE PERMIT AND IN ACCORDANCE WITH THE "STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION" 2009 EDITION OR LATEST EDITION.
2. DUST SHALL BE CONTROLLED BY WATERING AND/OR DUST PALLIATIVE.
3. SANITARY FACILITIES SHALL BE MAINTAINED ON THE SITE DURING THE CONSTRUCTION PERIOD.
4. WORK HOURS ARE LIMITED FROM 7:00 AM TO 6:30 PM MONDAY THROUGH FRIDAY; 8:00 AM TO 6:00 PM SATURDAYS; AND NO WORK ON SUNDAYS AND HOLIDAYS PER SECTION 10-28 OF THE NBMC.
5. NOISE, EXCAVATION, DELIVERY AND REMOVAL SHALL BE CONTROLLED PER SECTION 10-28 OF THE NBMC.
6. THE STAMPED SET OF APPROVED PLANS SHALL BE ON THE JOB SITE AT ALL TIMES.
7. PERMITTEE AND CONTRACTOR ARE RESPONSIBLE FOR LOCATING AND PROTECTING UTILITIES.
8. APPROVED SHORING, DRAINAGE PROVISIONS AND PROTECTIVE MEASURES MUST BE USED TO PROTECT ADJOINING PROPERTIES DURING THE GRADING OPERATION.
9. CESSPOOLS AND SEPTIC TANKS SHALL BE ABANDONED IN COMPLIANCE WITH THE UNIFORM PLUMBING CODE AND APPROVED BY THE BUILDING OFFICIAL.
10. HAUL ROUTES FOR IMPORT OR EXPORT OF MATERIALS SHALL BE APPROVED BY THE CITY TRAFFIC ENGINEER AND PROCEDURES SHALL CONFORM WITH CHAPTER 15 OF THE NBMC.
11. POSITIVE DRAINAGE SHALL BE MAINTAINED AWAY FROM ALL BUILDING AND SLOPE AREAS.
12. FAILURE TO REQUEST INSPECTIONS AND/OR HAVE REMOVABLE EROSION CONTROL DEVICES ON-SITE AT THE APPROPRIATE TIMES SHALL RESULT IN A "STOP WORK" ORDER.
13. NO PAINT, PLASTER, CEMENT, SOIL, MORTAR OR OTHER RESIDUE SHALL BE ALLOWED TO ENTER ST.S, CURBS, GUTTERS OR STORM DRAINS. ALL MATERIAL AND WASTE SHALL BE REMOVED FROM THE SITE.
14. A PUBLIC WORKS DEPARTMENT ENCROACHMENT PERMIT INSPECTION IS REQUIRED BEFORE THE BUILDING DEPARTMENT PERMIT FINAL CAN BE ISSUED. AT THE TIME OF PUBLIC WORKS DEPARTMENT INSPECTION, IF ANY OF THE EXISTING PUBLIC IMPROVEMENTS SURROUNDING THE SITE IS DAMAGED, NEW CONCRETE SIDEWALK, CURB AND GUTTER, AND ALLEY/ST. PAVEMENT WILL BE REQUIRED AND 100% PAID BY THE OWNER. SAID DETERMINATION AND THE EXTENT OF THE REPAIR WORK SHALL BE MADE AT THE DISCRETION OF THE PUBLIC WORKS INSPECTOR.
15. AN APPROVED ENCROACHMENT PERMIT IS REQUIRED FOR ALL WORK ACTIVITIES WITHIN THE PUBLIC RIGHT-OF-WAY.
16. A CITY ENCROACHMENT AGREEMENT IS REQUIRED FOR ALL NON-STANDARD PRIVATE IMPROVEMENTS WITHIN THE PUBLIC RIGHT-OF-WAY.
17. ISSUANCE OF A BUILDING PERMIT BY THE CITY OF NEWPORT BEACH DOES NOT RELIEVE APPLICANTS OF THE LEGAL REQUIREMENTS TO OBSERVE COVENANTS, CONDITIONS AND RESTRICTIONS WHICH MAY BE RECORDED AGAINST THE PROPERTY OR TO OBTAIN PLANS. YOU SHOULD CONTACT YOUR COMMUNITY ASSOCIATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION AUTHORIZED BY THIS PERMIT.
18. PRIOR TO PERFORMING ANY WORK IN THE CITY RIGHT-OF-WAY AN ENCROACHMENT PERMIT MUST BE OBTAINED FROM THE PUBLIC WORKS DEPARTMENT.
19. AN APPROVED ENCROACHMENT PERMIT IS REQUIRED FOR ALL WORK ACTIVITIES WITHIN THE PUBLIC RIGHT-OF-WAY.

GRADING FILLS/CUTS

1. GRADED SLOPES SHALL BE NO STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL PER SOIL ENGINEER'S REPORT DATED -.
2. FILL SLOPES SHALL BE COMPACTED TO NO LESS THAN 90 PERCENT RELATIVE COMPACTION OUT TO THE FINISHED SURFACE.
3. ALL FILLS SHALL BE COMPACTED THROUGHOUT TO A MINIMUM OF 90 PERCENT RELATIVE COMPACTION AS DETERMINED BY ASTM TEST METHOD 1557, AND APPROVED BY THE SOILS ENGINEER. COMPACTION TESTS SHALL BE PERFORMED APPROXIMATELY EVERY TWO FEET IN VERTICAL HEIGHT AND OF SUFFICIENT QUANTITY TO ATTEST TO THE OVERALL COMPACTION EFFORT APPLIED TO THE FILL AREAS.
4. AREAS TO RECEIVE FILL SHALL BE CLEARED OF ALL VEGETATION AND DEBRIS, SCARIFIED AND APPROVED BY THE SOILS ENGINEER PRIOR TO PLACING OF THE FILL.
5. FILLS SHALL BE KEYED OR BENCHED INTO COMPETENT MATERIAL.
6. ALL EXISTING FILLS SHALL BE APPROVED BY THE SOILS ENGINEER OR REMOVED BEFORE ANY ADDITIONAL FILLS ARE ADDED.
7. ANY EXISTING IRRIGATION LINES AND CISTERNS SHALL BE REMOVED OR CRUSHED IN PLACE AND BACKFILLED AND APPROVED BY THE SOILS ENGINEER.
8. THE ENGINEERING GEOLOGIST AND SOILS ENGINEER SHALL, AFTER CLEARING AND PRIOR TO THE PLACEMENT OF FILL IN CANYONS, INSPECT EACH CANYON FOR AREAS OF ADVERSE STABILITY AND DETERMINE THE PRESENCE OF, OR POSSIBILITY OF FUTURE ACCUMULATION OF, SUBSURFACE WATER OR SPRING FLOW. IF NEEDED, DRAINS WILL BE DESIGNED AND CONSTRUCTED PRIOR TO THE PLACEMENT OF FILL IN EACH RESPECTIVE CANYON.
9. THE EXACT LOCATION OF THE SUBDRAINS SHALL BE SURVEYED IN THE FIELD FOR LINE AND GRADE.
10. ALL TRENCH BACKFILLS SHALL BE COMPACTED THROUGHOUT TO A MINIMUM OF 90 PERCENT RELATIVE COMPACTION, AND APPROVED BY THE SOILS ENGINEER. THE BUILDING DEPARTMENT MAY REQUIRE CORING OF CONCRETE FLAT WORK PLACED OVER UNTESTED BACKFILLS TO FACILITATE TESTING.
11. THE STOCKPILING OF EXCESS MATERIAL SHALL BE APPROVED BY THE BUILDING DEPARTMENT.
12. LANDSCAPING OF ALL SLOPES AND PADS SHALL BE IN ACCORDANCE WITH CHAPTER 15 OF THE NBMC.
13. ALL CUT SLOPES SHALL BE INVESTIGATED BOTH DURING AND AFTER GRADING BY AN ENGINEERING GEOLOGIST TO DETERMINE IF ANY STABILITY PROBLEM EXISTS. SHOULD EXCAVATION DISCLOSE ANY GEOLOGICAL HAZARDS OR POTENTIAL GEOLOGICAL HAZARDS, THE ENGINEERING GEOLOGIST SHALL RECOMMEND AND SUBMIT NECESSARY TREATMENT TO THE BUILDING DEPARTMENT FOR APPROVAL.
14. WHERE SUPPORT OR BUTTRESSING OF CUT AND NATURAL SLOPES IS DETERMINED TO BE NECESSARY BY THE ENGINEERING GEOLOGIST AND SOILS ENGINEER, THE SOILS ENGINEER WILL OBTAIN APPROVAL OF DESIGN, LOCATION AND CALCULATIONS FROM THE BUILDING DEPARTMENT PRIOR TO CONSTRUCTION.
15. THE ENGINEERING GEOLOGIST AND SOILS ENGINEER SHALL INSPECT AND TEST THE CONSTRUCTION OF ALL BUTTRESS FILLS AND ATTEST TO THE STABILITY OF THE SLOPE AND ADJACENT STRUCTURES UPON COMPLETION.
16. WHEN CUT PADS ARE BROUGHT TO NEAR GRADE THE ENGINEERING GEOLOGIST SHALL DETERMINE IF THE BEDROCK IS EXTENSIVELY FRACTURED OR FAULTED AND WILL READILY TRANSMIT WATER. IF CONSIDERED NECESSARY BY THE ENGINEERING GEOLOGIST AND SOILS ENGINEER, A COMPACTED FILL BLANKET WILL BE PLACED.
17. THE ENGINEERING GEOLOGIST SHALL PERFORM PERIODIC INSPECTIONS DURING GRADING.
18. NOTIFICATION OF NONCOMPLIANCE: IF, IN THE COURSE OF FULFILLING THEIR RESPONSIBILITY, THE CIVIL ENGINEER, THE SOILS ENGINEER, THE ENGINEERING GEOLOGIST OR THE TESTING AGENCY FINDS THAT THE WORK IS NOT BEING DONE IN CONFORMANCE WITH THE APPROVED GRADING PLANS, THE DISCREPANCIES SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE PERSON IN CHARGE OF THE GRADING WORK AND TO THE BUILDING INSPECTOR. RECOMMENDATIONS FOR CORRECTIVE MEASURES, IF NECESSARY, SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT FOR APPROVAL.

LOCATION MAP
1" = 600'

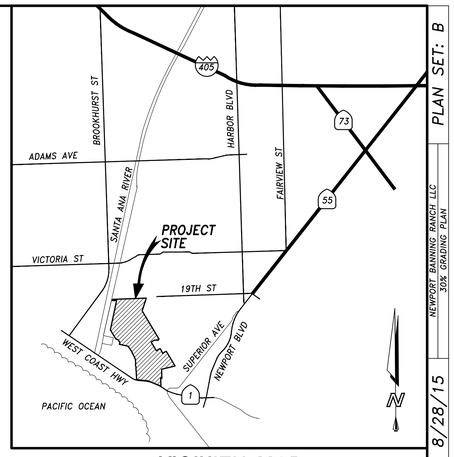
ABBREVIATIONS & LEGEND

BOT	BOTTOM		PROPERTY LINE
BW	BACK OF WALK		LOT LINE
CSP	CORRUGATED STEAL PIPE		EXISTING RIGHT OF WAY
CY	CUBIC YARD		GRADE BREAK
EL OR ELEV	ELEVATION		RIDGE LINE
EXIST.	EXISTING		PUMP LINE
FL	FLOW LINE		DAYLIGHT LINE
FG	FINISHED GRADE		EXISTING CHAIN LINK FENCE
GB	GRADE BREAK		EXISTING ELECTRICAL LINE
HT	HEIGHT		EXISTING GAS LINE
MAX	MAXIMUM		EXISTING STORM DRAIN LINE
MIN	MINIMUM		EXISTING SEWER LINE
N.T.S.	NOT TO SCALE		EXISTING WATER LINE
O/X	OVER EXCAVATION		DIRECTION OF FLOW
TC	TOP OF CURB		FIRE HYDRANT
TOC	TOP OF CONCRETE		ST. LIGHT
TYP	TYPICAL		RETAINING WALL
VOL	VOLUME		SITE LIGHT
		(178.43FG)	EXISTING ELEVATION

EARTHWORK QUANTITIES

ACTIVITY	CUT (CY)	FILL (CY)
MASS EXCAVATION	622,000	550,000
CORRECTIVE GRADING	1,030,000	1,030,000
LOWLAND REMEDIATION/RECYCLED SOIL	156,000	156,000
SUBTOTAL GRADING	1,808,000*	1,736,000
MASS GRADING SHRINKAGE (4%)	(25,000)	N/A
CORRECTIVE GRADING SHRINKAGE	(41,000)	N/A
LOWLAND REMEDIATION/RECYCLED SOIL SHRINKAGE (4%)	(6,000)	N/A
SUBTOTAL SHRINKAGE	(72,000)	0
SUBTOTAL (GRADING AND SHRINKAGE)	1,736,000	1,736,000
IMPORT FROM SUNSET RIDGE PARK SITE	0	0
TOTAL	1,736,000	1,736,000

CY: CUBIC YARDS
*TOTAL EXCAVATION IS 1,808,000 CY



VICINITY MAP
NTS

SHEET INDEX

OWNER/ DEVELOPER

MICHAEL MOHLER
NEWPORT BANING RANCH LLC
1300 QUAIL ST., SUITE 100
NEWPORT BEACH, CA 92660
PHONE: 949-833-0222

CIVIL ENGINEER

JOHN OLIVIER, P.E.
FUSCOE ENGINEERING, INC.
16795 VON KARMAN, SUITE 100
IRVINE, CA 92606
PHONE: (949) 474-1960
FAX: (949) 474-5315

GEOLOGISTS/SOILS ENGINEER:

GMU, GEOTECHNICAL, INC.
23241 ARROYO VISTA
RANCHO SANTA MARGARITA, CA.92688
PHONE: (949) 888-6513
FAX: (949) 888-1380

SITE ADDRESS

TENTATIVE TRACT MAP NO. 17306
WEST COAST HIGHWAY
NEWPORT BEACH, CA. 92660

LEGAL DESCRIPTION

A PORTION OF LOTS "B", "C" AND "D", ALL IN THE BANNING TRACT, IN THE CITY OF NEWPORT BEACH, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP OF SAID TRACT FILED IN THE CASE OF HANCOCK BANNING AND OTHERS VS. MARY H. BANNING FOR PARTITION, BEING CASE NO. 6385 UPON THE REGISTER OF ACTIONS OF THE SUPERIOR COURT OF LOS ANGELES COUNTY, CALIFORNIA, AND A PORTION OF THE RANCHO SANTIAGO DE SANTA ANA, DESCRIBED IN BOOK 3, PAGE 387 OF PATENTS, RECORDS OF LOS ANGELES COUNTY, CALIFORNIA.

