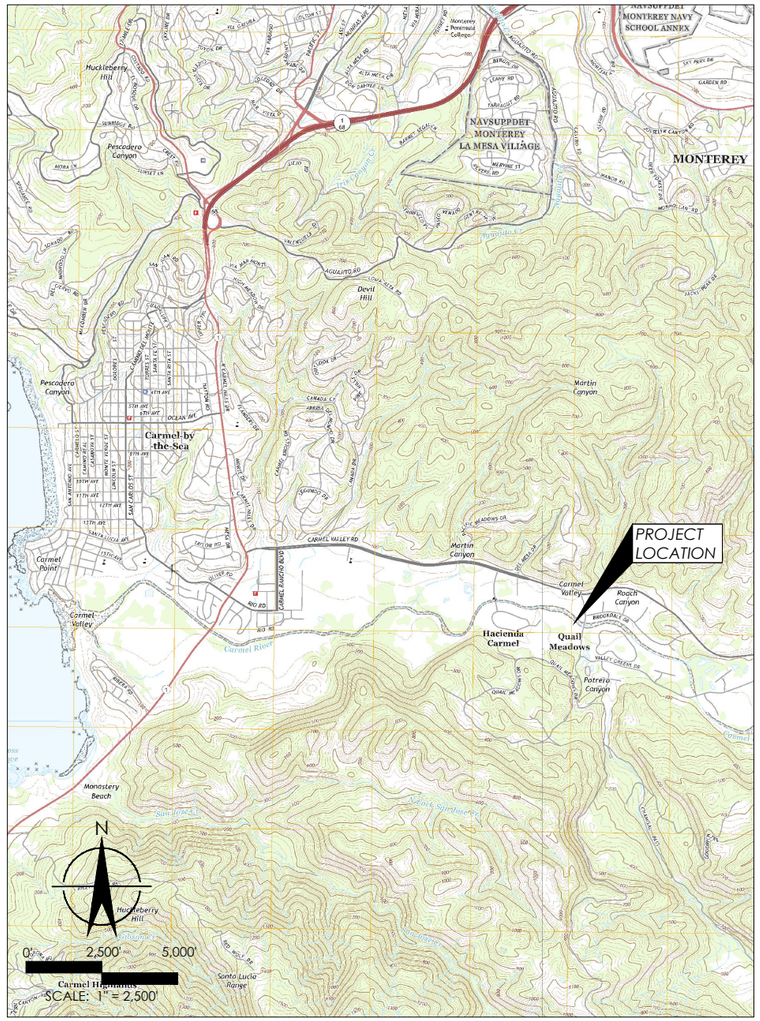
CARMEL RIVER BANK STABILIZATION AT RANCHO SAN CARLOS ROAD

MONTEREY COUNTY, CALIFORNIA

LOCATION MAP



PREPARED FOR:

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT
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CIVIL ENGINEER/ GEOMORPHOLOGIST:

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SHEET INDEX:

SCHEDULE OF MATERIALS:

ITEM	UNIT	QTY
Environmental Requirements		
Construction Limit Fencing	LF	800
Temporary Wattles	LF	300
Temporary Construction Entrance	EA	1
Erosion Control/Environmental Compliance	LS	1
Layout and Staking	DAYS	2
Mobilization and Demobilization	LS	1
Temporary Diversion and Dewatering		
Base Bid	LS	1
Bid Alternate	LS	1
Log Cribwall		
Excavation[1]	CY	225
Fill[2]	CY	450
15' x 9" Logs	EA	36
15' x 12" Logs	EA	36
15' x 15" Logs	EA	41
15' x 15" Logs with Rootwads	EA	5
1.5-ton Boulders	EA	350
1-ton Boulders	EA	232
1/2-ton Rock	CY	175
Bolted Connections	EA	252
Channel Bed Fill[1]	CY	175
Willow Branches	EA	2,000
Construct Cribwall	LS	1

ITEM	UNIT	QTY
Right Bank Stabilization		
Excavation	CY	55
Fill	CY	55
Bank Logs	EA	3
Footer Logs	EA	2
1.5-ton Boulders	EA	72
Duckbill anchor	EA	3
Construct Right Bank Stabilization	LS	1
Willow Posts	EA	26
Willow Poles	EA	375
Seeding	SF	5,500
Erosion Control Blanket	SF	4,700

1. THE EXCAVATION FOR THE LOG CRIBWALL IS ANTICIPATED TO PRODUCE ENOUGH SUITABLE MATERIAL FOR REUSE AS CHANNEL BED FILL.
2. FILL IS COUNTED AS THE NATIVE SOIL THAT WILL BE REPLACED ABOVE THE LOG CRIBWALL.

MATERIALS QUANTITIES ARE APPROXIMATE. ACTUAL QUANTITIES MAY VARY DEPENDING ON FIELD CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL MATERIALS TO CONSTRUCT THE PROJECT AS SHOWN IN THESE DRAWINGS.

PREPARED FOR: MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

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SUBMITTALS / REVISIONS	BY	DATE
DRAFT DESIGN	PK	20170706
FINAL DESIGN	PK	20170718
FINAL DESIGN (REVISED)	PK	20180302

DESIGNED BY P KULCHAWIK
DRAWN BY P KULCHAWIK
CHECKED BY E BALLMAN
IN CHARGE P KULCHAWIK
DATE 20180302

REGISTERED PROFESSIONAL ENGINEER PETER KULCHAWIK No. C83062 Exp. 09-30-18 CIVIL STATE OF CALIFORNIA

COVER SHEET

CARMEL RIVER BANK STABILIZATION AT RANCHO SAN CARLOS ROAD
MONTEREY COUNTY, CALIFORNIA
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

PROJECT NUMBER 217107
SCALE --
SHEET 1.0

FINAL DESIGN

Y:_PROJECTS\217107 CARMEL RIVER - SAN CARLOS STREAMBANK RESTORATION\217107 CAD\217107 SHEETS\217107-010-COVER.DWG

LEGEND:

EXISTING MAJOR CONTOUR - 5 FT — 40

EXISTING MINOR CONTOUR -1 FT

EXISTING CHANNEL THALWEG

EXISTING PROPERTY LINE

PROPOSED MAJOR CONTOUR — 40

PROPOSED MINOR CONTOUR

GRADE BREAK

GRADING LIMIT

CONSTRUCTION LIMIT FENCING — CLF — CLF — CLF

TEMPORARY WATTLE

TEMPORARY DIVERSION PIPE — DIV — DIV

PROPOSED FINISHED GRADE ELEVATION — 40.0

PROPOSED EMBANKMENT SLOPE (3:1 UNLESS NOTED OTHERWISE)

PROPOSED BOULDERS

PROPOSED 1/2 TON ROCK-CBF MIXTURE

SEEDING AREA

CONTROL POINT (CP)

ABBREVIATIONS:

'	FEET
"	INCH
#	NUMBER
APPROX	APPROXIMATE
CBF	CHANNEL BED FILL
CCR	CALIFORNIA CODE OF REGULATIONS
CLF	CONSTRUCTION LIMIT FENCING
DBH	DIAMETER AT BREAST HEIGHT (4' FROM GROUND)
DIA, Ø	DIAMETER
E	EASTING
ECB	EROSION CONTROL BLANKET
EG	EXISTING GRADE
ELEV	ELEVATION
EX	EXISTING
FG	FINISH GRADE
FT	FEET
GALV	GALVANIZED
H	HORIZONTAL
IN	INCH
LB	POUND
LF	LINEAR FEET
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
MPWMD	MONTEREY PENINSULA WATER MANAGEMENT DISTRICT
N	NORTHING
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
PROP	PROPOSED
Q10	10-YEAR STREAMFLOW
Q100	100-YEAR STREAMFLOW
RCP	REINFORCED CONCRETE PIPE
STA	STATION
TYP	TYPICAL
V	VERTICAL
WSE	WATER SURFACE ELEVATION
YR	YEAR
Z	ELEVATION

FINAL DESIGN

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE PROJECT SITE TO VERIFY SITE CONDITIONS AND FOR COMPLETELY UNDERSTANDING THE REQUIRED SCOPE OF WORK SHOWN ON THESE DRAWINGS AND CONTAINED IN THE PROJECT SPECIFICATIONS.
2. ALL PARTS OF THIS PROJECT - INCLUDING SOIL PREPARATION, EARTHWORK, AND PLANTING - ARE SUBJECT TO FIELD DESIGN BY THE ENGINEER'S REPRESENTATIVE. AT ANY TIME, THE CONTRACTOR'S OPERATIONS AND CONSTRUCTION MAY BE SUBJECT TO OBSERVATION BY THE ENGINEER'S REPRESENTATIVE. WHEN REQUESTING THE PRESENCE OF THE ENGINEER'S REPRESENTATIVE AT THE PROJECT SITE FOR DESIGN CLARIFICATION, STAGE ACCEPTANCE, OR OTHER APPROVALS, THE CONTRACTOR SHALL PROVIDE 48 HOURS ADVANCE NOTICE DIRECTLY TO THE ENGINEER'S REPRESENTATIVE.
3. UTILITY LOCATIONS DEPICTED HEREIN ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES BEFORE THE START OF ANY CONSTRUCTION OPERATIONS, INCLUDING AND NOT LIMITED TO EXCAVATION OR TRENCHING. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (USA) AT 811/1-800-227-2600. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS ADVANCE NOTICE FOR LOCATING UTILITIES.
4. THE CONTRACTOR SHALL INSTALL CONSTRUCTION LIMIT FENCING, AND STAKE AND FLAG THE LIMITS OF GRADING AT LOCATIONS SHOWN ON THE DRAWINGS BEFORE THE START OF ANY OTHER SITE WORK INCLUDING DEMOLITION, CLEARING AND GRUBBING, AND EARTHWORK. REFER TO THE ENVIRONMENTAL REQUIREMENTS NOTES (THIS SHEET) FOR ADDITIONAL REQUIREMENTS AND INFORMATION.
5. THE CONTRACTOR SHALL CONTACT THE ENGINEER'S REPRESENTATIVE IMMEDIATELY UPON FINDING ANY FIELD CONDITIONS THAT WOULD CONFLICT WITH THE INFORMATION INDICATED ON THESE DRAWINGS OR THE PROJECT SPECIFICATIONS. ALL FIELD ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER'S REPRESENTATIVE BEFORE CONSTRUCTION OF SAID ADJUSTMENTS; FAILURE TO DO SO SHALL RESULT IN THE CONTRACTOR ASSUMING FULL RESPONSIBILITY FOR ANY REQUIRED REVISIONS OR FIELD MODIFICATIONS, AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE, AT NO ADDITIONAL COST.
6. CONFORM TO EXISTING GRADES AND CONDITIONS WHENEVER POSSIBLE. ANY ADJACENT OR OFFSET AREAS DISTURBED BY THE CONTRACTOR'S OPERATION MUST BE RESTORED BY THE CONTRACTOR TO THE PRE-DISTURBANCE CONDITIONS TO THE SATISFACTION OF THE ENGINEER'S REPRESENTATIVE.
7. ALL LUBRICATION, REFUELING, OR MAINTENANCE OF CONSTRUCTION VEHICLES SHALL BE CONDUCTED WITHIN APPROVED CONSTRUCTION STAGING AREAS.
8. STAGING AREAS MUST BE CONTAINED BY MEANS DESCRIBED IN THE ENVIRONMENTAL REQUIREMENTS NOTES (THIS SHEET) TO CONFINE THE AREA AND PREVENT CONTAMINANTS FROM ENTERING NEARBY CHANNELS AND WATER BODIES.
9. ELEVATIONS ARE RELATIVE TO THE NAVD 88 DATUM.
10. NORTHING AND EASTING COORDINATES ARE IN CALIFORNIA STATE PLANE NAD 83 ZONE IV.
11. PRESERVE TREES AND VEGETATION OUTSIDE OF THE LIMITS OF WORK. ANY TREES OR VEGETATION DISTURBED OUTSIDE OF THE LIMITS OF WORK SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ANY TREES GREATER THAN 6" THAT ARE OUTSIDE OF THE GRADING LIMITS AND INTERFERE WITH THE WORK MAY ONLY BE REMOVED WITH APPROVAL FROM THE ENGINEER'S REPRESENTATIVE.
12. THE CONTRACTOR SHALL PREPARE A TRAFFIC CONTROL PLAN TO MITIGATE FOR ANY ANTICIPATED IMPACTS TO TRAFFIC ON RANCHO SAN CARLOS ROAD, AND TO PROVIDE ALL SIGNAGE AND FLAGGING CREWS FOR VEHICLE AND PEDESTRIAN SAFETY.

