



THE CITY OF SAN DIEGO

MEMORANDUM

DATE: July 20, 2016

TO: Cycle Reviewers

FROM: Peter Kann, DPM, Development Services Department

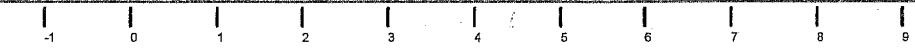
SUBJECT: Tierrasanta Scour Pond – PPA – PTS 489305 – I.O. 24006695

PROJECT DESCRIPTION - The proposed design is intended to remediate the deficiencies in the existing Antigua Boulevard culvert outfall by removing the existing pond, restoring a positive flow path in Shepherd Canyon, and reducing the likelihood of the formation of a scour hole at the Antigua Boulevard culvert outfall. The proposed vector habitat remediation improvements are comprised of two discreet components; the culvert outfall energy dissipater and a low flow channel. The overall proposed improvements will span approximately 19,350 square feet. At the downstream end of the existing 4-48" culvert pipe headwall a rock rip-rap energy dissipater is proposed, beginning at the terminus of the existing reinforced concrete headwall invert apron. The proposed rock rip-rap energy dissipater will have a footprint that is approximately 64 feet long by 50' wide with a 54- inch thick layer of  $\frac{1}{2}$  ton rip-rap. The rip-rap will be placed over a non-woven geotextile fabric and held in place by a reinforced concrete sill. Flow velocities in the proposed energy dissipater will be reduced from 17 feet per second, at the upstream extent of the facility to 4 feet per second at the downstream end of the energy dissipater in the design 100-year storm.

An engineered low-flow channel will be installed along the existing Shepherd Canyon thalweg/flowline to maintain adequate slope and positive drainage. The low-flow trapezoidal channel will have a 15 feet wide base width, a 3 foot wall height, 2.5: 1 side slopes, and will be vegetated with willow stakes and native vegetation. The design flowrate for the low-flow channel is 250 cubic feet per second, based on the calculated runoff from a 1-yr design storm event. The low flow channel has two distinct reaches with the same cross section geometry but differing erosion protection armoring. The proposed channel improvements will cover span an area of approximately 14,460 square feet. The upstream reach of the channel, extending approximately 121 lineal feet from the end of the energy dissipater to the junction with the easterly flow path in Shepherd Canyon will be armored with vegetated rip-rap. The downstream reach, extending approximately 295 lineal feet from easterly flow path junction to the existing 108-inch diameter Santo Road culvert will be armored only with vegetation. The channel cross section provides a multistage flow path where smaller more common storm events would be contained within the low-flow channel cross section and larger less frequent storm flows would be allowed overtop the banks of the low-flow channel, and spread into the native Shepherd Canyon floodplain. This design technique is intended to minimize stream bed erosion and maintain a positive flow path.

INDEX OF SHEETS

No.	Description
1	TITLE SHEET
2	GENERAL REFERENCES
3	CIVIL GENERAL NOTES
4	EXISTING CONDITIONS AND DEMOLITION
5	HORIZONTAL CONTROL
6	IMPROVEMENT PLAN - SOUTH
7	TYPICAL SECTION
8	CIVIL DETAILS



COUNTY OF SAN DIEGO, CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS

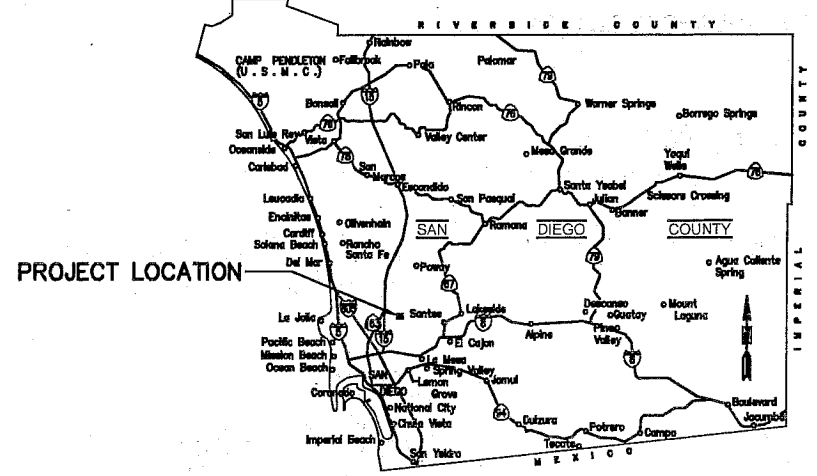
FOR REDUCED PLANS  
ORIGINAL SCALE IS IN INCHES

**30% SUBMITTAL**  
**NOT FOR CONSTRUCTION**

PLANS	BY	DATE
DESIGNED	B. BARR	
CHECKED	J. SMITH, P.E.	
DELIVERED		

**DUDEK**  
31878 CAMINO CAPISTRANO #200,  
SAN JUAN CAPISTRANO, CA 92675  
949.450.2825  
(NOT RELEASED FOR CONSTRUCTION)  
REGISTERED CIVIL ENGINEER DATE

**PLANS FOR CONSTRUCTION OF ANTIGUA BOULEVARD CULVERT VECTOR HABITAT REMEDIATION IMPROVEMENTS**  
In the Vicinity of: ANTIGUA BLVD.  
Net Length: 500 LF



Package Copy  
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*J. Harkness*

Dev. Plans reduced 11x17  
Version 1  
Park & Rec

3922233

Project  
*Tierrasanta*

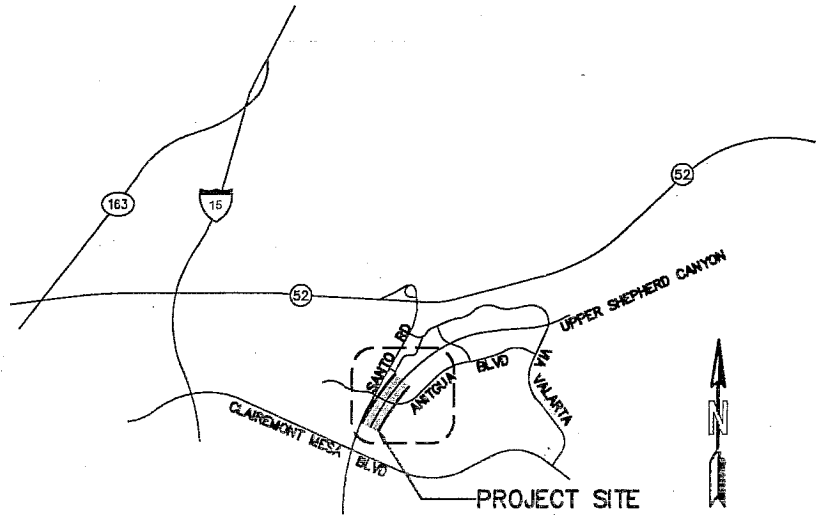
489305

Tierrasanta Scour Pond -SDP  
PM: Kann, Peter 446-5443

Review Cycle

Cycle 5  
Public Project Assessment

THE CITY OF SAN DIEGO  
Development Services Department  
1222 First Avenue, San Diego, CA 92101-4154



VICINITY MAP  
NOT TO SCALE

ATTENTION IS DIRECTED TO THE POSSIBLE EXISTENCE OF UNDERGROUND UTILITY FACILITIES NOT KNOWN OR IN A LOCATION DIFFERENT FROM THAT WHICH IS SHOWN ON THE PLANS OR IN THE SPECIAL PROVISIONS. THE CONTRACTOR SHALL TAKE STEPS TO ASCERTAIN THE EXACT LOCATION OF ALL UNDERGROUND FACILITIES PRIOR TO PERFORMING WORK THAT MAY DAMAGE SUCH FACILITIES OR INTERFERE WITH THEIR SERVICE. FOURTY-EIGHT HOURS BEFORE EXCAVATING, THE CONTRACTOR SHALL VERIFY THE LOCATION OF UNDERGROUND FACILITIES BY CONTACTING UNDERGROUND SERVICES ALERT AT TELEPHONE 1-800-422-4133.

THE CONTRACTOR MUST ALSO INDIVIDUALLY CONTACT OPERATORS OF GRAVITY SEWER SYSTEMS AND CERTAIN OTHER UTILITIES, WHO ARE NOT MEMBERS OF UNDERGROUND SERVICES ALERT.

REVISIONS BY: DATE

Engineering VRS 0368 Antigua Blvd. Drainage 06-Design C:\D\Improvement Plans\COI - Cover Sheet - 8368.dwg Wednesday, Apr. 20 2016 12:00pm jbbfien

<b>COUNTY OF SAN DIEGO</b> DEPARTMENT OF PUBLIC WORKS 5500 OVERLAND AVENUE, SAN DIEGO, CA 92123-1295		RECOMMENDED BY: _____ DATE _____	REVISIONS	BY	APPROVED	DATE	COORDINATE INDEX	VECTOR HABITAT REMEDIATION In the Vicinity of Antigua Blvd. TITLE SHEET	SCALE: HOR. NONE VERT. NONE
		APPROVED BY: <i>Mohamad Fakhriddine, County Engineer</i> DATE _____							210 N 1731 E
								FIELD REVISIONS	CIVIL PLAN
									SHEET 01 OF 08 SHEETS