NOTE:
THE LOWLAND TRAILS HAVE BEEN LOCATED ON EXISTING OIL OPERATION ROADS

PLAN SET: B
NEWPORT BANNING RANCH LLC
30% GRADING PLAN
8/28/15

DIG ALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

PREPARED UNDER THE SUPERVISION OF:
JOHN C. OLIVIER RCE 044568 EXP. 03/31/16
REGISTERED PROFESSIONAL ENGINEER JOHN C. OLIVIER NO. 044568 Exp. 03/31/16 CIVIL STATE OF CALIFORNIA

NO.	DATE	REVISIONS	APPROVED

DRAWN BY: FDR
DESIGNED BY: DKB
CHECKED BY: JO

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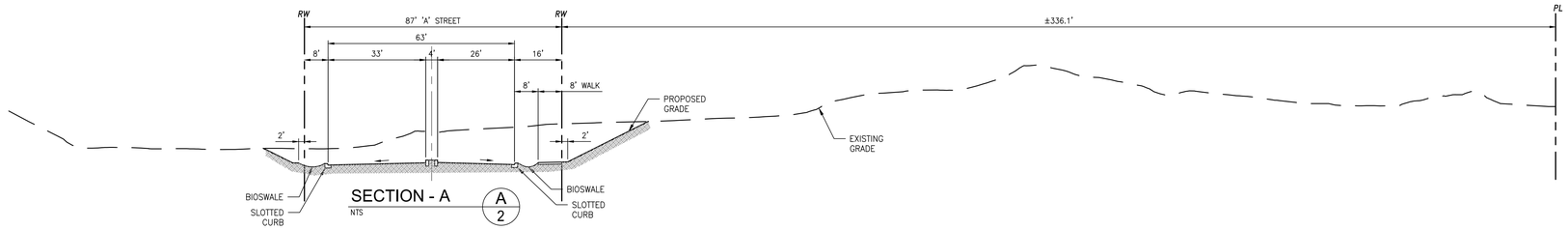
GRADING PLAN
TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 1 OF 12

CAD FILE: G:\2121-NBR VTM\ENGINEERING\TITLE\CALIFORNIA COASTAL COMMISSION\RGP-CC\B21-001RG01TS.DWG (09-02-15 10:45:11AM) Plotted by: Don Butler



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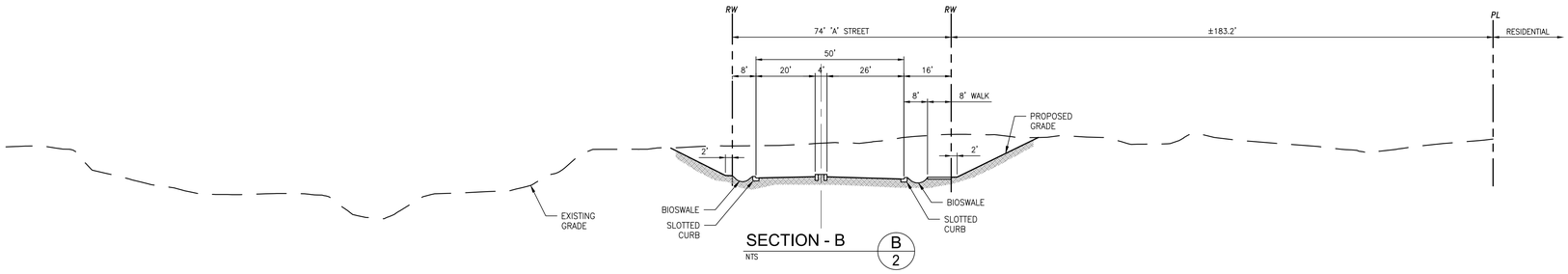

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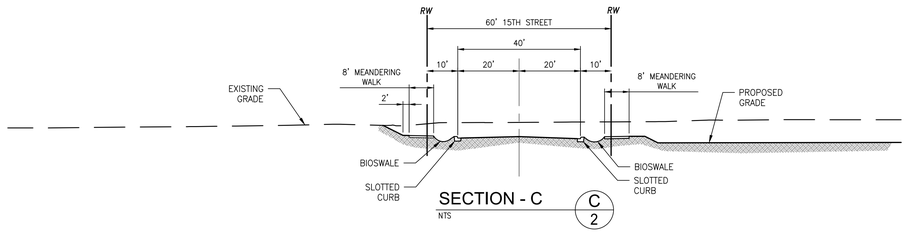

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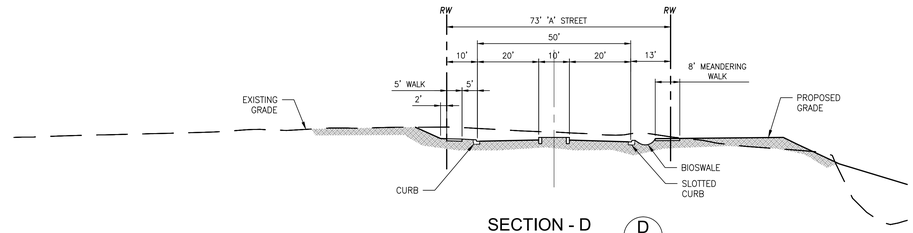

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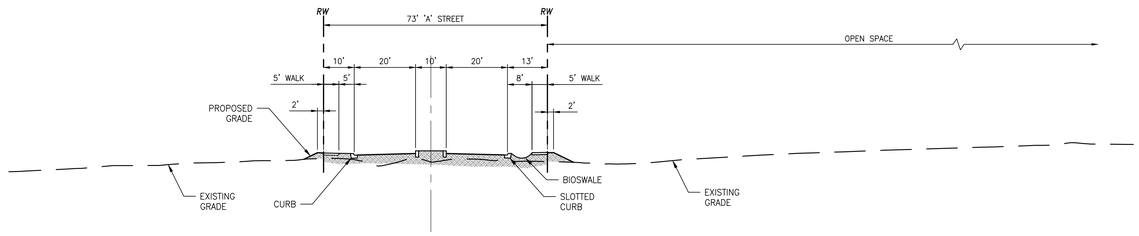

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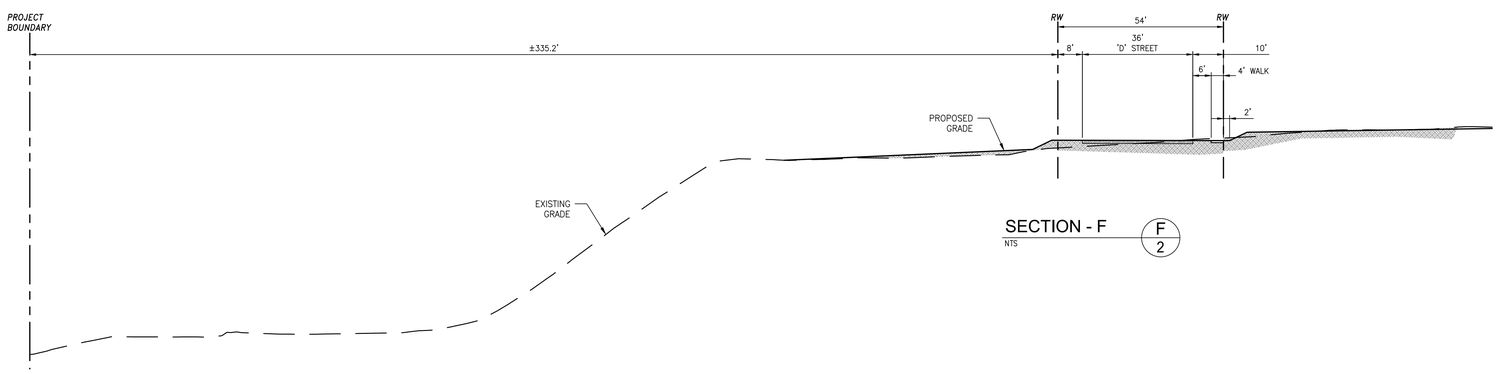

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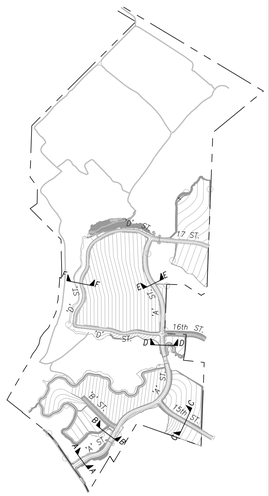

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CHECKED BY:	JO

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GRADING PLAN
TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 2 OF 12

PLAN SET: B

8/28/15

NEWPORT BANNING RANCH LLC
30% GRADING PLAN

PLAN SET: B

NEWPORT BANNING RANCH LLC
30% GRADING PLAN

8/28/15

50' 0' 25' 50' 100'
SCALE: 1" = 50'

PROPERTY LINE

PROPOSED 10' WIDE PUBLIC TRAIL EASEMENT

DISTURBANCE LINE

PROPOSED WIDE TRAIL EASEMENT

MATCHLINE: SEE SHEET 4

DAYLIGHT LINE

PROPOSED 20' WIDE STORMDRAIN EASEMENT

PROPOSED 10' WIDE PUBLIC TRAIL EASEMENT

MATCHLINE: SEE SHEET 5

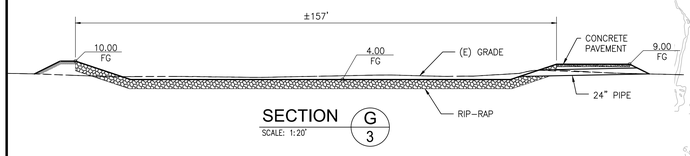
MATCHLINE: SEE SHEET 5

LEGEND:

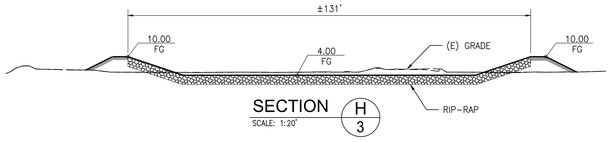
TOP OF BLUFF (LOCAL APPROVAL)

TOP OF BLUFF (COASTAL COMMISSION MARCH 2014)

NOTE:
THE LOWLAND TRAILS HAVE BEEN LOCATED ON EXISTING OIL OPERATION ROADS



SECTION G/3
SCALE: 1:20'



SECTION H/3
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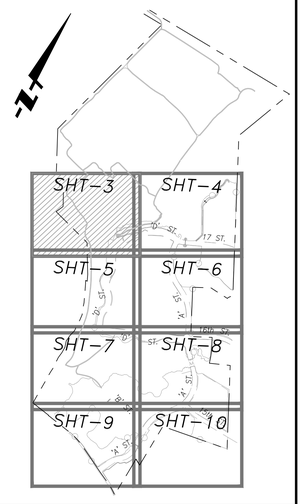

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GRADING PLAN
TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 3 OF 12

PLAN SET: B

8/28/15

NEWPORT BANNING RANCH LLC
30% GRADING PLAN

50' 0' 25' 50' 100'
SCALE: 1" = 50'

PROPOSED 10' WIDE TRAIL EASEMENT

CULVERT CROSS SECTION N.T.S.

RW 66' RW
13' 20' 20' 13'
95.0 FG
97.0 FG
S=0.0100
87.7 INV
88.2 INV
SCALE: NTS
A/4

PROPOSED 10' WIDE STORMDRAIN EASEMENT

DAYLIGHT LINE

DISTURBANCE LINE

PROPOSED 10' WIDE TRAIL EASEMENT

PROPOSED 20' WIDE STORMDRAIN EASEMENT

PROPOSED 20' WIDE STORMDRAIN EASEMENT

MATCHLINE: SEE SHEET 3

MATCHLINE: SEE SHEET 6

MATCHLINE: SEE SHEET 6

LEGEND:

FAULT SETBACK AREA

NOTE:

THE LOWLAND TRAILS HAVE BEEN LOCATED ON EXISTING OIL OPERATION ROADS

SHT-3 SHT-4
SHT-5 SHT-6
SHT-7 SHT-8
SHT-9 SHT-10

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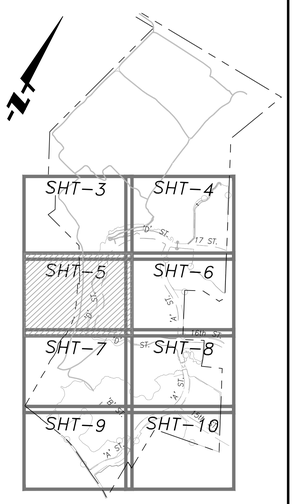
GRADING PLAN

TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 4 OF 12

LEGEND:

- TOP OF BLUFF (LOCAL APPROVAL)
- TOP OF BLUFF (COASTAL COMMISSION MARCH 2014)



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WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 5 OF 12

PLAN SET: B

NEWPORT BANNING RANCH LLC
30% GRADING PLAN

8/28/15

MATCHLINE: SEE SHEET 4

MATCHLINE: SEE SHEET 4

MATCHLINE: SEE SHEET 5

MATCHLINE: SEE SHEET 8

MATCHLINE: SEE SHEET 8

DAYLIGHT LINE

DAYLIGHT LINE

DISTURBANCE LINE

DAYLIGHT LINE

PROPERTY LINE

PROPERTY LINE

PROPERTY LINE

PROPERTY LINE

DAYLIGHT LINE

E 2

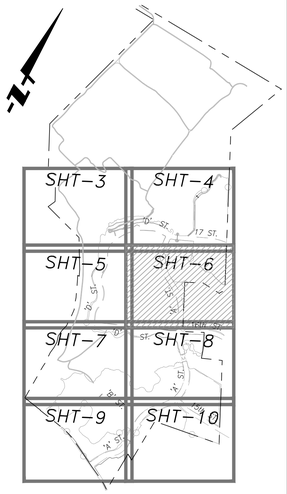
C F

50' 0' 25' 50' 100'

SCALE: 1" = 50'

LEGEND:

FAULT SETBACK AREA



PLAN SET: B

8/28/15

NEWPORT BANNING RANCH LLC
30% GRADING PLAN

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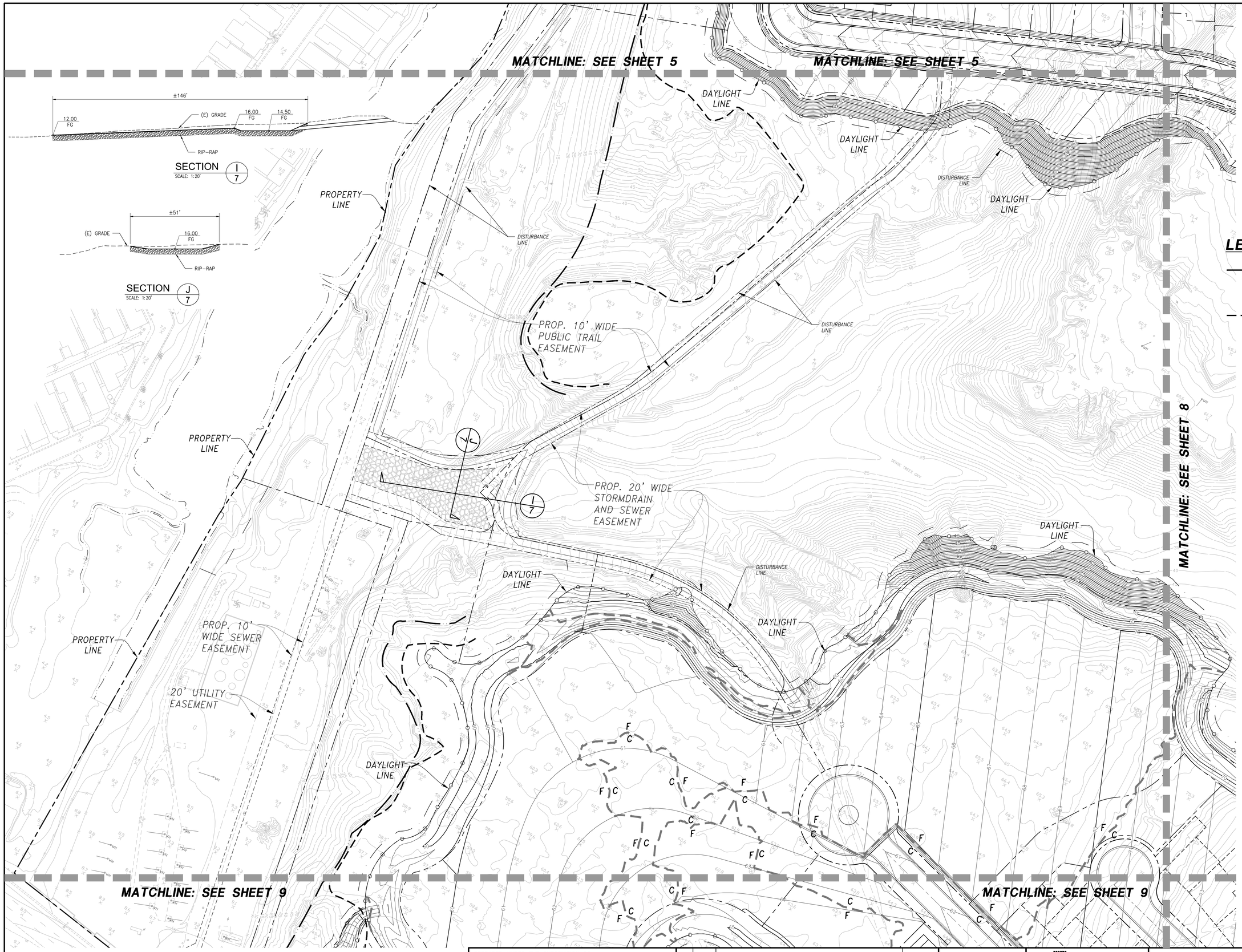
TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 6 OF 12