EARTHWORK NOTES:

1. EARTHWORK OPERATIONS SHALL BE EXECUTED ACCORDING TO THESE PLANS AND THE RELEVANT PROJECT PERMITS.
2. THE CONTRACTOR SHALL CONSTRUCT FINISHED SURFACES TO ±0.3' OF THE ELEVATIONS INDICATED ON THE PLANS.
3. EXCAVATING, FILLING, AND GRADING WORK SHALL NOT BE PERFORMED DURING WEATHER CONDITIONS WHICH MIGHT DAMAGE OR BE DETRIMENTAL TO THE CONDITION OF EXISTING GROUND, IN-PROGRESS WORK, OR COMPLETED WORK. WHEN THE WORK IS INTERRUPTED BY RAIN; EXCAVATING, FILLING, AND GRADING WORK SHALL NOT RESUME UNTIL THE SITE AND SOIL CONDITION (MOISTURE CONTENT) ARE SUITABLE FOR COMPACTION.
4. SOIL MATERIAL THAT IS TOO WET FOR COMPACTION SHALL BE LEFT TO DRAIN, THEN TO BE AERATED AND DRIED BY DISKING AND HARROWING OR OTHER APPROVED METHODS UNTIL THE MOISTURE CONTENT OF THE MATERIAL IS UNIFORM AND WITHIN THE SPECIFIED LIMITS.
5. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS FOR THE EROSION CONTROL MEASURES SHOWN ON THESE PLANS.
6. MATERIAL USED FOR FILL SHALL BE AN INERT, INORGANIC SOIL, FREE FROM DELETERIOUS SUBSTANCES, AND OF SUCH QUALITY THAT IT WILL COMPACT THOROUGHLY WITHOUT THE PRESENCE OF VOIDS WHEN ROLLED. INORGANIC SOIL IS DEFINED AS SOIL CONTAINING LESS THAN TWO PERCENT BY WEIGHT OF ORGANIC MATERIAL WHEN TESTED IN ACCORDANCE WITH ASTM D2974. EXCAVATED ON-SITE MATERIAL WILL BE CONSIDERED SUITABLE FOR FILL, IF IT IS FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES AND CONFORMS TO THE REQUIREMENTS SPECIFIED HEREIN.
7. EXCAVATED MATERIAL THAT IS SUITABLE FOR FILL SHALL BE CONDITIONED FOR REUSE AND PROPERLY STOCKPILED FOR LATER FILLING OPERATIONS. CONDITIONING SHALL CONSIST OF SPREADING MATERIAL IN LAYERS NOT TO EXCEED 8 INCHES THICK AND RAKING FREE OF DEBRIS AND RUBBLE. CONDITIONING MAY TAKE PLACE WITHIN THE GRADING LIMITS AND STAGING AREAS. EXCAVATED MATERIALS SHALL BE DEEMED SUITABLE IF MATERIALS CONFORM TO THE NOTES HEREIN AND ARE ACCEPTED BY THE ENGINEER'S REPRESENTATIVE. DELETERIOUS MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF.
8. MATERIAL EXCAVATED FROM THE PROJECT SITE SHALL BE DEEMED UNSUITABLE FOR REUSE IF IT IS: OF SUCH NATURE AS TO BE INCAPABLE OF BEING COMPACTED TO SPECIFIED DENSITY USING ORDINARY METHODS, TOO WET TO BE PROPERLY COMPACTED AND CIRCUMSTANCES PREVENT SUITABLE DRYING PRIOR TO INCORPORATION INTO THE WORK, FOUND TO CONTAIN DEBRIS WASTE, VEGETATION OR OTHER DELETERIOUS MATTER, OR OTHERWISE DEEMED UNSUITABLE BY THE ENGINEER'S REPRESENTATIVE.
9. MAINTAIN SLOPES AND EMBANKMENTS UNTIL SUBSTANTIAL COMPLETION AND ACCEPTANCE OF THE WORK. PROMPTLY REPAIR SLIDES, SLIPOUTS, WASHOUTS, SETTLEMENTS, AND SUBSIDENCES THAT OCCUR FOR ANY REASON, AND REFINISH THE SLOPE OR EMBANKMENT TO THE INDICATED LINES AND GRADES. COMPLY WITH APPLICABLE REQUIREMENTS OF CCR, TITLE 8, TRENCH CONSTRUCTION SAFETY ORDERS.
10. THE CONTRACTOR SHALL TAKE ALL MEANS NECESSARY TO PREVENT THE INTRODUCTION AND SPREAD OF NON-NATIVE PLANTS.
11. EXCAVATE AND SEPARATELY STOCKPILE SUITABLE MATERIAL FOR FILL. STOCKPILE COARSE MATERIAL EXCAVATED FROM THE RIVERBED SEPARATELY (FOR POSSIBLE REUSE AS CBF) FROM FINER MATERIAL EXCAVATED FROM THE UPPER BANK. ESTABLISH STOCKPILES ON SITE ONLY IN LOCATIONS WHERE THEY DO NOT INTERFERE WITH THE PROGRESS OF WORK.
12. FILL MATERIAL SHALL BE PLACED IN LIFTS NO GREATER THAN 8 INCHES EACH. COMPACT EACH LAYER OF FILL MATERIAL TO NOT LESS THAN 85 PERCENT RELATIVE COMPACTION, AS DETERMINED BY ASTM D1557. THE CONTRACTOR IS RESPONSIBLE FOR ACHIEVEMENT OF PROPER COMPACTION DURING FILL AND BACKFILL PLACEMENT.
13. IMPORTED FILL MATERIAL SHALL BE CERTIFIED WEED-FREE, GRANULAR MATERIAL NEARLY FREE OF ORGANIC DEBRIS WITH A LIQUID LIMIT LESS THAN 40, A PLASTICITY INDEX LESS THAN 15, 100 PERCENT PASSING THE 8-INCH SIEVE, AND LESS THAN 30 PERCENT PASSING THE NO. 200 SIEVE.
14. ENSURE THAT THE TOP 2" OF SOIL IN PLACED FILL IS FREE OF CONCRETE, RUBBLE, DEBRIS, BRANCHES, ROOTS, STUMPS, WIRE, OR OTHER DELETERIOUS MATTER 1" IN DIAMETER AND LARGER. DISPOSE OF DEBRIS OFFSITE ACCORDING TO STATE AND LOCAL REGULATIONS AT NO ADDITIONAL COST.
15. THE CONTRACTOR SHALL PROVIDE ADEQUATE DUST CONTROL MEASURES DURING EARTHWORK OPERATIONS THAT ARE IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS, ALONG WITH PERMIT CONDITIONS.
16. THE ENGINEER'S REPRESENTATIVE SHALL APPROVE FINISH GRADE ELEVATIONS.

ENVIRONMENTAL REQUIREMENTS NOTES:

1. NO DEBRIS, SOIL, SILT, SAND, BARK, SLASH, SAWDUST, ASPHALT, RUBBISH, PAINT, OIL, CEMENT OR CONCRETE OR WASHINGS THEREOF, OIL OR PETROLEUM PRODUCTS, OR OTHER ORGANIC OR EARTHEN MATERIALS FROM CONSTRUCTION ACTIVITIES SHALL BE ALLOWED TO ENTER INTO OR BE PLACED WHERE IT MAY BE WASHED BY RAINFALL OR RUNOFF OUTSIDE THE CONSTRUCTION LIMITS. WHEN OPERATIONS ARE COMPLETED, EXCESS MATERIALS OR DEBRIS SHALL BE REMOVED FROM THE WORK AREA BY LEGAL MEANS AND AT THE COST OF THE CONTRACTOR.
2. THE CONTRACTOR SHALL NOT CREATE A NUISANCE OR POLLUTION AS DEFINED IN THE CALIFORNIA WATER CODE. THE CONTRACTOR SHALL NOT CAUSE A VIOLATION OF ANY APPLICABLE WATER QUALITY STANDARDS FOR RECEIVING WATERS ADOPTED BY THE REGIONAL BOARD OR THE STATE WATER RESOURCES CONTROL BOARD, AS REQUIRED BY THE CLEAN WATER ACT.
3. PROVIDE ADEQUATE CONTROLS FOR DUST, WATER POLLUTION, AIR POLLUTION, AND NOISE POLLUTION PER THE GENERAL CONTRACT PROVISIONS.
4. THE CONTRACTOR SHALL CLEAN UP ALL SPILLS AND IMMEDIATELY NOTIFY THE ENGINEER'S REPRESENTATIVE IN THE EVENT OF A SPILL.
5. STATIONARY EQUIPMENT SUCH AS MOTORS, PUMPS, AND GENERATORS, SHALL BE EQUIPPED WITH DRIP PANS.
6. THE CONSTRUCTION SITE SHALL BE MAINTAINED TO ENSURE THAT DRAINAGE FROM THE SITE WILL MINIMIZE EROSION OF STOCKPILED OR STORED MATERIALS AND THE ADJACENT NATIVE SOIL MATERIAL. THE CONTRACTOR SHALL REPLACE MATERIALS LOST DUE TO EROSION AT NO ADDITIONAL COST AND BE RESPONSIBLE FOR REMEDIATING ANY IMPACTS AT OR OUTSIDE THE PROJECT SITE FROM ERODED MATERIALS.
7. ALL CONSTRUCTION EQUIPMENT SHALL BE PROPERLY SERVICED AND MAINTAINED IN EXCELLENT OPERATING CONDITION TO REDUCE EMISSIONS. NO LEAKS OF ANY SIZE ARE PERMITTED AT ANY TIME. THE CONTRACTOR SHALL SECURE REPLACEMENTS FOR ANY EQUIPMENT THAT IS INOPERABLE FOR MORE THAN TWO (2) DAYS. CONTRACTOR SHALL MAKE COPIES OF EQUIPMENT SERVICE LOGS AVAILABLE UPON REQUEST.
8. EXCESS MATERIAL SHALL BE DISPOSED OF CONSISTENT WITH ALL APPLICABLE LEGAL REQUIREMENTS. FOR MATERIALS DISPOSED OFFSITE, THE CONTRACTOR SHALL OBTAIN DISPOSAL FACILITY PERMITS. RECYCLED MATERIALS SHALL BE RECYCLED OFFSITE AS PER STATE AND LOCAL REGULATIONS. ANY CHEMICAL OR HAZARDOUS MATERIAL USED IN THE PERFORMANCE OF THE WORK SHALL BE HANDLED, STORED, APPLIED, AND DISPOSED OF CONSISTENT WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
9. CONSTRUCTION LIMIT FENCING MATERIAL SHALL BE BRIGHTLY COLORED (CLEARLY VISIBLE), AT LEAST 48 INCHES HIGH, AND SECURELY FASTENED TO METAL POSTS. CONSTRUCTION LIMIT FENCING MUST BE CAPABLE OF PREVENTING THE PUBLIC FROM ENTERING THE WORK AREA. CONSTRUCTION LIMIT FENCING SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PERIOD AND REMOVED BY THE CONTRACTOR UPON FINAL APPROVAL FROM MPWMD.
10. TEMPORARY WATTLES SHALL BE CERTIFIED AS WEED-FREE AND SHALL BE CAPABLE OF CONTROLLING SEDIMENT AND RUNOFF AS DESCRIBED HEREIN.
11. ALL PORTIONS OF THE WORK AREA COMPACTED BY CONSTRUCTION ACTIVITIES, INCLUDING CONSTRUCTION ACCESS ROUTES, SHALL BE DECOMMISSIONED BY LOOSENING COMPACTED SOILS TO AN AVERAGE DEPTH OF TWELVE (12) INCHES WITHOUT INVERTING THE SOIL PROFILE. THIS METHOD OF SOILS LOOSENING CAN BE ACCOMPLISHED BY INSERTING THE BUCKET OF AN EXCAVATOR OR BACKHOE (WITH OR WITHOUT BUCKET MOUNTED RIPPING TINES) VERTICALLY INTO THE SOILS PROFILE AND REMOVING THE BUCKET WITHOUT CURLING THE BUCKET. THE INTENTION OF THIS LOOSENING METHOD IS TO MINIMIZE DISTURBANCE TO EXISTING VEGETATION AND TO MAINTAIN THE MAJORITY OF EXISTING TOPSOIL AND PLANT DETRITUS ON OR NEAR THE SOIL SURFACE WHEN LOOSENING IS COMPLETE. THE CONTRACTOR SHALL REVEGETATE DECOMMISSIONED AREAS PER THE DIRECTION OF MPWMD.

