

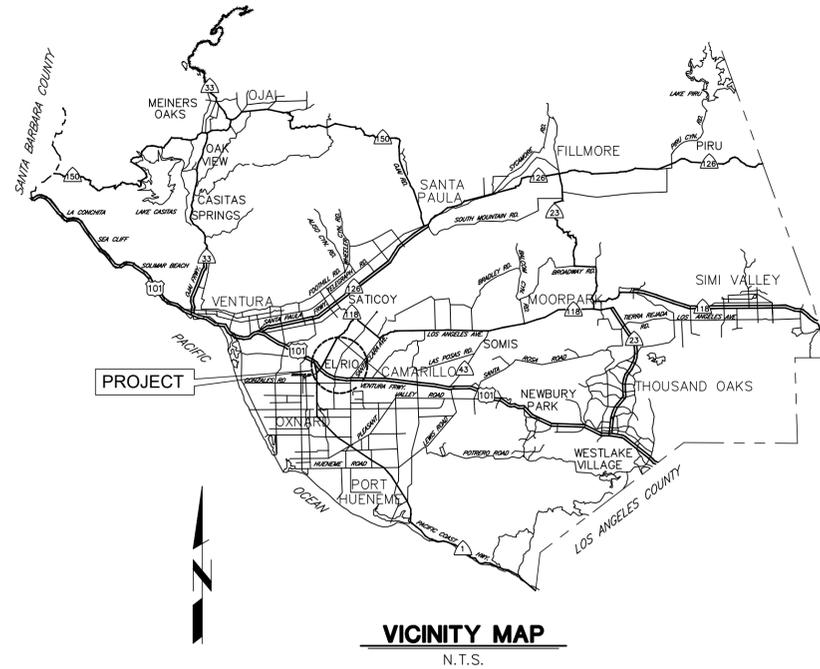
VENTURA COUNTY PUBLIC WORKS AGENCY WATERSHED PROTECTION

ZONE 2 EL RIO STORMWATER CAPTURE AND GROUNDWATER RECHARGE IN UNINCORPORATED VENTURA COUNTY

INDEX OF SHEETS	
SHEET No	TITLE
1	TITLE SHEET
2	INDEX AND CONSTRUCTION NOTES
3	STORM DRAIN PLAN AND PROFILE
4	STORM DRAIN PLAN AND PROFILE
5	STREET IMPROVEMENTS
6	ROUGH GRADING
7	TRANSITION STRUCTURE DETAIL
8	DETAILS
9	DETAILS
10	PRETREATMENT DETAILS
11	INFILTRATION CHAMBER DETAILS 1
12	INFILTRATION CHAMBER DETAILS 2
13	INFILTRATION CHAMBER DETAILS 3

INDEX OF STANDARD PLANS USED BY REFERENCE	
SPPWC STANDARD PLANS, 2021 EDITION:	
120-2	TYPE A1 CURB
120-2	TYPE A2 CURB AND GUTTER
320-2	MANHOLE
324-2	MANHOLE SHAFT
335-2	CONNECTIONS TO EXISTING STORM DRAINS - CASE 2
341-1	RCB TRANSITION
380-4	CONCRETE COLLAR FOR RCP
COUNTY OF VENTURA PUBLIC WORKS ROAD STANDARDS	
E-11	PAVEMENT REPAIRS FOR TRENCHING

RECORD DRAWINGS
DRAWING NO. 67601 TO 67608 "RECORD DRAWING"
DRAWING NO. 111963 TO 111971A "RECORD DRAWING"



GENERAL NOTES

- ELEVATIONS SHOWN ARE IN US FEET, NATIONAL AMERICAN VERTICAL DATUM OF 1988.
- STATIONS SHOWN ON DRAWINGS ARE ALONG CENTERLINE OF PROPOSED STORM DRAIN.
- E.G.L. AND H.G.L. WILL BE PROVIDED IN FINAL ENGINEERING FOR FUTURE REFERENCE BY THE DISTRICT ONLY.
- NUMBERS IN \ominus INDICATE BID ITEMS FOR WHICH PAYMENT WILL BE MADE.
- LETTER AND NUMBER IN \ominus INDICATE THE DETAIL CALL-OUT AND SHEET ON WHICH REFERENCE DETAIL IS SHOWN.
- NUMBERS IN \triangle REFER TO NOTES ON SAME SHEET UNLESS OTHERWISE NOTED.
- TREES DESIGNATED BY \oplus SHALL BE REMOVED. ALL OTHER TREES SHALL BE PROTECTED IN PLACE UNLESS INDICATED OTHERWISE.
- DELINEATES LIMITS OF VENTURA COUNTY RIGHT OF WAY.
- DELINEATES LIMITS OF TEMPORARY WORK AREA.
- TOPOGRAPHY AND CROSS SECTIONS FOR THIS PROJECT WERE TAKEN FROM SURVEYS DATED IN 10/17/2022.
- SYMBOL \blacktriangle INDICATES THE LOCATION OF HORIZONTAL AND VERTICAL CONTROL POINTS WHICH WILL BE FURNISHED BY THE AGENCY FOR CONSTRUCTION USE.

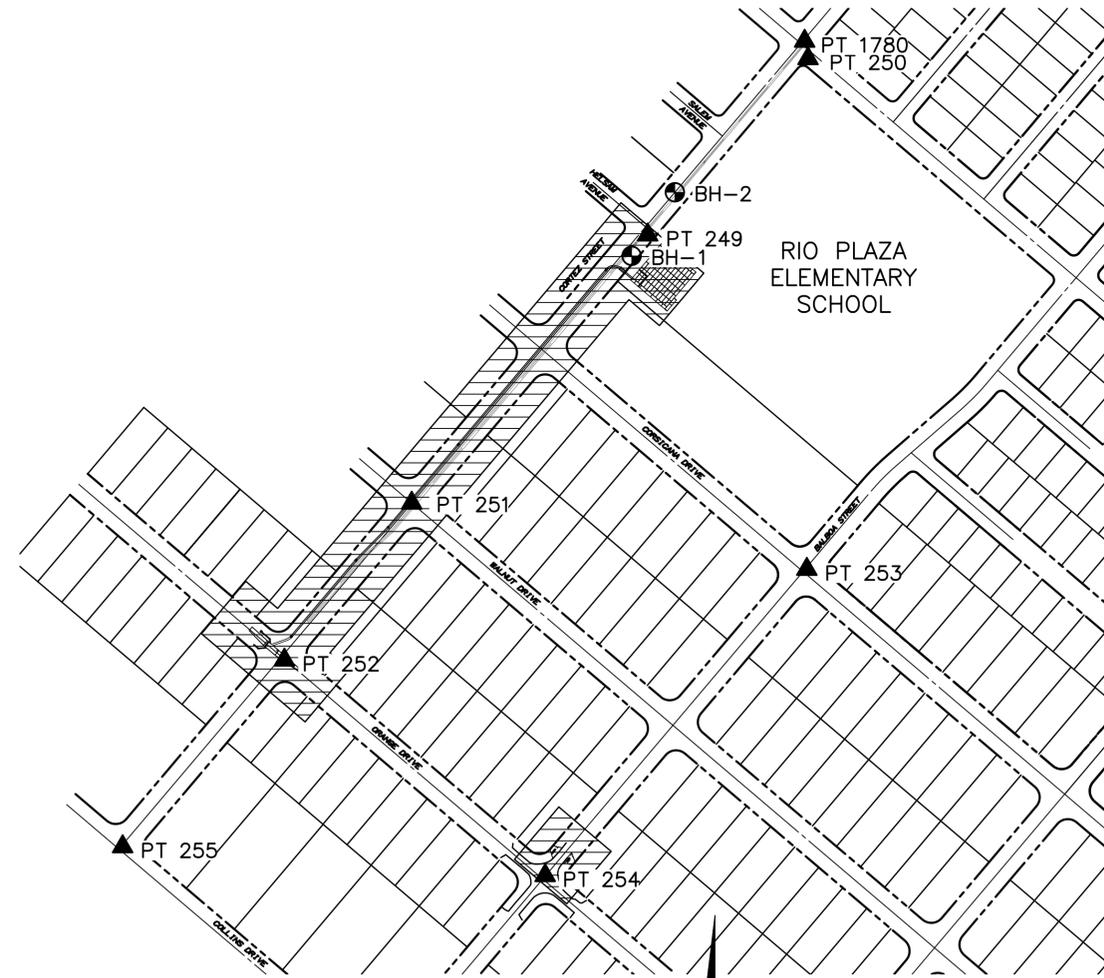
SURVEY CONTROL POINTS

PT 249	NORTHING/Y: 1,911,567.341	EASTING/X: 6,211,045.479	ELEV/Z: 93.148
PT 250	NORTHING/Y: 1,911,952.172	EASTING/X: 6,211,396.378	ELEV/Z: 93.641
PT 251	NORTHING/Y: 1,910,987.226	EASTING/X: 6,210,537.528	ELEV/Z: 90.627
PT 252	NORTHING/Y: 1,910,639.504	EASTING/X: 6,210,250.829	ELEV/Z: 89.260
PT 253	NORTHING/Y: 1,910,837.597	EASTING/X: 6,211,393.810	ELEV/Z: 92.590
PT 254	NORTHING/Y: 1,910,169.232	EASTING/X: 6,210,821.267	ELEV/Z: 92.560
PT 255	NORTHING/Y: 1,910,232.298	EASTING/X: 6,209,896.833	ELEV/Z: 88.791
PT 1780	NORTHING/Y: 1,911,990.109	EASTING/X: 6,211,389.015	ELEV/Z: 94.208

BENCHMARK DATA:

A VENTURA COUNTY BRASS DISK AT THE SOUTHEAST CORNER OF ROSE AVE. AND ORANGE DRIVE AT THE SCHOOL ENTRANCE, 49 FT EASTERLY FROM THE CENTER OF ROSE AVE., 5 FT EASTERLY FROM THE WESTERLY END OF A CONCRETE SIDEWALK CORNER

- SOIL TEST BORINGS SHOWN FOR THE PROJECT WERE MADE ON AUGUST 11, 2022 AND THEIR LOCATION IS MARKED BY THE SYMBOL \oplus . REFER TO THE SPECIFICATIONS FOR ADDITIONAL GEOTECHNICAL REPORT INFORMATION. SUBSURFACE SOIL INVESTIGATION RESULTS ARE FURNISHED FOR INFORMATION ONLY IN ACCORDANCE WITH SUBSECTION 2-7 OF THE STANDARD SPECIFICATIONS, AND NO WARRANTY IS MADE THEREFOR.
- EXISTING IMPROVEMENTS WITHIN THE RIGHT OF WAY AND WORK AREAS SHALL REMAIN AND SHALL BE PROTECTED UNLESS OTHERWISE NOTED. DAMAGED IMPROVEMENTS SHALL BE REPLACED IN KIND TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO CONSTRUCTION.
- UTILITIES ARE SHOWN AS KNOWN TO EXIST AT TIME OF SURVEY. UTILITIES MAY HAVE BEEN OMITTED, MISPLACED, AND/OR RELOCATED. CONTRACTOR SHALL EXERCISE CARE IN EXCAVATION AND SHALL PROTECT ALL UTILITIES.
- CONTRACTOR SHALL NOTIFY UTILITY OWNERS A MINIMUM OF 48 HOURS PRIOR TO STARTING WORK IN AREAS AFFECTING THEIR FACILITIES.



UNDERGROUND SERVICE ALERT
1-800-422-4133
CALL USA/SC
FOR UNDERGROUND LOCATION
2 WORKING DAYS BEFORE YOU DIG

GENERAL PLAN



**30% DESIGN
NOT FOR CONSTRUCTION**



PLOT DATE: 11/29/22

REVISION	DESCRIPTION	APP.	DATE
A	ISSUED FOR FEASIBILITY STUDY		11-29-22

PREPARED BY:
Q3 Consulting
27042 TOWNE CENTRE DRIVE, SUITE 110
FOOTHILL RANCH, CA 92610
949-259-6770

CT	DESIGNED	WATERSHED PROJECT MANAGER	DATE
AR	DRAWN	WATERSHED DEPUTY DIRECTOR	DATE
RC	CHECKED	WATERSHED DIRECTOR	DATE

**VENTURA COUNTY
PUBLIC WORKS AGENCY
WATERSHED PROTECTION**

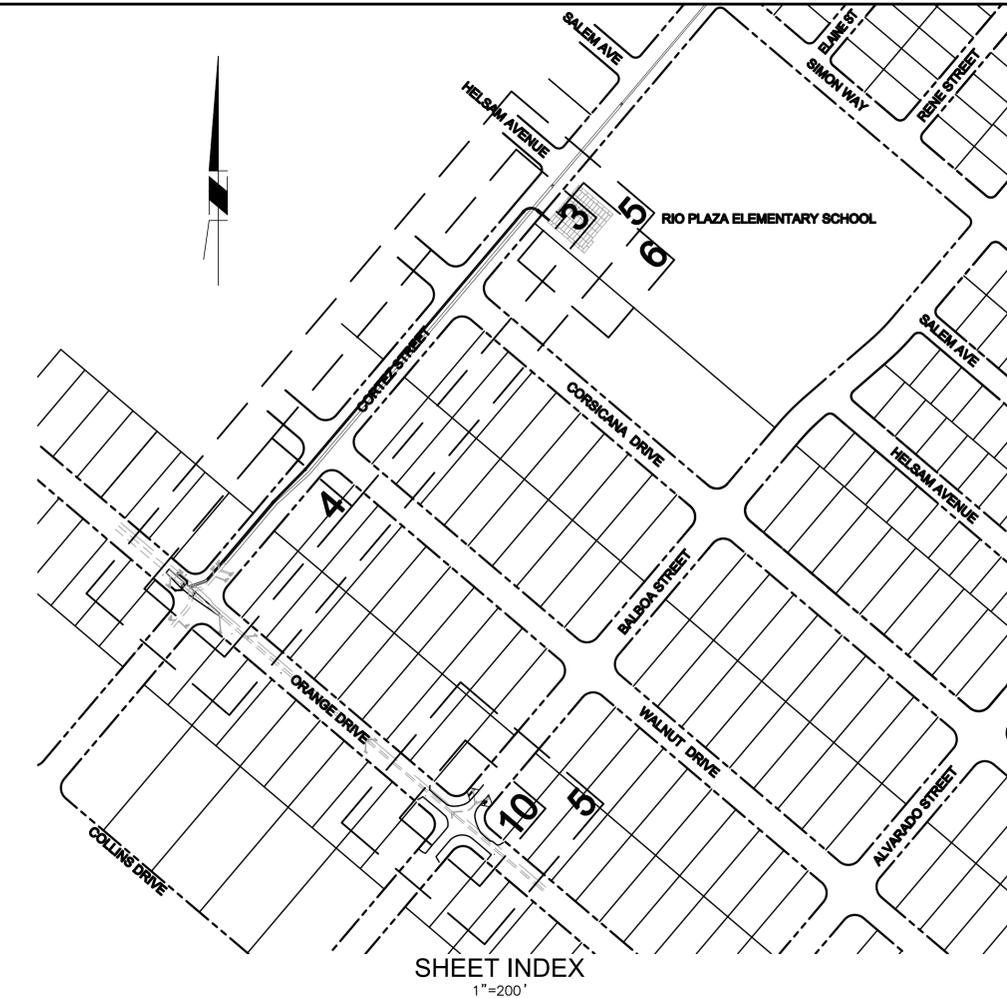
SPEC. NO.	N/A
PROJ. NO.	N/A

**EL RIO STORMWATER CAPTURE AND
GROUNDWATER RECHARGE**

TITLE SHEET

SHEET	1
OF	13
DRAWING NO.	WP-?-???