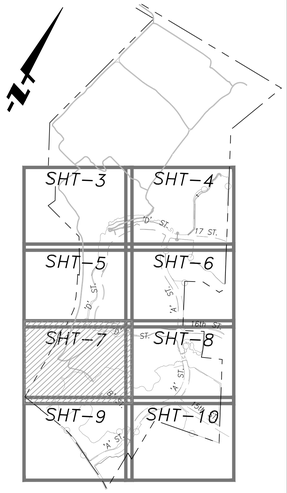
LEGEND:

——— ———TOP OF BLUFF (LOCAL APPROVAL)

– – – – TOP OF BLUFF (COASTAL COMMISSION MARCH 2014)

NOTE:

THE LOWLAND TRAILS HAVE BEEN LOCATED ON EXISTING OIL OPERATION ROADS



PLAN SET: B

8/28/15

NEWPORT BANNING RANCH LLC
30% GRADING PLAN

PREPARED UNDER THE SUPERVISION OF:

JOHN C. OLIVIER RCE 044568 EXP. 03/31/16

REGISTERED PROFESSIONAL ENGINEER JOHN C. OLIVIER NO. 044568 Exp. 03/31/16 CIVIL STATE OF CALIFORNIA

NO.	DATE	REVISIONS	APPROVED

DRAWN BY:	FDR
DESIGNED BY:	DKB
CHECKED BY:	JO

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GRADING PLAN

TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 7 OF 12

MATCHLINE: SEE SHEET 6

MATCHLINE: SEE SHEET 6

MATCHLINE: SEE SHEET 7

MATCHLINE: SEE SHEET 10

MATCHLINE: SEE SHEET 10

SCALE: 1" = 50'

DAYLIGHT LINE

DISTURBANCE LINE

PROPERTY LINE

BRIDGE

D/2

F C

LEGEND:

FAULT SETBACK AREA

SHT-3 SHT-4 SHT-5 SHT-6 SHT-7 SHT-8 SHT-9 SHT-10

PREPARED UNDER THE SUPERVISION OF:

JOHN C. OLIVIER RCE 044568 EXP. 03/31/16

REGISTERED PROFESSIONAL ENGINEER JOHN C. OLIVIER NO. 044568 Exp. 03/31/16 CIVIL STATE OF CALIFORNIA

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GRADING PLAN

TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 8 OF 12

PLAN SET: B

NEWPORT BANNING RANCH LLC
30% GRADING PLAN

8/28/15

MATCHLINE: SEE SHEET 7

DAYLIGHT LINE
DISTURBANCE LINE
PEDESTRIAN BRIDGE
PROPERTY LINE
PROPERTY LINE
DAYLIGHT LINE
DAYLIGHT LINE
DAYLIGHT LINE
PROPERTY LINE
DAYLIGHT LINE
PROPERTY LINE
DAYLIGHT LINE
DISTURBANCE LINE
DAYLIGHT LINE
DISTURBANCE LINE
DAYLIGHT LINE
PROPERTY LINE
DAYLIGHT LINE
DISTURBANCE LINE
PROPERTY LINE
PROPERTY LINE

B 2

B 9

A 2

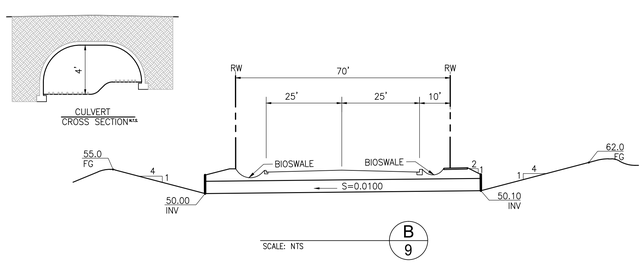
MATCHLINE: SEE SHEET 10

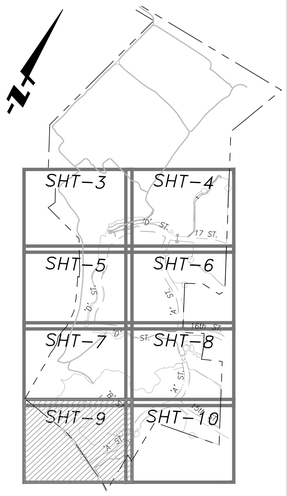
SCALE: 1" = 50'

LEGEND:

TOP OF BLUFF (LOCAL APPROVAL)

TOP OF BLUFF (COASTAL COMMISSION MARCH 2014)





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NO.	DATE	REVISIONS	APPROVED

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GRADING PLAN
TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 9 OF 12

PLAN SET: B

NEWPORT BANNING RANCH LLC
30% GRADING PLAN

8/28/15

MATCHLINE: SEE SHEET 8

MATCHLINE: SEE SHEET 8

MATCHLINE: SEE SHEET 9

MATCHLINE: SEE SHEET 9

DAYLIGHT LINE

DISTURBANCE LINE

PROPERTY LINE

C F

SCALE: 1" = 50'

50' 0' 25' 50' 100'

LEGEND:

FAULT SETBACK AREA

SHT-3 SHT-4 SHT-5 SHT-6 SHT-7 SHT-8 SHT-9 SHT-10

PLAN SET: B

8/28/15

NEWPORT BANNING RANCH LLC
30% GRADING PLAN

PREPARED UNDER THE SUPERVISION OF:

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NO.	DATE	REVISIONS	APPROVED

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CHECKED BY:	JO

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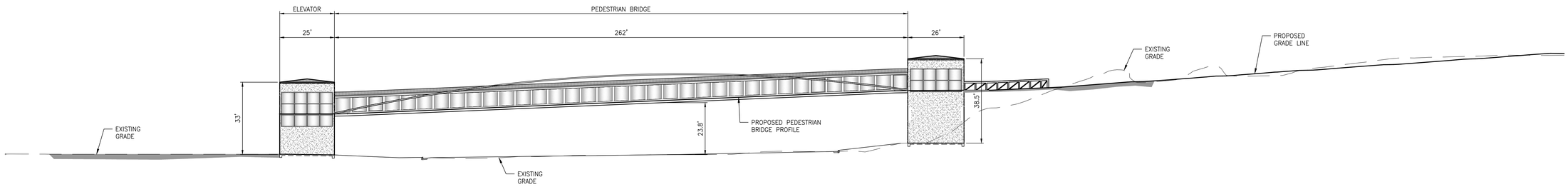
GRADING PLAN

TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 10 OF 12

5-13-032 EXHIBIT 8
Page 13 of 15

P:\2014\2014-021\ENGINEERING\ENVIRONMENTAL COMMISSION\RGP-CC\B21-001RG03-10RG.DWG (09-02-15 11:00:37AM) Plotted by: Don Butler



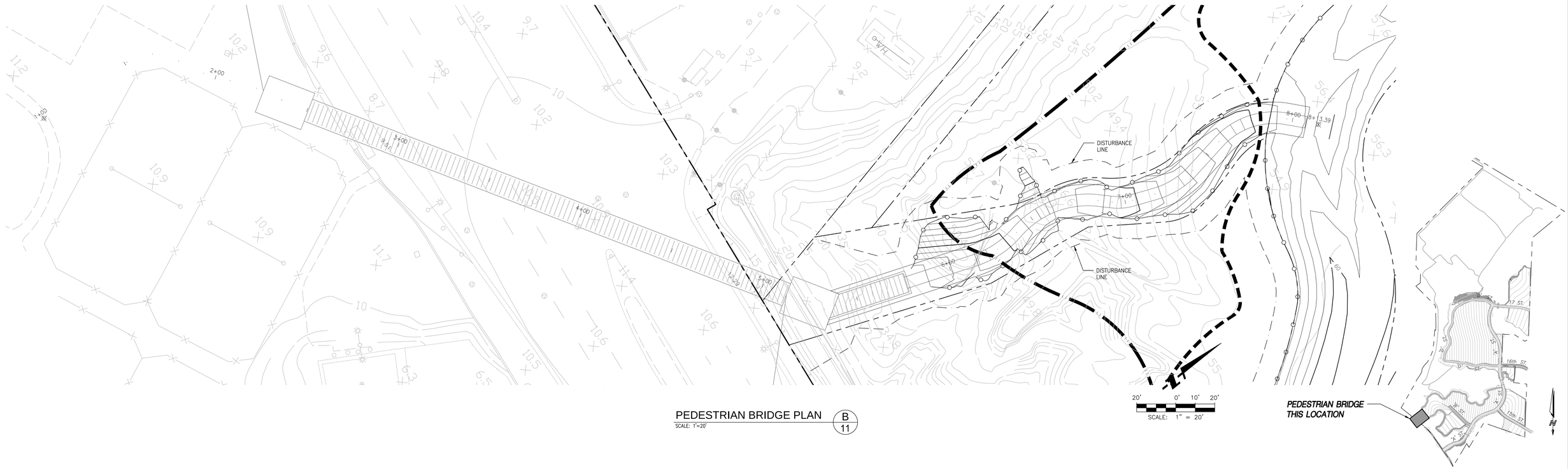
PEDESTRIAN BRIDGE PROFILE (A / 11)

SCALE: 1"=20'

LEGEND:

TOP OF BLUFF (LOCAL APPROVAL)

TOP OF BLUFF (COASTAL COMMISSION MARCH 2014)



PEDESTRIAN BRIDGE PLAN (B / 11)

SCALE: 1"=20'

NO.	DATE	REVISIONS	APPROVED

DRAWN BY:	FDR
DESIGNED BY:	DKB
CHECKED BY:	JO

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GRADING PLAN

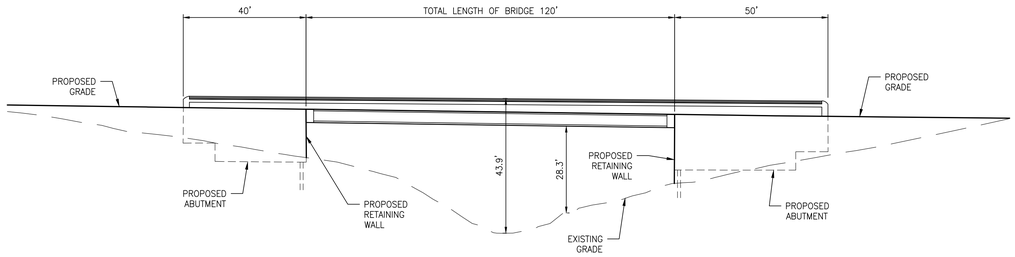
TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 11 OF 12

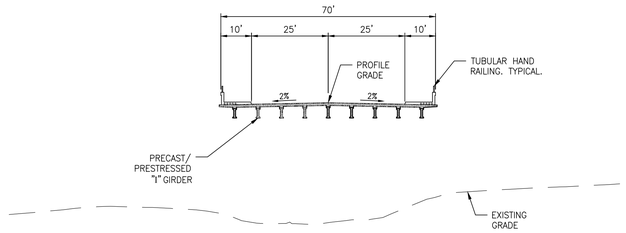
PLAN SET: B

NEWPORT BANNING RANCH LLC
30% GRADING PLAN

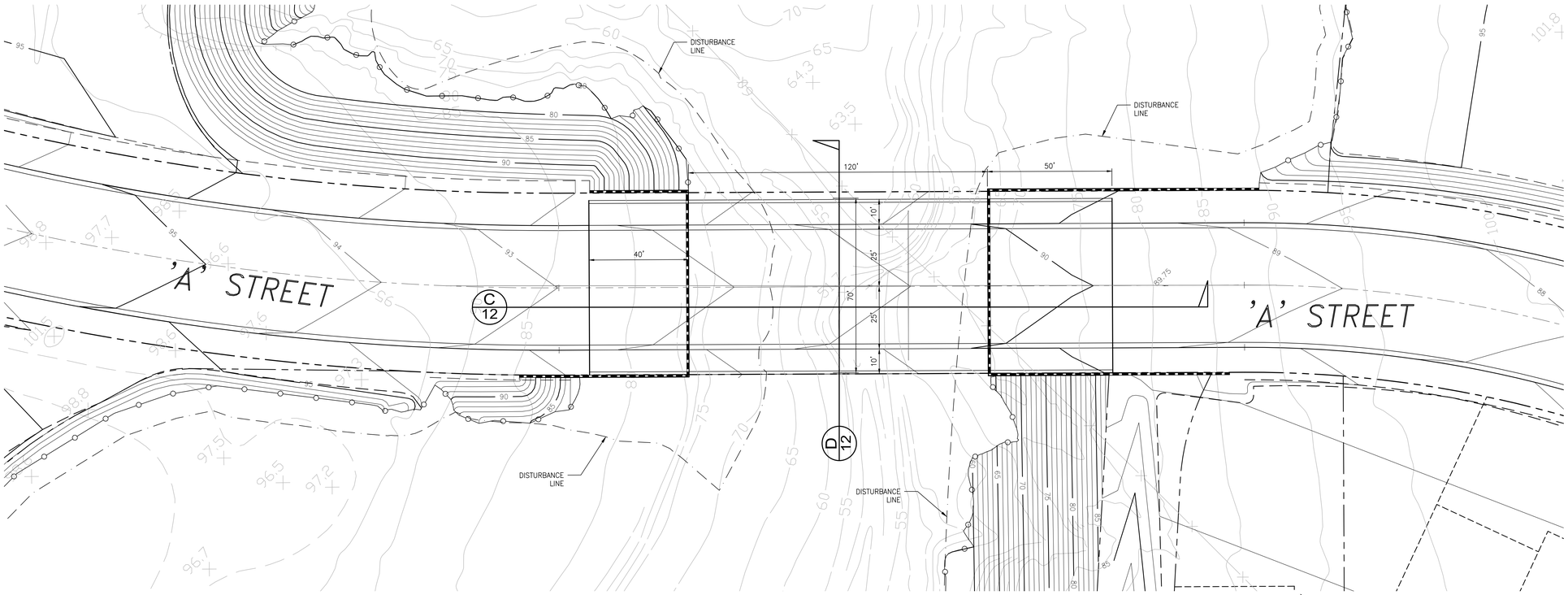
8/28/15



LONGITUDINAL SECTION C/12
SCALE: 1"=20'