PREPARED FOR: MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

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SUBMITTALS / REVISIONS	BY	DATE
DRAFT DESIGN	PK	20170706
FINAL DESIGN	PK	20170718
FINAL DESIGN (REVISED)	PK	20180302

DESIGNED BY	P KULCHAWIK
DRAWN BY	P KULCHAWIK
CHECKED BY	E BALLMAN
IN CHARGE	P KULCHAWIK
DATE	20180302

REGISTERED PROFESSIONAL ENGINEER — PETER K. KULCHAWIK — No. C83062 — Exp. 09/30/18 — CIVIL — STATE OF CALIFORNIA

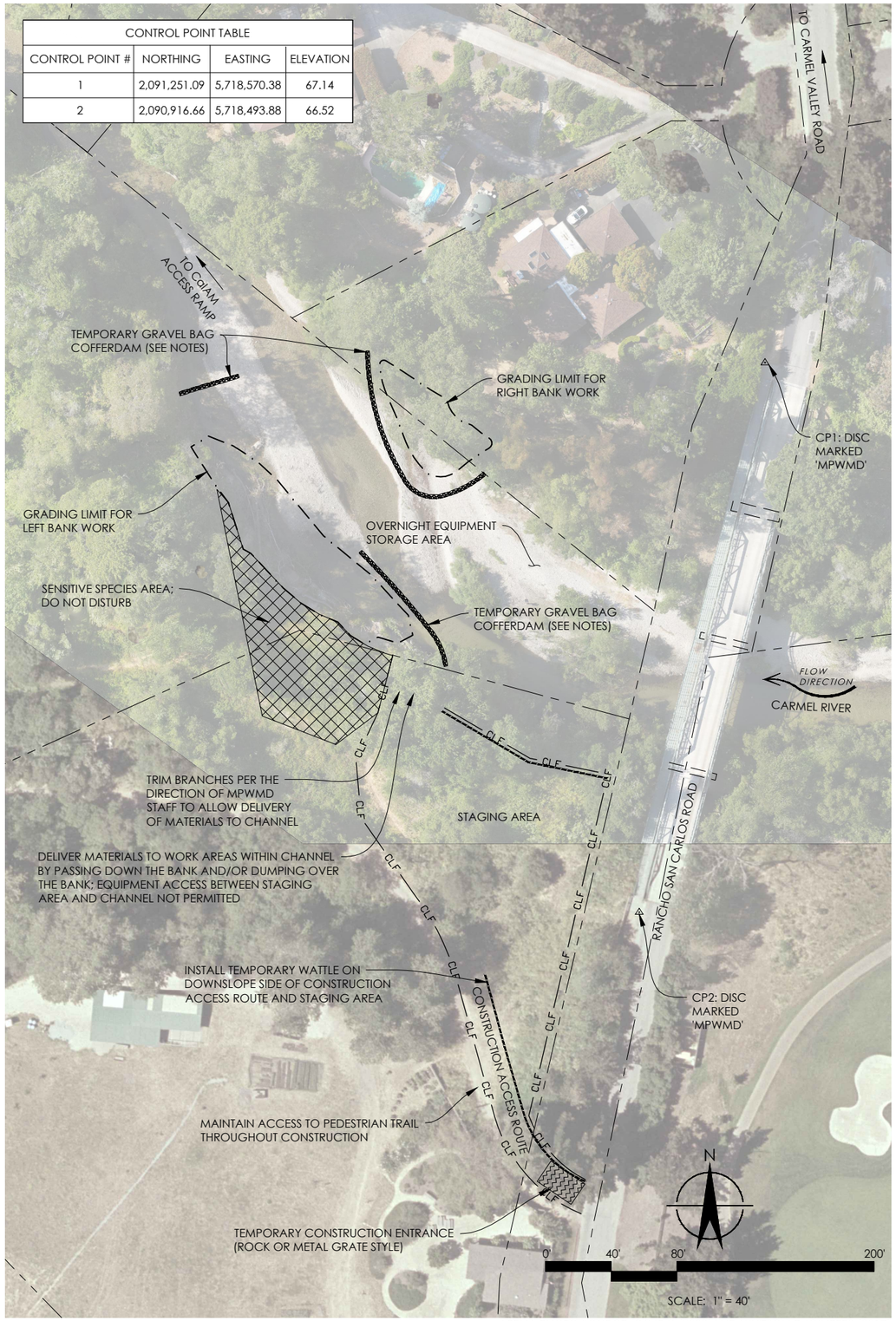
GENERAL NOTES

CARMEL RIVER BANK STABILIZATION AT RANCHO SAN CARLOS ROAD
MONTEREY COUNTY, CALIFORNIA
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

PROJECT NUMBER 217107
SCALE --
SHEET 2.0

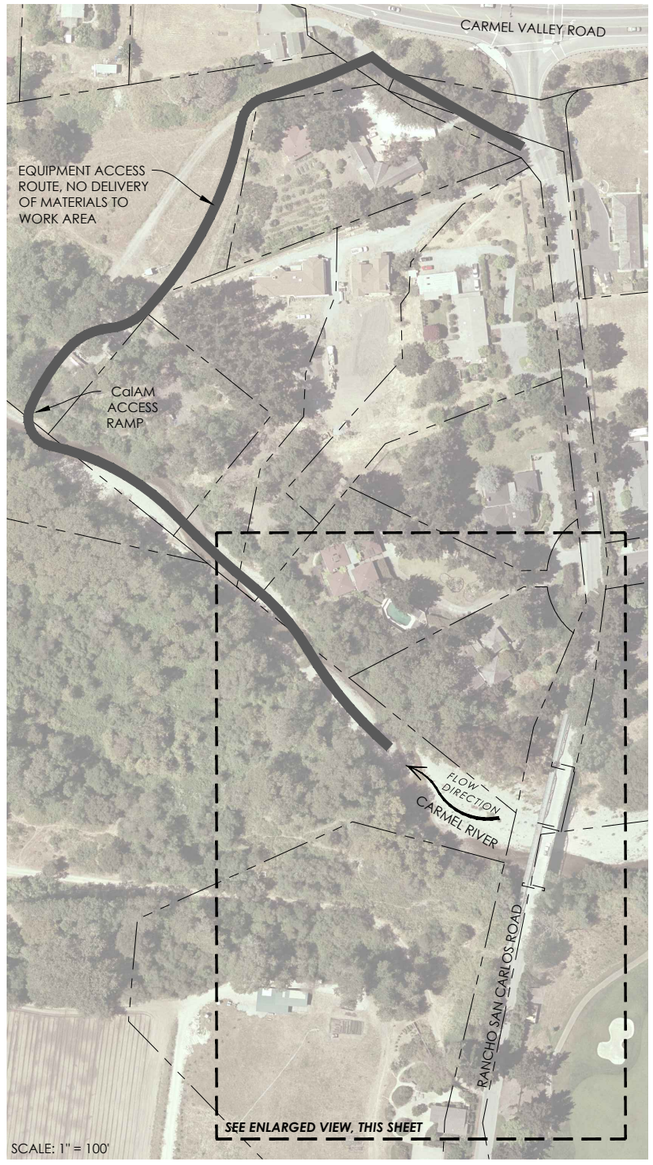
Y:_PROJECTS\217107 CARMEL RIVER - SAN CARLOS STREAMBANK RESTORATION\217107 CAD\217107 SHEETS\217107-000-GEN NOTES.DWG

CONTROL POINT TABLE			
CONTROL POINT #	NORTHING	EASTING	ELEVATION
1	2,091,251.09	5,718,570.38	67.14
2	2,090,916.66	5,718,493.88	66.52



AERIAL PHOTO SOURCE: CCJDC (2003)AND WHITSON ENGINEERS (2017)

FINAL DESIGN



SCALE: 1" = 100'

SITE PREPARATION GENERAL NOTES:

1. CONSTRUCT THE BASE BID IF THE CARMEL RIVER IS DRY UPON PROJECT MOBILIZATION.
2. CLEAR AND GRUB THE GRADING LIMITS PRIOR TO ANY GROUND DISTURBANCE. CLEARING AND GRUBBING SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL OBJECTIONABLE MATERIAL NOT SPECIFIED ELSEWHERE IN THESE DRAWINGS (OR OTHER CONTRACT DOCUMENTS), INCLUDING TREES (LESS THAN 6" DBH), SHURBS, OTHER VEGETATION, DEBRIS, AND RUBBISH.
3. PRESERVE TREES WITHIN THE STAGING AREA GREATER THAN 6" DBH. ANY TREES GREATER THAN 6" DBH SHALL REQUIRE THE APPROVAL OF MPWMD PRIOR TO REMOVAL.

EQUIPMENT ACCESS NOTES:

1. EQUIPMENT SHALL ACCESS THE WORK AREA BY THE ROUTE SHOWN. DELIVERY OF MATERIALS TO/FROM THE WORK AREA IS NOT PERMITTED VIA THE EQUIPMENT ACCESS ROUTE.
2. THE CONTRACTOR SHALL IMPROVE THE EQUIPMENT ACCESS ROUTE TO ALLOW ACCESS TO THE CHANNEL, INCLUDING REMOVAL OF THE WOOD RETAINING WALL AT THE CalAM ACCESS RAMP AND TREE LIMBING. REMOVAL OF TREES AND LIMBS LARGER THAN 6" DIAMETER SHALL BE APPROVED BY MPWMD STAFF.
3. ALL TRACK EQUIPMENT DRIVING UP THE BED OF THE CARMEL RIVER SHALL BE EQUIPPED WITH RUBBER SHOES.

TEMPORARY GRAVEL BAG COFFERDAM AND DEWATERING NOTES:

1. GENERAL
   - 1.1. THE BASE BID ASSUMES THAT THE CARMEL RIVER WILL BE DRY DURING THE CONSTRUCTION PERIOD, HOWEVER, IT IS POSSIBLE THAT A RAIN EVENT COULD PRODUCE ENOUGH RUNOFF TO GENERATE STEAMFLOW IN THE RIVER. THE TEMPORARY GRAVEL BAG COFFERDAMS WILL NOT BE REQUIRED IF THE CARMEL RIVER REMAINS DRY THROUGHOUT THE CONSTRUCTION PERIOD, AND ARE SHOWN AS A PROTECTIVE MEASURE IN THE EVENT THAT STREAMFLOW RETURNS TO THE RIVER. THE CONTRACTOR SHALL MONITOR WEATHER FORECASTS THROUGHOUT THE CONSTRUCTION PERIOD. IF 3" OR MORE OF RAIN IS FORECAST FOR A RAIN EVENT, THE CONTRACTOR SHALL INSTALL TEMPORARY GRAVEL BAGS COFFERDAMS IN THE LOCATIONS SHOWN.
   - 1.2. THE LAYOUT OF THE TEMPORARY GRAVEL BAG COFFERDAMS IS A SUGGESTED MINIMUM TO PROTECT THE WORK AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL PROTECTIVE MEASURES AS NEEDED AND AS BASED ON FIELD CONDITIONS. ALL PROTECTIVE MEASURES SHALL BE FOCUSED ON PREVENTING SEDIMENT GENERATED BY CONSTRUCTION ACTIVITIES FROM ENTERING THE CHANNEL.
2. MATERIALS
   - 2.1. GRAVEL BAGS:
     - 2.1.1. BAG MATERIAL: BAGS SHALL BE EITHER POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 135 G/M2 (FOUR OUNCES PER SQUARE YARD), MULLEN BURST STRENGTH EXCEEDING 2,070 KPA (300 PSI) IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D3786, AND ULTRAVIOLET STABILITY EXCEEDING 70% IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D4355.
     - 2.1.2. BAG SIZE: EACH GRAVEL-FILLED BAG SHALL HAVE A LENGTH OF 450 MM (18 IN), WIDTH OF 300 MM (12 IN), THICKNESS OF 75 MM (3 IN), AND MASS BETWEEN 13 KG AND 22 KG (28 AND 48 LB). BAG DIMENSIONS ARE NOMINAL, AND MAY VARY BASED ON LOCALLY AVAILABLE MATERIALS. ALTERNATIVE BAG SIZES SHALL BE SUBMITTED TO THE ENGINEER'S REPRESENTATIVE FOR APPROVAL PRIOR TO DEPLOYMENT.
     - 2.1.3. FILL MATERIAL: FILL MATERIAL SHALL BE BETWEEN 10 MM AND 20 MM (0.4 AND 0.8 INCH) IN DIAMETER, AND SHALL BE CLEAN AND FREE FROM CLAY BALLS, ORGANIC MATTER, WEEDS, AND OTHER DELETERIOUS MATERIALS. THE OPENING OF GRAVEL-FILLED BAGS SHALL BE SECURED SUCH THAT GRAVEL DOES NOT ESCAPE. GRAVEL-FILLED BAGS SHALL BE BETWEEN 13 KG AND 22KG (28 AND 48 LB) IN MASS. FILL MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER'S REPRESENTATIVE.
   - 2.2. PUMPS
     - 2.2.1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND SERVICES AS REQUIRED FOR PROVIDING THE NECESSARY DEWATERING WORK AND PROVIDE BACK-UP EQUIPMENT AS NECESSARY FOR REPLACEMENT AND FOR UNANTICIPATED EMERGENCIES.
     - 2.2.2. THE PUMPS AND PUMPING APPARATUS USED FOR THE DEWATERING SHALL BE OF THE SUBMERSIBLE TYPE WITH SUFFICIENT CAPACITY TO CONTROL SUMP WATER LEVELS AS DESCRIBED HEREIN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE POWER TO OPERATE THE DEWATERING SYSTEMS,INCLUDING THE PUMPING EQUIPMENT, AS NEEDED TO ASSURE THAT DEWATERING IS EFFECTIVE DURING ALL WORK WITHIN THE BANKS OF THE CREEK. THE CONTRACTOR SHALL PROVIDE BACK-UP POWER AS NEEDED TO ASSURE THAT POWER INTERRUPTIONS DO NOT LEAD TO DAMAGE TO FINISHED OR IN-PROCESS WORK OR DELAYS IN COMPLETING THE WORK. ALL EQUIPMENT, INCLUDING ANY GENERATORS USED FOR PRIMARY OR BACK-UP POWER SUPPLY, SHALL BE OPERATED IN COMPLIANCE WITH ALL PERTINENT NOISE AND AIR POLLUTION REDUCTION REQUIREMENTS.
3. EXECUTION
   - 3.1. THE COFFERDAMS SHALL BE CONSTRUCTED IN THE LOCATIONS AND TO THE MINIMUM ELEVATIONS SHOWN ON THE PLANS.
   - 3.2. WHEN STREAMFLOW HAS CEASED OR THERE IS NO LONGER FORECAST RAIN, THE COFFERDAMS SHALL BE REMOVED AND DISPOSED OF IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND AT THE CONTRACTOR'S EXPENSE. DISPOSING OF GRAVELS IN THE CHANNEL IS NOT PERMITTED.
   - 3.3. PUMP INCIDENTAL GROUNDWATER ENCOUNTERED DURING EXCAVATION AS NEEDED TO FACILITATE COMPLETION OF THE WORK.
   - 3.4. WATER PUMPED FROM WITHIN EXCAVATION AREAS OR THE PORTION OF THE CHANNEL ENCLOSED BY THE COFFERDAMS SHALL BE SPRAYED ONTO THE OVERBANK AREA TO ALLOW FOR INFILTRATION. THE DISCHARGED WATER SHALL BE MONITORED THROUGHOUT CONSTRUCTION TO AVOID FLOW CONCENTRATION THAT COULD LEAD TO THE FORMATION OF RILLS.