N:\40,085,000\DLV\PLANS\MP\SD\001-SD-TS.DWG PLOTTED: Nov 29, 2022 - 1:50pm BY: CANDACE TONG

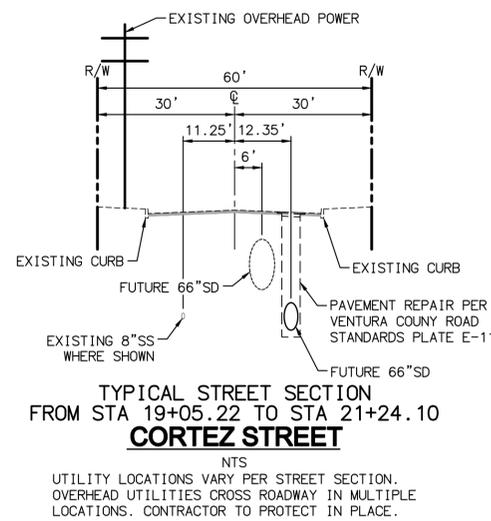
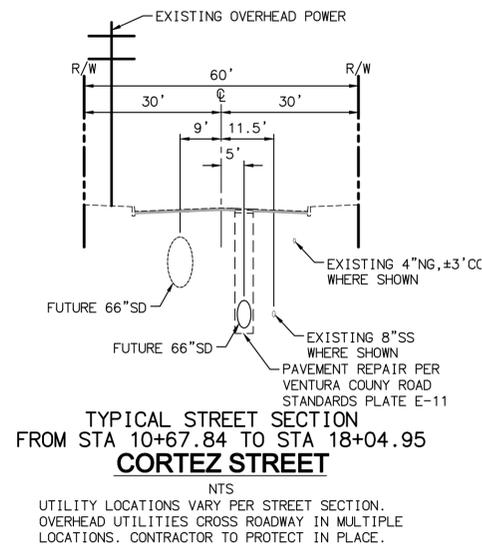


ABBREVIATIONS

AC	ASPHALTIC CONCRETE
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
CB	CATCH BASIN
CD	CURB DRAIN
CF	CURB FACE
C/L OR CL	CENTERLINE
CO	CLEANOUT
CONC	CONCRETE
CP	CONTROL POINT
CRB	CURB
DH	DRILL HOLE
DIA	DIAMETER
DRWY	DRIVEWAY
ELEV	ELEVATION
EX	EXISTING
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FNC	FENCE
G	GAS
GV	GAS VALVE
INV	INVERT OR FLOW LINE OF PIPE
L	LENGTH
L.F.	LINEAR FEET
MAX	MAXIMUM
MB	MAIL BOX
MIN	MINIMUM
PVC	POLYVINYL CHLORIDE
PP	POWER POLE
PPA	POWER POLE ANCHOR
R	RADIUS
R/W	RIGHT OF WAY
S	SEWER
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SHT	SHEET
SMH	SEWER MANHOLE
SP	SIGN POST
SPPWC	STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
SQ	SQUARE
STD	STANDARD
TC	TOP OF CURB
TOT	TOTAL
TR	TREE
TYP	TYPICAL
V	VERTICAL HEIGHT
W	WATER
WM	WATER METER
WV	WATER VALVE

CONSTRUCTION NOTES	UNIT	ESTIMATED QUANTITY
1 CONSTRUCT 18" RCP. PIPE INSTALLATION, TRENCHING AND PAVEMENT REPAIR PER COUNTY OF VENTURA ROAD STANDARD PLATE E-11	LF	83
2 CONSTRUCT 36" RCP PIPE INSTALLATION, TRENCHING AND PAVEMENT REPAIR PER COUNTY OF VENTURA ROAD STANDARD PLATE E-11	LF	1,151
3 CONSTRUCT CONCRETE COLLAR PER SPPWC STD PLN 380-4	EA	3
4 CONSTRUCT MANHOLE PER SWPPC STD PLN 320-2	EA	4
5 CONSTRUCT RCB TO RCB TRANSITION PER SWPPC STD PLN 341-2 AND DETAIL ON SHEET 6	LF	45
6 CONSTRUCT 6'X13' RCB PER DETAIL ON SHEET 6	LF	33
7 CONSTRUCT RCB TO RCP TRANSITION PER SWPPC STD PLN 342-2 AND DETAIL ON SHEET 6	LF	70
8 CONSTRUCT 14' LONG GRATING CATCH BASIN-ALLEY SPPWC STD PLN 304-3. INSTALL 3 BICYCLE SAFE GRATES TO MATCH EXISTING	EA	2
10 CONSTRUCT 3250 PSI, 6" THICK CONCRETE DEPRESSION	SF	726
11 INSTALL SITE SAVER (OR APPROVED EQUIVALENT FULL CAPTURE DEVICE) PER DETAILS ON SHEET 15	LS	1
12 INSTALL STORMTRAP INFILTRATION CHAMBER (OR APPROVED EQUIVALENT) PER DETAILS ON SHEETS 16 THROUGH 24 (INCLUDES EARTHWORK)	LS	1
16 CONSTRUCT STORM DRAIN DIVERSION PER DETAIL ON SHEET 8	LS	1
17 CONSTRUCT INVERTED SYPHON, REALIGNMENT PER DETAIL TO BE PROVIDED AT FINAL ENGINEERING	EA	1
18 CONSTRUCT WEIR 3,000 PSI CONCRETE MORTAR WALLS PER DETAIL ON SHEET 8	EA	1
19 CONSTRUCT MANHOLE SHAFT PER SWPPC STD PLN 324-2	EA	1
20 CONSTRUCT 3,000 PSI MORTAR CONCRETE SWALE	SF	85
21 CONSTRUCT STORM DRAIN DIVERSION PER DETAIL ON SHEET 8	EA	1
22 REPLACE IN-KIND 8FT HIGH CHAIN LINK FENCE FROM POLE TO POLE DAMAGED DURING CONSTRUCTION	LS	1
23 REPAIR BASEBALL INFIELD, OUTFIELD, CLAY WARNING TRACK, PITCHER MOUND AND BULLPEN AREA	LS	1
24 CAP, PROTECT, AND REMOVE EXISTING IRRIGATION EQUIPMENT	LS	1
25 REPAIR DAMAGED IRRIGATION SYSTEM AND TURF AT BASEBALL FIELD TO MATCH EXISTING	LS	1
26 REMOVE AND REPLACE IN-KIND CONCRETE	SF	647
27 1" GRIND AND OVERLAY EXISTING AC PAVEMENT	SF	25,652
28 CONSTRUCT 6" CURB AND GUTTER PER SWPPC STD PLN 120 TYPE A2-6	LF	6
29 CONSTRUCT PORTION OF CROSS GUTTER PER SWPPC STD PLN 122-3	SF	854
30 REMOVE AND DISPOSE OF EXISTING CONCRETE	SF	854
31 REMOVE AND REPLACE EXISTING TREE IN KIND	EA	2
32 REPLACE IN-KIND 6' HIGH CHAIN LINK FENCE DAMAGED DURING CONSTRUCTION	LS	1
33 CONSTRUCT SEDIMENT TRAP AND LOW-FLOW NOTCH PER DETAIL ON SHEET 9	EA	1
34 REMOVE AND DISPOSE EXISTING CONCRETE VAULT	EA	2
35 CONSTRUCT UTILITY CROSSING CONCRETE ENCASEMENT WITH REINFORCEMENT, PER DETAIL ON SHEET 9	EA	2
36 INSTALL FLOGARD CATCH BASIN INSERT FILTER (OR APPROVED EQUAL) PER DETAIL ON SHEET 9	EA	8

SHEET INDEX
1"=200'



30% DESIGN
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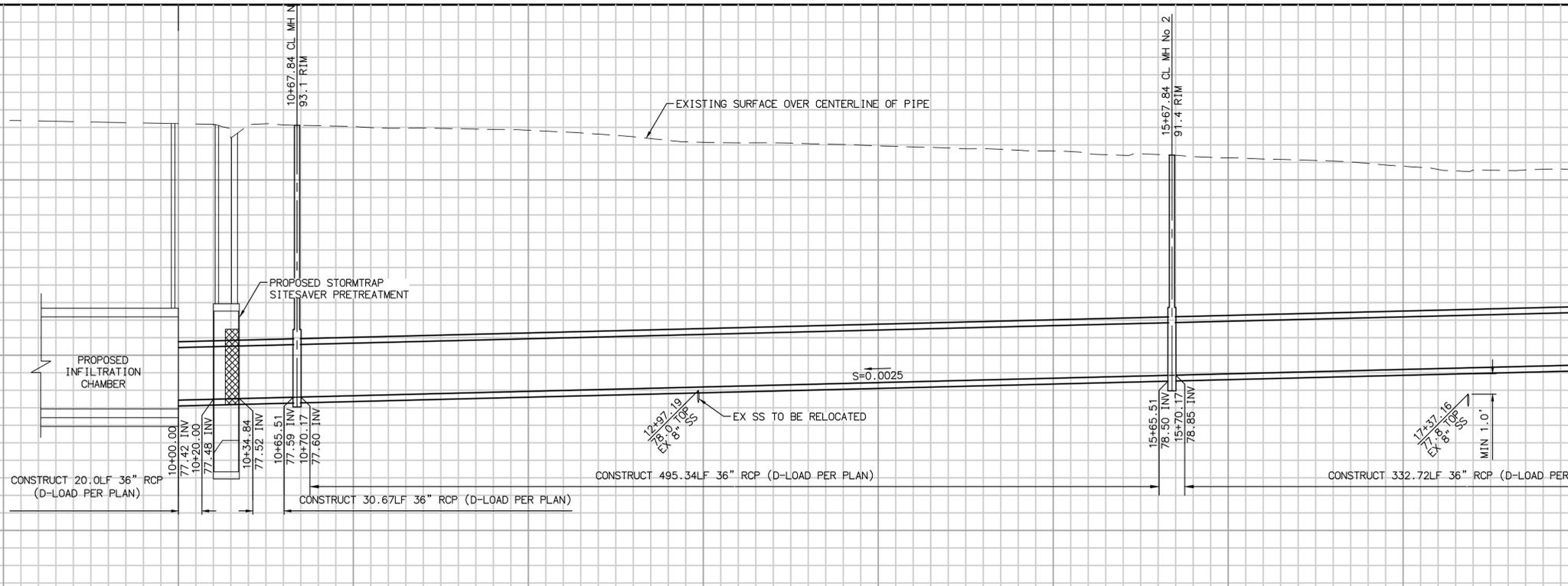
D	REVISION	DESCRIPTION	APP.	DATE	PREPARED BY: CONSULTING 27042 TOWNE CENTRE DRIVE, SUITE 110 Foothill Ranch, CA 92610 949-259-6770	CT	DESIGNED	WATERSHED PROJECT MANAGER	DATE	SPEC. NO. N/A	EL RIO STORMWATER CAPTURE AND GROUNDWATER RECHARGE INDEX AND CONSTRUCTION NOTES	SHEET	2
	C					AR	DRAWN	WATERSHED DEPUTY DIRECTOR	DATE			OF	13
B						RC	CHECKED	WATERSHED DIRECTOR	DATE	N/A		DRAWING NO.	WP-?-???
A	ISSUED FOR FEASIBILITY STUDY				11-29-22								

VENTURA COUNTY
PUBLIC WORKS AGENCY
WATERSHED PROTECTION

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90
80
70

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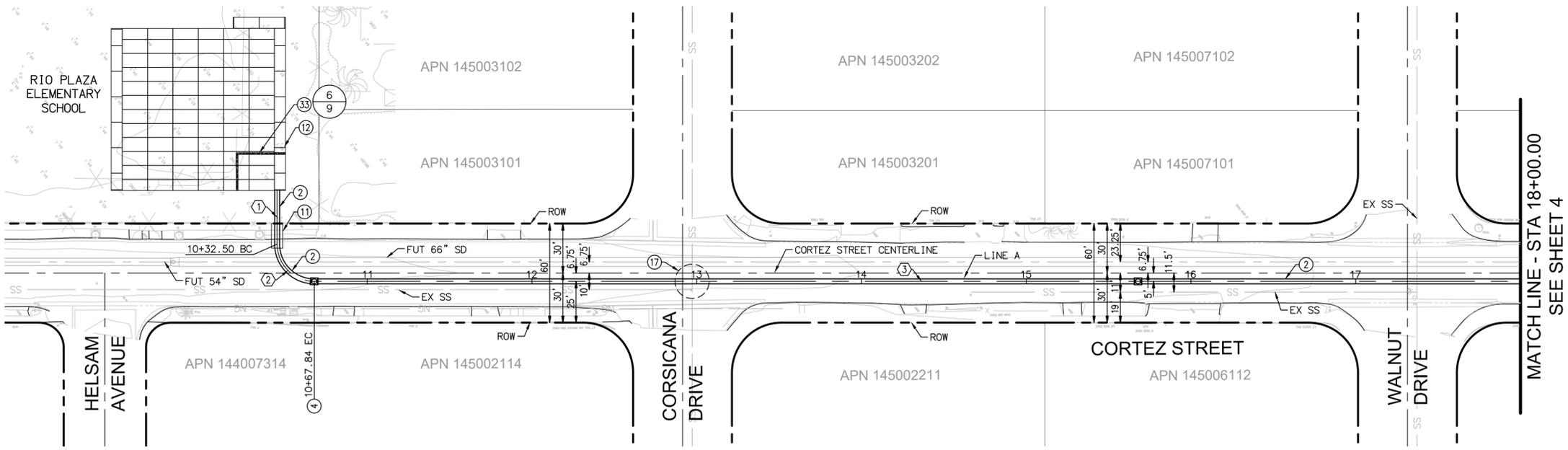


MATCH LINE - STA 18+00.00
SEE SHEET 4

LINE A

PROFILE
HORIZ: 1"=40'
VERT: 1"=4'