**GENERAL NOTES**

1. ALL WORK SHALL BE IN ACCORDANCE WITH THESE PLANS, PROJECT SPECIFICATIONS, SAN DIEGO STANDARD SPECIFICATIONS FOR DRAINAGE CHANNELS, SAN DIEGO STANDARD PLANS 2016; THE SAN DIEGO REGIONAL STANDARD DRAWINGS (SDRSD), 2009, THE SAN DIEGO REGIONAL SUPPLEMENT AMENDMENTS TO SSPWC, THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SSPWC) 2009. WHERE CONFLICTS ARISE, THE MOST STRINGENT REQUIREMENTS SHALL PREVAIL.
2. THE CONTRACTOR SHALL ENFORCE ALL SAFETY MEASURES. THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE, AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.
3. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTIES. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
4. THE CONTRACTOR SHALL REPLACE OR REPAIR IN KIND AND PER CURRENT STANDARD ALL PAVEMENT, SIDEWALKS, CURBS, DIKES, BERMS, GUARD RAILS, FENCING, SIGNAGE, HEADWALLS, DRIVEWAY, STRIPING, LANDSCAPE, IRRIGATION, MANHOLES AND PIPES DAMAGED DURING CONSTRUCTION.
5. THE SEWER OPERATION SHALL NOT BE INTERRUPTED AT ANY TIME DURING CONSTRUCTION.
6. THE CONTRACTOR SHALL KEEP MINIMUM 12 INCH VERTICAL CLEARANCE WHEN CROSSING EXISTING UTILITIES UNLESS OTHERWISE SHOWN ON PLANS.
7. CONTRACTOR SHALL OBTAIN A PERMIT FOR ANY EXCAVATION WITHIN THE COUNTY RIGHT-OF-WAY.
8. ANY DEVIATIONS FROM THE CONTRACT PLANS AND SPECIFICATIONS SHALL BE SUBMITTED AND APPROVED BY THE COUNTY IN WRITING PRIOR TO THE BEGINNING OF WORK.
9. ENTRY TO COUNTY MANHOLES IS CONSIDERED CONFINED SPACE ENTRY AS DEFINED IN SECTION 5156, 5157 AND 5158 OF CALIFORNIA OSHA TITLE 8. IN ADVANCE OF SUCH ENTRY, A CONFINED SPACE ENTRY PLAN SHALL BE SUBMITTED FOR REVIEW AND ACCEPTANCE BY THE COUNTY.
10. CONTRACTOR SHALL AT ALL TIME KEEP THE WORKING AREAS FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THE WORK DURING CONSTRUCTION. DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND DISPOSED AT LEAST ONCE A WEEK.
11. CONTRACTOR SHALL COMPLY WITH NOISE LIMITATION REQUIREMENTS OF EACH JURISDICTIONAL AGENCY.
12. CONTRACTOR SHALL PREPARE AND SUBMIT THE ODOR CONTROL PLANS TO THE COUNTY FOR APPROVAL TO CONTROL ODORS DURING SEWER BY-PASS OPERATIONS.
13. DETAILED RECORD DRAWINGS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION OF THE IMPROVEMENTS, AND SUBMITTED TO THE ENGINEER. FINAL LOCATION AND ELEVATION OF FLOW LINES, SILLS AND ENERGY DISSIPATORS SHALL BE SHOWN ON THE RECORD DRAWINGS.
14. CONTRACTOR SHALL VERIFY THE ELEVATIONS OF ALL UTILITY CROSSINGS PRIOR TO EXCAVATION.
15. SURVEY MONUMENTS SHALL BE PROTECTED AND PERPETUATED IN PLACE. DISTURBED OR COVERED MONUMENTS SHALL BE RESET BY A REGISTERED CIVIL ENGINEER OR A LICENSED LAND SURVEYOR.

**STAGING AREA**

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY NEEDED STAGING AREAS THROUGHOUT THE PROJECT. PRIOR TO CONTRACTOR USE OF ANY PUBLIC OR PRIVATE STAGING AREA, THE CONTRACTOR SHALL PROVIDE A PROJECT SUBMITTAL FOR COUNTY REVIEW, APPROVAL AND RECORD PURPOSES, THAT SHOWS LAND OWNER PROOF OF PERMISSION AND AGREEMENT FOR SUCH USE.

**PROJECT NOTES**

1. ALL MATERIALS PRODUCED AS SPOIL IN THE CONSTRUCTION OF THIS PROJECT SHALL BECOME THE VESTED PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN A LEGAL MANNER OFFSITE AT NO ADDITIONAL COST TO THE COUNTY.
2. THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO PROTECT THE PROJECT AND ADJACENT PROPERTIES FROM ANY EROSION AND SILTATION THAT RESULT FROM HIS OPERATIONS BY APPROPRIATE MEANS (SAND BAGS, HAY BALES, TEMPORARY DESILTING BASINS, DIKES, SHORING, ETC.) UNTIL SUCH TIME THAT THE PROJECT IS COMPLETED AND ACCEPTED FOR MAINTENANCE BY THE ENGINEER.
3. CONTRACTOR SHALL COORDINATE WITH COUNTY FOR ALL WORK NEEDING MATERIALS TESTING, SUCH AS BUT NOT LIMITED TO: PORTLAND CEMENT CONCRETE.
4. ANY WORK DONE WITHOUT INSPECTION AND MATERIALS TESTING IS SUBJECT TO REMOVAL OR CORRECTION AT CONTRACTOR'S EXPENSE.

**BMP STENCIL PLACEMENT NOTES**

- A) NOT USED
- B) SIGNS AND PROHIBITIVE LANGUAGE AND/OR GRAPHICAL ICONS, WHICH PROHIBIT ILLEGAL DUMPING, MUST BE POSTED AT PUBLIC ACCESS POINTS ALONG CHANNELS AND CREEKS WITHIN THE PROJECT AREA.
- C) LEGIBILITY OF STENCILS, TILES AND SIGNS MUST BE MAINTAINED AND TILES MUST BE PLACED FLUSH WITH THE TOP OF CONCRETE TO REDUCE TRIPPING BY PEDESTRIANS.

**NOTICE:**

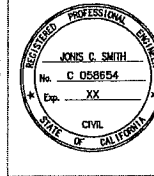
THE ISSUANCE OF THIS PERMIT/APPROVAL BY THE COUNTY OF SAN DIEGO DOES NOT AUTHORIZE THE APPLICANT FOR SAID PERMIT/APPROVAL TO VIOLATE ANY FEDERAL, STATE, OR COUNTY LAWS, ORDINANCES, REGULATIONS, OR POLICIES INCLUDING, BUT NOT LIMITED TO, THE FEDERAL ENDANGERED SPECIES ACT AND ANY AMENDMENTS THERETO.

**SAN DIEGO COUNTY-IMPROVEMENT PLAN GENERAL NOTES:**

1. A PERMIT SHALL BE OBTAINED FROM THE COUNTY DEPARTMENT OF PUBLIC WORKS FOR ANY WORK WITHIN THE STREET RIGHT-OF-WAY.
2. NOT USED
3. APPROVAL OF THESE IMPROVEMENT PLANS AS SHOWN DOES NOT CONSTITUTE APPROVAL OF ANY CONSTRUCTION OUTSIDE THE PROJECT BOUNDARY.
4. NOT USED
5. THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND FACILITIES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO OTHER EXISTING FACILITIES EXCEPT AS SHOWN ON THESE PLANS. HOWEVER, THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING FACILITY SHOWN HEREON AND ANY OTHER WHICH IS NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
6. LOCATION AND ELEVATION OF IMPROVEMENTS TO BE MET BY WORK TO BE DONE SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO CONSTRUCTION OF NEW WORK. CONTRACTOR WILL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF ACTUAL LOCATION OF EXISTING FACILITIES.

FOR REDUCED PLANS  
ORIGINAL SCALE IS IN INCHES

**30% SUBMITTAL  
NOT FOR  
CONSTRUCTION**



PLANS	BY	DATE
DESIGNED	B. BAIR	
CHECKED	J. SMITH, P.E.	
DELINEATED		

**DUDEK**  
31678 CAMINO CAPISTRANO #200,  
SAN JUAN CAPISTRANO, CA 92075  
949.450.2525  
(NOT RELEASED FOR CONSTRUCTION)  
REGISTERED CIVIL ENGINEER DATE

7. THE CONTRACTOR SHALL NOTIFY THE SAN DIEGO GAS & ELECTRIC COMPANY PRIOR TO STARTING WORK NEAR COMPANY FACILITIES AND SHALL COORDINATE HIS/HER WORK WITH COMPANY REPRESENTATIVES. NOTICE: ALL ELECTRICAL AND GAS SERVICES WITHIN THIS PROJECT ARE "UNDERGROUND INSTALLATIONS". FOR LOCATION OF ELECTRICAL CABLES AND GAS PIPING AND APPURTENANCES CONTACT THE SAN DIEGO GAS & ELECTRIC COMPANY. TEL: (\_\_\_\_) \_\_\_\_\_
8. THE CONTRACTOR SHALL NOTIFY THE AT&T TELEPHONE COMPANY PRIOR TO STARTING WORK NEAR COMPANY FACILITIES AND SHALL COORDINATE HIS/HER WORK WITH COMPANY REPRESENTATIVES. NOTICE: ALL TELEPHONE SERVICES WITHIN THIS PROJECT ARE "UNDERGROUND INSTALLATIONS". FOR LOCATION OF CABLE AND APPURTENANCES CONTACT THE AT&T TELEPHONE COMPANY. TEL: (\_\_\_\_) \_\_\_\_\_
9. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO CONTACT THE UTILITY AGENCIES, ADVISE THEM OF THE PROPOSED IMPROVEMENTS, AND BEAR THE COST OF RELOCATIONS, IF NEEDED.
10. ALL TELEVISION SERVICES WITHIN THIS PROJECT ARE "UNDERGROUND INSTALLATIONS". FOR LOCATION OF CABLES AND APPURTENANCES CONTACT \_\_\_\_\_ COMPANY AT \_\_\_\_\_
11. NOT USED
12. NOT USED
13. NOT USED
14. NOT USED
15. NOT USED
16. NOT USED
17. ALL CUT AND FILL SLOPES THREE FEET (3') HIGH CREATED BY GRADING FOR STREETS AND DRIVEWAYS SHALL BE HYDROSEEDED WITH SAN DIEGO COUNTY APPROVED HYDROSEED MIXTURE. HYDROSEEDED SLOPES SHALL BE IRRIGATED BY WATER TRUCK UNTIL THE MIXTURE GERMINATES AND 70% GROWTH IS ESTABLISHED.
18. NOT USED
19. NOT USED
20. STREET IMPROVEMENTS AND DRAINAGE STRUCTURES SHALL BE CONSTRUCTED ACCORDING TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND THE COUNTY OF SAN DIEGO SPECIAL PROVISIONS AND SPECIFICATIONS FOR THE IMPROVEMENT OF NEW STREETS.