PREPARED FOR:
Monterey Peninsula Water Management District

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SUBMITTALS / REVISIONS	BY	DATE
DRAFT DESIGN	PK	20170706
FINAL DESIGN	PK	20170718
FINAL DESIGN (REVISED)	PK	20180302

DESIGNED BY	P KULCHAWIK
DRAWN BY	P KULCHAWIK
CHECKED BY	E BALLMAN
IN CHARGE	P KULCHAWIK
DATE	20180302

REGISTERED PROFESSIONAL ENGINEER P. KULCHAWIK No. C83062 Exp. 09-30-19 CIVIL STATE OF CALIFORNIA

SITE PREPARATION PLAN - BASE BID

CARMEL RIVER BANK STABILIZATION AT RANCHO SAN CARLOS ROAD

MONTEREY COUNTY, CALIFORNIA
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

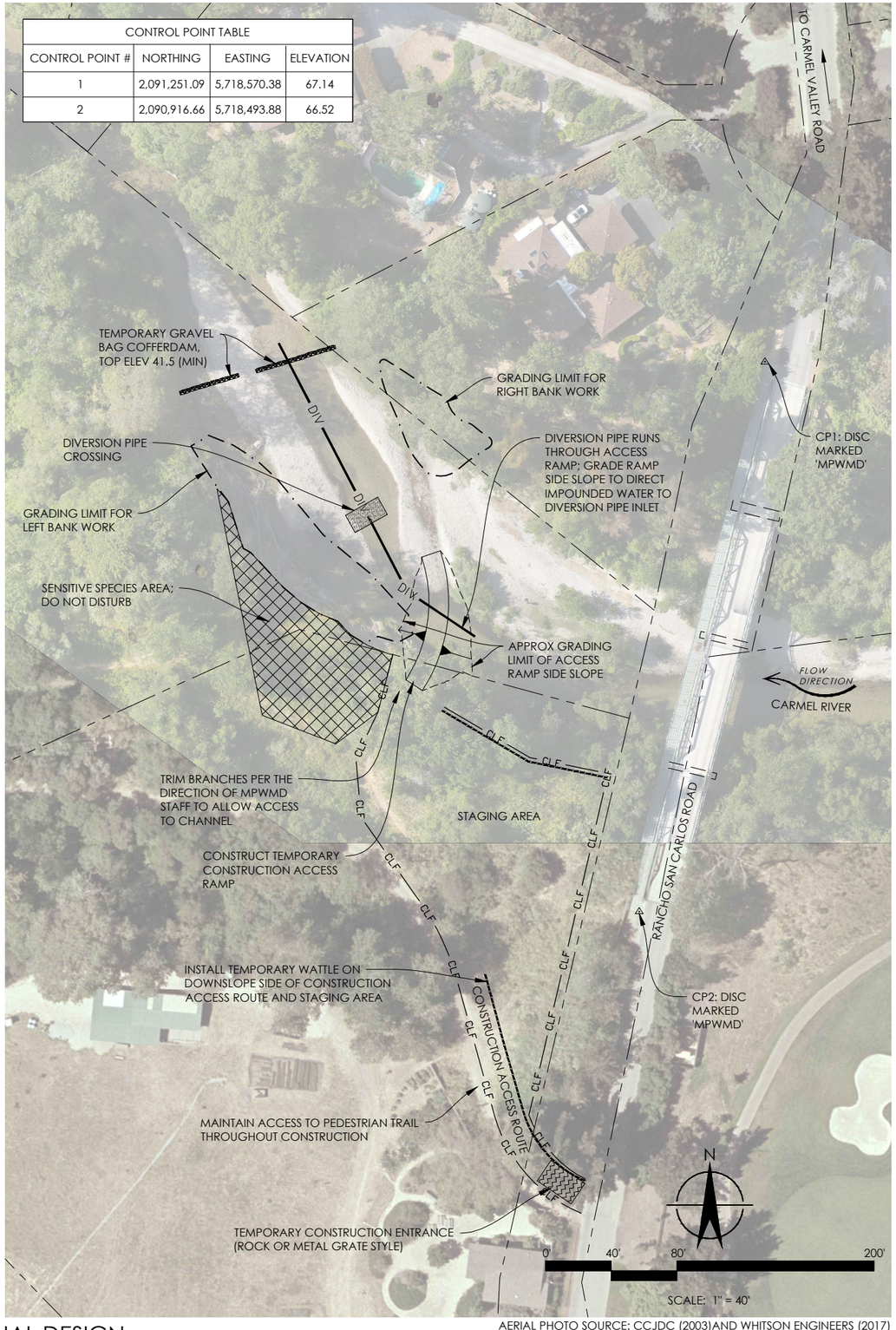
PROJECT NUMBER 217107

SCALE AS SHOWN

SHEET 3.0

Y:_PROJECTS\217107 CARMEL RIVER - SAN CARLOS STREAMBANK RESTORATION\217107 CAD\217107 SHEETS\217107-000-SITE PREP.DWG

CONTROL POINT TABLE			
CONTROL POINT #	NORTHING	EASTING	ELEVATION
1	2,091,251.09	5,718,570.38	67.14
2	2,090,916.66	5,718,493.88	66.52



AERIAL PHOTO SOURCE: CCJDC (2003)AND WHITSON ENGINEERS (2017)

FINAL DESIGN

SITE PREPARATION GENERAL NOTES:

1. THE BID ALTERNATE SHALL BE IMPLEMENTED IN LIEU OF THE BASE BID SITE PREPARATION PLAN (SHEET 3.0) IN THE EVENT THAT THERE IS STREAMFLOW IN THE CARMEL RIVER UPON PROJECT MOBILIZATION.
2. CLEAR AND GRUB THE GRADING LIMITS PRIOR TO ANY GROUND DISTURBANCE. CLEARING AND GRUBBING SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL OBJECTIONABLE MATERIAL NOT SPECIFIED ELSEWHERE IN THESE DRAWINGS (OR OTHER CONTRACT DOCUMENTS), INCLUDING TREES (LESS THAN 6" DBH), SHURBS, OTHER VEGETATION, DEBRIS, AND RUBBISH.
3. PRESERVE TREES WITHIN THE STAGING AREA GREATER THAN 6" DBH. ANY TREES GREATER THAN 6" DBH SHALL REQUIRE THE APPROVAL OF MPWMD PRIOR TO REMOVAL.

TEMPORARY GRAVEL BAG COFFERDAM AND DEWATERING NOTES:

1. GENERAL
   - 1.1. THE SITE PREPARATION PLAN - BID ALTERNATE IS A SUGGESTED MINIMUM TO PROTECT THE WORK AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL PROTECTIVE MEASURES AS NEEDED AND AS BASED ON FIELD CONDITIONS. ALL PROTECTIVE MEASURES SHALL BE FOCUSED ON PREVENTING SEDIMENT GENERATED BY CONSTRUCTION ACTIVITIES FROM ENTERING THE CHANNEL.
2. MATERIALS
   - 2.1. GRAVEL BAGS:
     - 2.1.1. BAG MATERIAL: BAGS SHALL BE EITHER POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 135 G/M2 (FOUR OUNCES PER SQUARE YARD), MULLEN BURST STRENGTH EXCEEDING 2,070 KPA (300 PSI) IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D3786, AND ULTRAVIOLET STABILITY EXCEEDING 70% IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D4355.
     - 2.1.2. BAG SIZE: EACH GRAVEL-FILLED BAG SHALL HAVE A LENGTH OF 450 MM (18 IN), WIDTH OF 300 MM (12 IN), THICKNESS OF 75 MM (3 IN), AND MASS BETWEEN 13 KG AND 22 KG (28 AND 48 LB). BAG DIMENSIONS ARE NOMINAL, AND MAY VARY BASED ON LOCALLY AVAILABLE MATERIALS. ALTERNATIVE BAG SIZES SHALL BE SUBMITTED TO THE ENGINEER'S REPRESENTATIVE FOR APPROVAL PRIOR TO DEPLOYMENT.
     - 2.1.3. FILL MATERIAL: FILL MATERIAL SHALL BE BETWEEN 10 MM AND 20 MM (0.4 AND 0.8 INCH) IN DIAMETER, AND SHALL BE CLEAN AND FREE FROM CLAY BALLS, ORGANIC MATTER, WEEDS, AND OTHER DELETERIOUS MATERIALS. THE OPENING OF GRAVEL-FILLED BAGS SHALL BE SECURED SUCH THAT GRAVEL DOES NOT ESCAPE. GRAVEL-FILLED BAGS SHALL BE BETWEEN 13 KG AND 22KG (28 AND 48 LB) IN MASS. FILL MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER'S REPRESENTATIVE.
   - 2.2. PUMPS
     - 2.2.1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND SERVICES AS REQUIRED FOR PROVIDING THE NECESSARY DEWATERING WORK AND PROVIDE BACK-UP EQUIPMENT AS NECESSARY FOR REPLACEMENT AND FOR UNANTICIPATED EMERGENCIES.
     - 2.2.2. THE PUMPS AND PUMPING APPARATUS USED FOR THE DEWATERING SHALL BE OF THE SUBMERSIBLE TYPE WITH SUFFICIENT CAPACITY TO CONTROL SUMP WATER LEVELS AS DESCRIBED HEREIN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE POWER TO OPERATE THE DEWATERING SYSTEMS,INCLUDING THE PUMPING EQUIPMENT, AS NEEDED TO ASSURE THAT DEWATERING IS EFFECTIVE DURING ALL WORK WITHIN THE BANKS OF THE CREEK. THE CONTRACTOR SHALL PROVIDE BACK-UP POWER AS NEEDED TO ASSURE THAT POWER INTERRUPTIONS DO NOT LEAD TO DAMAGE TO FINISHED OR IN-PROCESS WORK OR DELAYS IN COMPLETING THE WORK. ALL EQUIPMENT, INCLUDING ANY GENERATORS USED FOR PRIMARY OR BACK-UP POWER SUPPLY, SHALL BE OPERATED IN COMPLIANCE WITH ALL PERTINENT NOISE AND AIR POLLUTION REDUCTION REQUIREMENTS.
   - 2.3. DIVERSION PIPE: DIVERSION PIPE AND COUPLINGS SHALL BE 15-INCH DIAMETER (MINIMUM) POLYVINYL CHLORIDE (PVC) OR SDR-35. THE MATERIAL SHALL BE SELECTED FOR FLEXIBILITY AND DURABILITY TO ALLOW FOR THE OCCASIONAL RELOCATION OF THE DIVERSION PIPING DURING CONSTRUCTION ACTIVITIES.
3. EXECUTION
   - 3.1. THE CONTRACTOR SHALL COORDINATE WITH MPWMD ON FISH RELOCATION PRIOR TO INSTALLING COFFERDAMS.
   - 3.2. THE COFFERDAMS SHALL BE CONSTRUCTED IN THE LOCATIONS AND TO THE MINIMUM ELEVATIONS SHOWN ON THE PLANS.
   - 3.3. INSTALL THE DIVERSION PIPE AT A MINIMUM SLOPE OF 1 PERCENT. THE DIVERSION PIPE SHALL BE INSTALLED TO ALLOW FOR GRAVITY FLOW.
   - 3.4. INSPECT THE DIVERSION PIPE AND COFFERDAMS DAILY DURING THE CONSTRUCTION PERIOD TO ENSURE THEY ARE EFFECTIVELY CONVEYING STREAMFLOW. PERFORM CORRECTIVE MAINTENANCE AS NEEDED.
   - 3.5. PUMP INCIDENTAL GROUNDWATER ENCOUNTERED DURING EXCAVATION AS NEEDED TO FACILITATE COMPLETION OF THE WORK.
   - 3.6. WATER PUMPED FROM WITHIN EXCAVATION AREAS OR THE PORTION OF THE CHANNEL ENCLOSED BY THE COFFERDAMS SHALL BE SPRAYED ONTO THE OVERBANK AREA TO ALLOW FOR INFILTRATION. THE DISCHARGED WATER SHALL BE MONITORED THROUGHOUT CONSTRUCTION TO AVOID FLOW CONCENTRATION THAT COULD LEAD TO THE FORMATION OF RILLS.