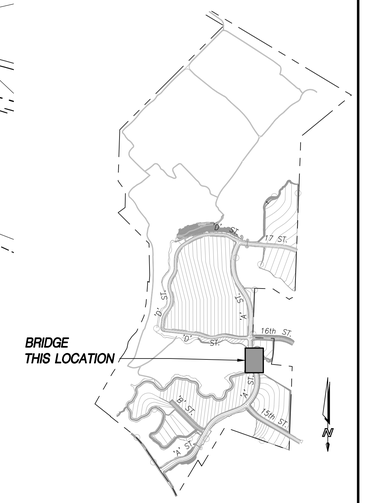


CROSS SECTION D/12
SCALE: 1"=20'



VEHICULAR BRIDGE PLAN D/12
SCALE: 1"=20'

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



NO.	DATE	REVISIONS	APPROVED

DRAWN BY:	FDR
DESIGNED BY:	DKB
CHECKED BY:	JO

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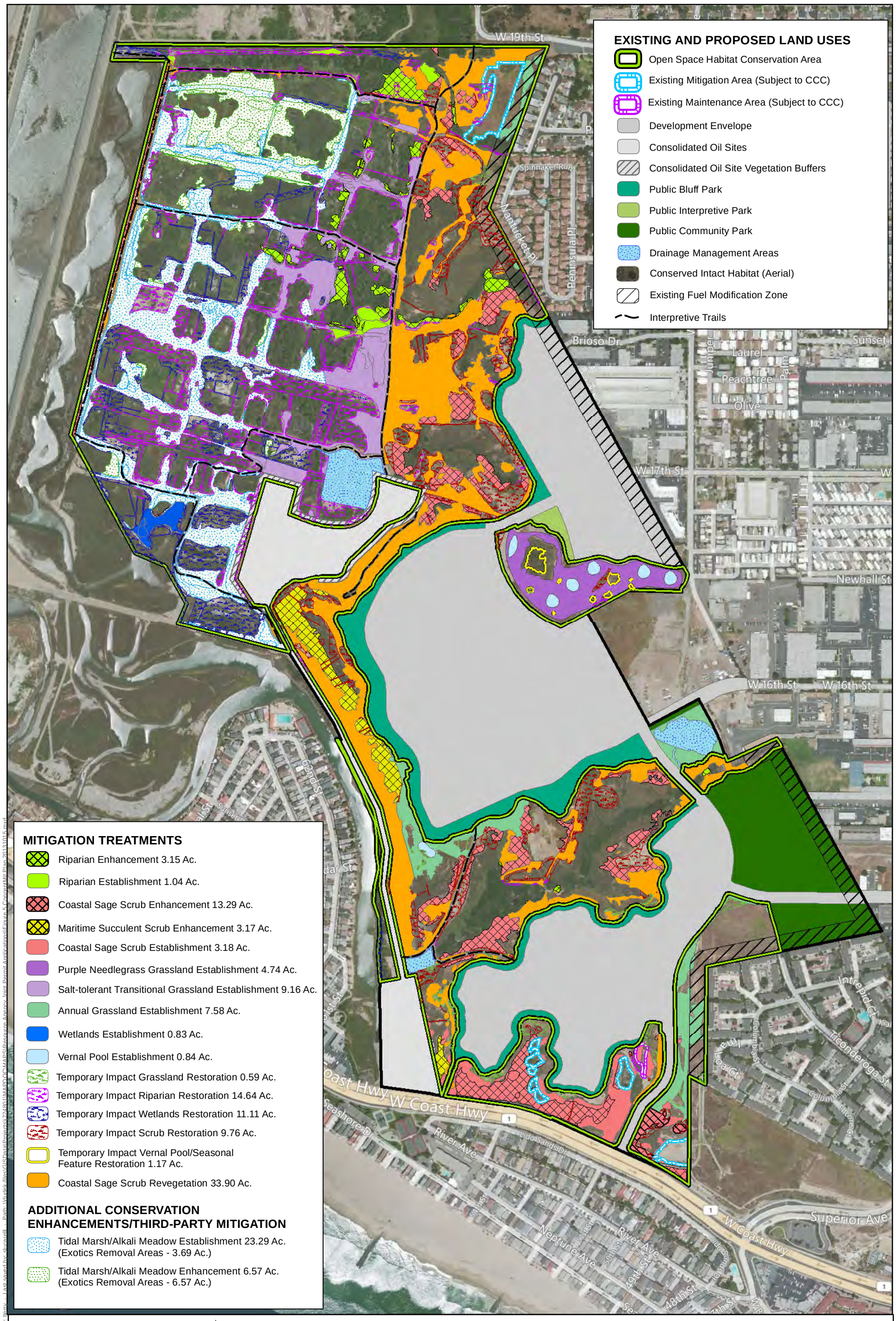
GRADING PLAN
TENTATIVE TRACT MAP NO.17308
WEST COAST HIGHWAY
CITY OF NEWPORT BEACH, CA 92660

SHEET 12 OF 12

PLAN SET: B
NEWPORT BANNING RANCH LLC
30% GRADING PLAN
8/28/15



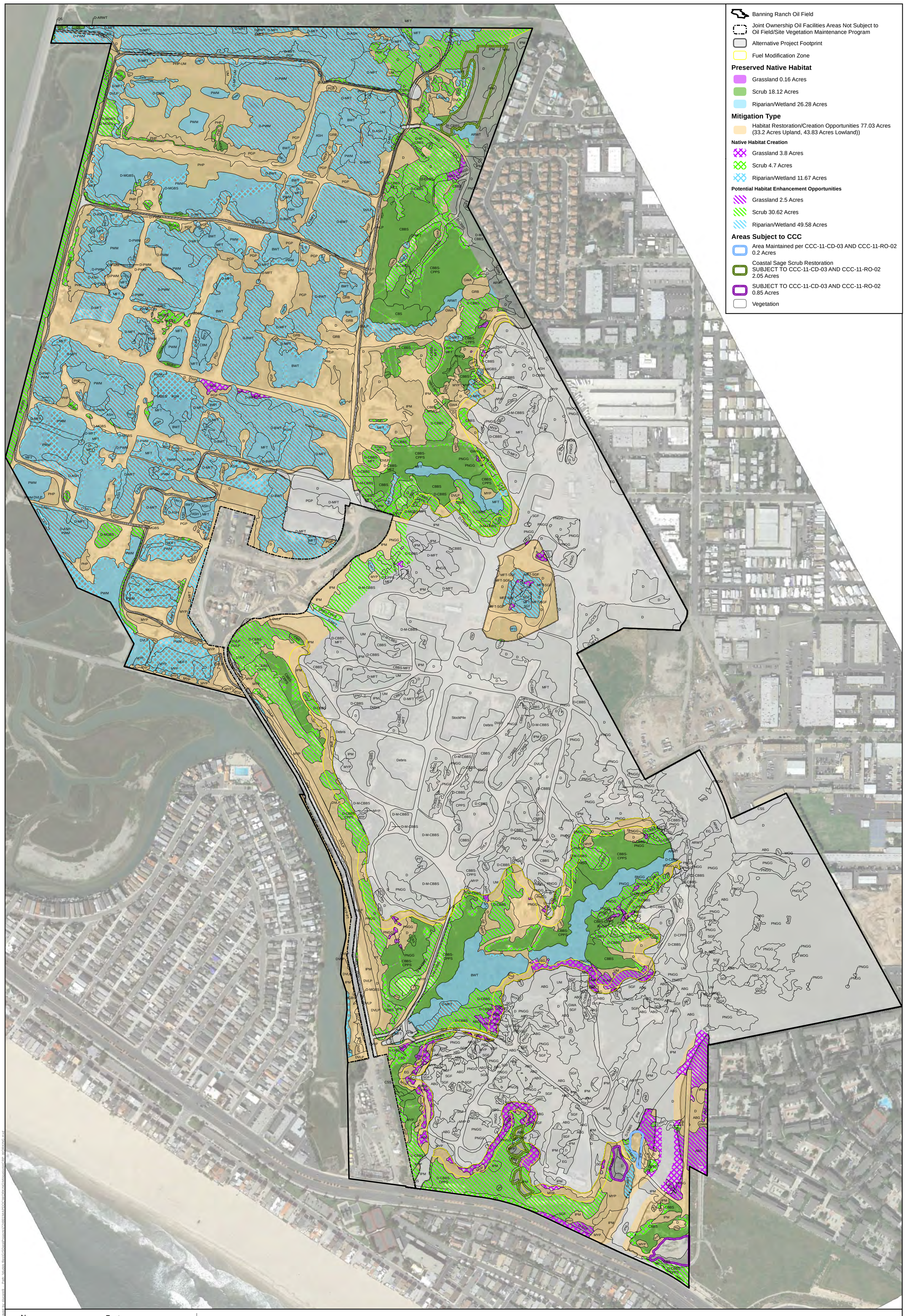
SOURCE: Aerial- BING MAPPING SERVICE

DUDEK

NEWPORT BANNING RANCH

Conceptual Mitigation Plan

Resource Agency Joint Permit Applications



N

Feet
0 387.5 775
1 inch = 229 feet

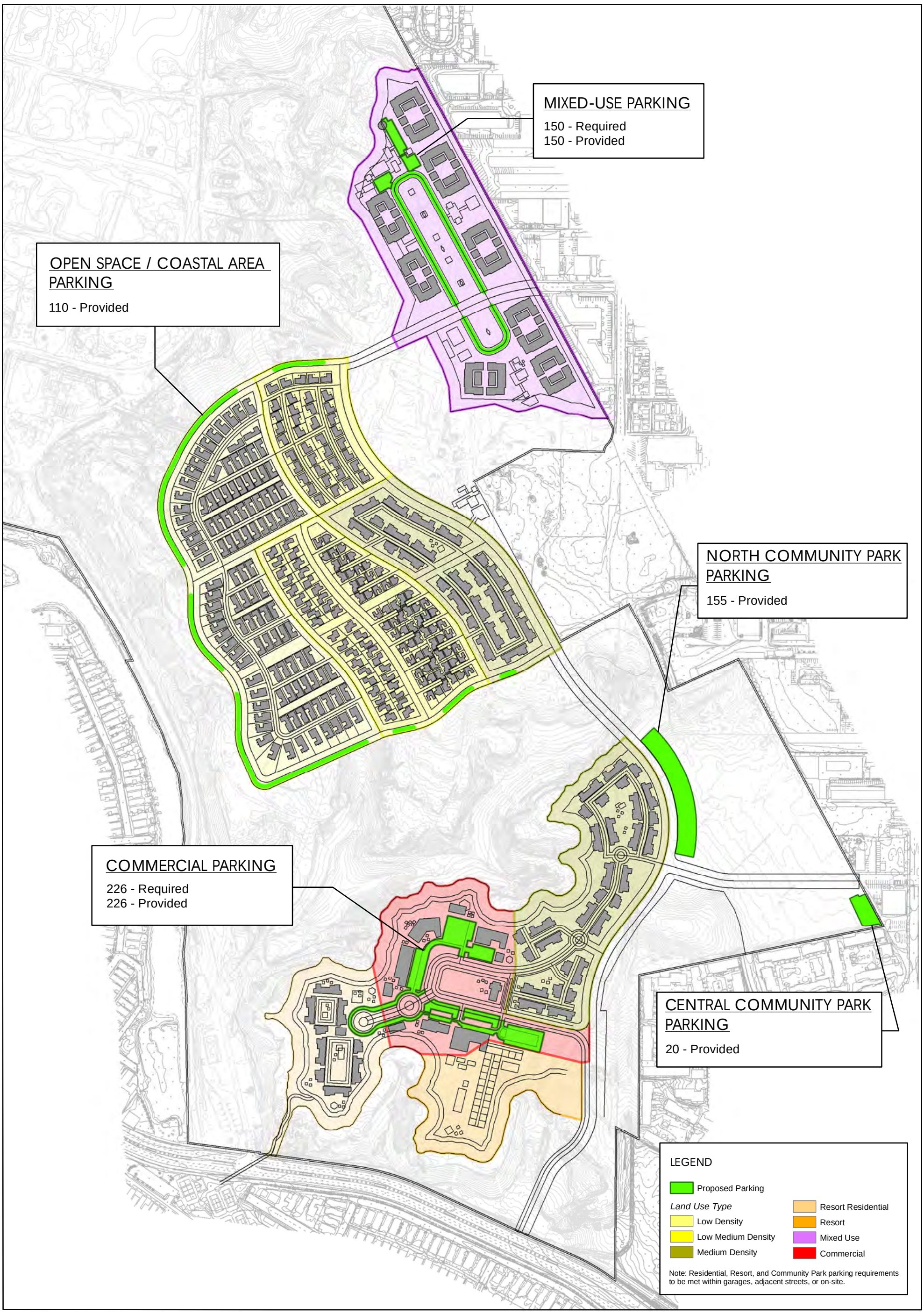
SOURCE: Aerial provided by Fusco Engineering

Draft Habitat Conservation and Restoration Plan Opportunities

DUDEK

NEWPORT BANNING RANCH

5-13-032 EXHIBIT 9
Page 2 of 2



10/23/2014

NEWPORT BANNING RANCH

Lotting, Foundation and Parking Exhibit

5-13-032 EXHIBIT 10
Page 1 of 1

2

0 400 800

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Key	
Sheet Name	Sheet Number
Key Map	1
Urban Colony Harvest and Reuse	2
Future Park Harvest and Reuse	3
Resort Colony Harvest and Reuse	4
North Village Flats Harvest and Reuse	5
Pretreatment Detail	6
Harvest and Reuse Detail 1	7
Harvest and Reuse Detail 2	8
Modular Wetland System Detail	9
North Village Community Water Quality Basins	10
South Village Community Water Quality Basins	11
Community Water Quality Basin Details	12
Street Runoff Biotreatment Details	13
Water Quality BMPs - Typical Details	14

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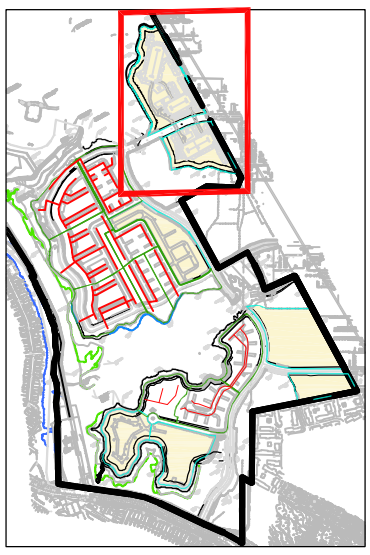
LOW IMPACT DEVELOPMENT BMP DETAILS (KEY MAP)
NEWPORT BANNING RANCH

600' 0' 300' 600'
SCALE: 1" = 600'

SHEET 1 OF 14

LEGEND

- HARVEST & RE-USE BOUNDARY (PRIMARY BMP)
- HARVEST & RE-USE SYSTEM (INCLUDES CISTERNS)
- BIOTREATMENT SYSTEM (SECONDARY BMP)
- PROPOSED BI-WEEKLY STREET SWEEPING



KEY

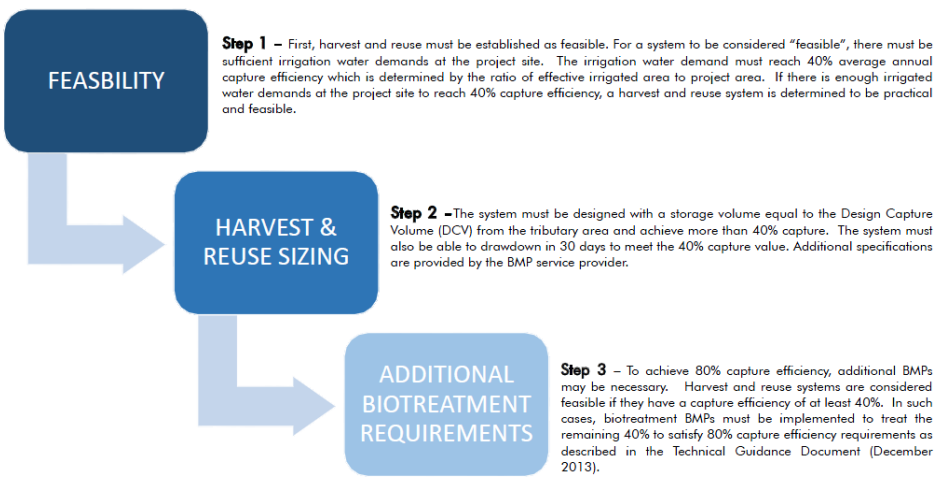
N

200' 0' 100' 200'

SCALE: 1" = 200'

Step 1										
Drainage Area	Total Area (ac)	% Impervious	Impervious Area	Landscaped Area	Eto	EIATA (ac/ac)	Drawdown (days)	Minimum % Capture Required	% Capture (Fig. III.2)	Feasible?
DMA 1	10.95	70%	7.66	3.29	2.75	0.33	30.6	40%	40%	Y
DMA 2	6.11	70%	4.28	1.83	2.75	0.33	30.6	40%	40%	Y

Step 2			
Harvest and Reuse			
Gallons	Pipe Diameter	Pipe Length	# of Cisterns Needed
140,483	96"	193'	2
78,388	96"	108'	2



Step 1 – First, harvest and reuse must be established as feasible. For a system to be considered "feasible", there must be sufficient irrigation water demands at the project site. The irrigation water demand must reach 40% average annual capture efficiency which is determined by the ratio of effective irrigated area to project area. If there is enough irrigated water demands at the project site to reach 40% capture efficiency, a harvest and reuse system is determined to be practical and feasible.