10 11 12 13 14 15 16 17 18

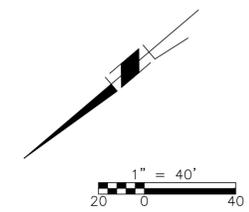


CONSTRUCTION NOTES

- ② CONSTRUCT 36" RCP PIPE INSTALLATION, TRENCHING AND PAVEMENT REPAIR PER COUNTY OF VENTURA ROAD STANDARD PLATE E-11
- ④ CONSTRUCT MANHOLE PER SWPPC STD PLN 320-2
- ⑪ INSTALL SITE SAVER (OR APPROVED EQUIVALENT FULL CAPTURE DEVICE) PER DETAILS ON SHEET 15
- ⑫ INSTALL STORMTRAP INFILTRATION CHAMBER (OR APPROVED EQUIVALENT) PER DETAILS ON SHEETS 16 THROUGH 24 (INCLUDES EARTHWORK)
- ⑰ CONSTRUCT INVERTED SYPHON, REALIGNMENT PER DETAIL TO BE PROVIDED AT FINAL ENGINEERING
- ⑳ CONSTRUCT SEDIMENT TRAP AND LOW-FLOW NOTCH PER DETAIL ON SHEET 8

MATCH LINE - STA 18+00.00
SEE SHEET 4

LINE/CURVE DATA TABLE				
NO	BEARING/DELTA	RADIUS	LENGTH	TANGENT
1	N49°40'55"W	--	32.50'	--
2	90°00'00"	22.50'	35.34'	22.50'
3	N40°19'05"E	--	737.11'	--
TOTAL				



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PLOT DATE: 11/29/22

D				
C				
B				
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PREPARED BY:
Q3 Consulting
 27042 TOWNE CENTRE DRIVE, SUITE 110
 FOOTHILL RANCH, CA 92610
 949-259-6770

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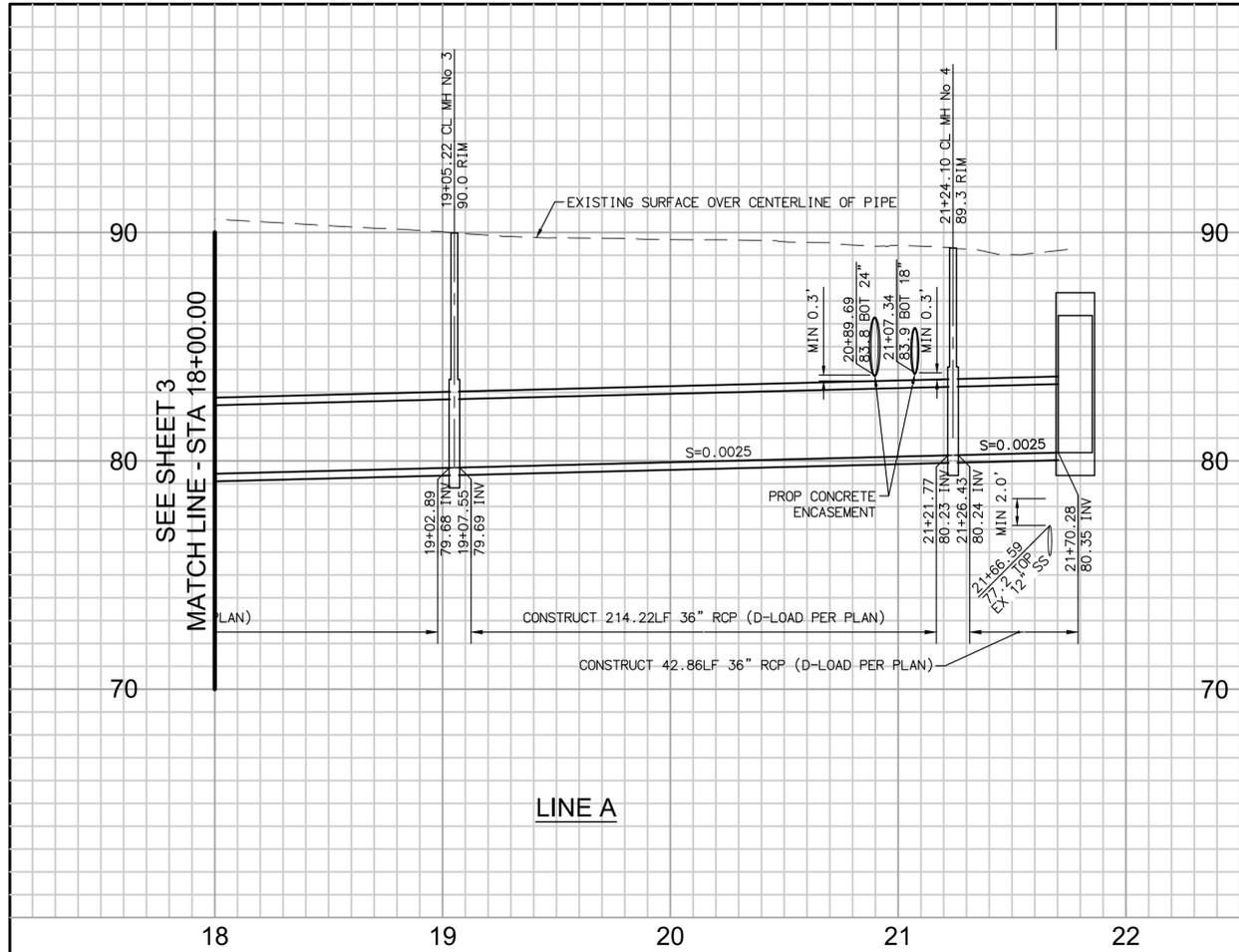
VENTURA COUNTY
PUBLIC WORKS AGENCY
WATERSHED PROTECTION

SPEC. NO.	N/A
PROJ. NO.	N/A

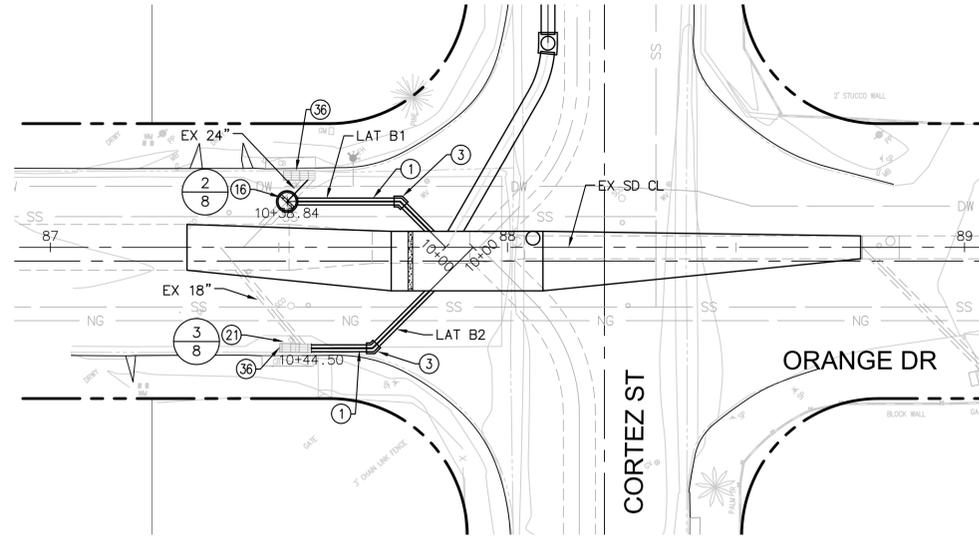
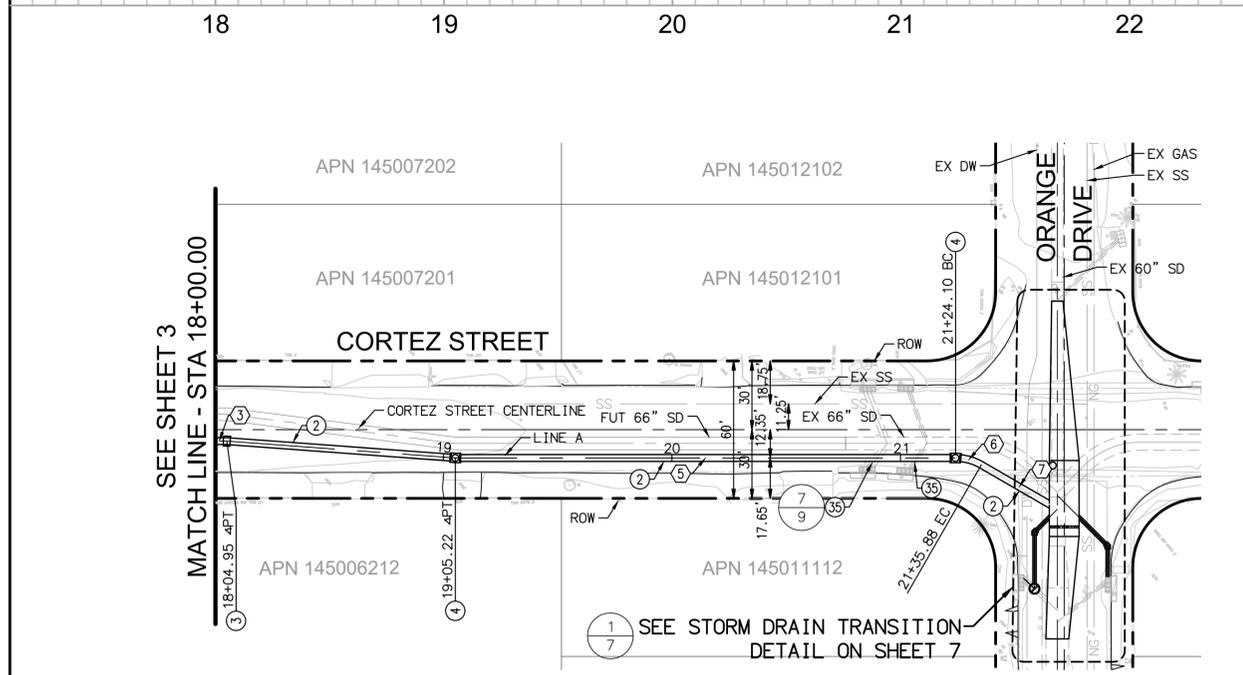
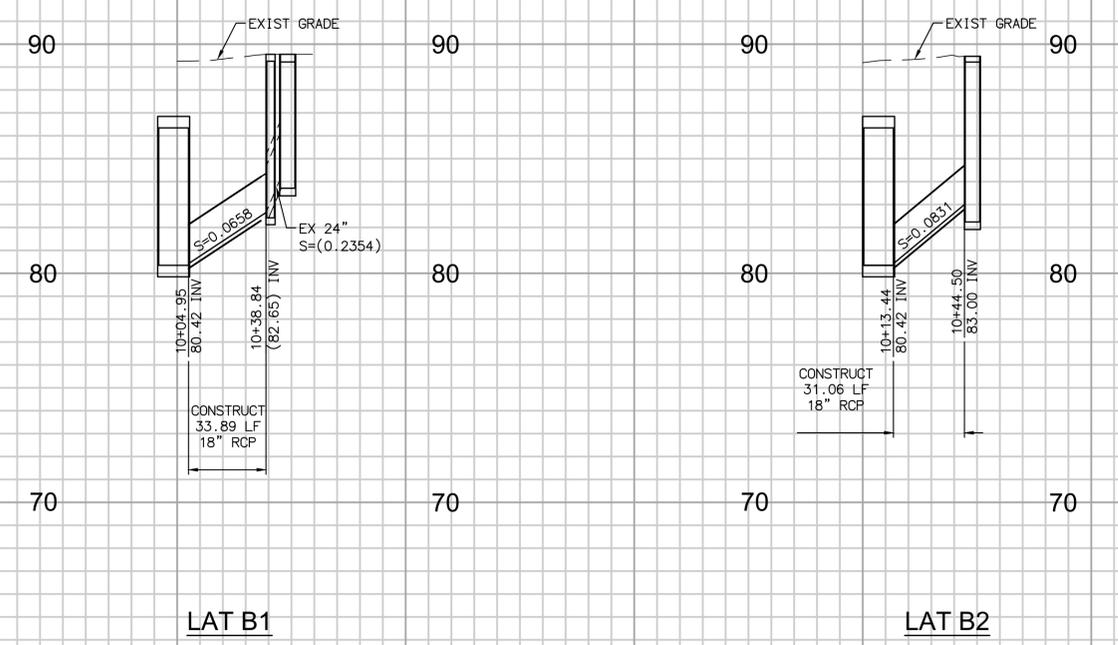
EL RIO STORMWATER CAPTURE AND
GROUNDWATER RECHARGE
 STORM DRAIN PLAN AND PROFILE

SHEET	3
OF	13
DRAWING NO.	WP-?-???

N:\40.085.000\DLV\PLANS\IMP\SD\085-SD-PP.DWG PLOTTED: Nov 29, 2022 - 1:50pm BY: CANDACE TONG



PROFILE
 HORIZ: 1"=40'
 VERT: 1"=4'



CONSTRUCTION NOTES

- ① CONSTRUCT 18" RCP. PIPE INSTALLATION, TRENCHING AND PAVEMENT REPAIR PER COUNTY OF VENTURA ROAD STANDARD PLATE E-11
- ② CONSTRUCT 36" RCP PIPE INSTALLATION, TRENCHING AND PAVEMENT REPAIR PER COUNTY OF VENTURA ROAD STANDARD PLATE E-11
- ③ CONSTRUCT CONCRETE COLLAR PER SPPWC STD PLN 380-4
- ④ CONSTRUCT MANHOLE PER SWPPC STD PLN 320-2
- ⑥ CONSTRUCT STORM DRAIN DIVERSION PER DETAIL ON SHEET 8
- ⑦ CONSTRUCT STORM DRAIN DIVERSION PER DETAIL ON SHEET 8
- ⑮ CONSTRUCT UTILITY CROSSING CONCRETE ENCASUREMENT WITH REINFORCEMENT, PER DETAIL ON SHEET 9
- ⑯ INSTALL FLOGARD CATCH BASIN INSERT FILTER (OR APPROVED EQUAL) PER DETAIL ON SHEET 9

LINE/CURVE DATA TABLE

NO	BEARING/DELTA	RADIUS	LENGTH	TANGENT
3	N40°19'05"E	--	737.11'	--
4	N44°31'18"E	--	100.27'	--
5	N40°19'05"E	--	218.88'	--
6	30°00'00"	22.50'	11.78'	6.03'
7	N70°19'05"E	--	38.45'	--

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B			
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 FOOTHILL RANCH, CA 92610
 949-259-6770