TEMPORARY CONSTRUCTION ACCESS RAMP NOTES:

1. THE TEMPORARY CONSTRUCTION ACCESS RAMP SHALL BE CONSTRUCTED WITH CLEAN SAND, GRAVEL, COBBLES, AND BOULDERS, OR A MIXTURE THEREOF. FINE-GRAINED MATERIAL HAVING THE POTENTIAL TO INCREASE TURBIDITY IN THE CARMEL RIVER IS NOT PERMITTED.
2. THE CONFIGURATION OF THE ACCESS RAMP IS APPROXIMATE. THE FINAL CONFIGURATION SHALL BE DETERMINED BY THE CONTRACTOR ACCORDING TO FIELD CONDITIONS, HOWEVER, THE SOUTH END (UPHILL SIDE) OF THE RAMP MAY NOT BE MOVED WITHOUT APPROVAL FROM MPWMD.
3. REMOVE THE RAMP UPON COMPLETION OF THE WORK AND RESTORE THE CHANNEL BANKS TO PRE-PROJECT CONDITIONS.
4. ALL TRACK EQUIPMENT DRIVING UP THE BED OF THE CARMEL RIVER SHALL BE EQUIPPED WITH RUBBER SHOES.

PREPARED FOR:
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

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P KULCHAWIK	20170706	PK	DRAFT DESIGN
DRAWN BY	20170718	PK	FINAL DESIGN
P KULCHAWIK	20180302	PK	FINAL DESIGN (REVISED)
CHECKED BY			
E BALLMAN			
IN CHARGE			
P KULCHAWIK			
DATE			
20180302			

REGISTERED PROFESSIONAL ENGINEER
PETER J. KULCHAWIK
No. C83062
Exp. 09/30/19
CIVIL
STATE OF CALIFORNIA

SITE PREPARATION PLAN - BID ALTERNATE

CARMEL RIVER BANK STABILIZATION AT RANCHO SAN CARLOS ROAD

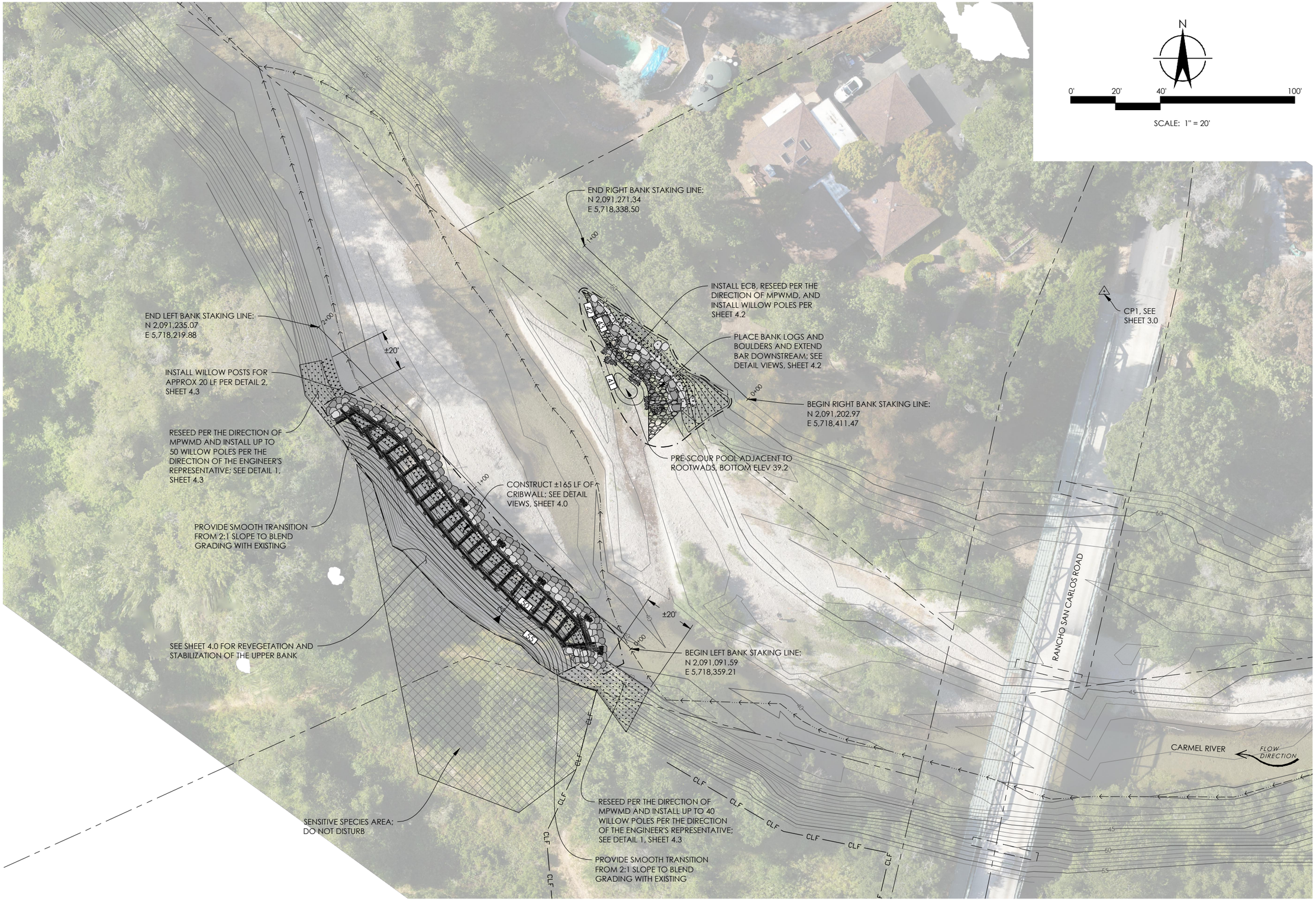
MONTEREY COUNTY, CALIFORNIA
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

PROJECT NUMBER
217107

SCALE
1" = 40'

SHEET
3.0 ALT

Y:_PROJECTS\217107 CARMEL RIVER - SAN CARLOS STREAMBANK RESTORATION\217107 CAD\217107 SHEETS\217107-03DA1-SITE PREP.DWG



FINAL DESIGN

Y:_PROJECTS\217107 CARMEL RIVER - SAN CARLOS STREAMBANK RESTORATION\217107 CAD\217107 SHEETS\217107-031-RESTR PLAN.DWG

PREPARED FOR:
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

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DRAWN BY			
P KULCHAWIK	20170718	PK	FINAL DESIGN
CHECKED BY	20180302	PK	FINAL DESIGN (REVISED)
E BALLMAN			
IN CHARGE			
P KULCHAWIK			
DATE			
20180302			

REGISTERED PROFESSIONAL ENGINEER
P. KULCHAWIK
No. C83062
Exp. 09/19
CIVIL
STATE OF CALIFORNIA

BANK STABILIZATION PLAN

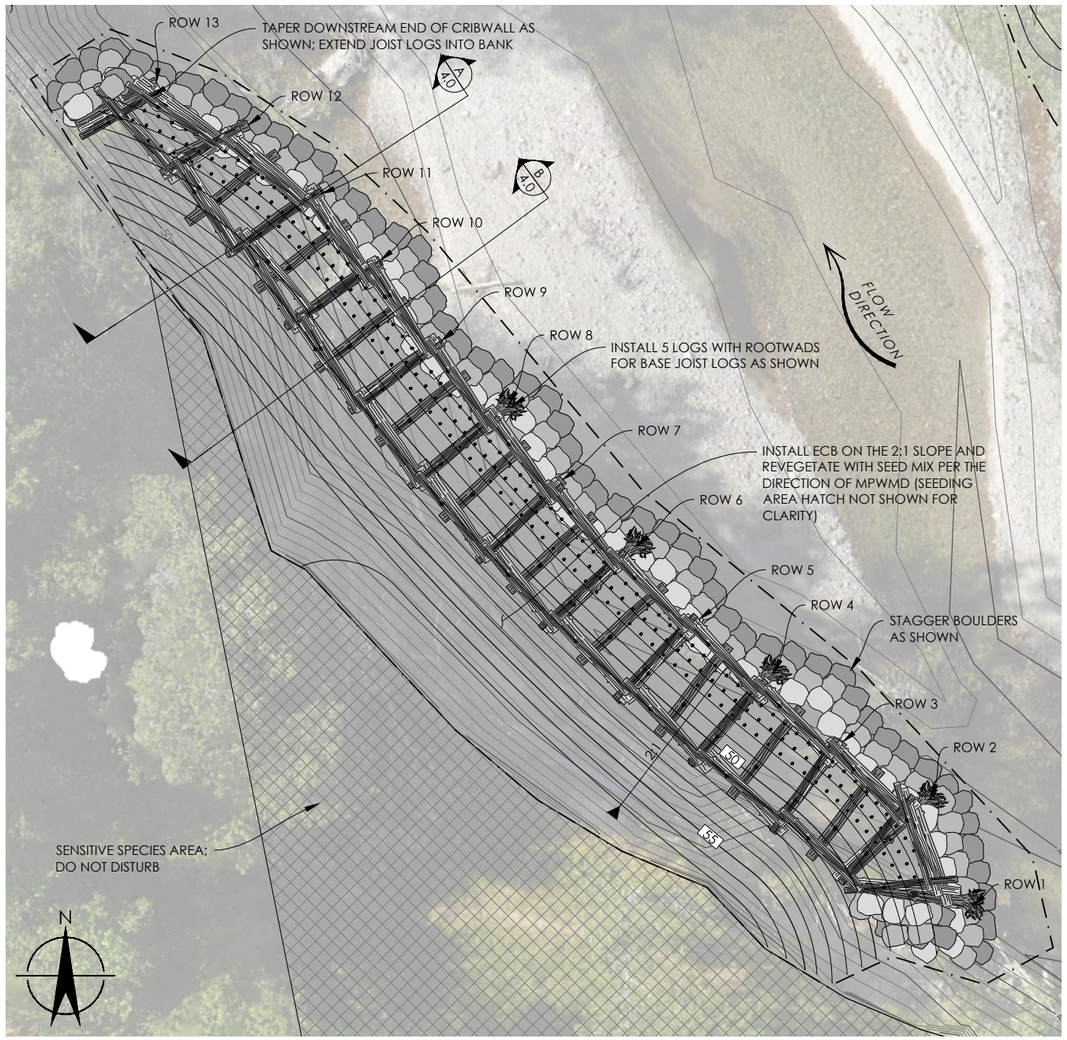
CARMEL RIVER BANK STABILIZATION AT RANCHO SAN CARLOS ROAD

MONTEREY COUNTY, CALIFORNIA
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

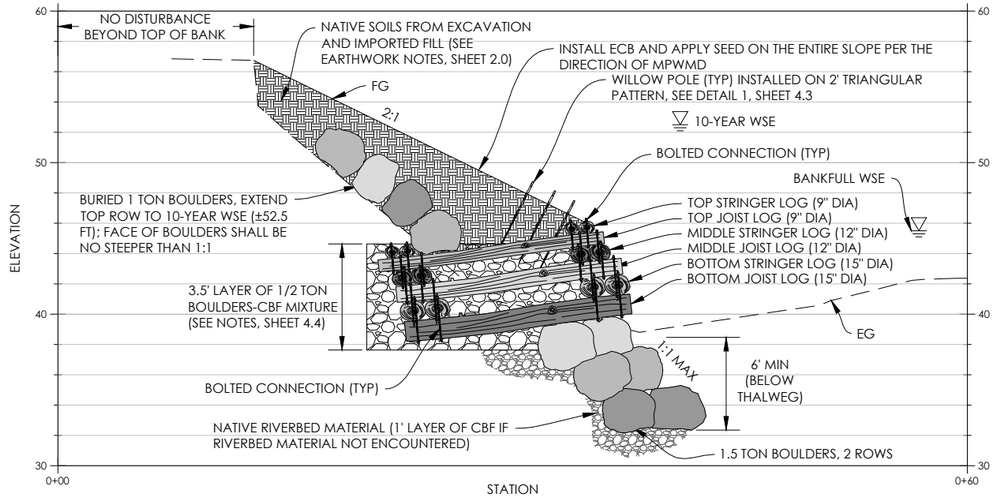
PROJECT NUMBER
217107

SCALE
1" = 20'