**COUNTY OF SAN DIEGO**  
**DEPARTMENT OF PUBLIC WORKS**  
6500 OVERLAND AVENUE, SAN DIEGO, CA 92123-1295



REVISIONS	BY	APPROVED	DATE

COORDINATE INDEX	
210 N	1731 E
CONST. COMPL	
FIELD REVISIONS	

VECTOR HABITAT REMEDIATION  
In the Vicinity of Antigua Blvd.  
CIVIL PLAN  
CIVIL GENERAL NOTES

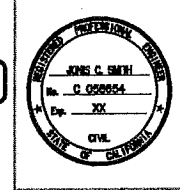
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CIVIL PLAN	
SHEET 03 OF 08 SHEETS	

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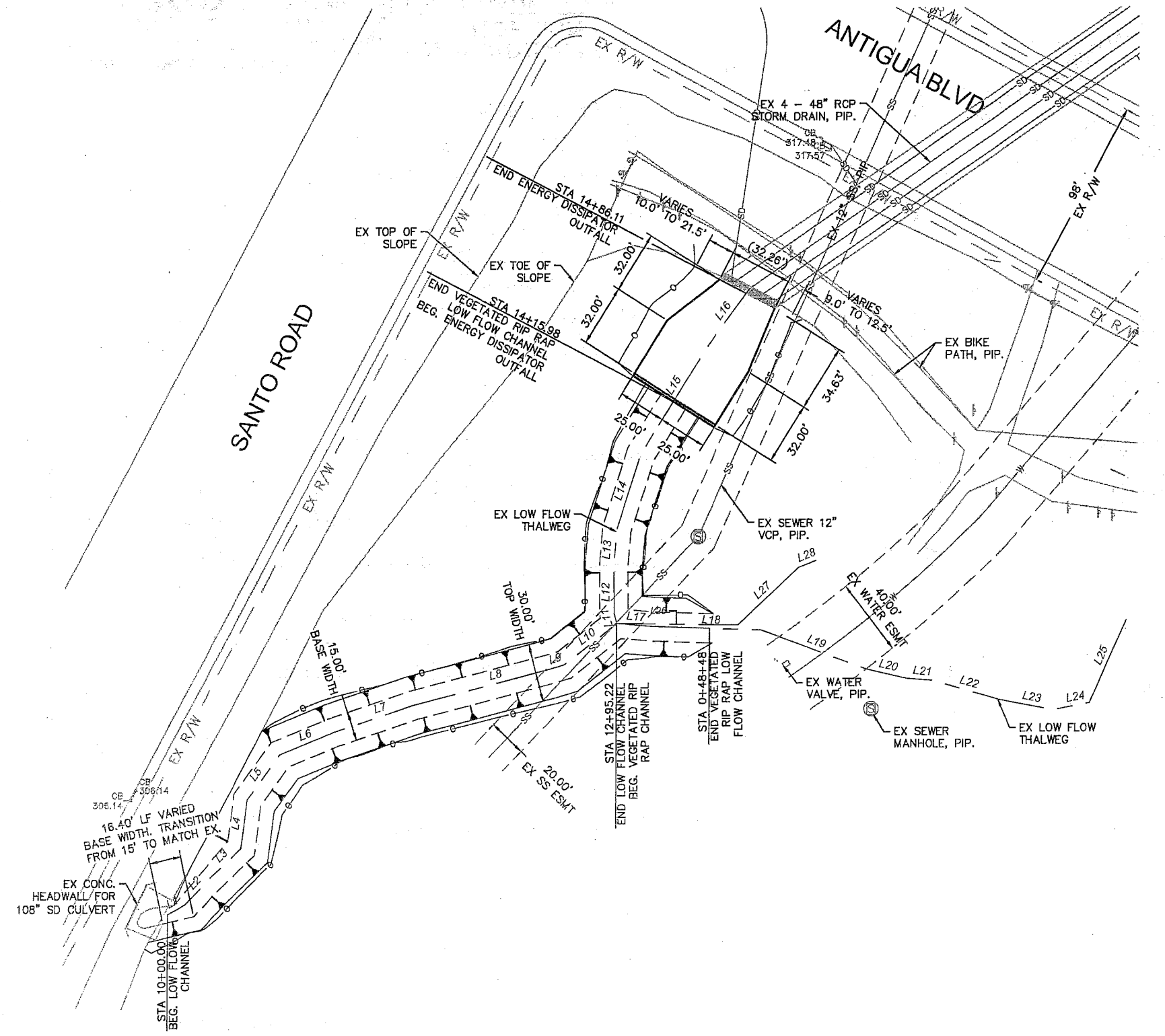
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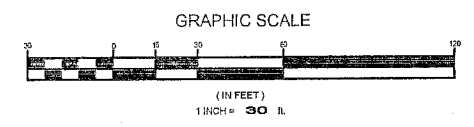


PLANS	BY	DATE
DESIGNED	B. BAIR	
CHECKED	J. SMITH, P.E.	
DELIMITED		

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31878 CAMINO CAPISTRANO #200,  
SAN JUAN CAPISTRANO, CA 92075  
949.450.2625  
(NOT RELEASED FOR CONSTRUCTION)  
REGISTERED CIVIL ENGINEER DATE



LINE #	LENGTH	DIRECTION	START POINT	END POINT
L1	10.20	N60° 37' 35.88"E	(6300031.02,1883659.98)	(6300039.90,1883664.98)
L2	18.70	N43° 49' 32.64"E	(6300039.90,1883664.98)	(6300052.85,1883678.47)
L3	22.59	N46° 46' 06.65"E	(6300052.85,1883678.47)	(6300069.31,1883693.94)
L4	25.10	N7° 24' 47.87"E	(6300069.31,1883693.94)	(6300072.55,1883718.83)
L5	28.90	N36° 24' 12.92"E	(6300072.55,1883718.83)	(6300089.70,1883742.09)
L6	30.13	N68° 01' 12.95"E	(6300089.70,1883742.09)	(6300117.64,1883753.37)
L7	43.58	N71° 31' 17.02"E	(6300117.64,1883753.37)	(6300156.97,1883767.18)
L8	73.02	N75° 27' 18.29"E	(6300156.97,1883767.18)	(6300229.66,1883785.52)
L9	8.50	N73° 44' 06.76"E	(6300229.66,1883785.52)	(6300237.82,1883787.90)
L10	34.51	N52° 15' 07.23"E	(6300237.82,1883787.90)	(6300265.10,1883809.02)
L11	5.27	N15° 51' 15.77"W	(6300265.10,1883809.02)	(6300263.66,1883814.10)
L12	24.14	N0° 41' 00.91"W	(6300263.66,1883814.10)	(6300263.37,1883838.24)
L13	19.15	N4° 36' 47.86"E	(6300263.37,1883838.24)	(6300264.91,1883857.32)
L14	40.57	N17° 49' 08.52"E	(6300264.91,1883857.32)	(6300277.32,1883895.94)
L15	66.74	N32° 04' 57.83"E	(6300277.32,1883895.94)	(6300312.78,1883952.49)
L16	35.02	N36° 37' 57.48"E	(6300312.78,1883952.49)	(6300333.67,1883980.59)
L17	18.70	S85° 14' 47.52"E	(6300333.67,1883980.59)	(6300283.74,1883807.47)
L18	56.72	S87° 56' 44.86"E	(6300283.74,1883807.47)	(6300340.42,1883805.44)
L19	58.50	S69° 45' 46.63"E	(6300340.42,1883805.44)	(6300395.31,1883785.20)
L20	21.45	S77° 04' 59.74"E	(6300395.31,1883785.20)	(6300416.22,1883780.41)
L21	13.42	S85° 12' 46.65"E	(6300416.22,1883780.41)	(6300428.60,1883779.29)
L22	35.45	S73° 57' 08.18"E	(6300428.60,1883779.29)	(6300463.67,1883789.49)
L23	29.34	S79° 24' 55.33"E	(6300463.67,1883789.49)	(6300492.51,1883764.10)
L24	19.00	N79° 07' 08.10"E	(6300492.51,1883764.10)	(6300511.17,1883767.68)
L25	46.63	N24° 08' 15.56"E	(6300511.17,1883767.68)	(6300530.24,1883810.24)
L26	63.22	S89° 10' 14.41"E	(6300530.24,1883810.24)	(6300328.31,1883808.11)
L27	42.80	N46° 50' 00.10"E	(6300328.31,1883808.11)	(6300359.60,1883837.46)
L28	9.99	N68° 23' 17.30"E	(6300359.60,1883837.46)	(6300368.89,1883841.14)



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**COUNTY OF SAN DIEGO**  
**DEPARTMENT OF PUBLIC WORKS**  
5500 OVERLAND AVENUE, SAN DIEGO, CA 92123-1295