Step 2 –The system must be designed with a storage volume equal to the Design Capture Volume (DCV) from the tributary area and achieve more than 40% capture. The system must also be able to drawdown in 30 days to meet the 40% capture value. Additional specifications are provided by the BMP service provider.

Step 3 – To achieve 80% capture efficiency, additional BMPs may be necessary. Harvest and reuse systems are considered feasible if they have a capture efficiency of at least 40%. In such cases, biotreatment BMPs must be implemented to treat the remaining 40% to satisfy 80% capture efficiency requirements as described in the Technical Guidance Document (December 2013).

Source: Orange County WQMP Technical Guidance Document (2013)

Step 3			
Calculating Remaining DCV Treatment to Reach 80% Efficiency - Modular Wetland Systems BMPs			
Calculation Steps		DMA 1	DMA 2
Enter the time of concentration, T_c (min) (See Appendix IV.2)	Tc=	5	5
Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26	0.26
Enter the effect depth of provided cisterns upstream, dHRU (inches) (Worksheet A)	dHRU=	0	0
Enter capture efficiency corresponding to dHRU, Y_2 (Worksheet A)	Y_2=	40%	40%
Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency (Y_2), I_2	I_2=	0.07	0.07
Determine the design intensity that must be provided by BMP, $I_{design} = I_1 - I_2$	I_{design}=	0.19	0.19
Enter Project area tributary to BMP(s), A (acres)	A=	10.95	6.11
Enter Project Imperviousness, imp (unitless)	imp=	70%	70%
Calculate runoff coefficient, C = (0.75 x imp) + 0.15	C=	0.675	0.675
Calculate design flowrate, Qdesign= (C x I_{design} x A)	Qdesign=	1.40	0.78
Biotreatment Systems to Treat Remaining DCV		**(3) MWS-L-8-20**	**(2) MWS-L-8-16**

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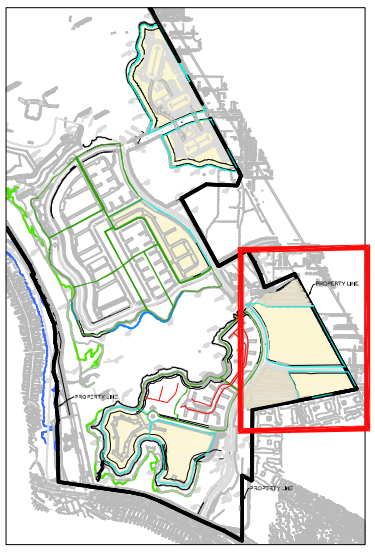
LOW IMPACT DEVELOPMENT BMP DETAILS
URBAN COLONY HARVEST AND RE-USE
NEWPORT BANNING RANCH

LEGEND

- HARVEST & RE-USE BOUNDARY (PRIMARY BMP)
- HARVEST & RE-USE SYSTEM (INCLUDES CISTERNS)
- BIOTREATMENT SYSTEM (SECONDARY BMP)



KEY

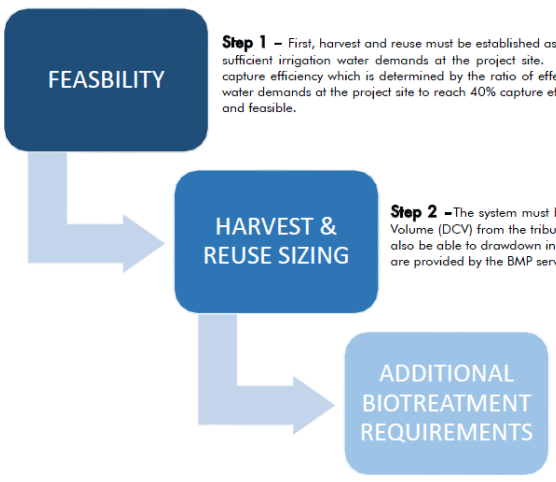
200' 0' 100' 200'

SCALE: 1" = 200'

Step 1										
Drainage Area	Total Area (ac)	% Impervious	Impervious Area	Landscaped Area	Eto	EIATA (ac/ac)	Drawdown (days)	Minimum % Capture Required	% Capture (Fig. III.2)	Feasible?
DMA 3	9.73	30%	2.92	6.81	2.75	1.81	7.3	40%	50%	Y
DMA 4	3.51	20%	0.70	2.81	2.75	3.11	5.1	40%	50%	Y

Step 2			
Harvest and Reuse			
Gallons	Pipe Diameter	Pipe Length	# of Cisterns Needed
69,358	96"	97'*	2
20,014	96"	55'	1

*Note - Preliminary. Pipe length may change.



Step 1 – First, harvest and reuse must be established as feasible. For a system to be considered "feasible", there must be sufficient irrigation water demands at the project site. The irrigation water demand must reach 40% average annual capture efficiency which is determined by the ratio of effective irrigated area to project area. If there is enough irrigated water demands at the project site to reach 40% capture efficiency, a harvest and reuse system is determined to be practical and feasible.

Step 2 –The system must be designed with a storage volume equal to the Design Capture Volume (DCV) from the tributary area and achieve more than 40% capture. The system must also be able to drawdown in 30 days to meet the 40% capture value. Additional specifications are provided by the BMP service provider.

Step 3 – To achieve 80% capture efficiency, additional BMPs may be necessary. Harvest and reuse systems are considered feasible if they have a capture efficiency of at least 40%. In such cases, biotreatment BMPs must be implemented to treat the remaining 40% to satisfy 80% capture efficiency requirements as described in the Technical Guidance Document (December 2013).

Source: Orange County WQMP Technical Guidance Document (2013)

Step 3			
Calculating Remaining DCV Treatment to Reach 80% Efficiency - Modular Wetland Systems BMPs			
Calculation Steps		DMA 3	DMA 4
Enter the time of concentration, T_c (min) (See Appendix IV.2)	Tc=	5	5
Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26	0.26
Enter the effect depth of provided cisterns upstream, dHRU (inches) (Worksheet A)	dHRU=	0	0
Enter capture efficiency corresponding to dHRU, Y_2 (Worksheet A)	Y_2=	50%	50%
Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency (Y_2), I_2	I_2=	0.1	0.1
Determine the design intensity that must be provided by BMP, $I_{design} = I_1 - I_2$	I_{design}=	0.16	0.16
Enter Project area tributary to BMP(s), A (acres)	A=	9.73	3.51
Enter Project Imperviousness, imp (unitless)	imp=	30%	20%
Calculate runoff coefficient, C = (0.75 x imp) + 0.15	C=	0.375	0.3
Calculate design flowrate, Qdesign= (C x I_{design} x A)	Qdesign=	0.58	0.17
Biotreatment Systems to Treat Remaining DCV		**(1) MWS-L-8-24**	**(1) MWS-L-4-15**

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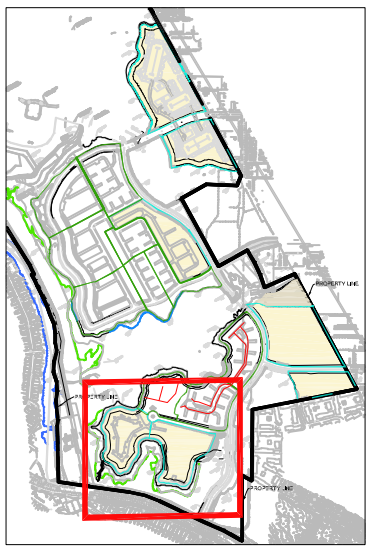
LOW IMPACT DEVELOPMENT BMP DETAILS
FUTURE PARK HARVEST AND RE-USE
NEWPORT BANNING RANCH

LEGEND

- HARVEST & RE-USE BOUNDARY (PRIMARY BMP)
- HARVEST & RE-USE SYSTEM (INCLUDES CISTERNS)
- BIOTREATMENT SYSTEM (SECONDARY BMP)
- PROPOSED BI-WEEKLY STREET SWEEPING



KEY

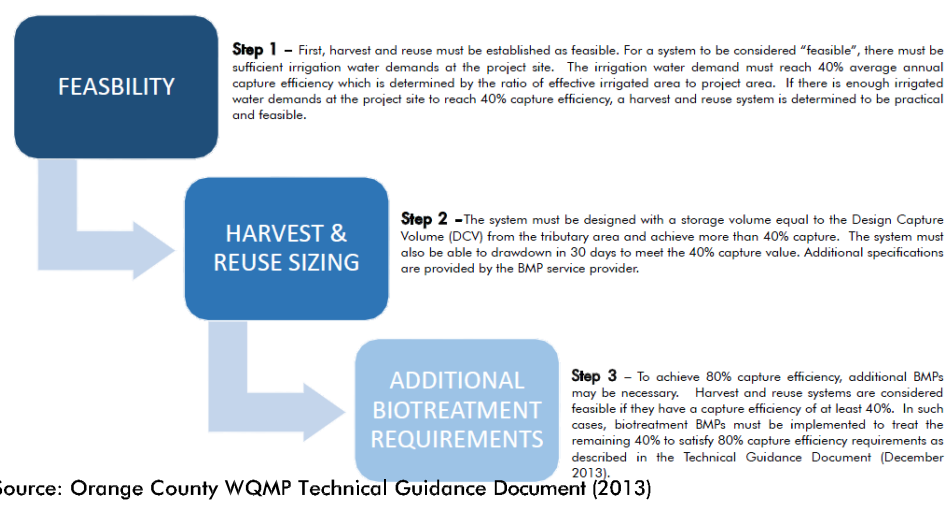
200' 0' 100' 200'

SCALE: 1" = 200'

Step 1										
Drainage Area	Total Area (ac)	% Impervious	Impervious Area	Landscaped Area	Eto	EIATA (ac/ac)	Drawdown (days)	Minimum % Capture Required	% Capture (Fig. III.2)	Feasible?
DMA 5	5.49	70%	3.85	1.64	2.75	0.33	30.6	40%	40%	Y
DMA 6	5.63	70%	3.94	1.69	2.75	0.33	30.6	40%	40%	Y

Step 2			
Harvest and Reuse			
Gallons	Pipe Diameter	Pipe Length	# of Cisterns Needed
79,607	96"	108' *	2
72,230	96"	97' *	2

*Note - Preliminary. Pipe length may increase.



Source: Orange County WQMP Technical Guidance Document (2013)

Step 3			
Calculating Remaining DCV Treatment to Reach 80% Efficiency - Modular Wetland Systems BMPs			
Calculation Steps		DMA 5	DMA 6
Enter the time of concentration, T_c (min) (See Appendix IV.2)	Tc=	5	5
Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26	0.26
Enter the effect depth of provided cisterns upstream, dHRU (inches) (Worksheet A)	dHRU=	0	0
Enter capture efficiency corresponding to dHRU, Y_2 (Worksheet A)	Y_2=	40%	40%
Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency (Y_2), I_2	I_2=	0.07	0.07
Determine the design intensity that must be provided by BMP, $I_{design} = I_1 - I_2$	I_{design}=	0.19	0.19
Enter Project area tributary to BMP(s), A (acres)	A=	5.49	5.63
Enter Project Imperviousness, imp (unitless)	imp=	70%	70%
Calculate runoff coefficient, C = (0.75 x imp) + 0.15	C=	0.675	0.675
Calculate design flowrate, Qdesign= (C x I_{design} x A)	Qdesign=	0.80	0.72
Biotreatment Systems to Treat Remaining DCV		**(2) MWS-L-8-16**	**(2) MWS-L-8-16**

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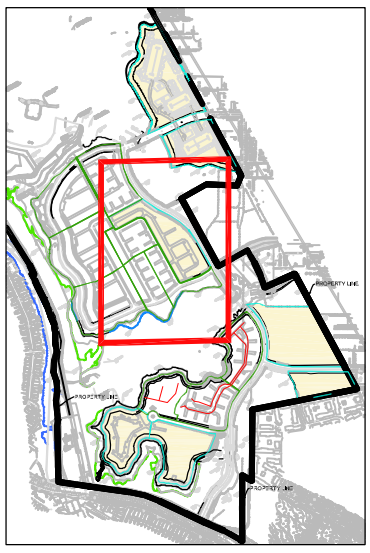
LOW IMPACT DEVELOPMENT BMP DETAILS
RESORT COLONY HARVEST AND RE-USE
NEWPORT BANNING RANCH

LEGEND

- HARVEST & RE-USE BOUNDARY (PRIMARY BMP)
- HARVEST & RE-USE SYSTEM (INCLUDES CISTERNS)
- BIOTREATMENT SYSTEM (SECONDARY BMP)
- PROPOSED BI-WEEKLY STREET SWEEPING



KEY

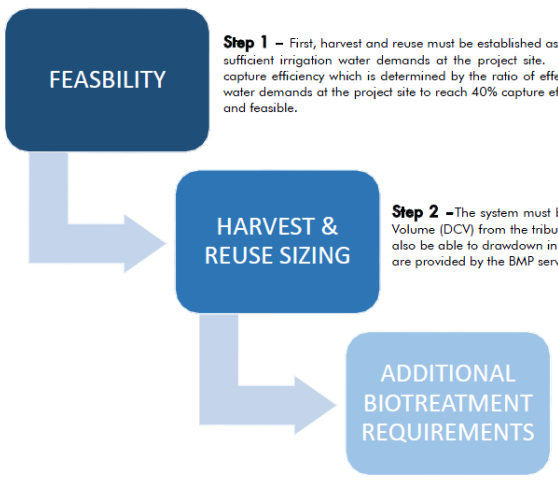
200' 0' 100' 200'

SCALE: 1" = 200'

Step 1										
Drainage Area	Total Area (ac)	% Impervious	Impervious Area	Landscaped Area	Eto	EIATA (ac/ac)	Drawdown (days)	Minimum % Capture Required	% Capture (Fig. III.2)	Feasible?
DMA 7	7.6	70%	5.32	2.28	2.75	0.33	30.6	40%	40%	Y

Step 2			
Harvest and Reuse			
Gallons	Pipe Diameter	Pipe Length	# of Cisterns Needed
97,504	96"	150' *	2

*Note - Preliminary. Pipe length may increase.