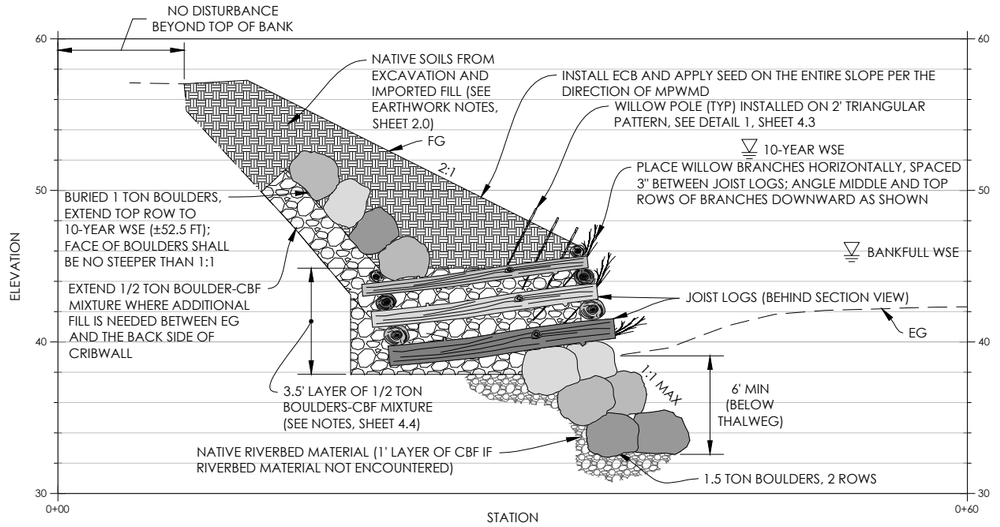
SHEET
3.1



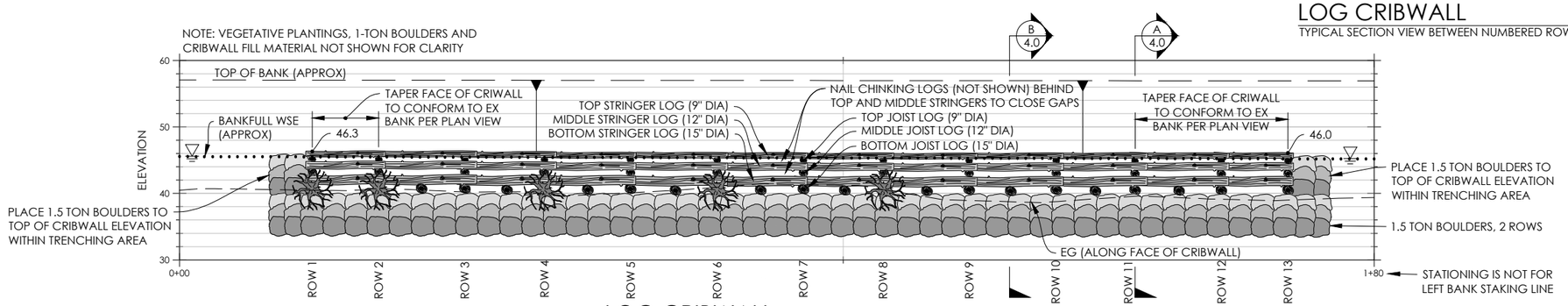
LOG CRIBWALL
PLAN VIEW 1" = 10'



LOG CRIBWALL
TYPICAL SECTION VIEW AT NUMBERED ROWS 1" = 5' (H & V) A 4.0



LOG CRIBWALL
TYPICAL SECTION VIEW BETWEEN NUMBERED ROWS 1" = 5' (H & V) B 4.0



LOG CRIBWALL
ELEVATION VIEW 1" = 10'

NOTES:
1. SEE SHEET 4.2 FOR LOG CRIBWALL STAKING AND ASSEMBLY PLAN.
2. SEE SHEET 4.4 FOR ADDITIONAL NOTES ON LOG CRIBWALL MATERIALS AND EXECUTION.

FINAL DESIGN

Y:_PROJECTS\217107 CARMEL RIVER - SAN CARLOS STREAMBANK RESTORATION\217107 CAD\217107 SHEETS\217107-040-CRIB DETL.DWG

PREPARED FOR: Monterey Peninsula Water Management District

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FINAL DESIGN	PK	20170718
FINAL DESIGN (REVISED)	PK	20180302

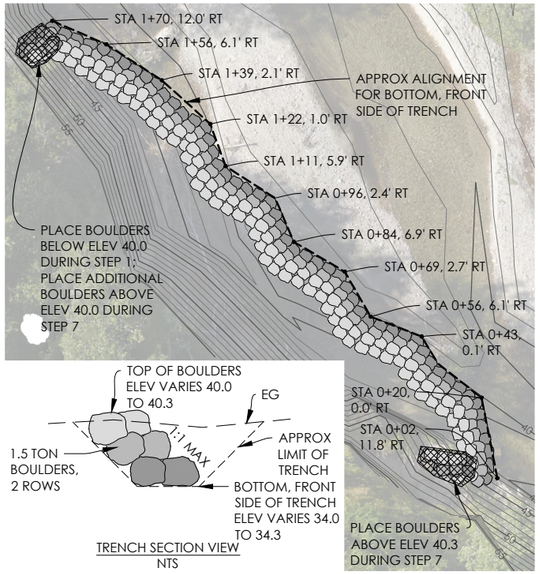
DESIGNED BY	P KULCHAWIK
DRAWN BY	P KULCHAWIK
CHECKED BY	E BALLMAN
IN CHARGE	P KULCHAWIK
DATE	20180302

REGISTERED PROFESSIONAL ENGINEER - P. KULCHAWIK - No. C83062 Exp. 09/30/19 - CIVIL - STATE OF CALIFORNIA

LOG CRIBWALL DETAIL

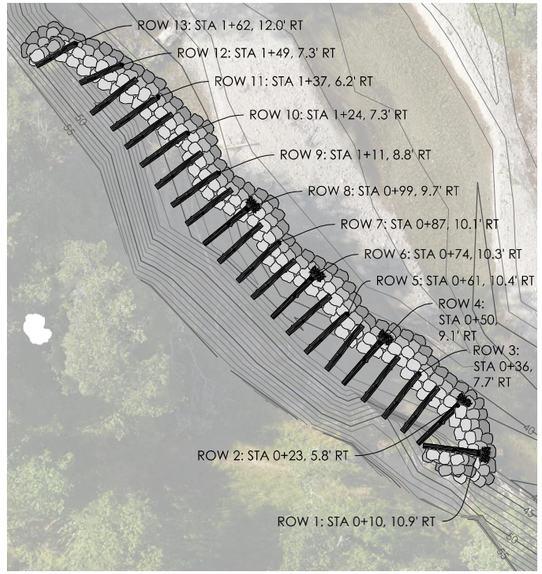
CARMEL RIVER BANK STABILIZATION AT RANCHO SAN CARLOS ROAD
MONTEREY COUNTY, CALIFORNIA
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

PROJECT NUMBER 217107
SCALE AS SHOWN
SHEET 4.0



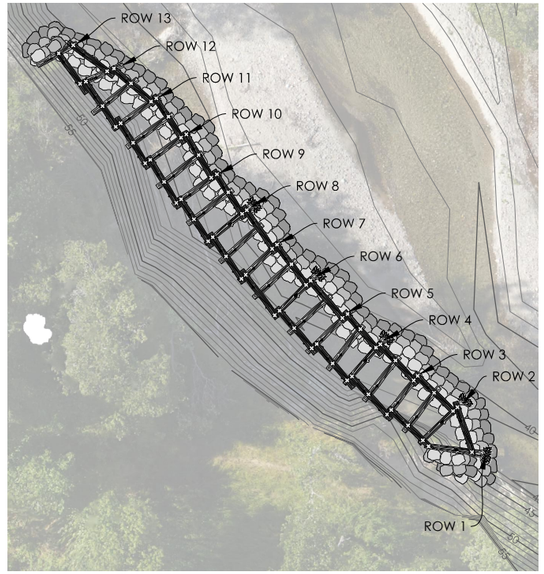
STEP 1:

1. EXCAVATE TRENCH AND INSTALL 1.5 TON BOULDERS AS SHOWN.
2. STATIONING AND OFFSET INFORMATION FOR STEP 1 REFERS TO THE BOTTOM, FRONT SIDE OF TRENCH
3. BACKFILL TRENCH WITH RIVERBED MATERIAL GENERATED DURING TRENCH EXCAVATION.



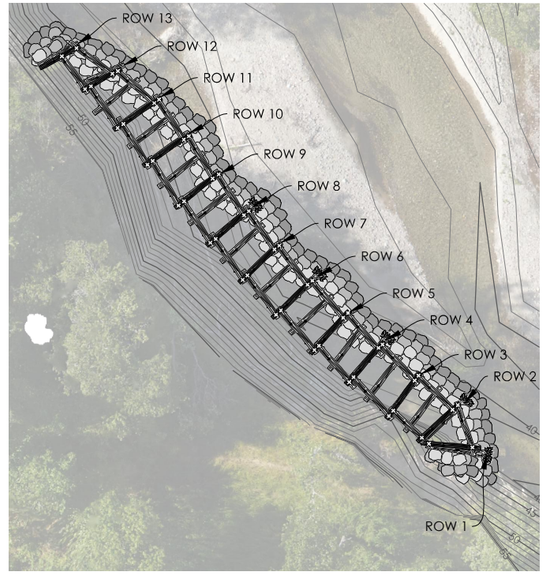
STEP 2:

1. PLACE 18 BOTTOM JOIST LOGS AND 5 BOTTOM JOIST LOGS WITH ROOTWADS.
2. STAKING INFORMATION FOR LOGS BETWEEN NUMBERED ROWS NOT PROVIDED; INSTALL LOGS MIDWAY BETWEEN NUMBERED ROWS.



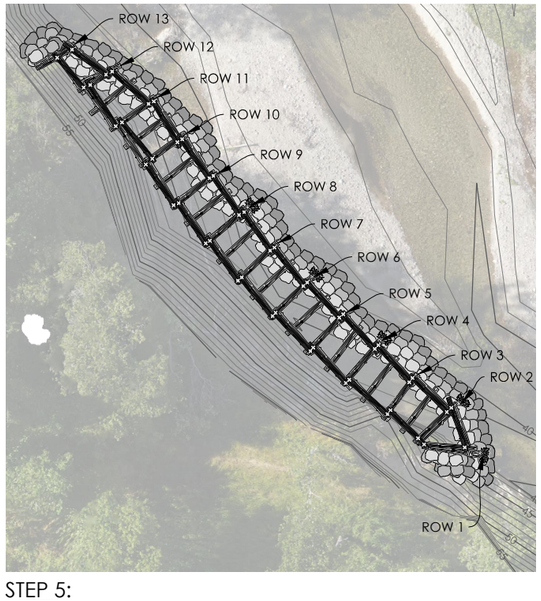
STEP 3:

1. PLACE 23 BOTTOM STRINGER LOGS.
2. CONNECT BOTTOM STRINGER LOGS TO BOTTOM JOIST LOGS FROM STEP 2 AT THE LOCATIONS SHOWN.