REVISIONS	BY	APPROVED	DATE

COORDINATE INDEX	
210	1731
CONST. COMPL.	
FIELD REVISIONS	

**VECTOR HABITAT REMEDIATION**  
In the Vicinity of Antigua Blvd.  
**HORIZONTAL CONTROL**

SCALE: HOR. <b>1"=30'</b> VERT. <b>NONE</b>
WA. _____ R.S. _____
<b>CIVIL PLAN</b>
SHEET <b>05</b> OF <b>06</b> SHEETS

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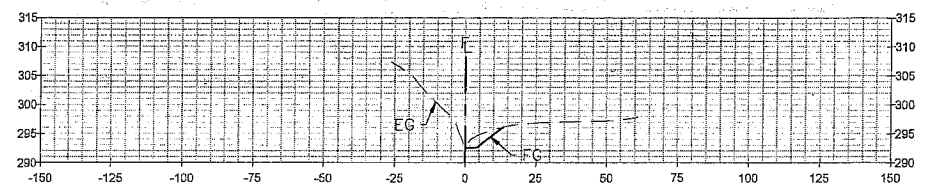
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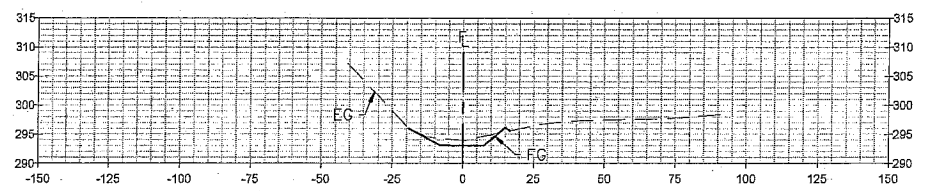


PLANS	BY	DATE
DESIGNED	B. BAIR	
CHECKED	J. SMITH, P.E.	
DELINEATED		

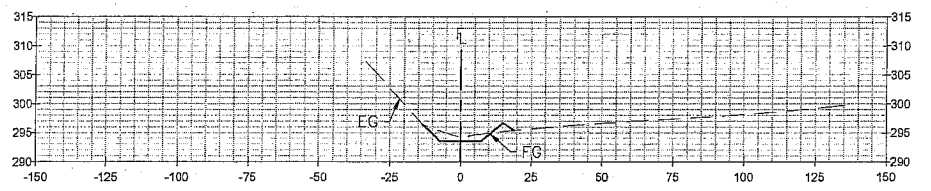
**DUDEK**  
31876 CAMINO CAPISTRANO #200,  
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949.450.2525  
(NOT RELEASED FOR CONSTRUCTION)  
REGISTERED CIVIL ENGINEER DATE



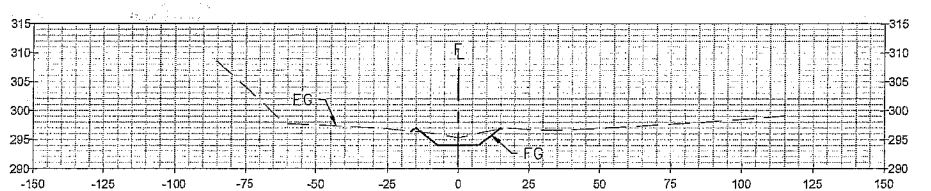
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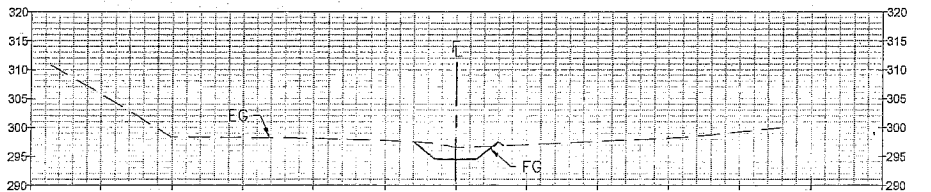
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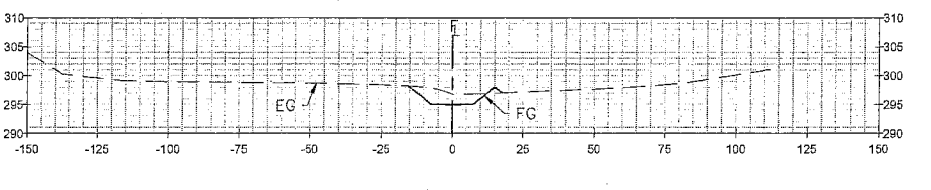
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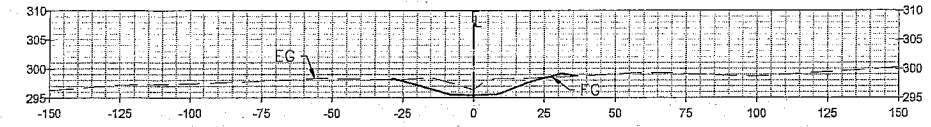
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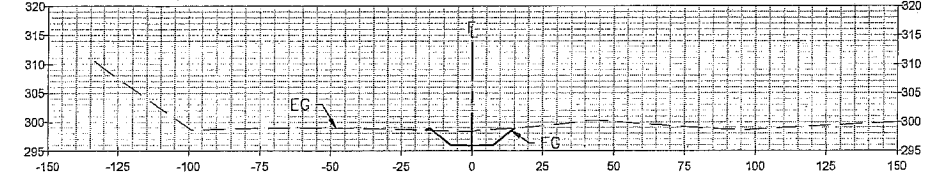
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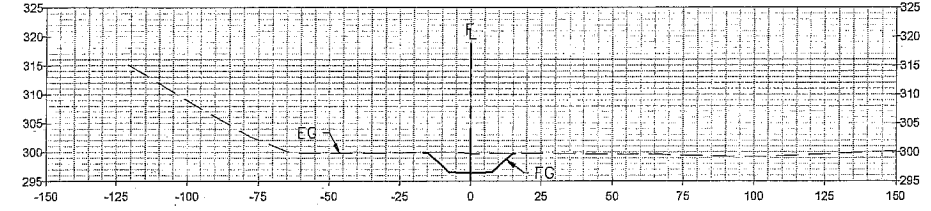
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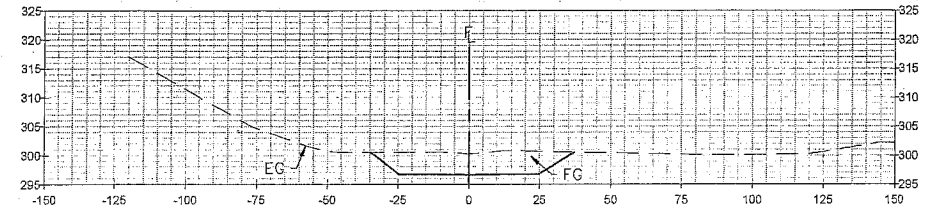
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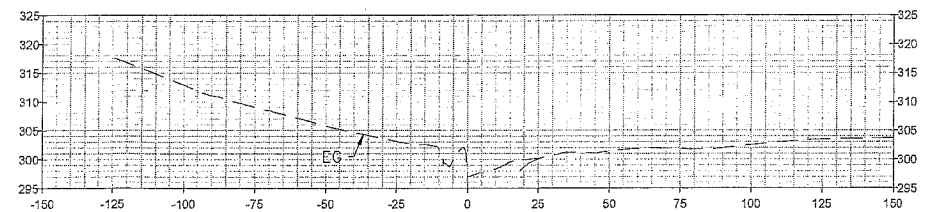
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14+00



14+50



14+86

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**COUNTY OF SAN DIEGO**  
**DEPARTMENT OF PUBLIC WORKS**  
5500 OVERLAND AVENUE, SAN DIEGO, CA 92123-1295



REVISIONS	BY	APPROVED	DATE

COORDINATE INDEX	
210 N	1731 E
CONST. COMPL	
FIELD REVISIONS	

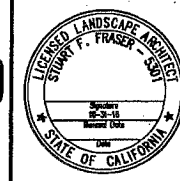
VECTOR HABITAT REMEDIATION  
In the Vicinity of Antigua Blvd.  
TYPICAL SECTIONS

SCALE: HOR. 1"=20'	VERT. 1"=5'
WA. _____	R.S. _____
CIVIL PLAN	
SHEET 07 OF 08 SHEETS	

-1 0 1 2 3 4 5 6 7 8 9 10

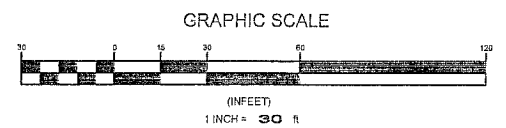
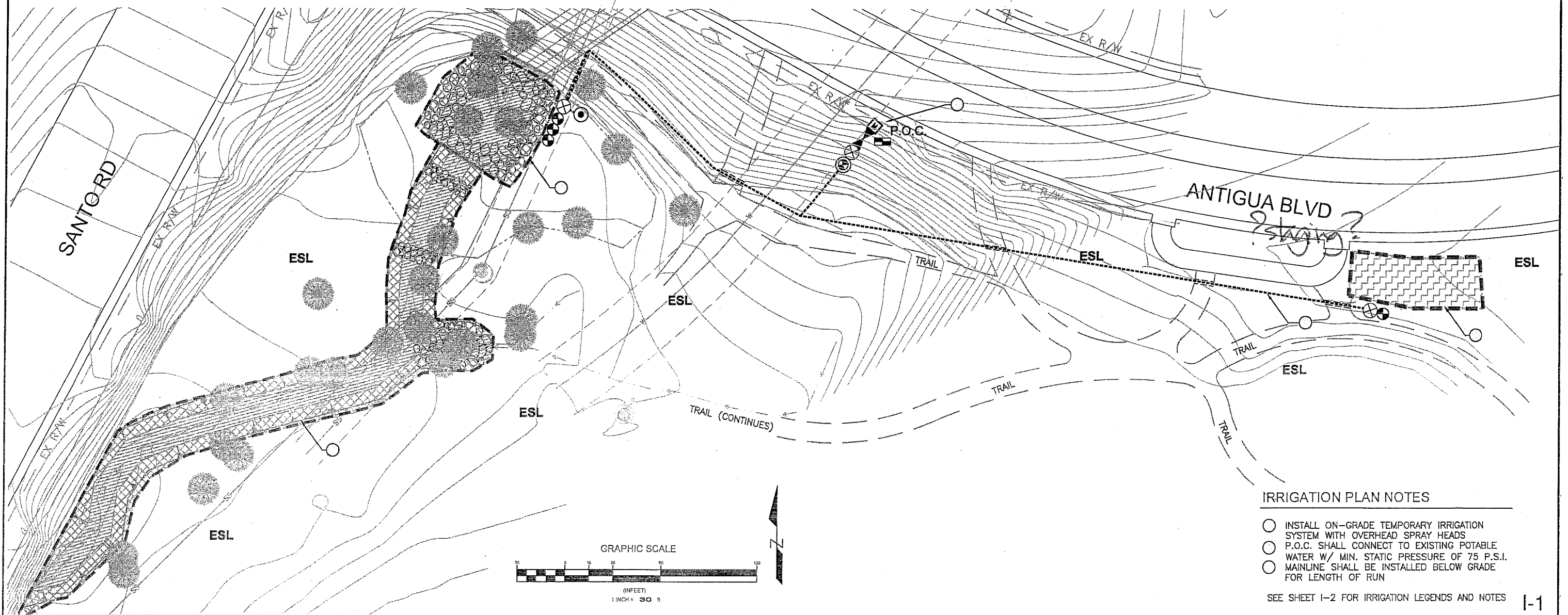
FOR REDUCED PLANS  
ORIGINAL SCALE IS IN INCHES