Step 1 – First, harvest and reuse must be established as feasible. For a system to be considered "feasible", there must be sufficient irrigation water demands at the project site. The irrigation water demand must reach 40% average annual capture efficiency which is determined by the ratio of effective irrigated area to project area. If there is enough irrigated water demands at the project site to reach 40% capture efficiency, a harvest and reuse system is determined to be practical and feasible.

Step 2 –The system must be designed with a storage volume equal to the Design Capture Volume (DCV) from the tributary area and achieve more than 40% capture. The system must also be able to drawdown in 30 days to meet the 40% capture value. Additional specifications are provided by the BMP service provider.

Step 3 – To achieve 80% capture efficiency, additional BMPs may be necessary. Harvest and reuse systems are considered feasible if they have a capture efficiency of at least 40%. In such cases, biotreatment BMPs must be implemented to treat the remaining 40% to satisfy 80% capture efficiency requirements as described in the Technical Guidance Document (December 2013).

Source: Orange County WQMP Technical Guidance Document (2013)

Step 3		
Calculating Remaining DCV Treatment to Reach 80% Efficiency - Modular Wetland Systems BMPs		
Calculation Steps		DMA 7
Enter the time of concentration, T_c (min) (See Appendix IV.2)	Tc=	5
Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26
Enter the effect depth of provided cisterns upstream, dHRU (inches) (Worksheet A)	dHRU=	0
Enter capture efficiency corresponding to dHRU, Y_2 (Worksheet A)	Y_2=	40%
Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency (Y_2), I_2	I_2=	0.07
Determine the design intensity that must be provided by BMP, $I_{design} = I_1 - I_2$	I_{design}=	0.19
Enter Project area tributary to BMP(s), A (acres)	A=	7.6
Enter Project Imperviousness, imp (unitless)	imp=	70%
Calculate runoff coefficient, C = (0.75 x imp) + 0.15	C=	0.675
Calculate design flowrate, Qdesign= (C x I_{design} x A)	Qdesign=	0.97
Biotreatment Systems to Treat Remaining DCV		**(2) MWS-L-8-20**

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LOW IMPACT DEVELOPMENT BMP DETAILS
NORTH VILLAGE FLATS HARVEST AND RE-USE
NEWPORT BANNING RANCH

BIO CLEAN ENVIRONMENTAL MODEL NO. NSBB 8—12—96

RECOMMENDED PIPE SIZES: 36" to 48"

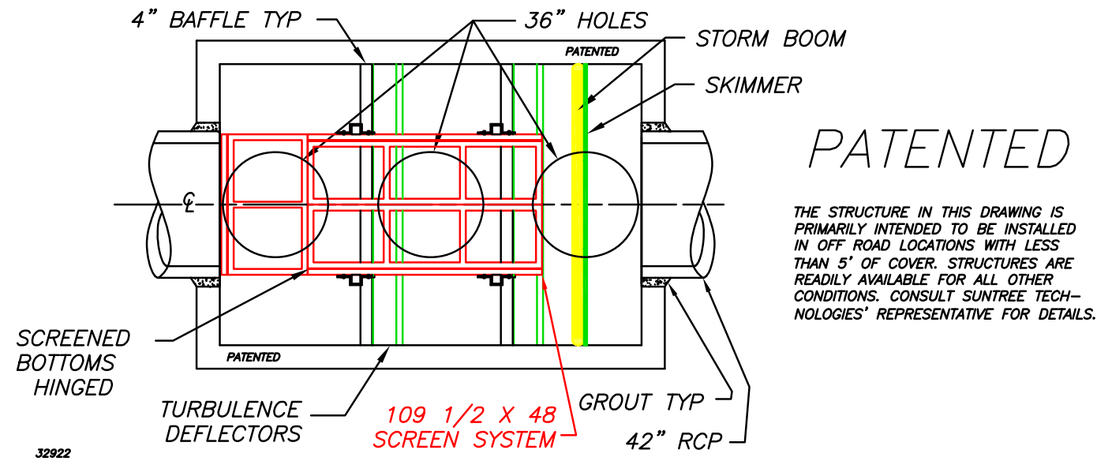
FLOW, TREATMENT, & BYPASS SPECIFICATIONS FOR THE BIOMASS SEPARATING BASKET

1. Inflow Pipe Area	9.6 SQ.FT.
2. Open Orifice Area in Biomass Separating Basket	45.4 SQ.FT.
3. Treatable Flow Area With No Blockage	45.4 SQ.FT.
4. Treatable Flow Area With 50% Blockage	22.7 SQ.FT.
5. Treatable Flow Area With 75% Blockage	34.1 SQ.FT.
6. Minimum Bypass Available (With Basket 100% Full)	10.2 SQ.FT.

BASKET STORAGE = 81.6CU. FT. (3.0 CU YD.)

SEDIMENT STORAGE

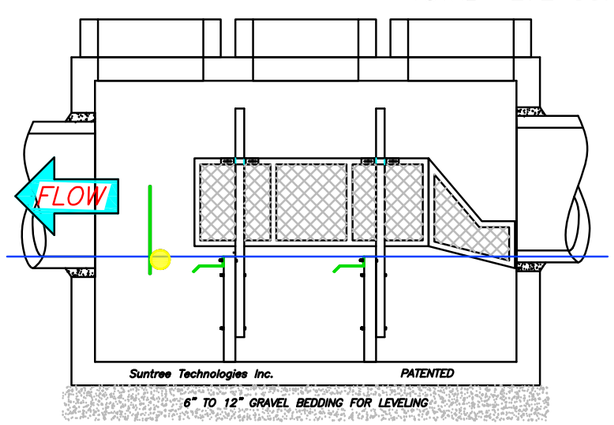
Lower Front Chamber	96 CU. FT.
Lower Middle Chamber	88 CU. FT.
Lower Rear Chamber	88 CU. FT.
TOTAL	272 CU. FT. (10 CU YD.)



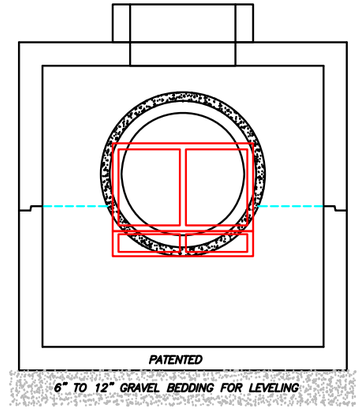
PATENTED

THE STRUCTURE IN THIS DRAWING IS PRIMARILY INTENDED TO BE INSTALLED IN OFF ROAD LOCATIONS WITH LESS THAN 5' OF COVER. STRUCTURES ARE READILY AVAILABLE FOR ALL OTHER CONDITIONS. CONSULT SUNTREE TECHNOLOGIES' REPRESENTATIVE FOR DETAILS.

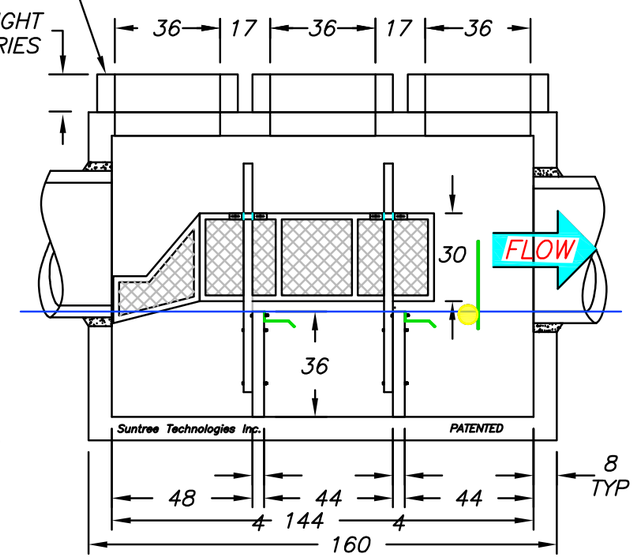
PLAN VIEW



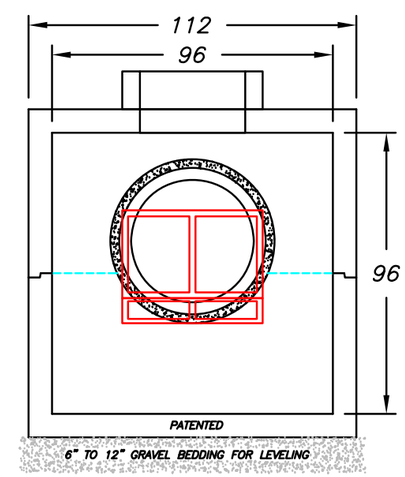
REAR VIEW



LEFT END VIEW



FRONT VIEW



RIGHT END VIEW

NOTES:

1. CONCRETE 28 DAY COMPRESSIVE STRENGTH fc=5,000 PSI.
2. REINFORCING:ASTM A-615, GRADE 60.
3. SUPPORTS AN H20 LOADING AS INDICATED BY AASHTO.
4. JOINT SEALANT: BUTYL RUBBER SS-S-00210
5. ALL WALLS, TOP + BOTTOM ARE 8" THICK.

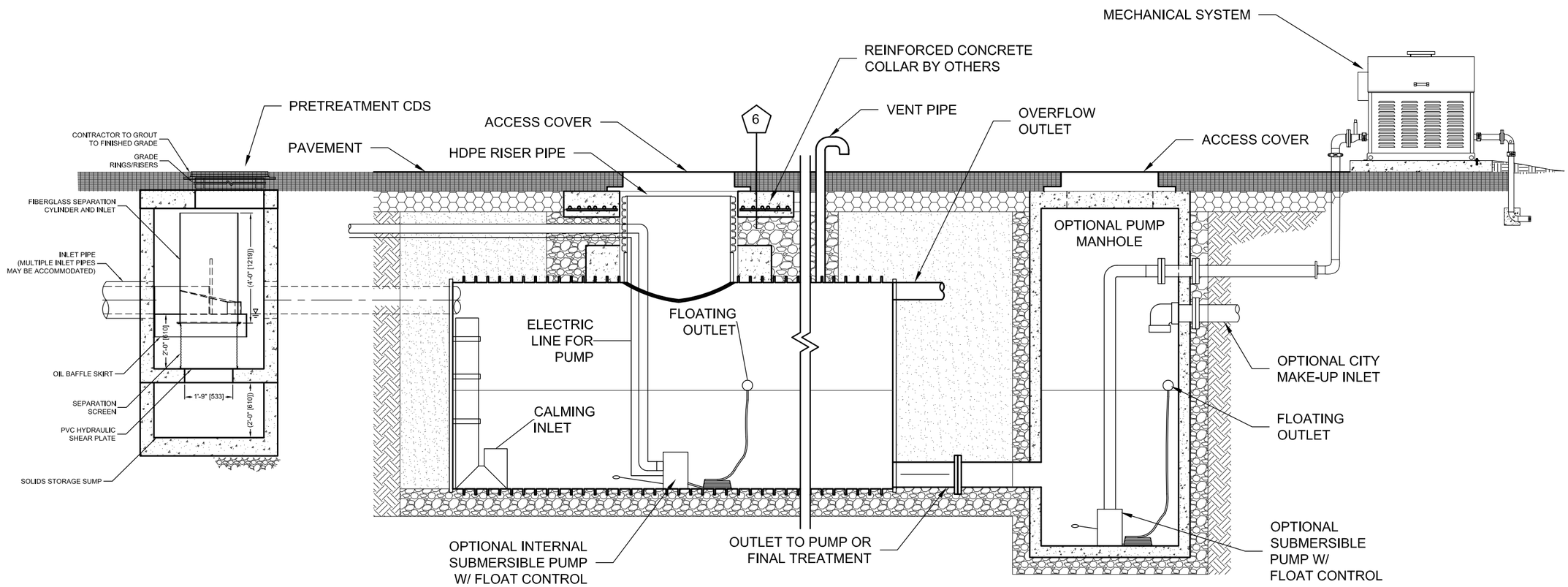
PEAK DESIGN FLOW

75.4 C.F.S.

(BASED ON 6 FT. PER SEC. FLOW MULTIPLIED BY THE MIN. BYPASS AVAILABLE.)

DISTRIBUTED BY:
BIO CLEAN ENVIRONMENTAL SERVICE
P.O. BOX 869, OCEANSIDE, CA. 92049
TEL. 760-433-7640 FAX:760-433-3176
Email: info@biocleanenvironmental.net

SUNTREE TECHNOLOGIES, INC. 798 CLEARLAKE RD. SUITE #2 COCOA, FL. 32922		PROJECT: SUNTREE TECHNOLOGIES SPEC.	
NUTRIENT SEPARATING BAFFLE BOX MODEL NO.NSBB 8-12-96		REVISIONS: BASKET SYSTEM	DATE: 01/06/04
		REVISIONS:	DATE:
DATE: 01/01/04	SCALE:SF = 72	REVISIONS:	DATE:
DRAFTER: N.R.B.	UNITS =INCHES	REVISIONS:	DATE:



C:\DOCUMENTS AND SETTINGS\KTHOMASON\DESKTOP\EXAMPLE COMPLETE RWH SYSTEM.DWG 3/30/2012 1:18 PM

MARK	DATE	REVISION DESCRIPTION	BY

CONTECH® CONSTRUCTION PRODUCTS INC.
www.contech-cpi.com
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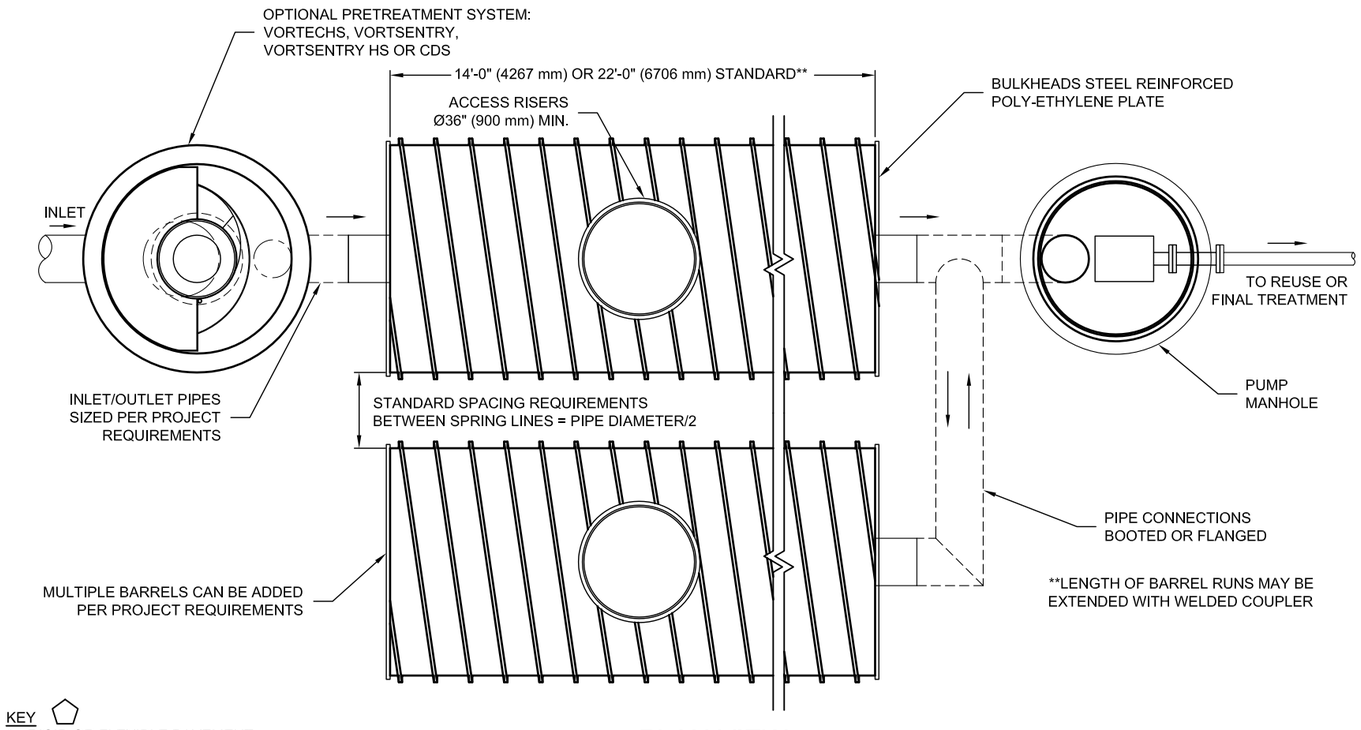
800-338-1122 513-645-7000 513-645-7993 FAX