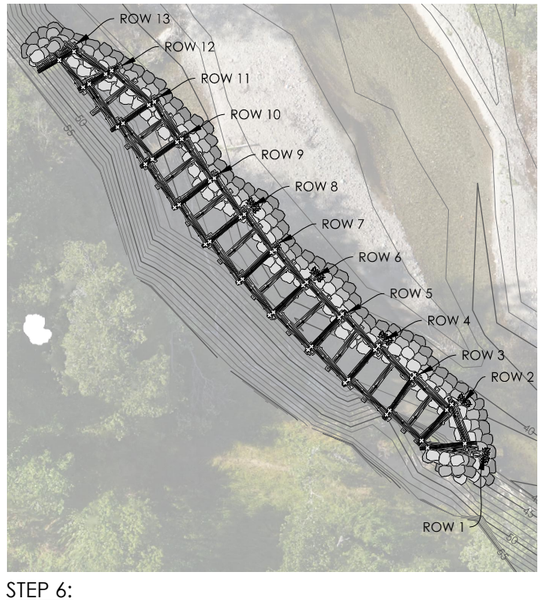
STEP 4:

1. PLACE 13 MIDDLE JOIST LOGS.
2. CONNECT MIDDLE JOIST LOGS TO BOTTOM STRINGER LOGS FROM STEP 3 AT THE LOCATIONS SHOWN.



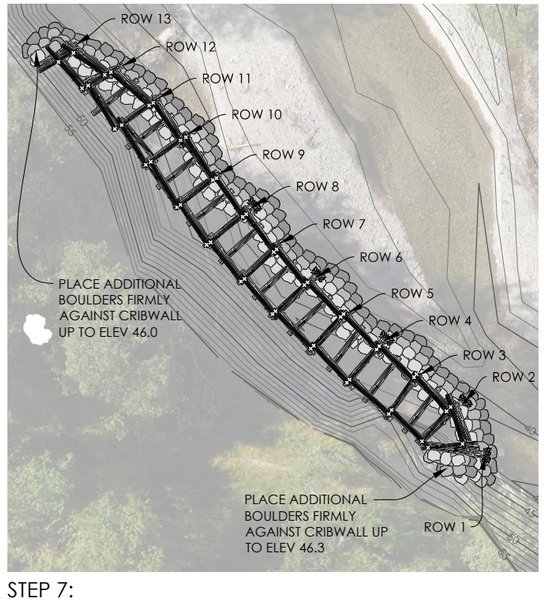
STEP 5:

1. PLACE 23 MIDDLE STRINGER LOGS.
2. CONNECT MIDDLE STRINGER LOGS TO MIDDLE JOIST LOGS FROM STEP 4 AT THE LOCATIONS SHOWN.



STEP 6:

1. PLACE 13 TOP JOIST LOGS.
2. CONNECT TOP JOIST LOGS TO MIDDLE STRINGER LOGS FROM STEP 5 AT THE LOCATIONS SHOWN.



STEP 7:

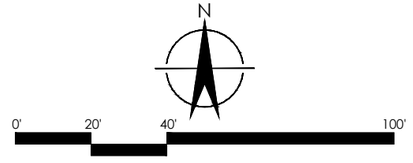
1. PLACE 23 TOP STRINGER LOGS.
2. CONNECT TOP STRINGER LOGS TO TOP JOIST LOGS FROM STEP 6 AT THE LOCATIONS SHOWN.
3. PLACE ADDITIONAL BOULDERS AT ENDS OF CRIBWALL AS SHOWN.
4. FINISH CRIBWALL PER DETAIL, SHEET 4.0.

NOTES:

1. ALL STATIONING AND OFFSET INFORMATION SHOWN ON THIS SHEET IS IN REFERENCE TO THE LEFT BANK STAKING LINE (NOT SHOWN FOR CLARITY). REFER TO SHEET 3.1 FOR LEFT BANK STAKING LINE LAYOUT.
2. LOGS TO BE PLACE DURING A GIVEN STEP ARE SHOWN AS DARKER. LOGS PLACED DURING A PREVIOUS STEP ARE SHOWN AS LIGHTER.
3. BOLTED CONNECTIONS ARE ONLY SHOWN FOR THOSE TO BE PLACED DURING A GIVEN STEP. BOLTED CONNECTIONS FROM PREVIOUS STEPS ARE NOT SHOWN.
4. IF NEEDED, NOTCHING OF LOGS IS ALLOWED, HOWEVER, THE DEPTH OF NOTCHES SHALL BE NO GREATER THAN 10 PERCENT OF THE LOG DIAMETER.

LEGEND:

- BOLTED CONNECTION
- LOG PLACED IN CURRENT STEP
- LOG PLACED IN PREVIOUS STEP



SCALE: 1" = 20'

FINAL DESIGN

PREPARED FOR:
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT
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DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
P KULCHAWIK	20170706	PK	DRAFT DESIGN
DRAWN BY	20170718	PK	FINAL DESIGN
P KULCHAWIK	20180302	PK	FINAL DESIGN (REVISED)
CHECKED BY			
E BALLMAN			
IN CHARGE			
P KULCHAWIK			
DATE 20180302			

REGISTERED PROFESSIONAL ENGINEER · PETER J. KULCHAWIK · No. C83062 Exp. 06/30/19 · CIVIL · STATE OF CALIFORNIA

LOG CRIBWALL STAKING AND ASSEMBLY PLAN

CARMEL RIVER BANK STABILIZATION AT RANCHO SAN CARLOS ROAD

MONTEREY COUNTY, CALIFORNIA

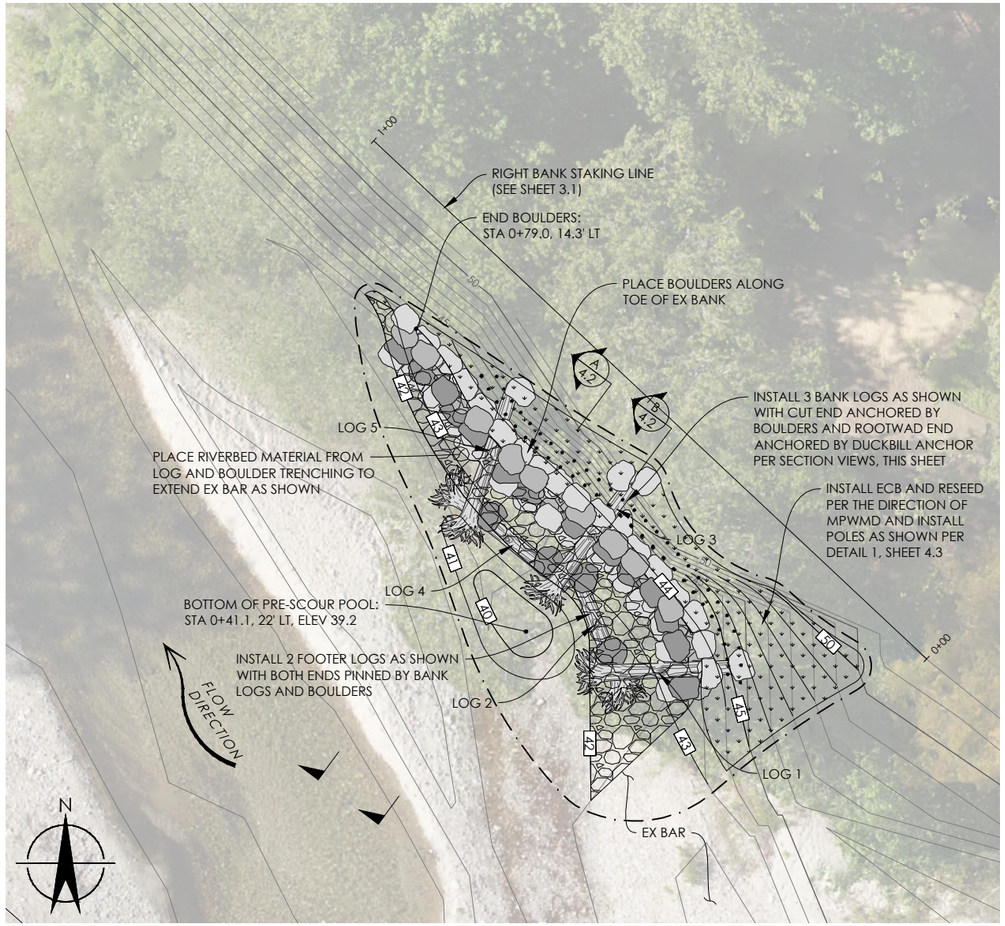
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

PROJECT NUMBER 217107

SCALE 1" = 20'

SHEET 4.1

Y:_PROJECTS\217107 CARMEL RIVER - SAN CARLOS STREAMBANK RESTORATION\217107 CAD\217107 SHEETS\217107-041-CRIB SEQEN.DWG

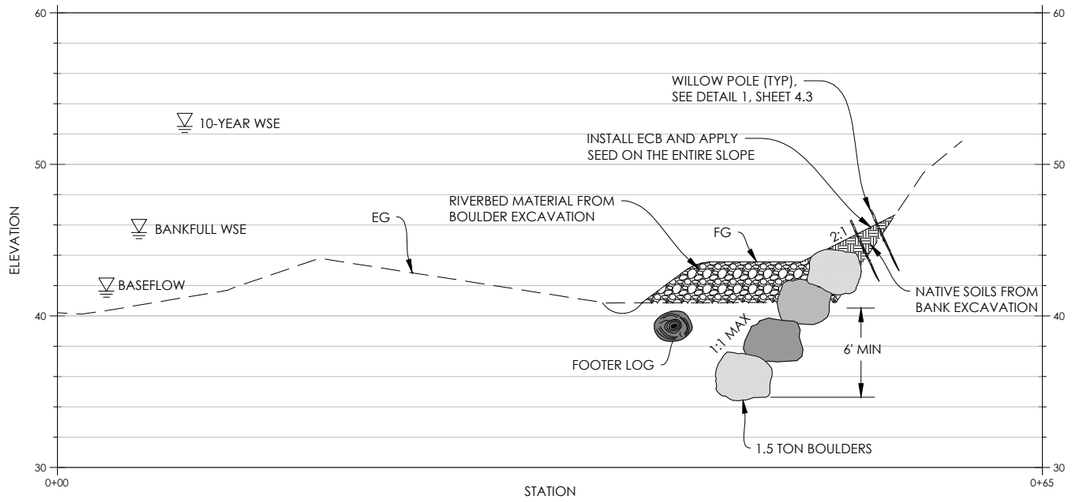


RIGHT BANK STABILIZATION
PLAN VIEW 1" = 10'

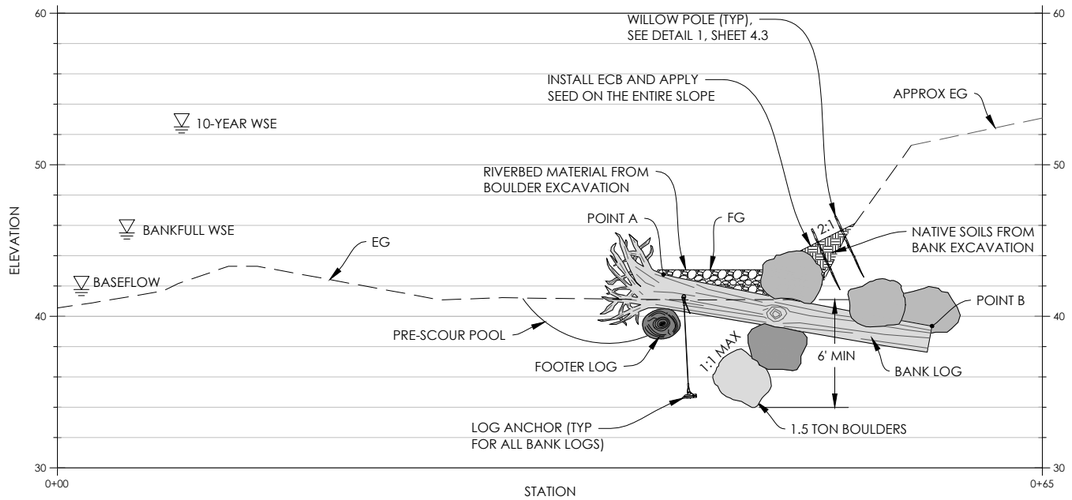
LOG TABLE							
LOG #	POINT A (ROOTWAD END)			POINT B (CUT END)			NOTES
	STATION	OFFSET	ELEVATION	STATION	OFFSET	ELEVATION	
1	0+30.0	30.8 LT	SEE NOTE	0+17.2	17.5 LT	39.5	LOG 1 RESTS ON LOG 2, ELEV A IS DETERMINED BY THIS RELATION
2	0+27.5	29.8 LT	40.7	0+44.3	22.1 LT	40.4	
3	0+42.4	26.3 LT	SEE NOTE	0+44.4	8.1 LT	39.3	LOG 3 RESTS ON LOGS 2 AND 4, ELEV A IS DETERMINED BY THIS RELATION
4	0+59.4	26.8 LT	40.3	0+40.9	25.4 LT	40.5	
5	0+56.7	27.7 LT	SEE NOTE	0+64.5	11.0 LT	39.1	LOG 5 RESTS ON LOG 4, ELEV A IS DETERMINED BY THIS RELATION

RIGHT BANK STABILIZATION NOTES:

1. STATIONING AND OFFSET INFORMATION IN PLAN VIEW IS IN REFERENCE TO THE RIGHT BANK STAKING LINE.
2. SEE SHEET 4.4 FOR ADDITIONAL NOTES ON RIGHT BANK STABILIZATION MATERIALS AND EXECUTION.