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**VENTURA COUNTY
 PUBLIC WORKS AGENCY
 WATERSHED PROTECTION**

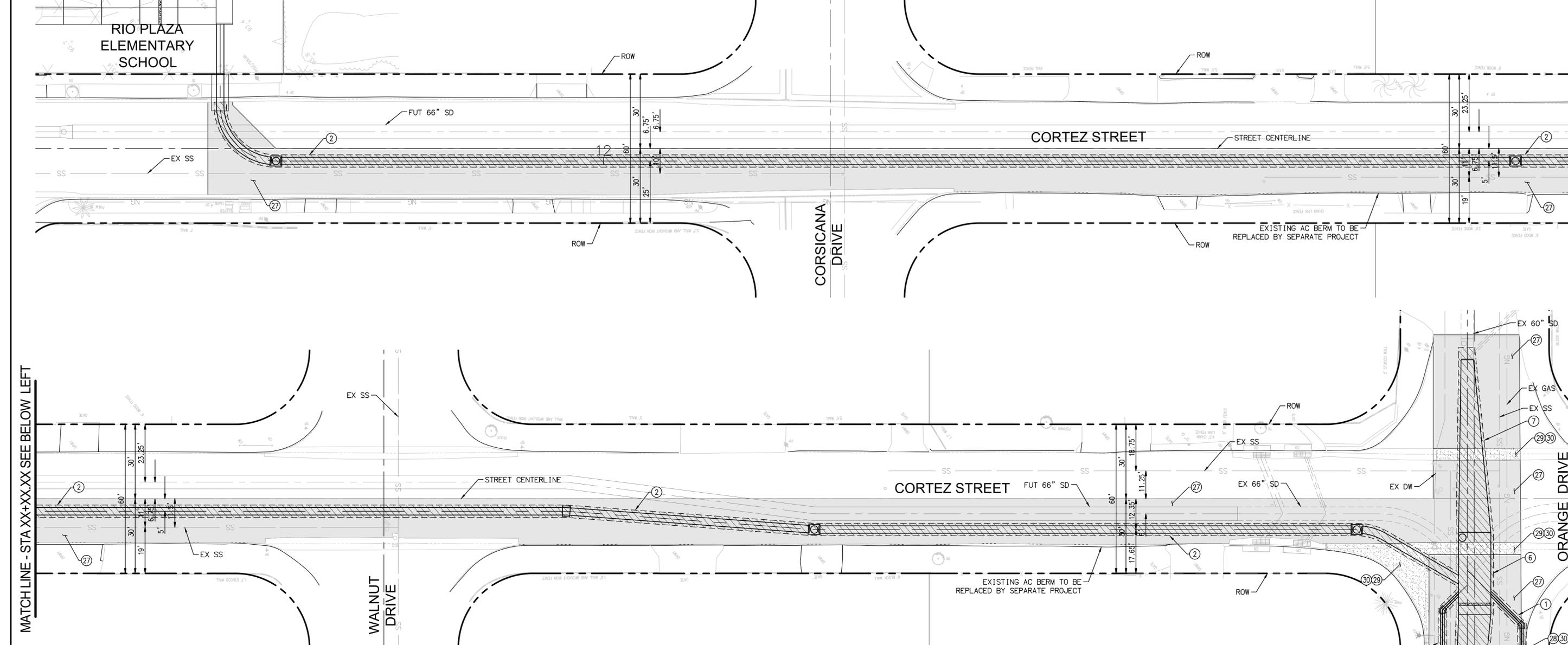
SPEC. NO.	N/A
PROJ. NO.	N/A

**EL RIO STORMWATER CAPTURE AND
 GROUNDWATER RECHARGE**
 STORM DRAIN PLAN AND PROFILE

SHEET	4
OF	13
DRAWING NO.	WP-?-???

PLOT DATE: 11/29/22

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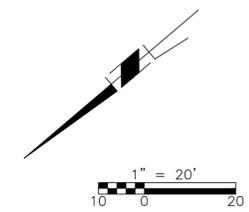


MATCHLINE - STA XX+XX.XX SEE BELOW LEFT

MATCHLINE - STA XX+XX.XX SEE BELOW LEFT

CONSTRUCTION NOTES

- ① CONSTRUCT 18" RCP. PIPE INSTALLATION, TRENCHING AND PAVEMENT REPAIR PER COUNTY OF VENTURA ROAD STANDARD PLATE E-11
- ② CONSTRUCT 36" RCP. PIPE INSTALLATION, TRENCHING AND PAVEMENT REPAIR PER COUNTY OF VENTURA ROAD STANDARD PLATE E-11
- ⑤ CONSTRUCT RCB TO RCB TRANSITION PER SWPPC STD PLN 341-1 AND DETAIL ON SHEET 6
- ⑥ CONSTRUCT 6'X13' RCB PER DETAIL ON SHEET 6
- ⑦ CONSTRUCT RCB TO RCP TRANSITION PER SWPPC STD PLN 341-1 AND DETAIL ON SHEET 6
- ⑭ 1" GRIND AND OVERLAY EXISTING AC PAVEMENT
- ⑳ CONSTRUCT 6" CURB AND GUTTER PER SWPPC STD PLN 210 TYPE A2-6
- ㉑ CONSTRUCT CROSS GUTTER PER SWPPC STD PLN 122-3
- ㉒ REMOVE AND DISPOSE OF CONCRETE



**30% DESIGN
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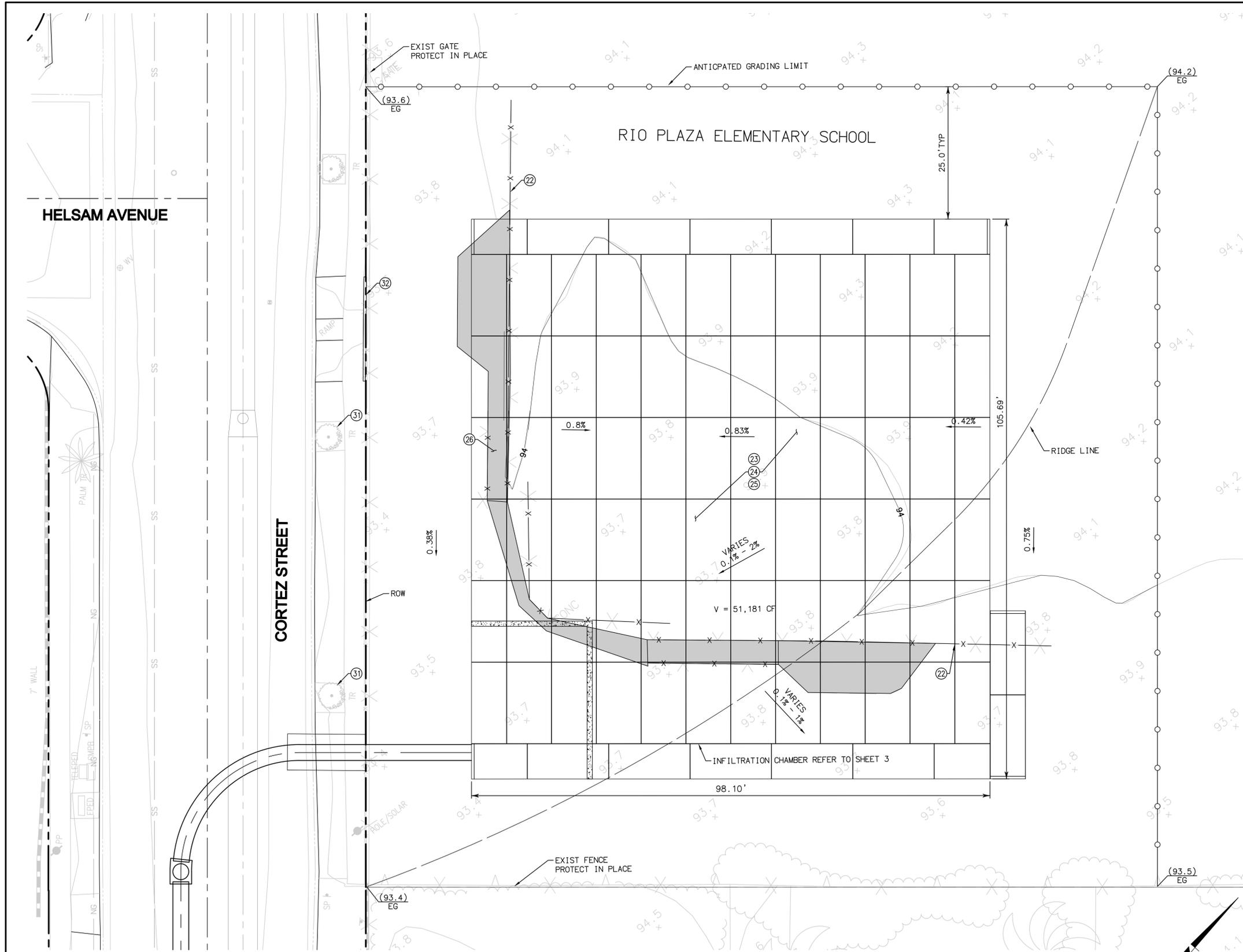
SPEC. NO.	N/A
PROJ. NO.	N/A

**EL RIO STORMWATER CAPTURE AND
GROUNDWATER RECHARGE
STREET IMPROVEMENTS**

SHEET	5
OF	13
DRAWING NO.	WP-?-???

PLOT DATE: 11/29/22

N:\40.085.000\DLV\PLANS\IMP\SD\085-SD-ST.DWG PLOTTED: Nov 29, 2022 - 1:51pm BY: CANDACE TONG



CONSTRUCTION NOTES

- 22 REPLACE IN-KIND 8FT HIGH CHAIN LINK FENCE FROM POLE TO POLE DAMAGED DURING CONSTRUCTION
- 23 REPAIR BASEBALL INFIELD, OUTFIELD, CLAY WARNING TRACK, PITCHER MOUND AND BULLPEN AREA
- 24 CAP, PROTECT, AND REMOVE EXISTING IRRIGATION EQUIPMENT
- 25 REPAIR DAMAGED IRRIGATION SYSTEM AND TURF AT BASEBALL FIELD TO MATCH EXISTING
- 26 REMOVE AND REPLACE IN-KIND CONCRETE
- 31 REMOVE AND REPLACE EXISTING TREE IN KIND
- 32 REPLACE IN-KIND 6' HIGH CHAIN LINK FENCE DAMAGED DURING CONSTRUCTION

**30% DESIGN
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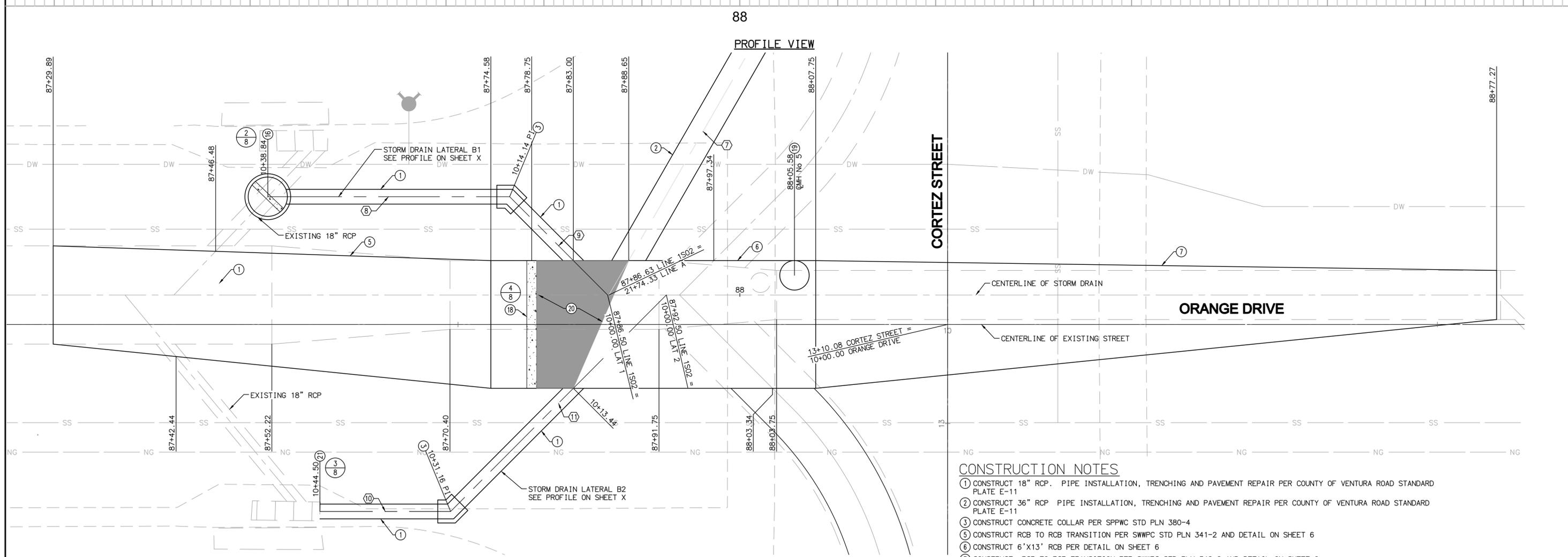
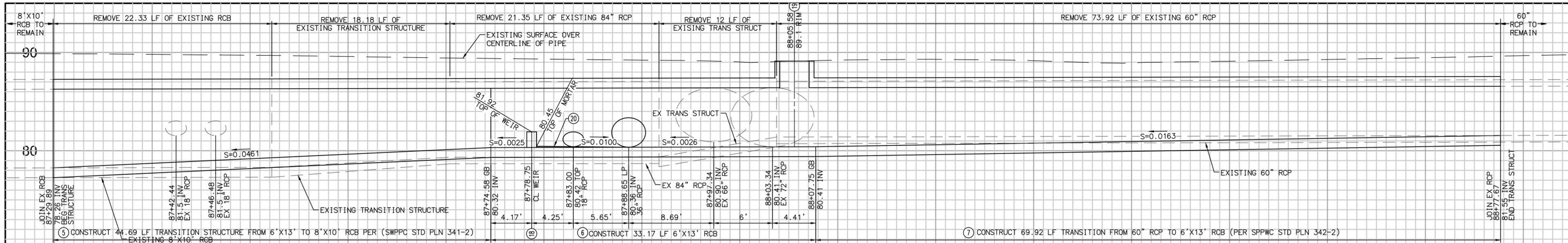
SPEC. NO.	N/A
PROJ. NO.	N/A

**EL RIO STORMWATER CAPTURE AND
GROUNDWATER RECHARGE**
ROUGH GRADING

SHEET	6
OF	13
DRAWING NO.	WP-?-???