**30% SUBMITTAL**  
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**CONSTRUCTION**



PLANS	BY	DATE
DESIGNED	SF	
CHECKED	SF	
DELINEATED		

**DUDEK**  
605 THIRD STREET,  
ENCINITAS, CA 92024  
760.942.5147  
(NOT RELEASED FOR CONSTRUCTION)  
REGISTERED RLA # 5301



**IRRIGATION PLAN NOTES**

- INSTALL ON-GRADE TEMPORARY IRRIGATION SYSTEM WITH OVERHEAD SPRAY HEADS
- P.O.C. SHALL CONNECT TO EXISTING POTABLE WATER W/ MIN. STATIC PRESSURE OF 75 P.S.I.
- MAINLINE SHALL BE INSTALLED BELOW GRADE FOR LENGTH OF RUN

SEE SHEET I-2 FOR IRRIGATION LEGENDS AND NOTES

I-1

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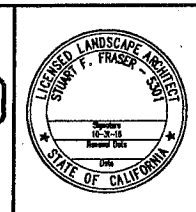
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210 N	1731 E
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**VECTOR HABITAT REMEDIATION**  
In the Vicinity of Antigua Blvd.  
**IRRIGATION PLAN, LEGENDS & DETAILS**

SCALE: HOR. 1"=30'	VERT. NONE
WA	R.S.
LANDSCAPE PLAN	
SHEET XX OF 09 SHEETS	



FOR REDUCED PLANS  
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**SPRINKLER HEAD LEGEND**

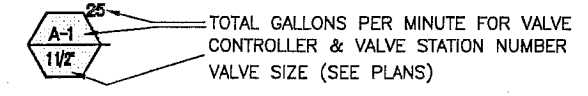
SYMBOL	MANUF.	MODEL NO.	DESCRIPTION	DETAIL	ARC	RADIUS	PSI	GPM	NOTES
30	HUNTER	PROS-00-PRS40-MP3000-90 (90-210)	SPRAY ROTATOR ON SHRUB HEAD	(A)	90	30'	40	0.86	*WITH HC-50F-50M (1/2" DRAIN CHECK VALVE)
34	HUNTER	PROS-00-PRS40-MP3000-90 (90-210)	SPRAY ROTATOR ON SHRUB HEAD		180	30'	40	1.82	*WITH HC-50F-50M (1/2" DRAIN CHECK VALVE)
15	HUNTER	PGJ-00-V-1.5 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)		90	30'	40	1.5	
25	HUNTER	PGJ-00-V-2.5 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)		180	30'	40	2.5	
34	HUNTER	PGJ-00-V-3.0 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)		180	30'	40	3.0	
40	HUNTER	PGJ-00-V-5.0 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	(A)	180	34'	40	5.0	

\* INSTALL DRAIN CHECK VALVE ON RISER IF IRRIGATION HEAD IS GREATER THAN 8' BELOW VALVE (SEE SPEC. BELOW)  
NOTE: ACTUAL ARCS MAY VARY SLIGHTLY BASED ON SITE CONFIGURATION. ADJUST RADII TO OBTAIN HEAD TO HEAD COVERAGE.

**IRRIGATION EQUIPMENT LEGEND**

SYMBOL	MANUF.	MODEL NO.	DESCRIPTION	DETAIL	NOTES
M	N/A	N/A	1 1/2" IRRIGATION METER		CITY TO INSTALL NEW 1 1/2" WATER METER
P.O.C.	N/A	N/A	NEW IRRIGATION POINT OF CONNECTION (P.O.C.)		ESTABLISH P.O.C. AT NEW LOCATION. COORDINATE P.O.C. WITH PROJECT BIOLOGIST AND CITY OR APPROVED EQUAL. MUST BE CERTIFIED BY A CITY APPROVED TESTER PRIOR TO ACTIVATION.
W	WATTS	009-M2QT-1 1/2"	1 1/2" REDUCED PRESSURE BACKFLOW PREVENTER		
W	WILKENS	500 HR-1 1/2"	2" PRESSURE REGULATOR		PART OF BACKFLOW PREVENTER ASSEMBLY
R	RAINBIRD	150 PEB-PRS-D	1 1/2" PLASTIC PRESSURE REGULATING REMOTE CONTROL MASTER VALVE		BOLT VALVE BOX LID SHUT UPON INSTALLATION (STAMP MASTER VALVE ON TOP OF VALVE BOX). NORMALLY CLOSED.
R	RAINBIRD	100 PEB-PRS-D & 150 PEB-PRS-D	1" & 1 1/2" PLASTIC PRESSURE REGULATING REMOTE CONTROL VALVE (SIZE PER PLAN)		SIZE PER PLAN. BOLT VALVE BOX LID SHUT UPON INSTALLATION (STAMP VALVE # ON TOP OF VALVE BOX). NORMALLY CLOSED.
R	RAINBIRD	33-RC WITH 33DK VALVE KEY	QUICK COUPLING WITH RUBBER CAP AND VALVE KEY		INSTALL IN LOCKING VALVE BOX. LID SHUT AND LOCKED UPON INSTALLATION.
X	KBI	BLOCKED TRUE UNION BALL VALVE	PVC SCH 80 BALL VALVE (SIZE PER PLAN)		FOR ISOLATION OF VALVE MANIFOLDS, SET BELOW GRADE IN LOCKING VALVE BOX. (LINE SIZE, TYPICAL).
---	LATERAL LINE	SCH 40 PVC-UV (ON GRADE)	UV RESISTANT PVC LATERAL LINE (SEE PLAN AND LEGEND FOR SIZE)		STAKE ON GRADE AT 10' O.C. AND AT ALL CORNERS. STAKES SHALL EXTEND 12" (MIN.) INTO SUBGRADE. PLACE IN PVC SLEEVE 24" BELOW GRADE AT ALL TRAIL AND ROAD CROSSINGS. SIZE PER LATERAL PIPE SIZING TABLE.
=====	PRESSURE MAINLINE (BURIED)	2": CLASS 315 PVC 1 1/2": SCH 40	BURIED IRRIGATION MAINLINE		SET IN 18" (MIN.) DEEP TRENCH FOR LENGTH DEPICTED ON PLANS. SLEEVE AT ALL ROAD CROSSINGS IN 2X DIA. PVC. INSTALL THRUST BLOCKS AT ALL VERTICES AND CHANGES OF DIRECTION (PER NOTES). SIZE PER PLAN.
N.A.	SLEEVING	SCH 40 PVC	SLEEVING AT ROAD AND TRAIL CROSSINGS. LINE TO BE 2X PIPE SIZE IT WILL CARRY		STAKE SLEEVES TO BOTTOM OF TRENCHES. STAKES SHALL BE 48" O/C & EXTEND 18" INTO SOIL. SLEEVING SHALL BE 24" BELOW GRADE. INSTALL METALLIC BACKED MARKING TAPE ALONG LENGTH 12" ABOVE SLEEVE LABELED 'IRRIGATION' IN 2" CAPITAL LETTERS EVERY 3'.

TYPICAL VALVE CALL-OUT & CONTROLLER REFERENCE:



**THRUST BLOCKS:**

- THRUST BLOCKS SHALL BE INSTALLED ALONG THE LENGTH OF THE MAINLINE AT ALL CHANGES OF DIRECTION (TEES, ELBOWS), AT STOPS OR ENDS, AND AT EQUIPMENT DEPICTED IN THE LEGEND OR DETAILS.
- BURIED THRUST BLOCKS SHALL BE CONSTRUCTED AT THE OUTSIDE EDGE OF AN ELBOW OR DOWNSTREAM OF A TEE. AND ON-GRADE THRUST BLOCKS SHALL COMPLETELY ENCASE PIPES.
- ALL CONCRETE THRUST BLOCK BEARING FACES SHALL BE POURED AGAINST UNDISTURBED SOIL OR 90% COMPACTED BACKFILL. ON-GRADE THRUST BLOCKS SHALL BE POURED INTO A TEMPORARY CONSTRUCTED FORM FOR ALL EXPOSED BEARING FACES.
- A MINIMUM APWA CLASS 2000 PORTLAND CEMENT CONCRETE SHALL BE USED ON ALL THRUST BLOCKS.
- FITTINGS SHALL BE ENCASED IN AN 8 MIL VINYL WRAP PLASTIC COVER.
- THRUST BLOCKS SHALL BE A MINIMUM OF 1.5 CUBIC FEET, UNLESS OTHERWISE DEPICTED.