URBANGREEN™

CONTECH **PROPOSAL** DRAWING

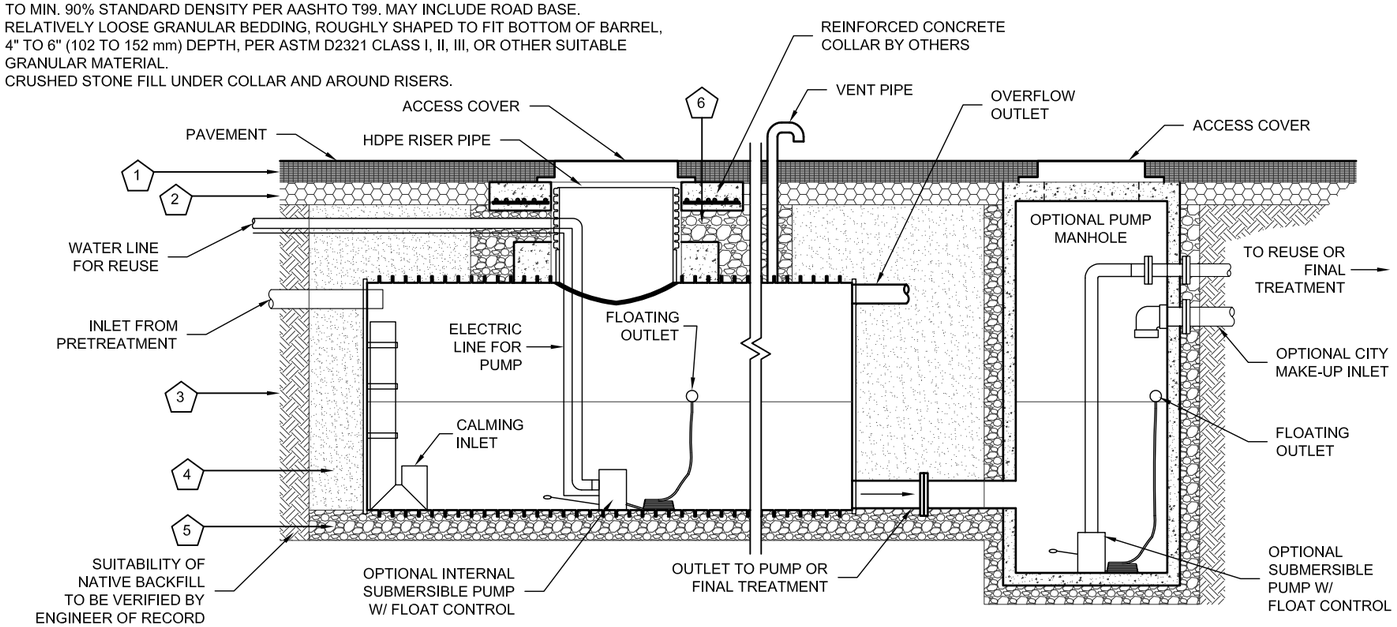
EXAMPLE COMPLETE RAINWATER HARVESTING SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
433538	002	09/08/11
DESIGNED: DRA	DRAWN: DRA	
CHECKED:	APPROVED:	
SHEET NO.: SHEET 7 OF 14		



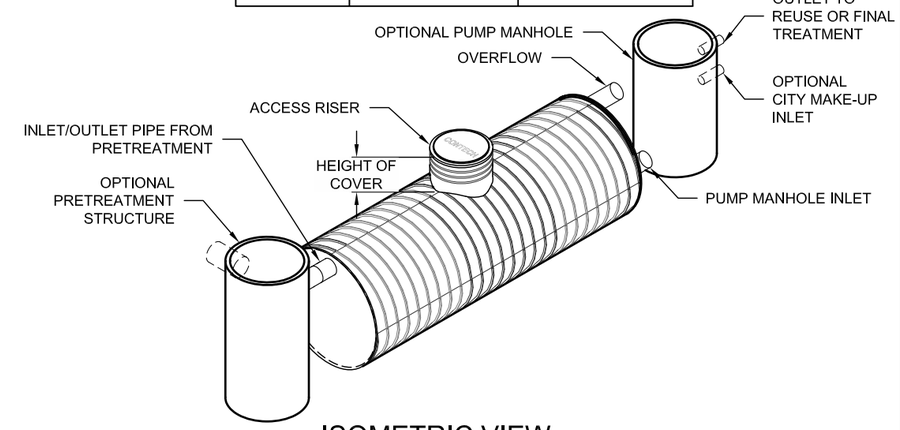
PLAN VIEW

KEY
1. RIGID OR FLEXIBLE PAVEMENT.
2. GRANULAR COMPACTED ROAD BASE.
3. ANY SUITABLE NATIVE OR GENERAL BACKFILL, SEE ENGINEER PLANS.
4. WELL GRADED GRANULAR FILL. ASTM D2321 CLASS I, II, III, OR EQUIVALENT. COMPACT TO MIN. 90% STANDARD DENSITY PER AASHTO T99. MAY INCLUDE ROAD BASE.
5. RELATIVELY LOOSE GRANULAR BEDDING, ROUGHLY SHAPED TO FIT BOTTOM OF BARREL, 4" TO 6" (102 TO 152 mm) DEPTH, PER ASTM D2321 CLASS I, II, III, OR OTHER SUITABLE GRANULAR MATERIAL.
6. CRUSHED STONE FILL UNDER COLLAR AND AROUND RISERS.



ELEVATION VIEW

STORAGE AVAILABILITY PER DIAMETER		
DIAMETER (IN / mm)	AVAILABLE STORAGE PER L.F. (C.F. / m3)	AVAILABLE STORAGE PER L.F. (GAL. / L)
48 / 1200	12.17 / 0.34	91.02 / 345
54 / 1350	15.40 / 0.44	115.20 / 437
60 / 1500	19.01 / 0.54	142.22 / 539
72 / 1800	27.38 / 0.77	204.79 / 776
84 / 2100	37.26 / 1.05	278.74 / 1056
96 / 2400	48.67 / 1.38	364.07 / 1380
120 / 3000	76.05/ 2.15	568.87 / 2156



ISOMETRIC VIEW

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE, CAPACITY AND BACKFILL DETAILS, PLEASE CONTACT YOUR CONTECH CONSTRUCTION PRODUCTS INC REPRESENTATIVE. www.contech-cpi.com
3. ALL ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS AND INLETS SHALL BE VERIFIED BY THE ENGINEER OF RECORD.
4. PRIOR TO INSTALLATION OF THE SYSTEM A PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED. THOSE REQUIRED TO ATTEND ARE THE SUPPLIER OF THE SYSTEM, THE GENERAL CONTRACTOR, SUB-CONTRACTORS AND THE ENGINEER.
5. THE CISTERN IS MANUFACTURED FROM STEEL REINFORCED POLYETHYLENE PLASTIC.
6. SYSTEM TO MEET AASHTO HS20/HS25 LIVE LOADING, PER AASHTO LRFD SECTION 12.
7. ACCESS COVERS TO MEET AASHTO M306 LOAD RATING.
8. MINIMUM COVER IS EQUAL TO PIPE DIAMETER/5 AND NO LESS THAN 12-INCHES (305 mm) FROM TOP OF PIPE TO BOTTOM OF PAVEMENT. Ø72" (1800 mm) AND Ø84" (2100 mm) PIPE MINIMUM COVER IS 18-INCHES (457 mm), Ø96" (2400 mm) PIPE MINIMUM COVER IS 24-INCHES (610 mm), Ø120" (3000 mm) PIPE MINIMUM COVER IS 36-INCHES (900 mm).
9. FOR INFORMATION ON PRE-TREATMENT SYSTEMS, REFERENCE CONTECH PRE-TREATMENT SYSTEM STANDARD DETAILS OR CONTACT YOUR LOCAL CONTECH REPRESENTATIVE.

INSTALLATION NOTES

A. INSTALLATION GUIDE TO BE REVIEWED BY CONTRACTOR PRIOR TO INSTALLATION.
B. CONTRACTOR TO PROVIDE, INSTALL AND GROUT ALL INLET AND OUTLET PIPES.
C. CONTRACTOR TO PROVIDE AND INSTALL ALL BEDDING AND BACKFILL MATERIAL.
D. PRIOR TO PLACING BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, A GEOGRID SHALL BE UTILIZED OR UNSUITABLE MATERIAL SHALL BE REMOVED AND BROUGHT BACK TO GRADE WITH FILL MATERIAL AS APPROVED BY THE ENGINEER OF RECORD. ONCE THE FOUNDATION PREPARATION IS COMPLETE, THE BEDDING MATERIAL CAN BE PLACED.
E. STONE EMBEDMENT MATERIAL SHALL BE INSTALLED TO 95% STANDARD PROCTOR DENSITY AND PLACED IN 6-INCH (152 mm) TO 8-INCH (203 mm) LIFTS SUCH THAT THERE IS NO MORE THAN A TWO LIFT DIFFERENTIAL BETWEEN ANY OF THE BARRELS AT ANY TIME. GRANULAR BACKFILL MATERIAL SHALL BE COMPACTED TO 90% SPD. BACKFILLING SHALL BE ADVANCED ALONG THE LENGTH OF THE BARRELS AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING AND DISPLACEMENT OF THE BARRELS. THE MINIMUM PIPE SPACING MUST BE MAINTAINED.
F. REFER TO INSTALLATION GUIDE FOR TEMPORARY CONSTRUCTION LOADING GUIDELINES.
G. IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.
H. GENERAL INSTALLATION METHODS AND MATERIALS TO BE IN ACCORDANCE WITH ASTM D2321.

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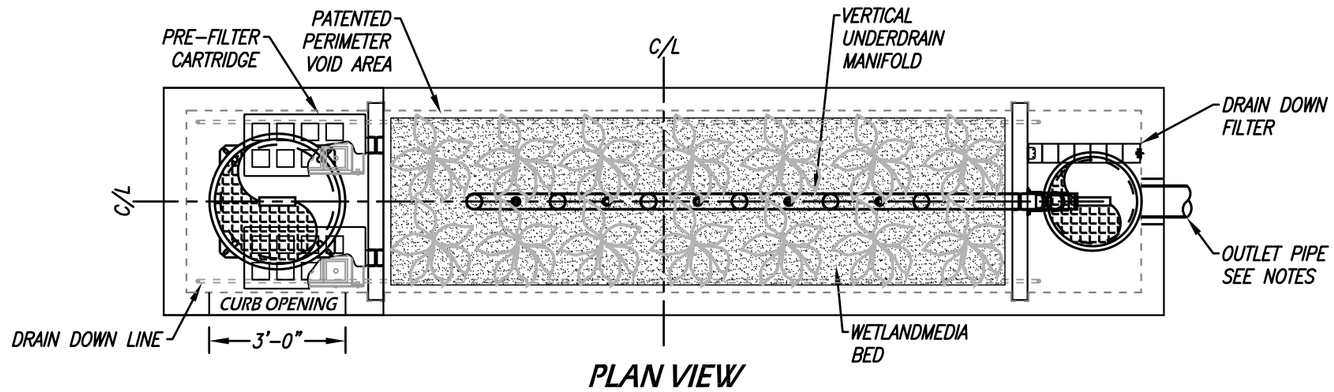
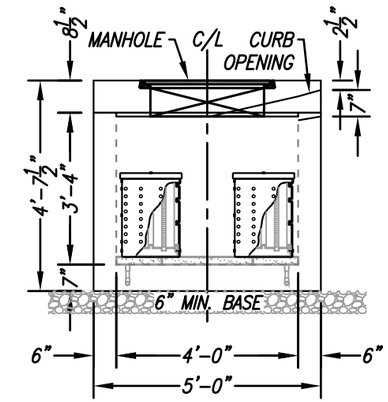
URBANGREEN SRPE CISTERN
STANDARD DETAIL
5-13-032 EXHIBIT 11

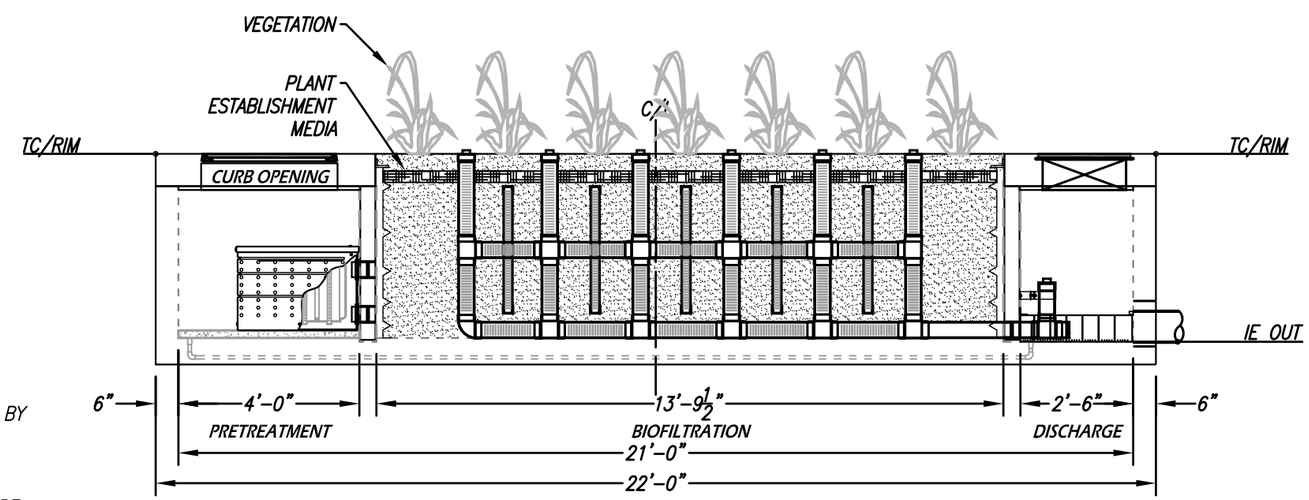
SITE SPECIFIC DATA			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	ø30"	N/A	ø24"
WETLANDMEDIA VOLUME (CY)			7.63
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø2.34"
MAXIMUM PICK WEIGHT (LBS)			43000
NOTES:			



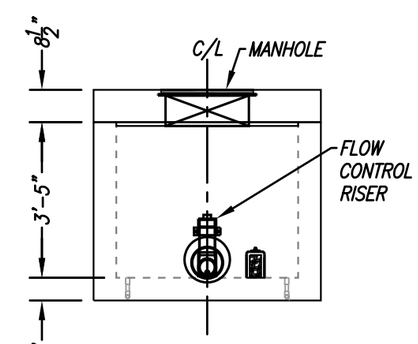
PLAN VIEW



LEFT END VIEW



ELEVATION VIEW



RIGHT END VIEW

INSTALLATION NOTES

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

GENERAL NOTES

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

TREATMENT FLOW (CFS)	0.268
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

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MWS-L-4-21-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