PLOT DATE: 11/29/22

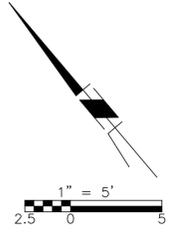
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PLAN VIEW
STORM DRAIN TRANSITION STRUCTURE DETAIL
 1"=5'

- CONSTRUCTION NOTES**
- ① CONSTRUCT 18" RCP. PIPE INSTALLATION, TRENCHING AND PAVEMENT REPAIR PER COUNTY OF VENTURA ROAD STANDARD PLATE E-11
 - ② CONSTRUCT 36" RCP PIPE INSTALLATION, TRENCHING AND PAVEMENT REPAIR PER COUNTY OF VENTURA ROAD STANDARD PLATE E-11
 - ③ CONSTRUCT CONCRETE COLLAR PER SPPWC STD PLN 380-4
 - ⑤ CONSTRUCT RCB TO RCB TRANSITION PER SWMPC STD PLN 341-2 AND DETAIL ON SHEET 6
 - ⑥ CONSTRUCT 6'X13' RCB PER DETAIL ON SHEET 6
 - ⑦ CONSTRUCT RCB TO RCP TRANSITION PER SWMPC STD PLN 342-2 AND DETAIL ON SHEET 6
 - ⑩ CONSTRUCT STORM DRAIN DIVERSION PER DETAIL ON SHEET 8
 - ⑪ CONSTRUCT WEIR 3,000 PSI CONCRETE MORTAR WALLS PER DETAIL ON SHEET 8
 - ⑫ CONSTRUCT MANHOLE SHAFT PER SWMPC STD PLN 324-2
 - ⑬ CONSTRUCT 3,000 PSI MORTAR CONCRETE SWALE
 - ⑭ CONSTRUCT STORM DRAIN DIVERSION PER DETAIL ON SHEET 8

LINE/CURVE DATA TABLE				
NO	BEARING/DELTA	RADIUS	LENGTH	TANGENT
7	N70°19'05"E	--	38.45'	--
8	N49°40'55"W	--	24.70'	--
9	N04°40'55"W	--	14.14'	--
10	N49°40'55"W	--	13.34'	--
11	N85°19'05"E	--	31.16'	--
TOTAL				



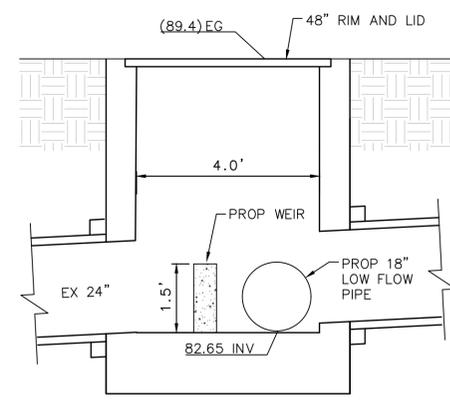
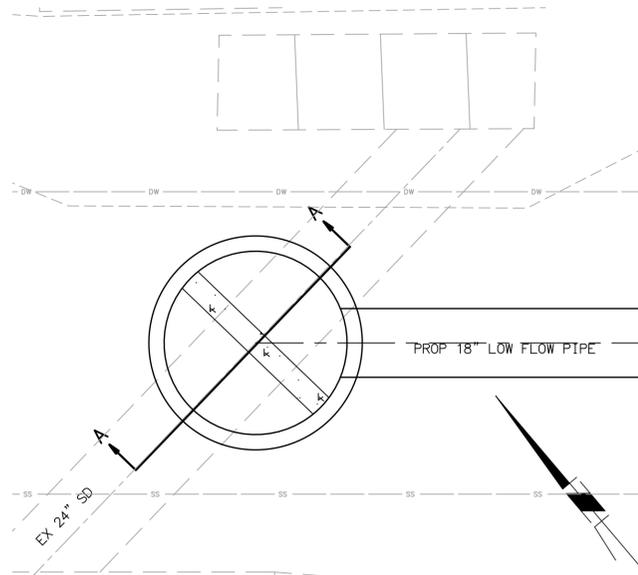
30% DESIGN
NOT FOR CONSTRUCTION



D C B A △	ISSUED FOR FEASIBILITY STUDY 11-29-22	PREPARED BY: Consulting 27042 TOWNE CENTRE DRIVE, SUITE 110 FOOTHILL RANCH, CA 92610 949-259-6770	CT DESIGNED AR DRAWN RC CHECKED	WATERSHED PROJECT MANAGER DATE WATERSHED DEPUTY DIRECTOR DATE WATERSHED DIRECTOR DATE	SPEC. NO. N/A PROJ. NO. N/A	EL RIO STORMWATER CAPTURE AND GROUNDWATER RECHARGE TRANSITION STRUCTURE DETAIL	SHEET 7 OF 13 DRAWING NO. WP--??-??
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PLOT DATE: 11/29/22

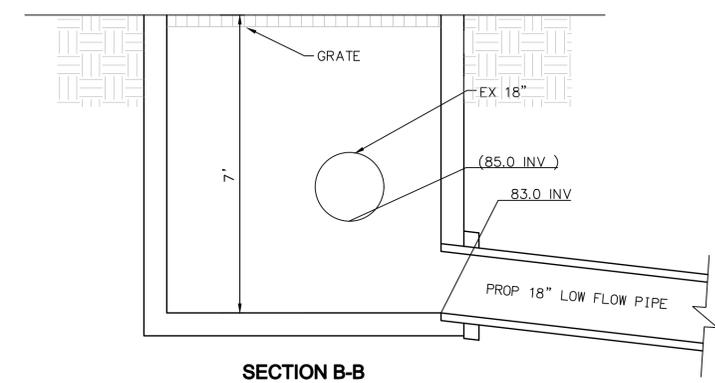
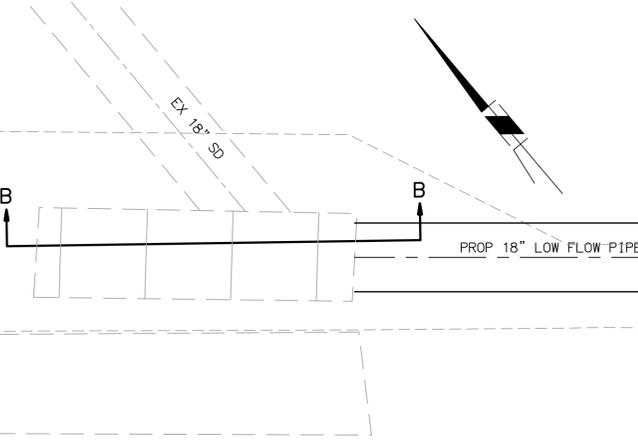
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SECTION A-A

NOTE:
INVERT ELEVATIONS TO BE FIELD VERIFIED

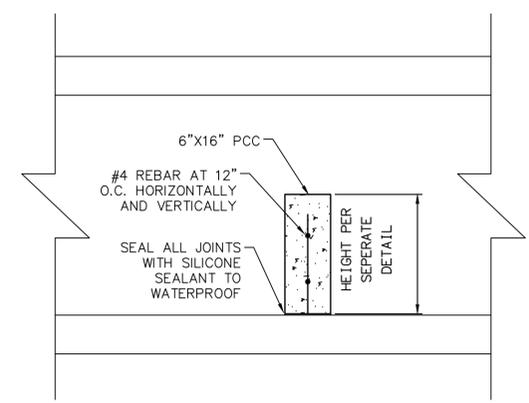
2
8 **STORM DRAIN DIVERSION DETAIL**
N.T.S.



SECTION B-B

NOTE:
INVERT ELEVATIONS TO BE FIELD VERIFIED

3
8 **STORM DRAIN DIVERSION DETAIL**
N.T.S.



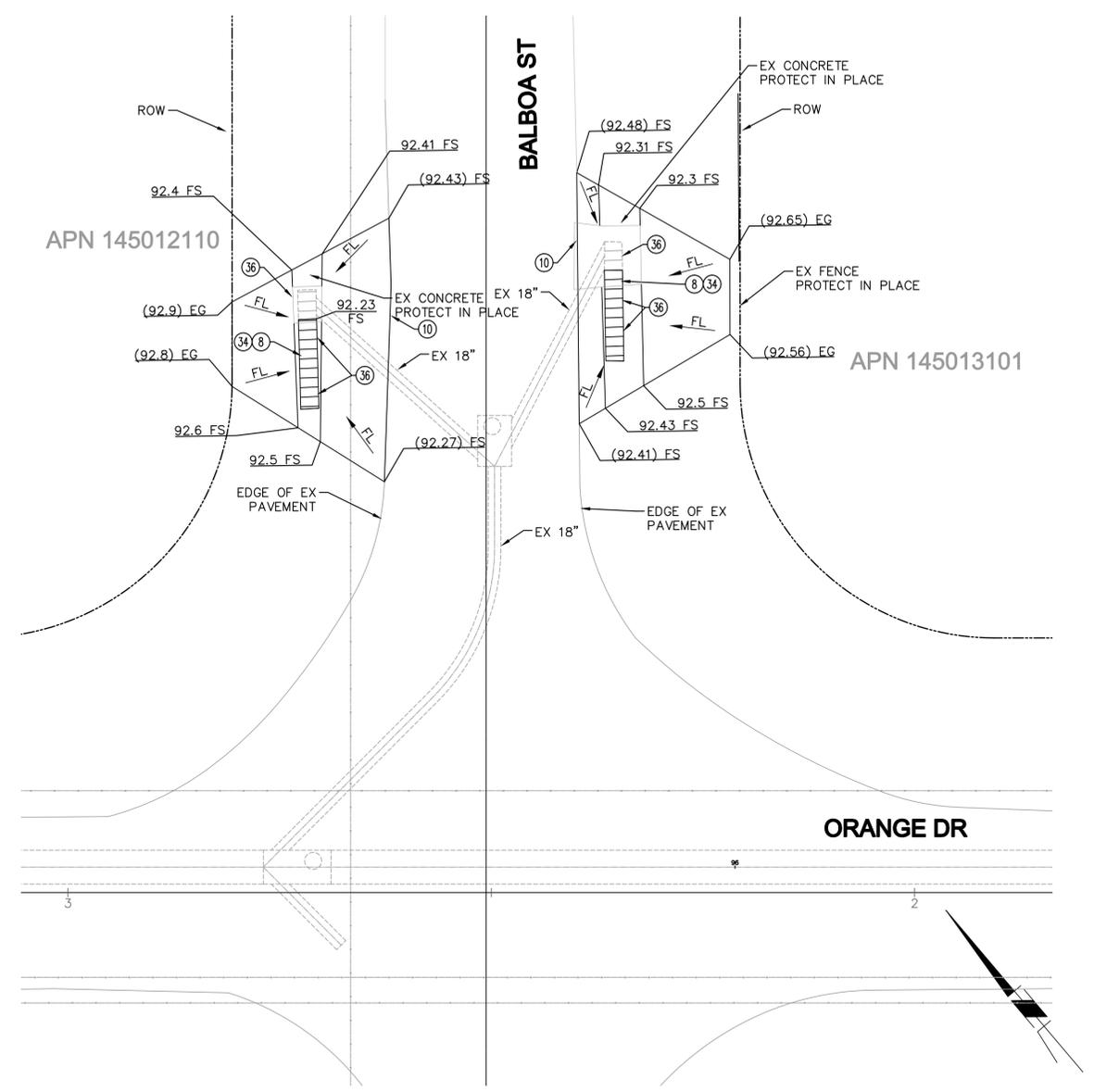
WEIR DETAIL

N.T.S.

4
8

CONSTRUCTION NOTES

- (8) CONSTRUCT 14' LONG GRATING CATCH BASIN-ALLEY SPPWC STD PLN 304-3. INSTALL 3 BICYCLE SAFE GRATES TO MATCH EXISTING
- (10) CONSTRUCT 3250 PSI, 6" THICK CONCRETE DEPRESSION
- (34) REMOVED AND DISPOSE EXISTING CONCRETE VAULT
- (36) INSTALL FLOGARD CATCH BASIN INSERT FILTER (OR APPROVED EQUAL) PER DETAIL ON SHEET 9



5
8 **INLET IMPROVEMENT DETAIL**
SCALE: 1"=10'

30% DESIGN
NOT FOR CONSTRUCTION



REVISION	DESCRIPTION	APP.	DATE
A	ISSUED FOR FEASIBILITY STUDY		11-29-22

PREPARED BY:
Q3 Consulting
 27042 TOWNE CENTRE DRIVE, SUITE 110
 FOOTHILL RANCH, CA 92610
 949-259-6770

DESIGNED	DATE	WATERSHED PROJECT MANAGER	DATE
CT			
DRAWN	DATE	WATERSHED DEPUTY DIRECTOR	DATE
AR			
CHECKED	DATE	WATERSHED DIRECTOR	DATE
RC			

VENTURA COUNTY
PUBLIC WORKS AGENCY
WATERSHED PROTECTION

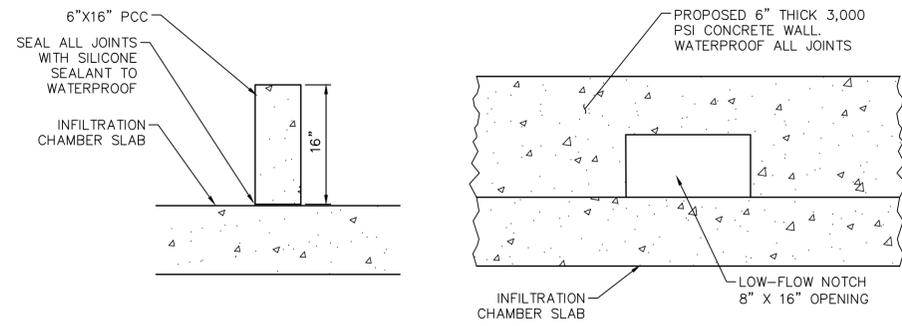
SPEC. NO.	N/A
PROJ. NO.	N/A

EL RIO STORMWATER CAPTURE AND
GROUNDWATER RECHARGE
 DETAILS

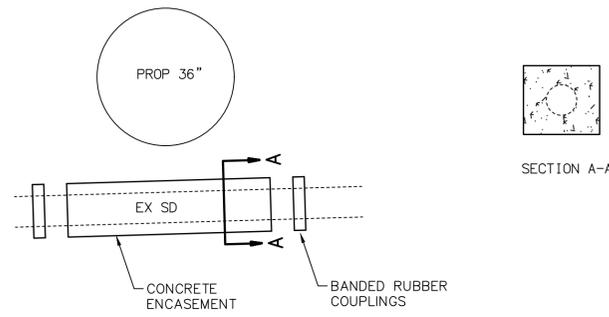
SHEET	8
OF	13
DRAWING NO.	WP-?-???

PLOT DATE: 11/29/22

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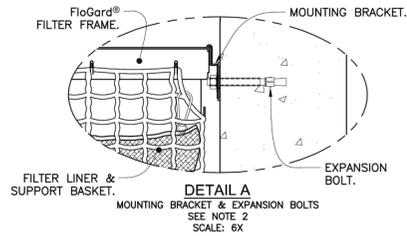


6
9 **SEDIMENT WALL DETAIL**
N.T.S.



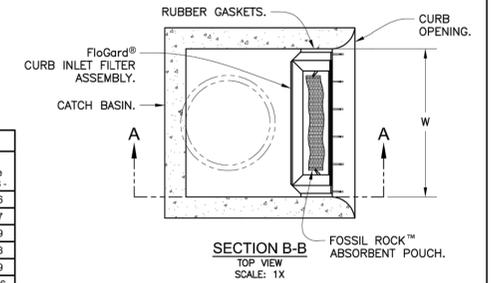
7
9 **CONCRETE ENCASEMENT**
N.T.S.