**OPERATION NOTES:**

- THIS IRRIGATION PLAN IS DESIGNED AS A TEMPORARY SYSTEM WITH DEACTIVATION AFTER SUITABLE ESTABLISHMENT OF NATIVE VEGETATION HAS BEEN ACHIEVED, AS DETERMINED BY THE ENGINEER.
- THE INITIAL IRRIGATION SCHEDULE AND MAXIMUM RUN TIME SHALL BE DETERMINED BY MEASURING THE TIME OF OPERATION THAT RESULTS IN SATURATION OF PLANTING AREA, BUT DOES NOT RESULT IN RUNOFF. A RUNOFF TEST SHALL BE CONDUCTED FOR EACH VALVE ON THE SYSTEM. THE VALVE SHALL BE TURNED ON AND ALLOWED TO OPERATE UNTIL RUNOFF IS OBSERVED. THE TIME RECORDED SHALL BE THE MAXIMUM RUN TIME FOR EACH VALVE. THE IRRIGATION SCHEDULE AND MAXIMUM RUN TIME SHALL BE REVIEWED AT AN INTERVAL ESTABLISHED BY THE ENGINEER AND ADJUSTED AS APPROPRIATE PER THE RECOMMENDATION OF THE ENGINEER.
- THE IRRIGATION SCHEDULE SHALL BE CONTINUALLY MONITORED AND ADJUSTED, AS NEEDED BASED ON CURRENT WEATHER CONDITIONS, PROGRESS IN PLANT ESTABLISHMENT, AND INDIVIDUAL CONTAINER PLANT HEALTH.

**LATERAL LINE PIPE SIZING CHART**

IRRIGATION GPM	MIN. PIPE SIZE	PIPE TYPE
0 - 8.5	3/4"	PVC SCH 40
8.5 - 12.5	1"	PVC SCH 40
12.5 - 22.5	1 1/4"	PVC SCH 40
22.5 - 34.5	1 1/2"	PVC SCH 40
34.5 - 54.5	2"	PVC CLASS 315
54.5 - 74.5	2 1/2"	PVC CLASS 315
74.5 - 110.0	3"	PVC CLASS 315

**GENERAL IRRIGATION NOTES:**

- 70 PSI MIN. STATIC PRESSURE REQUIRED AT P.O.C. A SIGNIFICANT REDUCTION IN AVAILABLE PRESSURE MAY REQUIRE REDESIGN OF SYSTEM TO ADEQUATELY OPERATE SPRAY EMITTERS.
- TRENCH ALIGNMENT FOR MAINLINE IRRIGATION RUNS SHALL BE INSTALLED OUTSIDE OF NATIVE VEGETATION OR ESL.
- SOIL DISTURBANCE FROM MAINLINE TRENCHING MAY REQUIRE INSTALLATION AND MAINTENANCE OF BEST MANAGEMENT PRACTICES (BMP) TO PREVENT EROSION OR DOWNSTREAM SEDIMENTATION.
- IRRIGATION SYSTEM IS SHOWN DIAGRAMMATICALLY. SYSTEM SHALL BE INSTALLED BASED ON A LAYOUT ADJUSTED TO GRADING LIMITS AND EXTENT OF THE STAGING AREA.

*REMOVE on City's acceptance of project site*

*NO OWNERSHIP OF LAND*

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LANDSCAPE PLAN	
SHEET XX OF 09 SHEETS	

**CONTAINER PLANT LEGEND**

SOUTHERN WILLOW SCRUB CHANNEL BANKS

SYMBOL	BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	GROUPING	TOTAL PLANTS	SPACING (O/C)	DETAIL
○	SALIX GOODINGII*	BLACK WILLOW	CUTTINGS	SINGLE	12'		(A)(B)
○	SALIX LASIOLEPIS*	ARROYO WILLOW	CUTTINGS	SINGLE	12'		(A)(B)
▨	ARTEMISIA DOUGLASIANA	CALIFORNIA MUGWORT	1 GAL.	GROUP (3)	3'		(C)
▨	BACCHARIS SALICIFOLIA	MULEFAT	1 GAL.	SINGLE	4'		
▨	IVA HAYESIANA	SAN DIEGO MARSH ELDER	1 GAL.	GROUP (4)	4'		(C)

\* PLANT ONLY CUTTINGS IN RIPRAP AREAS (PER DETAIL A) TOTAL PLANTS = TBD

SOUTHERN WILLOW SCRUB CHANNEL BOTTOM

SYMBOL	BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	GROUPING	TOTAL PLANTS	SPACING (O/C)	DETAIL
▨	ANEMOPSIS CALIFORNICA	YERBA MANSA	1 GAL.	GROUP (6)	3'		(C)
▨	ELYMUS TRITICOIDES	CREeping WILD RYE	LINERS	GROUP (6)	3'		
▨	SCHOENOPLECTUS CALIFORNICUS	CALIFORNIA BULRUSH	1 GAL.	GROUP (6)	3'		
▨	SCHOENOPLECTUS AMERICANUS	CHARMAKER'S BULRUSH	1 GAL.	GROUP (3)	2'		(C)

TOTAL PLANTS = TBD

**SEEDING LEGEND**

SOUTHERN WILLOW SCRUB - SEED MIX 'A' CHANNEL BANKS AND CHANNEL BOTTOM

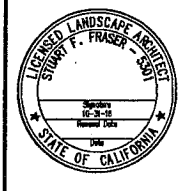
SYMBOL	BOTANICAL NAME	COMMON NAME	PLS	LBS/ACRE	TOTAL LBS.
▨	AMBROSIA PSILOSTACHYA	RAG WEED	6	3.0	
▨	ARTEMISIA DOUGLASIANA	CALIFORNIA MUGWORT	10	3.0	
▨	ARTEMISIA PALMERI	PALMER'S SAGEWORT	10	2.0	
▨	DISTICHLIS SPICATA	SALT GRASS	70	2.0	
▨	ELYMUS TRITICOIDES	CREeping WILD RYE	80	3.0	
▨	JUNCUS BUFONIUS	TOAD RUSH	60	1.5	
▨	JUNCUS MEXICANUS	MEXICAN RUSH	TBD	2.0	
▨	LUPINUS SUCCULENTUS	ARROYO LUPINE	90	1.5	
▨	PHACELIA RAMOSISSIMA	BRANCHING PHACELIA	80	1.5	
▨	PLANTAGO ERRECTA	DOT-SEED PLANTAIN	85	4.0	

COASTAL SAGE SCRUB- SEED MIX 'B' STAGING AREA TOTAL = 24.5 TBD

SYMBOL	BOTANICAL NAME	COMMON NAME	PLS	LBS/ACRE	TOTAL LBS.
▨	ACMISPON GLABOR	DEERWEED	85	2.0	
▨	ARTEMISIA CALIFORNICA	CALIFORNIA SAGEBRUSH	10	3.0	
▨	BROMUS CARINATUS	CALIFORNIA BROME	85	3.0	
▨	DIANANDRA FASCICULATA	COMMON TARPLANT	20	2.0	
▨	ENCELIA CALIFORNICA	CALIFORNIA ENCELIA	25	2.0	
▨	ERIOGONUM FASCICULATUM	FLAT-TOPPED BUCKWHEAT	10	4.0	
▨	ERIOPHYLUM CONFERTIFLORUM	GOLDEN YARROW	25	1.5	
▨	ESCHSCHOLZIA CALIFORNICA	CALIFORNIA POPPY	85	4.0	
▨	ISOCOMA MENZIESII	COAST GOLDENBUSH	15	1.5	
▨	LATHENIA CALIFORNICA	GOLDFIELDS	50	2.0	
▨	LUPINUS BICOLOR	MINIATURE LUPINE	90	2.0	
▨	PLANTAGO ERRECTA	DOT-SEED PLANTAIN	85	4.0	
▨	SALVIA MELIFERA	BLACK SAGE	40	3.0	
▨	STIPA PULCHRA	PURPLE NEEDLEGRASS	75	1.5	

TOTAL = 34.5 TBD

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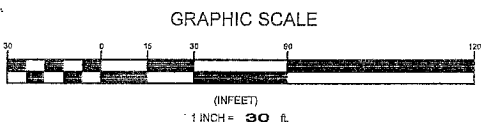
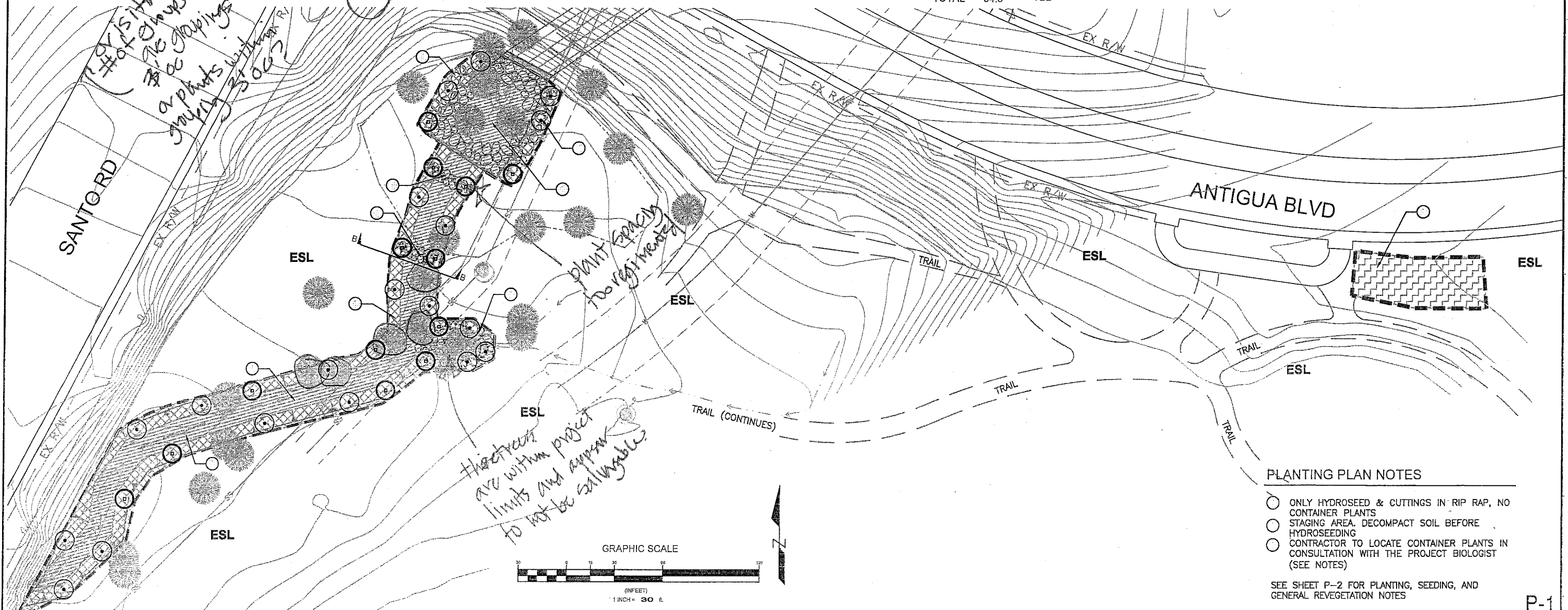