5-13-0342 EXHIBIT 11

DCV Calculations					Bioretention w/ Underdrain		
Drainage Area Name / DMA	Total Drainage Area (acres)	% impervious	Runoff Coefficient	1.5*Simple Method DCV (ft^3)	Ponding Depth (ft)	Depth Filtered (ft)	Surface Area Needed (ft^2)
DMA A	7.65	65.0%	0.638	**18,598**	1.50	0.63	**8,752**
DMA B1	6.31	75.0%	0.713	**17,147**	1.50	0.63	**8,069**
DMA B2	3.42	75.0%	0.713	**9,288**	1.50	0.63	**4,371**
DMA C	8.95	65.0%	0.638	**21,735**	1.50	0.63	**10,228**
DMA D	7.99	65.0%	0.638	**19,405**	1.50	0.63	**9,132**
DMA E	3.97	65.0%	0.638	**9,656**	1.50	0.63	**4,544**
DMA F	3.60	70.0%	0.675	**9,262**	1.50	0.63	**4,359**

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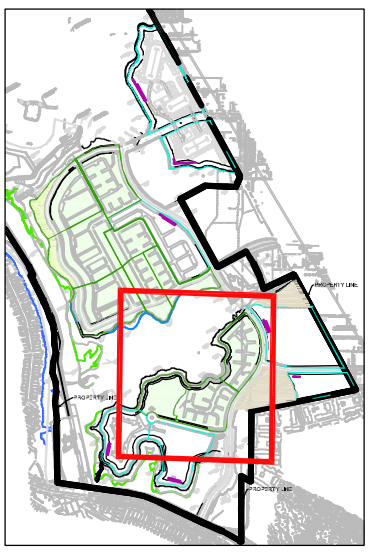
LOW IMPACT DEVELOPMENT BMP DETAILS
NORTH VILLAGE COMMUNITY WATER QUALITY BASINS
NEWPORT BANNING RANCH

KEY



LEGEND

- BIOTREATMENT BOUNDARY
- BIOTREATMENT BASINS
- WATER QUALITY STORM DRAIN LINE

200' 0' 100' 200'

SCALE: 1" = 200'

DCV Calculations					Bioretention w/ Underdrain		
Drainage Area Name / DMA	Total Drainage Area (acres)	% impervious	Runoff Coefficient	1.5*Simple Method DCV (ft^3)	Ponding Depth (ft)	Depth Filtered (ft)	Surface Area Needed (ft^2)
DMA G1	5.45	75.0%	0.713	**14,795**	1.50	0.63	**6,962**
DMA G2	5.47	75.0%	0.713	**14,847**	1.50	0.63	**6,987**
DMA H	4.25	85.0%	0.788	**12,757**	1.50	0.63	**6,003**

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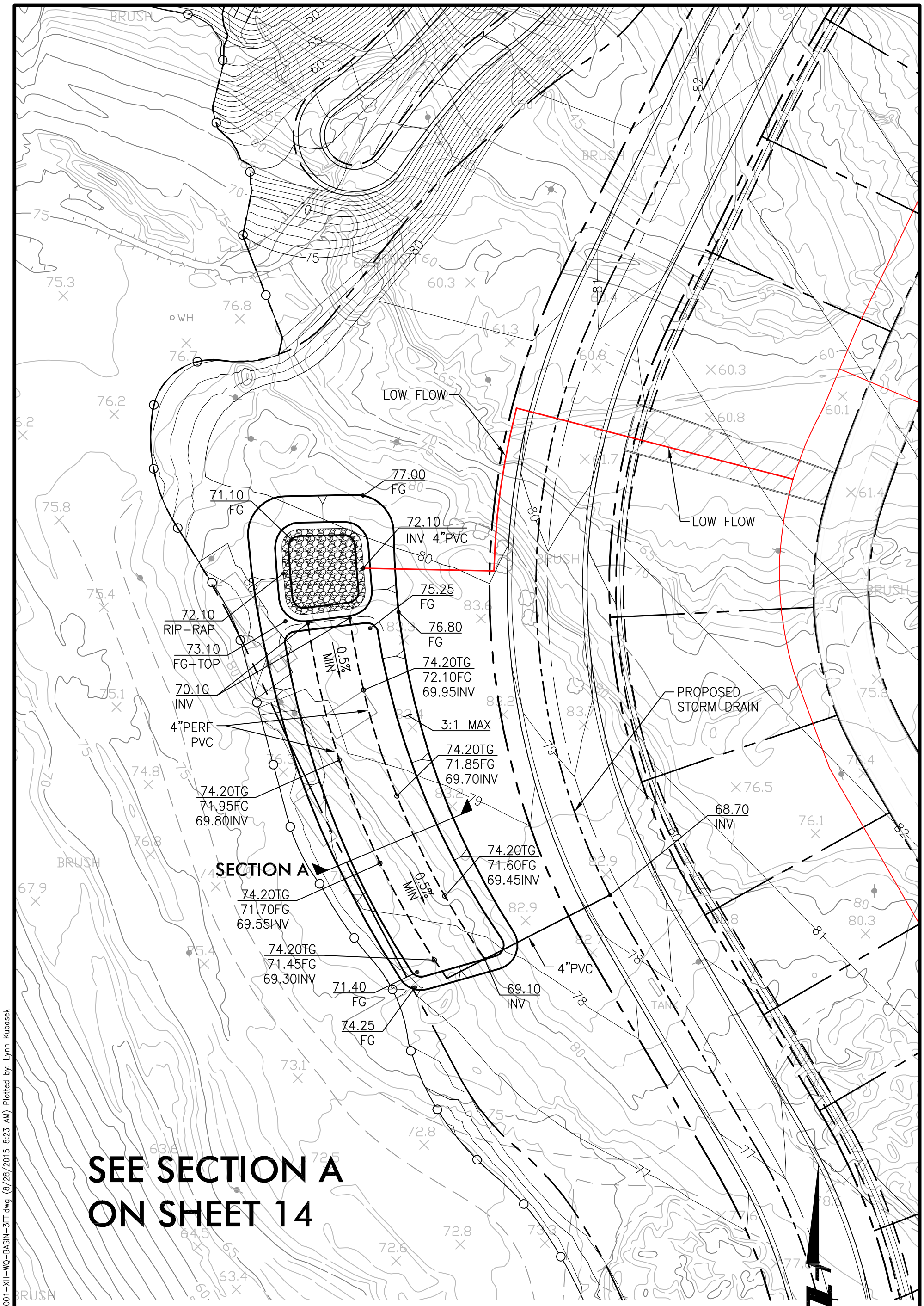
LOW IMPACT DEVELOPMENT BMP DETAILS
SOUTH VILLAGE COMMUNITY WATER QUALITY BASINS
NEWPORT BANNING RANCH



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COMMUNITY WATER QUALITY BASIN DETAIL

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

SHEET 12 OF 14

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SIDEWALK

STORM DRAIN CATCH BASIN (TYP)

17TH ST.

PROPOSED STORM DRAIN

PROPOSED STORM DRAIN

BIOSWALE (TYP)

MODULAR WETLAND OR EQUIV. (TYP)

SIDEWALK

MODULAR WETLAND OR EQUIV. (TYP)

BLUFF ROAD

STORM DRAIN CATCH BASIN (TYP)

LEGEND

STREET - BIOTREATMENT

PARKWAY - MODULAR WETLAND SYSTEM

20' 0' 10' 20'

SCALE: 1" = 20'

TYPICAL STREET WATER QUALITY APPROACH

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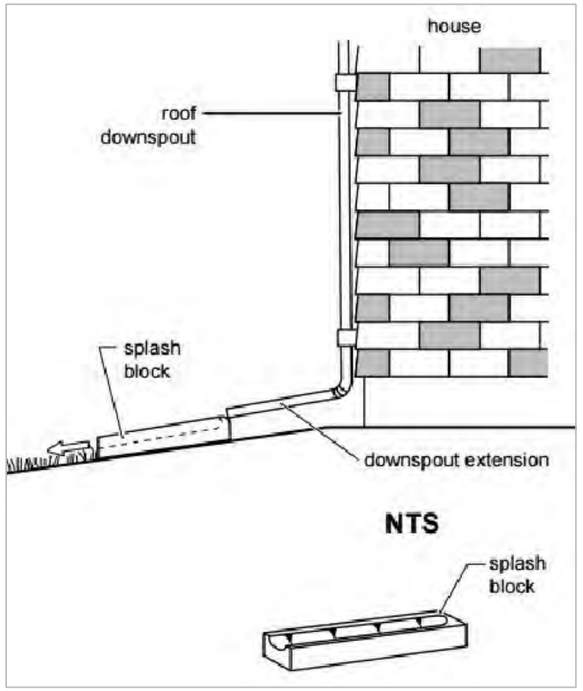

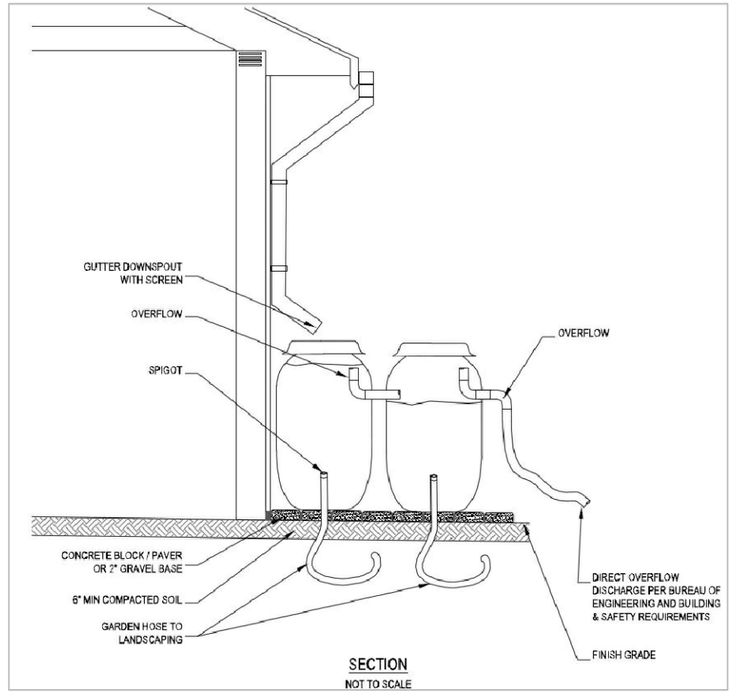

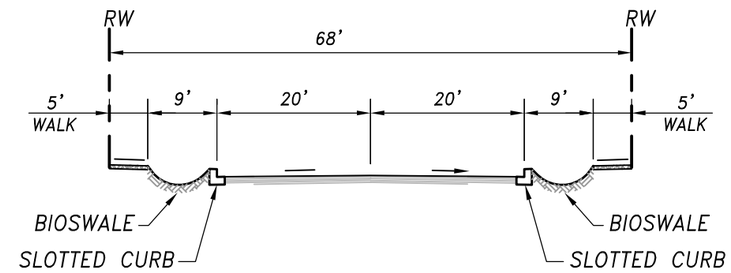

TYPICAL GREEN STREET W/ BIOSWALE SECTION
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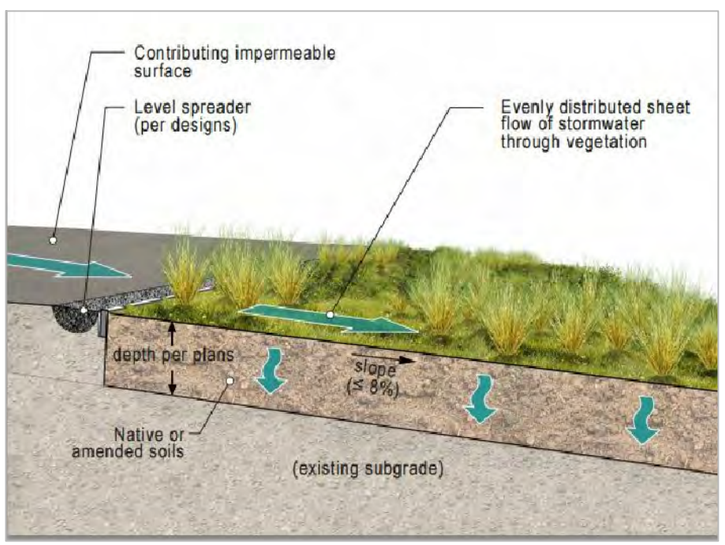

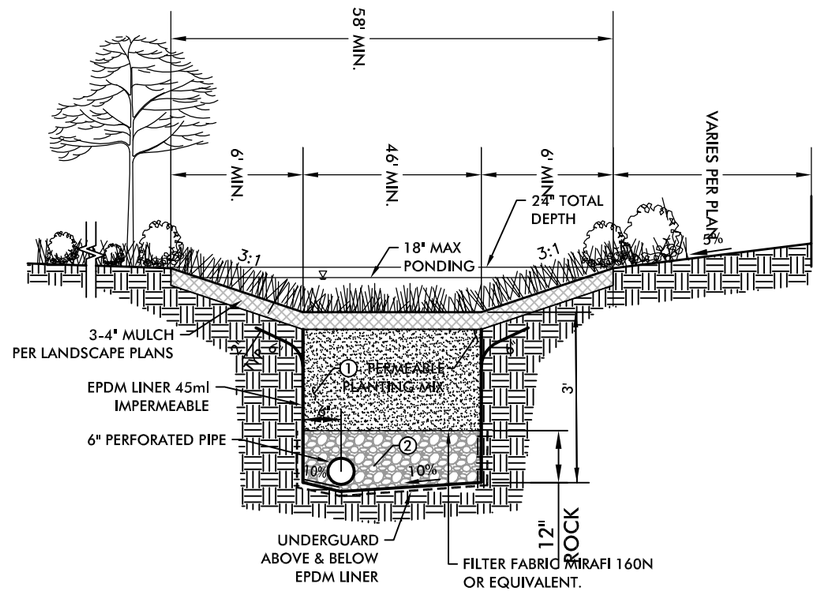

COMMUNITY WATER QUALITY BASIN TYPICAL SECTION A
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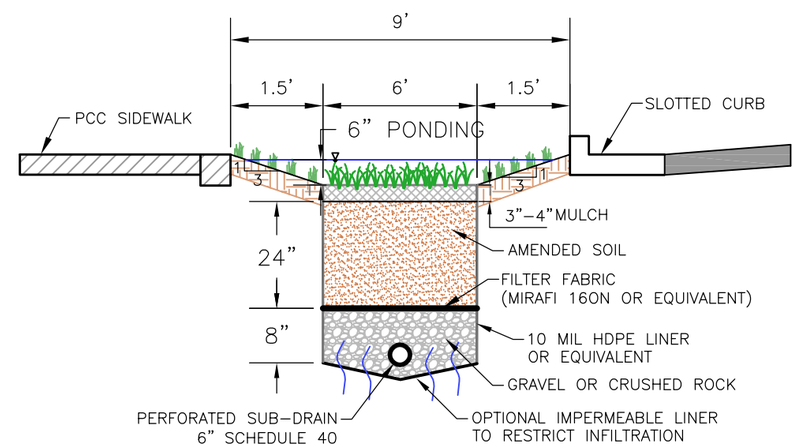

BIOCELL ENHANCEMENT CROSS SECTION
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