FGP-0002



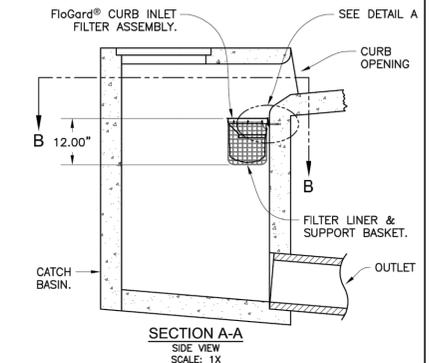
SPECIFIER CHART

MODEL NO.	Curb Opening Width - W -	Storage Capacity Cu. Ft.	Filtered Flow Rate - GPM/CFS -	Bypass Flow Rate - GPM/CFS -
FGP-24CI	2.0' (24")	.95	338 / 7.5	2,513 / 5.6
FGP-30CI	2.5' (30")	1.20	450 / 1.00	3,008 / 6.7
FGP-36CI	3.0' (36")	1.50	563 / 1.25	3,547 / 7.9
FGP-42CI	3.5' (42")	1.80	675 / 1.50	3,951 / 8.8
FGP-48CI	4.0' (48")	2.10	768 / 1.76	4,445 / 9.9
FGP-5.0CI	5.0' (60")	2.40	900 / 2.00	5,208 / 11.6
FGP-6.0CI	6.0' (72")	3.05	1,126 / 2.51	6,196 / 13.8
FGP-7.0CI	7.0' (84")	3.65	1,350 / 3.01	7,139 / 15.9
FGP-8.0CI	8.0' (96")	4.25	1,576 / 3.51	8,082 / 18.0
FGP-10.0CI	10.0' (120")	4.85	1,800 / 4.01	9,833 / 21.9
FGP-12.0CI	12.0' (144")	6.10	2,252 / 5.02	11,764 / 26.2
FGP-14.0CI	14.0' (168")	7.30	2,700 / 6.02	13,515 / 30.1
FGP-16.0CI	16.0' (192")	8.55	3,152 / 7.02	15,446 / 34.4
FGP-18.0CI	18.0' (216")	9.45	3,490 / 7.78	17,152 / 38.2
FGP-21.0CI	21.0' (252")	10.95	4,050 / 9.02	19,891 / 44.3
FGP-26.0CI	26.0' (336")	14.60	5,400 / 12.03	26,311 / 58.6



NOTES:

- Filter insert shall have a high flow bypass feature.
- Filter support frame shall be constructed from stainless steel Type 304.
- Filter medium shall be Fossil Rock™ installed and maintained in accordance with manufacturer specifications.
- Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.



FloGard®
Catch Basin Insert Filter
Curb Inlet Style



Oldcastle®
Stormwater Solutions
7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com
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DRAWING NO. FGP-0002
REV. E
ECO-0127
JPR 5/18/15
DATE JPR 1/3/06
SHEET 1 OF 1

8
9 **CATCH BASIN INSERT FILTER**
N.T.S.

PLOT DATE: 11/29/22

REVISION	DESCRIPTION	APP.	DATE
A	ISSUED FOR FEASIBILITY STUDY		11-29-22

PREPARED BY:
Q3 Consulting
27042 TOWN CENTRE DRIVE, SUITE 110
FOOTHILL RANCH, CA 92610
949-259-6770

DESIGNED	CT	WATERSHED PROJECT MANAGER	DATE
DRAWN	AR	WATERSHED DEPUTY DIRECTOR	DATE
CHECKED	RC	WATERSHED DIRECTOR	DATE

**VENTURA COUNTY
PUBLIC WORKS AGENCY
WATERSHED PROTECTION**

SPEC. NO.	N/A
PROJ. NO.	N/A

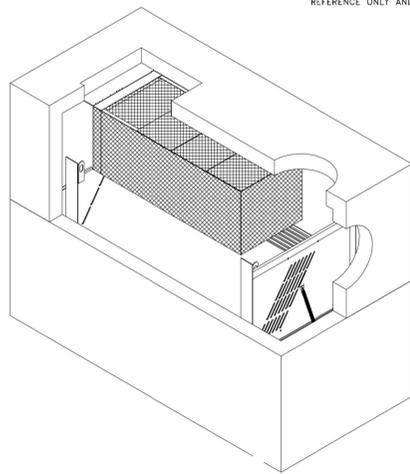
**EL RIO STORMWATER CAPTURE AND
GROUNDWATER RECHARGE**
DETAILS



SHEET	9
OF	13
DRAWING NO.	WP-??-???

N:\40,085,000\DLV\PLANS\MP\SD\085-SD-DETAILS.DWG PLOTTED: Nov 29, 2022 - 1:51pm BY: CANDACE TONG

THE SITESAVER DRAWINGS SHALL NOT BE ALTERED OR MANIPULATED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF STORMTRAP. USE OF THESE DRAWINGS IS STRICTLY GRANTED TO YOU, OUR CLIENT, FOR THE SPECIFIED AND NAMED PROJECT ONLY. THESE DRAWINGS ARE FOR YOUR REFERENCE ONLY AND SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.



El Rio Community
El Rio, CA

SHEET INDEX	
PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	SITESAVER DESIGN CRITERIA
2.0	SITESAVER SYSTEM LAYOUT

STORMTRAP CONTACT INFORMATION
STORMTRAP SUPPLIER: STORMTRAP
CONTACT NAME: John Shallahamer
CELL PHONE: 415-405-6355
SALES EMAIL: jshallahamer@stormtrap.com

StormTrap®
PARTS LISTED AT: <http://stormtrap.com/parts>
1287 WINDHAM PARKWAY
ROMEDEVILLE, IL 60446
P815-941-4549 / F.331-318-5347

ENGINEER INFORMATION:
Q3 Consulting
27042 Towne Center Drive
#110
Foothill Ranch, CA 92610

PROJECT INFORMATION:
El Rio Community
El Rio, CA

CURRENT ISSUE DATE:
8/22/22

ISSUED FOR:
Standard Drawings

REV.	DATE	ISSUED FOR:	DWN BY:

SCALE:
NTS

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
0.0

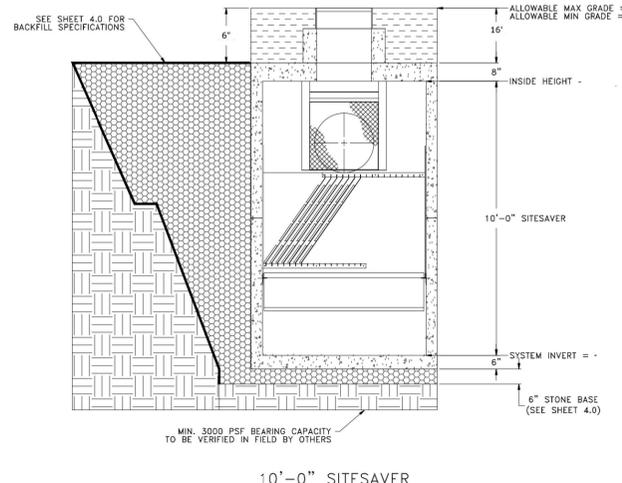
SITESAVER STSS-7
FIXED BASKET OPTION

STRUCTURAL DESIGN LOADING CRITERIA
LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE: BELOW THE SYSTEM INVERT
SOIL BEARING PRESSURE: 9000PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857 ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

SITESAVER SYSTEM INFORMATION
WATER QUALITY FLOW RATE: 7.00 CFS
PEAK FLOW RATE: 39.80 CFS
SEDIMENT STORAGE: - CuFt
TRASH/DEBRIS STORAGE: - CuFt
EFFECTIVE SETTLING AREA: - SqFt

System must be sized for 100% removal of a 125µ particle at the Water Quality Flow Rate.
Fixed XL Basket must be sized to capture all particles 5mm or greater.

- SITE SPECIFIC DESIGN CRITERIA**
- SITESAVER UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
 - COVER RANGE: MIN. 6" MAX. 16" CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
 - ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO SITESAVER INSTALLATION.
 - FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW THE SYSTEM INVERT IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
 - CONTRACTOR TO ENSURE FRAMES AND COVER CLEARS THE OPENING DIMENSIONS AND MEETS ALL LOAD RATINGS.
 - SYSTEM DESIGN INTENT IS TO CONTAIN WATER AND / OR PREVENT GROUNDWATER MIGRATION INTO THE SYSTEM AND WILL NOT BE SUBJECT TO LEAKAGE TESTING. SOLUTION TO BE INSTALLED BY CONTRACTOR IN ACCORDANCE WITH THIRD PARTY WATER-PROOFING SUPPLIER'S PRODUCT SPECIFICATIONS.



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PARTS LISTED AT: <http://stormtrap.com/parts>
1287 WINDHAM PARKWAY
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P815-941-4549 / F.331-318-5347

ENGINEER INFORMATION:
Q3 Consulting
27042 Towne Center Drive
#110
Foothill Ranch, CA 92610

PROJECT INFORMATION:
El Rio Community
El Rio, CA

CURRENT ISSUE DATE:
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Standard Drawings

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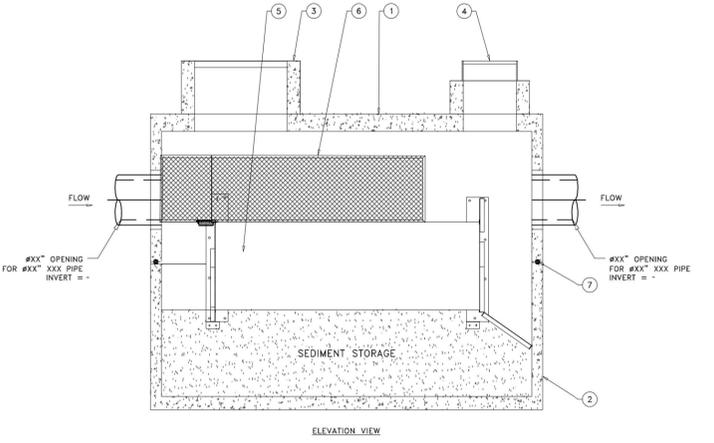
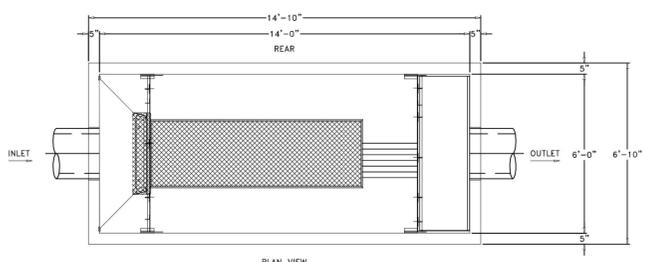
SCALE:
NTS

SHEET TITLE:
SITESAVER DESIGN CRITERIA

SHEET NUMBER:
1.0

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	WEIGHT (LBS)
1	1	SITESAVER TOP MODULE	21,618
2	1	SITESAVER BASE MODULE	20,623
3	1	42" X 42" HATCH & RISER (SUPPLIED BY OTHERS)	N/A
4	1	#24" MANHOLE FRAME, COVER & RISER (SUPPLIED BY OTHERS)	N/A
5	1	SITESAVER STSS7 INSERT	1,700
6	1	FIXED TRASH BASKET	400
7	3	WATERSTOP ROLLS	N/A
8	1	INSTALLATION HARDWARE KIT	N/A



LOADING DISCLAIMER:
SITESAVER IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF SITESAVER, PLEASE CONTACT STORMTRAP IMMEDIATELY.

TREE LOADING DISCLAIMER:
THE SITESAVER SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT THE ADDITIONAL WEIGHT OF ANY TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGES TO THE SITESAVER SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACED AROUND OR ON TOP OF THE SYSTEM.

BUILDING PROXIMITY LOADING DISCLAIMER:
THESE DRAWINGS ARE NOT TO BE USED FOR BIDDING OR CONSTRUCTION PURPOSES. THIS DESIGN ASSUMES THAT NO VERTICAL LOADS, SURCHARGE LOADS, OR DIRECT LATERAL LOADS ARE EXERTED ON THE SITESAVER SYSTEM BY BUILDING SUPERSTRUCTURES OR FOUNDATION ELEMENTS LOCATED IN PROXIMITY TO THE SITESAVER SYSTEM. THESE DRAWINGS ARE GENERIC AND DO NOT ACCOUNT FOR SPECIAL CONSIDERATIONS - BE THEY STRUCTURAL OR OTHERWISE - ASSOCIATED WITH ANY BUILDING STRUCTURE OR COMPONENTS. FURTHERMORE, AT THE TIME THESE DRAWINGS WERE PRODUCED, STORMTRAP DID NOT HAVE ACCESS TO STRUCTURAL OR FOUNDATION PLANS FOR THE PROPOSED BUILDING(S) LOCATED ON-SITE. STORMTRAP REQUESTS THE OPPORTUNITY TO REVIEW SAID PLANS AND RELEVANT DRAWINGS WHEN THEY ARE MADE AVAILABLE. STORMTRAP RESERVES THE RIGHT TO MODIFY THE DESIGN SHOWN HERE TO ADDRESS ANY ISSUES ASSOCIATED WITH THE SYSTEM'S PROXIMITY TO ANY BUILDING STRUCTURE OR FOUNDATION ELEMENTS.

- NOTES:**
- DIMENSIONING OF SITESAVER SYSTEM SHOWN BELOW ALLOW FOR A 1/4" GAP FOR METAL COMPONENTS.
 - ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
 - SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
 - INSTALLING CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.

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SCALE:
NTS

SHEET TITLE:
SITESAVER SYSTEM LAYOUT

SHEET NUMBER:
2.0

5/3 PRETREATMENT DETAILS OR APPROVED EQUIVALENT
NTS

30% DESIGN
NOT FOR CONSTRUCTION



PLOT DATE: 11/29/22

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PREPARED BY:
Q3 Consulting
27042 TOWNE CENTRE DRIVE, SUITE 110
FOOTHILL RANCH, CA 92610
949-259-6770

DESIGNED	DATE	WATERSHED PROJECT MANAGER	DATE
CT			
DRAWN	DATE	WATERSHED DEPUTY DIRECTOR	DATE
AR			
CHECKED	DATE	WATERSHED DIRECTOR	DATE
RC			

**VENTURA COUNTY
PUBLIC WORKS AGENCY
WATERSHED PROTECTION**

SPEC. NO.	N/A
PROJ. NO.	N/A

**EL RIO STORMWATER CAPTURE AND
GROUNDWATER RECHARGE
PRETREATMENT DETAILS**

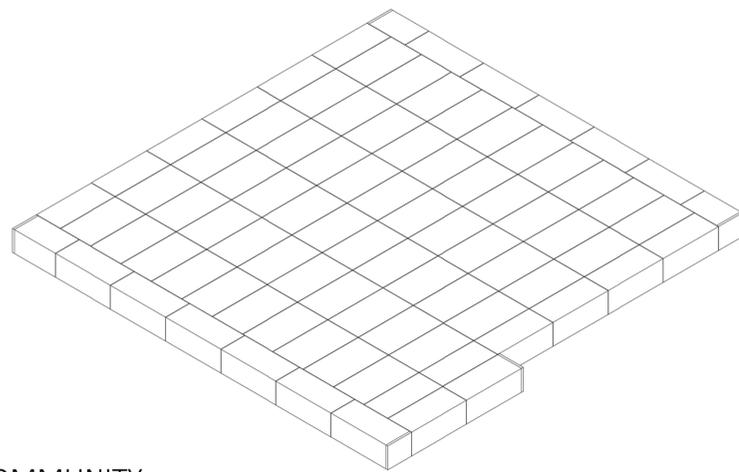
SHEET	10
OF	13
DRAWING NO.	WP-??-???