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**PLAN LEGEND**

- PROJECT LIMITS
  - TRAILS
  - EXISTING NATIVE TREES/RIPARIAN ZONE (PROJECT IN PLACE) OUTSIDE OF PROJECT LIMITS
  - EXISTING MANHOLE
  - ▨ STORM RIP RAP/CHANNEL
- ESL** ENVIRONMENTALLY SENSITIVE LANDS TO BE PROTECTED, NO ACCESS  
\* ALL ACCESS ROUTES TO BE PRE-APPROVED BY THE RE & PROJECT BIOLOGIST PRIOR TO USE.
- NOTE: SEE SHEET P-2 FOR PLANTING, SEEDING, AND GENERAL REVEGETATION NOTES



**PLANTING PLAN NOTES**

- ONLY HYDROSEED & CUTTINGS IN RIP RAP, NO CONTAINER PLANTS
- STAGING AREA. DECOMPACT SOIL BEFORE HYDROSEEDING
- CONTRACTOR TO LOCATE CONTAINER PLANTS IN CONSULTATION WITH THE PROJECT BIOLOGIST (SEE NOTES)

SEE SHEET P-2 FOR PLANTING, SEEDING, AND GENERAL REVEGETATION NOTES

P-1

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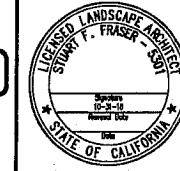
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**PLANTING PLAN & LEGENDS**

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**GENERAL REVEGETATION NOTES**

- REVEGETATION OF THE PROJECT AREA SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF SAN DIEGO LANDSCAPE STANDARDS AND CITY SPECIFICATIONS UNDER THE DIRECTION OF THE RESIDENT ENGINEER (RE) AND PROJECT BIOLOGIST.
- REVEGETATION SHALL BE ACCOMPLISHED IN A MANNER SO AS TO PROVIDE VISUAL AND HORTICULTURAL COMPATIBILITY WITH ADJACENT NATIVE VEGETATION.
- THESE PLANS ARE TO BE USED AS A GENERAL GUIDE FOR REVEGETATION WITH THE FINAL LAYOUT FOR PLANTING TO BE DETERMINED IN THE FIELD AND APPROVED BY THE PROJECT BIOLOGIST.
- ANY REVISIONS OR SUBSTITUTIONS SHALL REQUIRE REVIEW AND APPROVAL OF THE PROJECT BIOLOGIST.
- INVASIVE PLANT SPECIES INCLUDING BUT NOT LIMITED TO THOSE LISTED IN THE CITY'S LANDSCAPE STANDARDS ARE PROHIBITED AND SHALL BE ERADICATED AND REMOVED BY CONTRACTOR. ONLY NATIVE PLANT SPECIES SHALL BE USED FOR THIS PROJECT.
- ALL EROSION CONTROL BMPs SHALL BE INSTALLED THROUGHOUT THE PROJECT AREA ACCORDING TO CITY GUIDELINES. ALL BMPs, SHALL REMAIN IN PLACE, AND/OR SHALL BE RE-INSTALLED AFTER SOIL PREPARATION TO THE SATISFACTION OF THE PROJECT BIOLOGIST AND RE. BMPs SHALL INCLUDE, BUT NOT LIMITED TO SILT FENCING, FIBER ROLLS, AND SOIL TACKIFIER AND FIBER MULCH (APPLIED WITH HYDROSEEDING). ALL PRODUCTS SHALL BE UN-DECAYING, CLEAN AND FREE OF WEEDS, SEEDS, AND DEBRIS.
- EROSION CONTROL BMPs OR OTHER PROTECTION METHODS EXISTING PRIOR TO REVEGETATION, OR PROVIDED BY CONTRACTOR, AS RECOMMENDED BY THE RE SHALL BE REPLACED IN THE EVENT OF SIGNIFICANT EROSION EVENT, AS DETERMINED BY THE PROJECT BIOLOGIST AND/OR CITY.

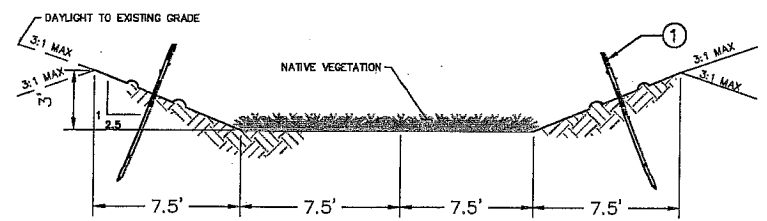
**PLANTING AND SEEDING NOTES:**

- ALL CHANNEL IMPROVEMENTS SHALL BE COMPLETE AND BMPs (FIBER ROLLS, SILT FENCES, GRAVEL BAGS, ETC.) INSTALLED AND APPROVED BY THE PROJECT BIOLOGIST PRIOR TO PLANTING AND HYDROSEEDING.
- ALL SEED AND CONTAINER PLANTS SHALL HAVE ORIGINATED FROM WITHIN SAN DIEGO COUNTY TO THE EXTENT PRACTICAL (E.G. WITHIN A 25 MILE RADIUS), OR AS APPROVED BY THE PROJECT BIOLOGIST, OR CONTRACTOR SHALL PROVIDE EVIDENCE THAT THE SEED AND/OR CONTAINER PLANTS ARE NOT AVAILABLE AND SHALL NOTIFY THE CITY REPRESENTATIVE AND THE PROJECT BIOLOGIST FOR ALTERNATIVE COMPLIANCE.
- CONTAINER PLANTS SHALL BE PROCURED FROM A NATIVE PLANT NURSERY QUALIFIED TO PROPAGATE AND CARE FOR NATIVE PLANT SPECIES.
- ALL SEEDS SHALL MEET THE MINIMUM % PURE LIVE SEED (PLS) AS NOTED IN TABLES. IF THE MINIMUM % PLS COUNT CANNOT BE MET CONTRACTOR SHALL COORDINATE AND OBTAIN WRITTEN APPROVAL FROM THE PROJECT BIOLOGIST FOR ALTERNATIVE COMPLIANCE (I.E. SUBSTITUTION, INCREASED QUANTITY). ANY POTENTIAL SUBSTITUTIONS MUST BE APPROVED BY THE PROJECT BIOLOGIST PRIOR TO APPLICATION OF SEED.
- %PLS (DEPICTED IN THE SEED PALETTE; P-1) IS CALCULATED BY MULTIPLYING THE PERCENT SEED PURITY BY PERCENT SEED GERMINATION, WHICH SHALL BE THE METHOD USED BY THE PROJECT BIOLOGIST TO DETERMINE SEED QUALITY.
- CONTRACTOR SHALL SUBMIT ALL SEED TAGS FOR SEED PRODUCTS TO BE USED WITHIN THE PROJECT TO THE RE AND PROJECT BIOLOGIST FOR APPROVAL PRIOR TO APPLICATION. ALL SEED TAGS FROM MATERIALS ACTUALLY APPLIED SHALL BE RETAINED BY THE CONTRACTOR AND SHALL BE TURNED OVER TO THE PROJECT BIOLOGIST IN ORDER TO VERIFY COMPLIANCE WITH THE SPECIFIED MATERIALS.
- CONTAINER PLANT MATERIAL MUST BE DELIVERED TO THE PROJECT SITE AT THE APPROPRIATE TIME, IN A HEALTHY AND VIGOROUS CONDITION AND SHALL HAVE AT LEAST ONE SAMPLE OF EACH PLANT SPECIES BE LABELED CLEARLY WITH BOTANICAL NAME AND COMMON NAME. THE PROJECT BIOLOGIST WILL REJECT ANY PLANT MATERIALS DELIVERED TO THE PROJECT SITE PRIOR TO THE AGREED UPON PLANTING DATE. PLANTS SHALL NOT BE STORED ON SITE FOR MORE THAN ONE DAY. SPECIMENS SHOWING EVIDENCE OF DISEASE, MISHANDLING, DEFECTS OR DAMAGE, OVER OR UNDER-WATERING, OR OTHER DEFICIENCY AT THE TIME OF DELIVERY WILL BE REJECTED.
- CUTTINGS SHALL BE CONSTRUCTED FROM LIVE HEALTHY ARROYO WILLOW (SALIX LASIOLEPIS) AND BLACK WILLOW (SALIX GOODINGII) TREES PRESENT ON SITE, DONOR TREES SHALL BE PRE-APPROVED BY THE PROJECT BIOLOGIST.
- COLLECTION OF CUTTING MATERIAL SHALL BE DURING THE WINTER PLANT DORMANCY PERIOD, OR A TIME APPROVED BY THE PROJECT BIOLOGIST. NO MORE THAN 10% OF VEGETATIVE MASS SHALL BE REMOVED FROM EACH DONOR TREE. NO BRANCHES GREATER THAN 2" SHALL BE CUT FROM ANY INDIVIDUAL DONOR PLANT. CUTTINGS SHALL BE PRUNED OF ALL LEAVES AND SIDE SHOOTS FOLLOWING COLLECTION.