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MODULAR CONCRETE
STORMWATER MANAGEMENT

THE STORMTRAP DRAWINGS SHALL NOT BE ALTERED OR MANIPULATED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF STORMTRAP. USE OF THESE DRAWINGS IS STRICTLY GRANTED TO YOU, OUR CLIENT, FOR THE SPECIFIED AND NAMED PROJECT ONLY. THESE DRAWINGS ARE FOR YOUR REFERENCE ONLY AND SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.



EL RIO COMMUNITY
EL RIO, CA

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
60	I	5'-3" SINGLETRAP	15055
0	II	5'-3" SINGLETRAP	-
23	III	5'-3" SINGLETRAP	14463
2	IV	5'-3" SINGLETRAP	15417
0	VII	5'-3" SINGLETRAP	-
3	SPV	5'-3" SINGLETRAP	VARIES
0	T2 PANEL	6" THICK PANEL	-
5	T4 PANEL	6" THICK PANEL	2361
0	T7 PANEL	6" THICK PANEL	-
17	JOINTWAP	150' PER ROLL	-
40	JOINTTAPE	14.5" PER ROLL	-
TOTAL PIECES = 88			
TOTAL PANELS = 5			
HEAVIEST PICK WEIGHT = 15,417			

LOADING DISCLAIMER:

STORMTRAP IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY.

TREE LOADING DISCLAIMER:

THE STORMTRAP SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT THE ADDITIONAL WEIGHT OF ANY TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACED AROUND OR ON TOP OF THE SYSTEM.

SEDIMENT/SAND FILTER DISCLAIMER:

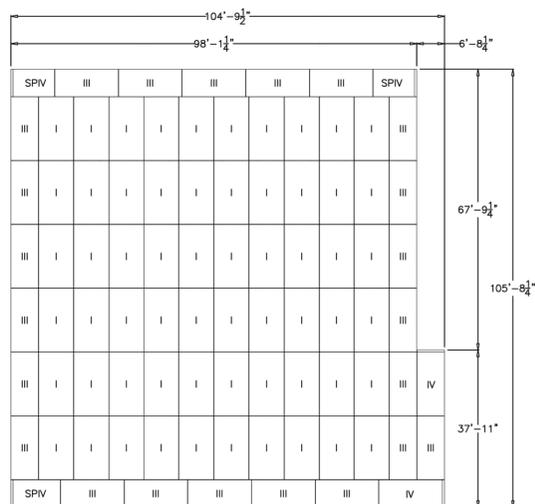
FOR SYSTEMS CONTAINING SEDIMENT AND SAND FILTER MODULES; IF REQUIRED TO BE SEALED TO PREVENT SAND AND/OR PRE-TREATED WATER FROM MIGRATING INTO ADJOINING MODULES, IT IS THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THOSE MODULES ARE SEALED.

DESIGN CRITERIA

ALLOWABLE MAX GRADE = 16.75
ALLOWABLE MIN GRADE = 6.25
INSIDE HEIGHT ELEVATION = 5.25
SYSTEM INVERT = 0.00

NOTES:

- DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
- ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
- SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
- SP - INDICATES A MODULE WITH MODIFICATIONS.
- P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
- CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.



StormTrap
1287 WINDHAM PARWAY
ROMEOVILLE, IL 60446
P815-941-4548 / F.331-318-5347

ENGINEER INFORMATION:
Q3 CONSULTING
27042 TOWNE CENTER DR
#110
FOOTHILL RANCH, CA
949-259-6770

PROJECT INFORMATION:
EL RIO COMMUNITY

EL RIO, CA
CURRENT ISSUE DATE:
11/16/2022

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	11/16/2022	PRELIMINARY	R.J.L.
2	11/3/2022	PRELIMINARY	R.J.L.
1	10/25/22	PRELIMINARY	BS

SCALE:
NTS

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
0.0

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1287 WINDHAM PARWAY
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P815-941-4548 / F.331-318-5347

ENGINEER INFORMATION:
Q3 CONSULTING
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#110
FOOTHILL RANCH, CA
949-259-6770

PROJECT INFORMATION:
EL RIO COMMUNITY

EL RIO, CA
CURRENT ISSUE DATE:
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2	11/3/2022	PRELIMINARY	R.J.L.
1	10/25/22	PRELIMINARY	BS

SCALE:
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SHEET TITLE:
COVER SHEET

SHEET NUMBER:
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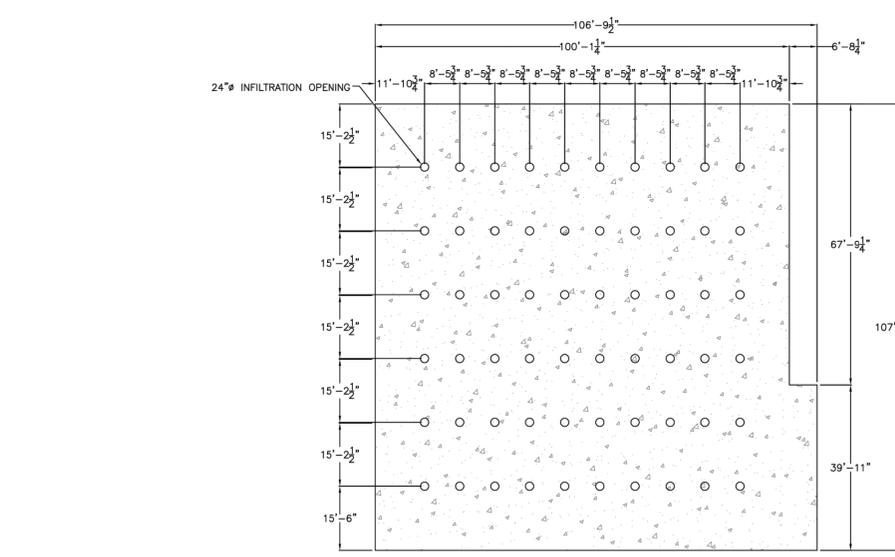
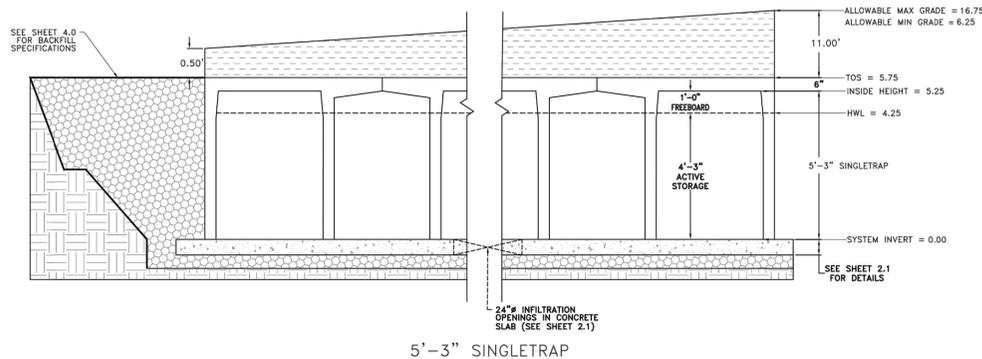
STRUCTURAL DESIGN LOADING CRITERIA

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE: N/A
APPLICABLE CODES: ASTM C857 ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

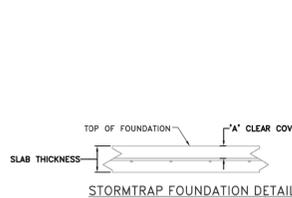
STORMTRAP SYSTEM INFORMATION

TOTAL WATER STORAGE PROV: 51,181.37 CUBIC FEET
WATER STORAGE PROV: 41,432.53 CUBIC FEET
ELEV 0.00 - 4.25
INFILTRATION AREA PROV: 11,005 SQUARE FEET
UNIT HEADROOM: 5'-3" SINGLETRAP

- SITE SPECIFIC DESIGN CRITERIA**
- STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
 - COVER RANGE: MIN. 0.50' MAX. 11.00' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
 - ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
 - FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
 - SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



- CONCRETE FOUNDATION NOTES:**
- CONCRETE FOUNDATION TO BE SUPPLIED AND INSTALLED BY OTHERS.
 - CONCRETE STRENGTH @ 28 DAYS, 5K-8K ENTRAINED AIR, 4" MAX SLUMP.
 - NET ALLOWABLE SOIL PRESSURE AS INDICATED ON SHEET 1.0.
 - SOIL CONDITIONS TO BE VERIFIED ON SITE BY OTHERS.
 - REBAR: ASTM A615, GRADE 60, BLACK BAR.
 - DIMENSION OF FOUNDATION MUST HAVE 1"-0" OVERHANG BEYOND EXTERNAL FACE OF MODULE.
 - DIMENSION OF STORMTRAP SYSTEM ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
 - ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
 - SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.



MAXIMUM SYSTEM COVER	SLAB THICKNESS	CONCRETE STRENGTH	REINFORCEMENT (BOTH DIRECTIONS)	'A' CLEAR COVER
1'-0"	8"	4000 PSI	#4 @ 18" O.C.	3.5"
1'-1"	2'-0"	4000 PSI	#4 @ 18" O.C.	3.5"
2'-1"	3'-0"	4000 PSI	#4 @ 12" O.C.	3.5"
3'-1"	4'-0"	4000 PSI	#4 @ 12" O.C.	3.5"
4'-1"	5'-0"	4000 PSI	#5 @ 18" O.C.	3.375"
5'-1"	6'-0"	4000 PSI	#5 @ 18" O.C.	3.375"
6'-1"	7'-0"	4000 PSI	#5 @ 12" O.C.	3.375"
7'-1"	8'-0"	4000 PSI	#5 @ 12" O.C.	3.875"
8'-1"	9'-0"	4000 PSI	#5 @ 12" O.C.	3.875"
9'-1"	10'-0"	4000 PSI	#5 @ 12" O.C.	3.875"
10'-1"	11'-0"	4500 psi	#5 @ 16" O.C.	4.875"

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6 9 INFILTRATION CHAMBER DETAIL OR APPROVED EQUIVALENT

NTS

30% DESIGN
NOT FOR CONSTRUCTION



D				PREPARED BY:	CT	DESIGNED	WATERSHED PROJECT MANAGER	DATE
C					AR	DRAWN	WATERSHED DEPUTY DIRECTOR	DATE
B					RC	CHECKED	WATERSHED DIRECTOR	DATE
A				ISSUED FOR FEASIBILITY STUDY	11-29-22			
△				REVISION	DESCRIPTION	APP.	DATE	

Q3 Consulting
27042 TOWNE CENTRE DRIVE, SUITE 110
FOOTHILL RANCH, CA 92610
949-259-6770

VENTURA COUNTY
PUBLIC WORKS AGENCY
WATERSHED PROTECTION

SPEC. NO.	N/A
PROJ. NO.	N/A

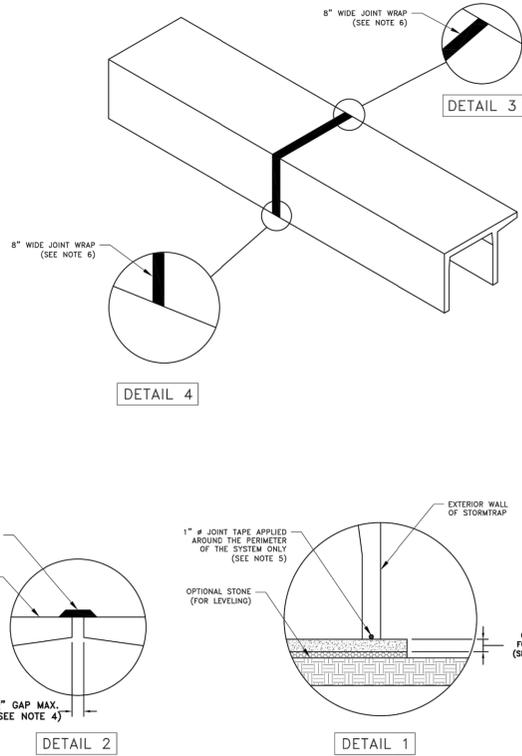
EL RIO STORMWATER CAPTURE AND
GROUNDWATER RECHARGE
INFILTRATION CHAMBER DETAILS 1

SHEET	11
OF	13
DRAWING NO.	WP-?-???

PLOT DATE: 11/29/22

N:\40.085.000\DLV\PLANS\IMP\SD_085-SD-STORMTRAP.DWG PLOTTED: Nov 29, 2022 - 1:51pm BY: CANDACE TONG

- STORMTRAP INSTALLATION SPECIFICATIONS**
- STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891, STANDARD FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES. THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS SHALL APPLY.
 - IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.
 - STORMTRAP MODULES SHALL BE PLACED ON A LEVEL CONCRETE FOUNDATION (SEE SHEET 2.1) WITH A 1'-0" OVERHANG ON ALL SIDES THAT SHALL BE POURED IN PLACE BY INSTALLING CONTRACTOR. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO PROVIDE ASSISTANCE IN EVALUATING THE EXISTING SOIL CONDITIONS TO ENSURE THAT THE SOIL BEARING PRESSURE MEETS OR EXCEEDS THE STRUCTURAL DESIGN LOADING CRITERIA AS SPECIFIED ON SHEET 1.0.
 - THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED 3" (SEE DETAIL 2). IF THE SPACE EXCEEDS 3", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.
 - THE PERIMETER HORIZONTAL JOINT BETWEEN THE STORMTRAP MODULES AND THE CONCRETE FOUNDATION SHALL BE SEALED TO THE FOUNDATION WITH PRE-FORMED MASTIC JOINT SEALER ACCORDING TO ASTM C891, 8.8 AND 8.12 (SEE DETAIL 1). THE MASTIC JOINT TAPE DOES NOT PROVIDE A WATERTIGHT SEAL.
 - ALL EXTERIOR ROOF AND EXTERIOR VERTICAL WALL JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE, PRE-FORMED, COLD-APPLIED SELF-ADHESIVE ELASTOMERIC RESIN, BONDED TO A MOVING, HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 2, 3, & 4). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
 - USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE JOINT WRAP IS TO BE APPLIED.
 - A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.
 - IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.
 - IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.
 - STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.



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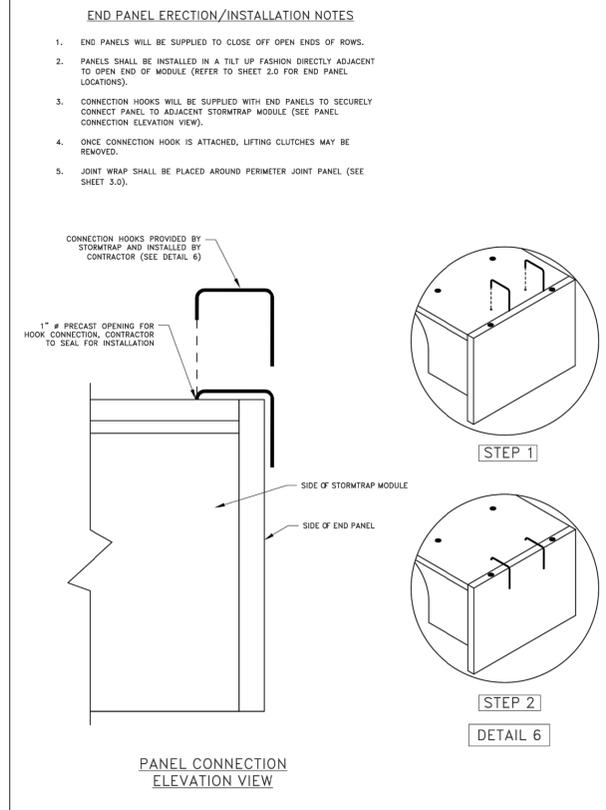
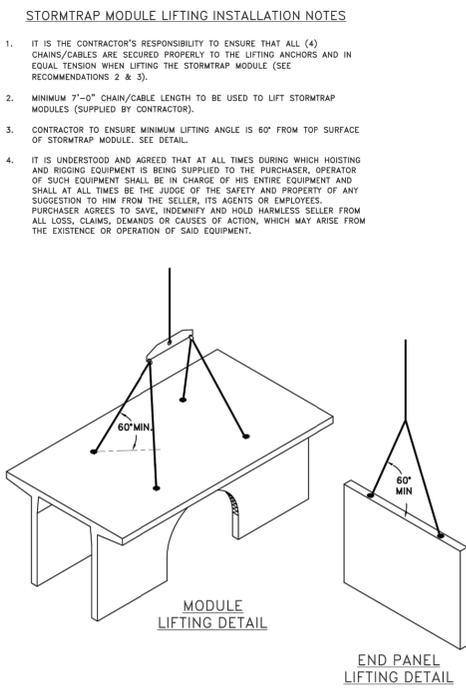
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 SINGLETRAP INSTALLATION SPECIFICATIONS

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ZONE CHART

ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1	FOUNDATION AGGREGATE	#5 (3") STONE AGGREGATE (SEE NOTE 4 FOR DESCRIPTION)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (SW, SP, SH) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

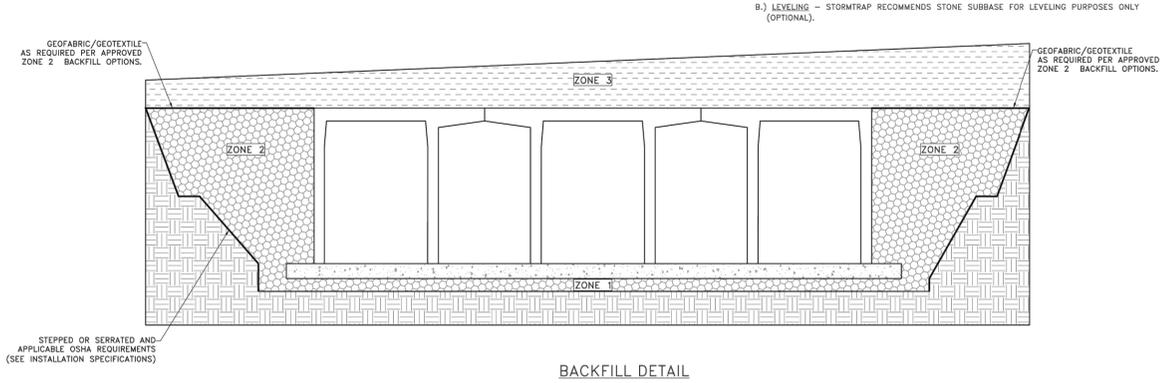
FILL DEPTH	TRACK WIDTH	MAX VEHICLE WEIGHT (KIPS)	MAX GROUND PRESSURE
12"	12"	51.8	1990 psf
18"	18"	56.1	1219 psf
24"	24"	68.1	1111 psf
30"	30"	76.7	1000 psf
36"	36"	85.0	924 psf

NOTE:
 TRACK LENGTH NOT TO EXCEED 15'-4". ONLY TWO TRACKS PER VEHICLE.

- STORMTRAP ZONE INSTALLATION SPECIFICATIONS/PROCEDURES**
- THE FILL PLACED AROUND THE STORMTRAP MODULES MUST DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL. SEE ZONE 2 BACKFILL CHART ON THIS PAGE FOR APPROVED BACKFILL OPTIONS. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS).
 - DURING PLACEMENT OF MATERIAL OVERTOP THE SYSTEM, AT NO TIME SHALL MACHINERY BE USED OVERTOP THAT EXCEEDS THE DESIGN LIMITATIONS OF THE SYSTEM. WHEN PLACEMENT OF MATERIAL OVERTOP, MATERIAL SHALL BE PLACED SUCH THAT THE DIRECTION OF PLACEMENT IS PARALLEL WITH THE OVERALL LONGITUDINAL DIRECTION OF THE SYSTEM WHENEVER POSSIBLE.
 - THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED AT A MINIMUM OF 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN HS-20 LOADING CRITERIA TRAVEL OVERTOP THE SYSTEM WITHOUT THE MINIMUM DESIGN COVERAGE. IF TRAVEL IS NECESSARY OVERTOP THE SYSTEM PRIOR TO ACHIEVING THE MINIMUM DESIGN COVER, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. IN SOME CASES, IN ORDER TO ACHIEVE REQUIRED COMPACTION, HAND COMPACTION MAY BE NECESSARY IN ORDER NOT TO EXCEED THE ALLOTTED DESIGN LOADING. SEE CHART FOR TRACKED VEHICLE WIDTH AND ALLOWABLE MAXIMUM PRESSURE PER TRACK.
 - STONE AGGREGATE FOUNDATION IN ZONE 1 MAY BE REQUIRED FOR THE FOLLOWING:
 - INFILTRATION - IF INFILTRATION IS REQUIRED, A FREE DRAINING MATERIAL SHALL BE USED AT A DEPTH DETERMINED BY THE EOR. FREE DRAINING AGGREGATE IS DEFINED AS 80% AGGREGATE RETAINED ON 3/8" SIEVE, MAJORITY OF AGGREGATE SIZE BETWEEN 1/2" AND 1", AND ONLY 5% OF MATERIAL PASSING #5/8" SIEVE.
 - LEVELING - STORMTRAP RECOMMENDS STONE SUBBASE FOR LEVELING PURPOSES ONLY (OPTIONAL).

APPROVED ZONE 2 BACKFILL OPTIONS

OPTION	REMARKS
3" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL. THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE, THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR STORMTRAP'S MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #40 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.



StormTrap
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 P815-941-4548 / F.331-318-5347

ENGINEER INFORMATION:
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 27042 TOWNE CENTER DR
 #110
 FOOTHILL RANCH, CA
 949-259-6770

PROJECT INFORMATION:
 EL RIO COMMUNITY
 EL RIO, CA
 CURRENT ISSUE DATE:
 11/16/2022

ISSUED FOR:
 PRELIMINARY

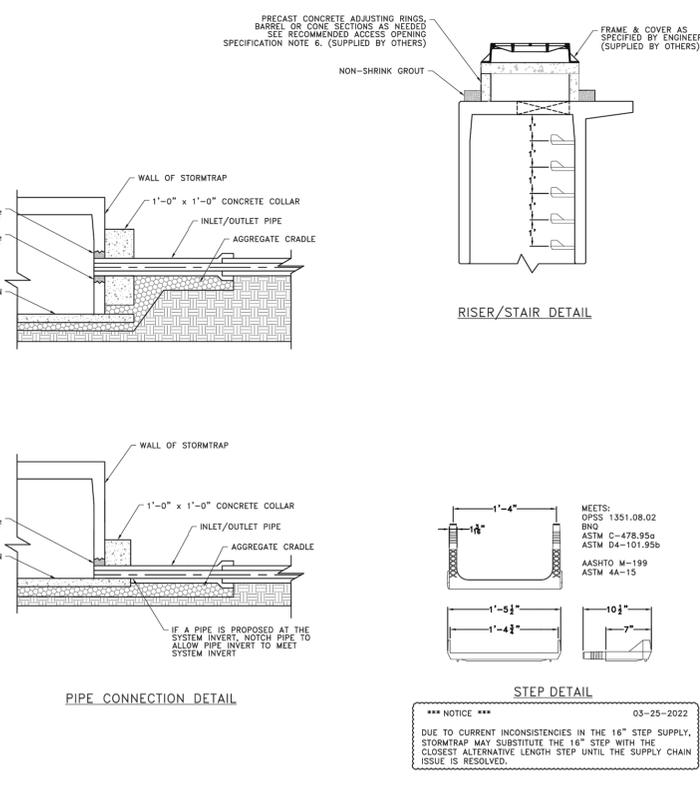
REV.	DATE:	ISSUED FOR:	DWN BY:
1	11/16/2022	PRELIMINARY	R.J.L.
2	11/3/2022	PRELIMINARY	R.J.L.
1	10/25/22	PRELIMINARY	BS

SCALE:
 NTS

SHEET TITLE:
 SINGLETRAP BACKFILL SPECIFICATIONS

SHEET NUMBER:
 4.0

- RECOMMENDED ACCESS OPENING SPECIFICATION**
- A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM ARE 2'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 2'-0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP. ALL OPENINGS MUST RETAIN AT LEAST 1'-0" OF CLEARANCE FROM THE END OF THE STORMTRAP MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE NOTED.
 - PLASTIC COATED STEEL STEPS PRODUCED BY M.A. INDUSTRIES PART #P33-PFC OR APPROVED EQUAL (SEE STEP DETAIL) ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULES. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
 - STORMTRAP LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
 - STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
 - ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
 - USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)
- RECOMMENDED PIPE OPENING SPECIFICATION**
- MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'-0".
 - MAXIMUM OPENING SIZE TO BE DETERMINED BY THE MODULE HEIGHT. PREFERRED OPENING SIZE # 3/4" OR LESS. ANY OPENING NEEDED THAT DOES NOT FIT THIS CRITERIA SHALL BE BROUGHT TO THE ATTENTION OF STORMTRAP FOR REVIEW.
 - CONNECTING PIPES SHALL BE INSTALLED WITH A 1'-0" CONCRETE COLLAR, AND AN AGGREGATE CRADLE FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON-SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI SHALL BE USED.
 - THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHRINK GROUT.
- RECOMMENDED PIPE INSTALLATION INSTRUCTIONS**
- CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
 - IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
 - ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.
- NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.



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2	11/3/2022	PRELIMINARY	R.J.L.
1	10/25/22	PRELIMINARY	BS

SCALE:
 NTS

SHEET TITLE:
 RECOMMENDED PIPE / ACCESS OPENING SPECIFICATIONS

SHEET NUMBER:
 5.0

INFILTRATION CHAMBER DETAIL OR APPROVED EQUIVALENT

NTS

**VENTURA COUNTY
 PUBLIC WORKS AGENCY
 WATERSHED PROTECTION**

SPEC. NO.	N/A
PROJ. NO.	N/A

**EL RIO STORMWATER CAPTURE AND
 GROUNDWATER RECHARGE
 INFILTRATION CHAMBER DETAILS 2**

SHEET	12
OF	13
DRAWING NO.	WP-??-???



**30% DESIGN
 NOT FOR CONSTRUCTION**

PLOT DATE: 11/29/22

N:\40.085.000\DLV\PLANS\IMP\SD_085-SD-STORMTRAP.DWG PLOTTED: Nov 29, 2022 - 1:52pm BY: CANDACE TONG

D			
C			
B			
A	ISSUED FOR FEASIBILITY STUDY	11-29-22	
△	REVISION	DESCRIPTION	APP. DATE

PREPARED BY:

Q3 Consulting
 27042 TOWNE CENTRE DRIVE, SUITE 110
 FOOTHILL RANCH, CA 92610
 949-259-6770

CT	DESIGNED	WATERSHED PROJECT MANAGER	DATE
AR	DRAWN	WATERSHED DEPUTY DIRECTOR	DATE
RC	CHECKED	WATERSHED DIRECTOR	DATE

StormTrap

1287 WINDHAM PARKWAY
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ENGINEER INFORMATION:

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949-259-6770

PROJECT INFORMATION:

EL RIO COMMUNITY

EL RIO, CA

CURRENT ISSUE DATE:

11/16/2022

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PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
Δ	11/16/2022	PRELIMINARY	R.J.L
2	11/9/2022	PRELIMINARY	R.J.L
1	10/25/22	PRELIMINARY	BS

SCALE:

NTS

SHEET TITLE:

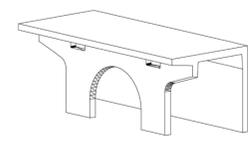
SINGLETRAP
MODULE TYPES

SHEET NUMBER:

6.0



TYPE I



TYPE III



TYPE IV



TYPE IV
END PANEL

- NOTES:
1. OPENING LOCATIONS AND SHAPES MAY VARY.
 2. SP - INDICATES A MODULE WITH MODIFICATIONS.
 3. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
 4. POCKET WINDOW OPENINGS ARE OPTIONAL.

6.9 INFILTRATION CHAMBER DETAIL OR APPROVED EQUIVALENT

NTS

30% DESIGN
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AR	DRAWN	WATERSHED DEPUTY DIRECTOR	DATE
RC	CHECKED	WATERSHED DIRECTOR	DATE

**VENTURA COUNTY
PUBLIC WORKS AGENCY
WATERSHED PROTECTION**

SPEC. NO.	N/A
PROJ. NO.	N/A

**EL RIO STORMWATER CAPTURE AND
GROUNDWATER RECHARGE**
INFILTRATION CHAMBER DETAILS 3

SHEET	13
OF	13
DRAWING NO.	WP-?-???

PLOT DATE: 11/29/22

N:\40.085.000\DLV\PLANS\IMP\SD\085-SD-STORMTRAP.DWG PLOTTED: Nov 29, 2022 - 1:52pm BY: CANDACE TONG