- RIP RAP CUTTINGS SHALL BE 60" IN LENGTH (DETAIL C) AND CHANNEL CUTTINGS SHALL BE 24" IN LENGTH (DETAIL B). ALL CUTTINGS SHALL BE BETWEEN 3/4"-1.5" IN DIAMETER. CUTTINGS SHALL BE IMMEDIATELY SUBMERGED IN WATER AND SOAKED CONTINUOUSLY FOR 3-5 DAYS PRIOR TO INSTALLATION.
- ALL CONTAINER PLANTING AND CUTTING INSTALLATION SHALL BE PERFORMED DURING THOSE PERIODS WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE IN ACCORDANCE WITH LOCALLY ACCEPTED HORTICULTURAL PRACTICE AS APPROVED BY THE PROJECT BIOLOGIST. IN CASES OF UNSEASONABLE WEATHER, WORK SHALL BE DELAYED UNTIL WEATHER RETURNS TO NORMAL.
- THE SEED MIX AND CONTAINER PLANTS IDENTIFIED ON THE PLANTING PALETES SHALL BE APPLIED/INSTALLED IN ALL AREAS, AS SHOWN ON THE PLANTING AND SEEDING PLANS AND AS DIRECTED BY THE PROJECT BIOLOGIST.
- CONTAINER PLANTS WILL BE PLACED BY THE CONTRACTOR, PER THE LOCATIONS SHOWN ON THE PLANTING PLANS, AS SPECIFIED BY THE PLANTING NOTES OR DIRECTED BY THE PROJECT BIOLOGIST, FOR REVIEW AND APPROVAL BY THE PROJECT BIOLOGIST PRIOR TO ACTUAL PLANTING. THE SUGGESTED CONTAINER PLANT INSTALLATION PROCEDURE SHALL BE AS SHOWN ON THE PLANTING PLANS, DETAILS AND/OR AS DIRECTED BY THE PROJECT BIOLOGIST.
- SEEDING SHALL OCCUR ONLY AFTER THE PROJECT BIOLOGIST HAS OBSERVED AND APPROVED THAT THE SITE HAS BEEN PROPERLY PREPARED AND FOLLOWING INSTALLATION OF THE CONTAINER PLANTS
- THE SEED SHALL BE INSTALLED VIA HYDROSEED METHODS, UNLESS OTHERWISE DIRECTED BY THE PROJECT BIOLOGIST. SEED APPLIED BETWEEN NOVEMBER - MARCH SHALL ACHIEVE 100% COVER UPON APPLICATION OF THE FOLLOWING SLURRY MIX:
- TYPE 9 MULCH (WOOD FIBER) W/GREEN MARKER DYE APPLIED AT A MINIMUM RATE OF 1,500 POUNDS PER ACRE
- ECOLOGY CONTROL M-BINDER TACKIFIER APPLIED AT A MINIMUM RATE OF 150 LBS. PER ACRE.
- AM 120 MYCORRHIZAL INOCULUM, OR EQUAL. APPLIED AT THE MINIMUM RATE OF 60 POUNDS PER ACRE
- PROTECT CONTAINER PLANTS AND EXISTING NATIVE VEGETATION FROM HYDROSEED SPRAY, OR WASH HYDROSEED MULCH OFF EXISTING NATIVE VEGETATION WITHIN 24 HOURS OF HYDROSEED APPLICATION.

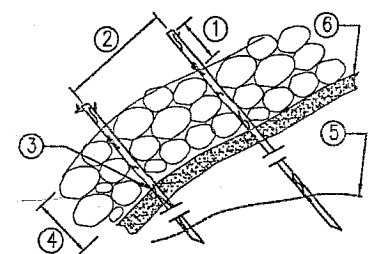
**PRE-PLANTING SITE PREPARATION NOTES**

- CONTRACTOR SHALL COLLECT TWO SOIL SAMPLES FROM SWS REVEGETATION AREAS FOLLOWING COMPLETION OF GRADING. SAMPLES SHALL BE SUBMITTED FOR AGRICULTURAL SUITABILITY ANALYSIS. THE PROJECT BIOLOGIST MAY REQUIRE AMENDMENTS DIRECTLY INCORPORATED INTO THE SOIL, OR INCLUDED IN THE HYDROSEED MIX BASED ON THE RESULTS OF ANALYSIS.
- THE CSS STAGING AREA SHALL BE DECOMPACTED TO A MAXIMUM OF 85% PRIOR TO SEED APPLICATION. CSS REVEGETATION AREAS SHALL BE CROSS-RIPPED A MINIMUM OF 8" DEEP, TWO DIRECTIONS AND TRACK WALKED TO A UNIFORM SURFACE PATTERN. DECOMPACTION REQUIRES APPROVAL OF THE PROJECT BIOLOGIST PRIOR TO SEEDING.
- THE UPPER EIGHT INCHES OF SOIL WITHIN CHANNEL REVEGETATION AREAS (EXCLUDING RIPRAP AREAS) SHALL BE A MAXIMUM 85% (PER ENGINEERING PLANS), AS CONFIRMED BY THE RE.



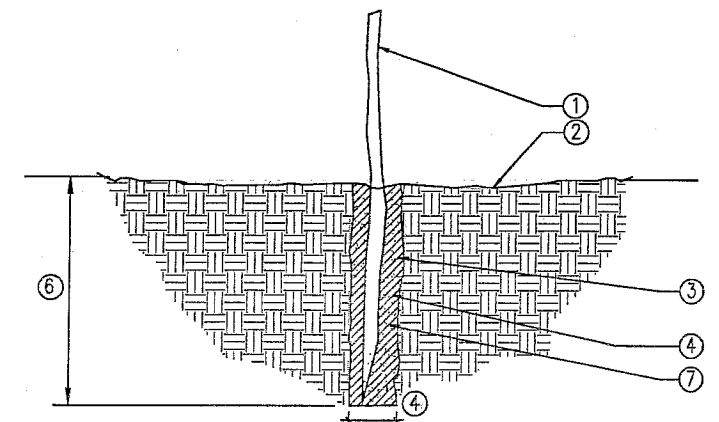
**SECTION B-B: CUTTING IN LOW FLOW CHANNEL**

NOTE: FURNISH AND INSTALL WILLOW STAKES PER DETAIL A & B, THIS SHEET, LOW FLOW WILLOW STAKES IN GRADE, AND IN RIP RAP



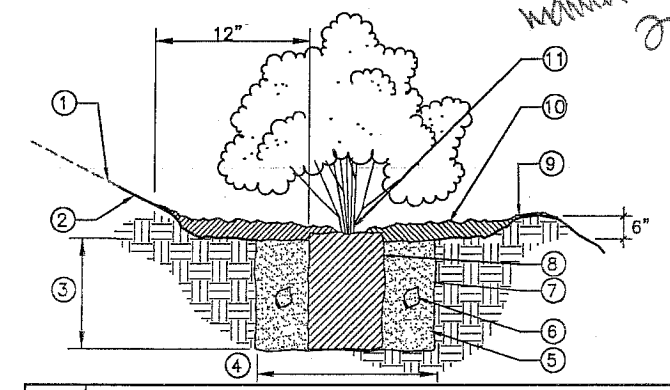
ITEM	DESCRIPTION
1	12" MIN. WILLOW CUTTING ABOVE RIP RAP
2	LOCATE PER PLAN
3	DO NOT PENETRATE GEOTEXTILE IF PIPING/SAPPING IS A CONCERN
4	MAXIMUM THICKNESS IS TYPICALLY < 24"
5	CUTTINGS MUST EXTEND TO LOWEST WATER OF THE YEAR
6	CUTTINGS MUST PENETRATE GEOTEXTILE OR GRANULAR FILTER IF USED

**A** WILLOW CUTTING IN RIP RAP  
NO SCALE



ITEM	DESCRIPTION
1	24" CUTTING (SEE PLANT LIST FOR SPECIES)
2	FINISH GRADE
3	AMENDED SOIL (PER NOTES & SPECIFICATIONS)
4	2" DIAMETER AUGERED PIT (LIGHTLY TAMP SURFACE AFTER PLANTING)
5	TREAT BELOW-GRADE PORTION OF CUTTING WITH ROOTING HORMONE
6	12" DEPTH
7	FILL AUGERED HOLE COMPLETELY WITH WATER AND ALLOW TO DRAIN BEFORE PLANTING

**B** WILLOW CUTTING IN CHANNEL  
NO SCALE



ITEM	DESCRIPTION
1	GRADE AT SLOPE
2	FINISH GRADE
3	DEPTH OF ROOT BALL
4	TWO TIMES WIDTH OF ROOT BALL
5	WATER AND TAMP BACKFILL MIX WELL
6	2 CONTROLLED RELEASE FERTILIZER PACKETS TO BE INCLUDED IN BACKFILL MIX (PER SPECS.)
7	SCARIFY SIDES OF PLANTING PIT
8	ROOT BALL
9	WATERING BASIN 6" ABOVE FINISH GRADE
10	3" THICK SHREDDED BARK MULCH LAYER 18" RADIUS, HOLD BACK 3" FROM ROOT CROWN
11	ROOT CROWN OF SHRUB 1" ABOVE FINISH GRADE

**C** 1 GAL NATIVE CONTAINER PLANT  
NOT TO SCALE



REVISIONS	BY	APPROVED	DATE

COORDINATE INDEX	
210 N	1731 E
CONST. COMPL	
FIELD REVISIONS	