RIGHT BANK
SECTION VIEW 1" = 5' (H & V) A 4.2



RIGHT BANK
SECTION VIEW 1" = 5' (H & V) B 4.2

FINAL DESIGN

PREPARED FOR: MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

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DESIGNED BY	DRAWN BY	CHECKED BY	IN CHARGE	DATE
P KULCHAWIK	P KULCHAWIK	E BALLMAN	P KULCHAWIK	20180302

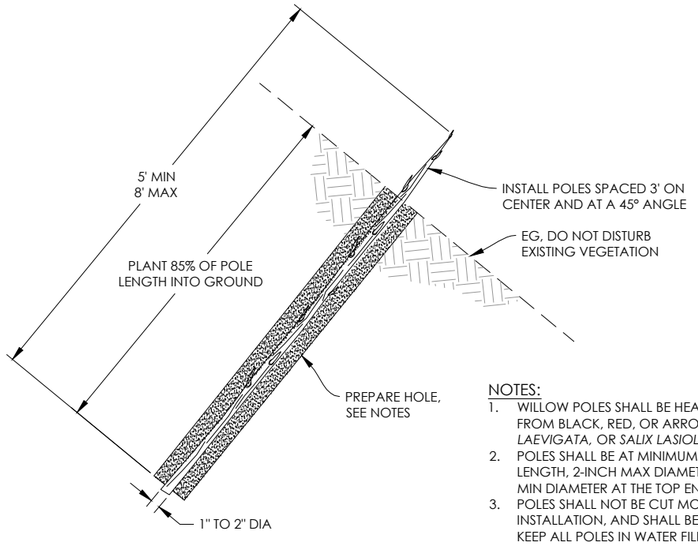
REGISTERED PROFESSIONAL ENGINEER PETER KULCHAWIK No. C83062 Exp. 09/30/18 CIVIL STATE OF CALIFORNIA

RIGHT BANK STABILIZATION DETAIL

CARMEL RIVER BANK STABILIZATION
AT RANCHO SAN CARLOS ROAD
MONTEREY COUNTY, CALIFORNIA
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

PROJECT NUMBER
217107
SCALE
AS SHOWN
SHEET
4.2

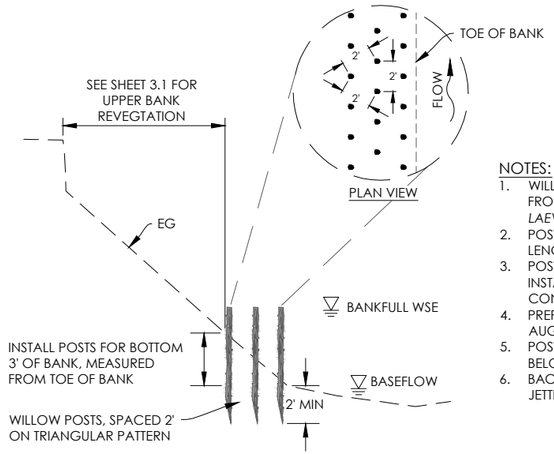
Y:_PROJECTS\217107 CARMEL RIVER - SAN CARLOS STREAMBANK RESTORATION\217107 CAD\217107 SHEETS\217107-042-RT BANK DETL.DWG



NOTES:

1. WILLOW POLES SHALL BE HEALTHY, LIVE, DORMANT BRANCHES CUT FROM BLACK, RED, OR ARROYO WILLOWS (*SALIX NIGRA*, *SALIX LAEVIGATA*, OR *SALIX LASIOLEPIS*).
2. POLES SHALL BE AT MINIMUM FIVE (5) TO MAXIMUM EIGHT (8) FEET IN LENGTH, 2-INCH MAX DIAMETER AT THE BOTTOM END, AND 1/2-INCH MIN DIAMETER AT THE TOP END.
3. POLES SHALL NOT BE CUT MORE THAN SEVEN (7) DAYS PRIOR TO INSTALLATION, AND SHALL BE STORED IN COOL, SHADED CONDITIONS. KEEP ALL POLES IN WATER FILLED BUCKET
4. PREPARE HOLE USING AN IRON BAR, POST HOLE DIGGER, POWERED AUGER, METAL RAM ON A BACKHOE, OR SIMILAR EQUIPMENT.
5. POLES SHOULD EXTEND INTO MOIST SOIL. AT LEAST 85% OF THE POLE SHOULD BE BELOW THE GROUND.
6. BACKFILL HOLES BY HAND-PLACING SOIL FOLLOWED BY WATER JETTING UNTIL FILLED TO THE EXISTING GROUND ELEVATION.

1 WILLOW POLE
SCALE: NTS



NOTES:

1. WILLOW POSTS SHALL BE HEALTHY, LIVE, DORMANT BRANCHES CUT FROM BLACK, RED, OR ARROYO WILLOWS (*SALIX NIGRA*, *SALIX LAEVIGATA*, OR *SALIX LASIOLEPIS*).
2. POSTS SHALL BE AT MINIMUM SIX (6) TO MAXIMUM NINE (9) FEET IN LENGTH, 5-INCH MAX DIAMETER, AND 3-INCH MIN DIAMETER.
3. POSTS SHALL NOT BE CUT MORE THAN SEVEN (7) DAYS PRIOR TO INSTALLATION, AND SHALL BE STORED IN COOL, SHADED CONDITIONS. KEEP ALL POSTS IN WATER FILLED BUCKET
4. PREPARE HOLE USING AN IRON BAR, POST HOLE DIGGER, POWERED AUGER, METAL RAM ON A BACKHOE, OR SIMILAR EQUIPMENT.
5. POSTS SHOULD EXTEND INTO MOIST SOIL, AT LEAST TWO (2) FEET BELOW THE BASEFLOW WSE.
6. BACKFILL HOLES BY HAND-PLACING SOIL FOLLOWED BY WATER JETTING UNTIL FILLED TO THE EXISTING GROUND ELEVATION.

2 WILLOW POSTS
SCALE: NTS

FINAL DESIGN

PREPARED FOR:
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT
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DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
P KULCHAWIK	20170706	PK	DRAFT DESIGN
DRAWN BY			
P KULCHAWIK	20170718	PK	FINAL DESIGN
CHECKED BY	20180302	PK	FINAL DESIGN (REVISED)
E BALLMAN			
IN CHARGE			
P KULCHAWIK			
DATE			
20180302			

REGISTERED PROFESSIONAL ENGINEER
PETER L. KULCHAWIK
No. C83062
Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA

PLANTING DETAILS

CARMEL RIVER BANK STABILIZATION
AT RANCHO SAN CARLOS ROAD
MONTEREY COUNTY, CALIFORNIA
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

PROJECT NUMBER
217107

SCALE
AS SHOWN

SHEET
4.3

Y:_PROJECTS\217107 CARMEL RIVER - SAN CARLOS STREAMBANK RESTORATION\217107 CAD\217107 SHEETS\217107-043-PLANTING DETL.DWG

LOG CRIBWALL NOTES:

1. DEFINITIONS
   - 1.1. STRINGER LOGS: CRIBWALL LOGS ORIENTED PARALLEL TO THE FLOW DIRECTION. THERE ARE TWO ROWS OF STRINGER LOGS (FRONT AND BACK) AND THREE LEVELS (BOTTOM, MIDDLE, AND TOP).
   - 1.2. JOIST LOGS: CRIBWALL LOGS ORIENTED PERPENDICULAR TO THE FLOW DIRECTION. THERE ARE THREE LEVELS OF JOIST LOGS (BOTTOM, MIDDLE, AND TOP).
   - 1.3. CHINKING LOGS: CRIBWALL LOGS ORIENTED PARALLEL TO THE FLOW DIRECTION AND INSTALLED BEHIND THE FRONT ROW OF STRINGER LOGS TO CONTAIN THE 1/2 TON ROCK AND CBF. CHINKING LOGS ARE NOT STRUCTURAL MEMBERS OF THE CRIBWALL.
   - 1.4. BOLTED CONNECTIONS: EACH LOG SHALL BE ANCHORED TO ADJACENT LOGS VIA HOT-DIPPED GALVANIZED THREADED RODS WITH DOUBLE NUTS AS SPECIFIED HEREIN.
2. MATERIALS
   - 2.1. LOGS
     - 2.1.1. THE SPECIES OF TREE FROM WHICH THE LOGS ARE TAKEN SHALL BE REDWOOD, EUCALYPTUS, OR AN EQUIVALENT SPECIES APPROVED BY THE ENGINEER'S REPRESENTATIVE. LOGS SHALL NOT BE PINE OR SOFTWOOD, UNLESS SPECIFIED BY THE ENGINEER'S REPRESENTATIVE.
     - 2.1.2. LOGS SHALL NOT HAVE WEAKNESSES SUCH AS CRACKS AND SPLITS THROUGH MORE THAN 25 PERCENT OF THE LOG DIAMETER.
     - 2.1.3. CUTS SHALL BE SMOOTH, WITHOUT BREAKS OR JAGGED EDGES.
     - 2.1.4. UNLESS OTHERWISE NOTED, LOGS SHALL BE GENERALLY STRAIGHT, AND SHALL BE TRIMMED SO THAT BRANCHES PROTRUDE NO MORE THAN 6 INCHES FROM THE TRUNK.
     - 2.1.5. ALL LOGS SHALL BE 15' LONG UNLESS NOTED OTHERWISE, AND SHALL CONFIRM TO THE FOLLOWING TYPES:
       - 2.1.5.1. BOTTOM STRINGER AND BOTTOM JOIST LOGS SHALL AVERAGE 15" IN DIAMETER.
       - 2.1.5.2. MIDDLE STRINGER AND MIDDLE JOIST LOGS SHALL AVERAGE 12" IN DIAMETER.
       - 2.1.5.3. TOP STRINGER AND TOP JOIST LOGS SHALL AVERAGE 9" IN DIAMETER.
       - 2.1.5.4. CHINKING LOGS SHALL AVERAGE 6" IN DIAMETER.
     - 2.1.6. WHERE LOGS ARE SPECIFIED TO HAVE THEIR ROOTWAD ATTACHED, THE DIAMETER OF THE ROOTWAD FAN SHALL BE NO LESS THAN 4 FEET, AND TRIMMED TO BE NO GREATER THAN 8 FEET. ROOTWADS SHALL BE THOROUGHLY CLEANED OF ADHERED DIRT, LITTER, OR OTHER MATERIAL PRIOR TO DELIVERY TO THE PROJECT SITE.
   - 2.2. BOULDERS
     - 2.2.1. BOULDERS CAN BE COMPOSED OF A VARIETY OF ROCK TYPES TYPICALLY USED IN CONSTRUCTION SUCH AS IGNEOUS ROCKS (GRANITE, DIORITE, BASALT, ANDESITE). BOULDERS SHOULD HAVE NO CRACKS, BEDDING PLANES, OR OTHER WEAKNESSES. BOULDERS SHOULD NOT HAVE CRACKS FILLED, OR HEALED, WITH CALCITE. 1.5 TON BOULDERS SHALL NOT BE RIPRAP AND ROUNDED EDGES ARE PREFERRED. BOULDERS SHALL NOT BE MONTEREY SHALE.
     - 2.2.2. BOULDERS SHALL BE THE SIZES INDICATED ON THE PLANS.
     - 2.2.3. THE CONTRACTOR SHALL SUBMIT SAMPLE PHOTOS OF THE 1.5 TON BOULDERS TO THE ENGINEER'S REPRESENTATIVE FOR APPROVAL PRIOR TO PLACING ANY 1.5 TON BOULDERS. THE PHOTOS SHALL SHOW ALL SIDES OF AT LEAST THREE BOULDERS AND SHALL INCLUDE A PERSON FOR SCALE.
   - 2.3. CHANNEL BED FILL (CBF)
     - 2.3.1. IT IS ANTICIPATED THAT EXCAVATED MATERIAL FROM THE RIVERBED (STOCKPILE RIVERBED MATERIAL SEPARATELY FROM MATERIAL OF THE UPPER BANKS) WILL CONSTITUTE MOST, IF NOT ALL, OF THE CBF NEEDED TO COMPLETE THE PROJECT. THE ENGINEER'S REPRESENTATIVE SHALL APPROVE THE EXCAVATED RIVERBED MATERIAL FOR USE AS CBF PRIOR TO ANY PLACEMENT (NO OTHER TESTING REQUIRED).
     - 2.3.2. IF IN THE OPINION OF THE ENGINEER'S REPRESENTATIVE THE RIVERBED MATERIAL IS NOT SATISFACTORY FOR USE AS CBF, THE CONTRACTOR SHALL OFF-HAUL THE RIVERBED MATERIAL AT NO EXTRA COST TO THE CLIENT, AND SHALL IMPORT CBF THAT COMPLIES WITH THE FOLLOWING:
       - 2.3.2.1. THE CBF SHALL BE CLEAN AND SUBANGULAR TO SUBROUNDED ROCK AND GENERALLY CONSISTING OF A MIXTURE OF COBBLES, GRAVELS, AND SANDS.
       - 2.3.2.2. THE CBF SHALL NOT CONTAIN EXCESSIVE FINES, AND SHALL HAVE THE FOLLOWING GRADATION:

SIEVE OPENING	% PASSING, BY WEIGHT
6"	100
2"	84
3/4"	50
NO. 10	16
NO. 40	5

       - 2.3.2.3. UNSATISFACTORY CBF SHALL INCLUDE OR BE EQUIVALENT TO ASTM D2487 SOIL CLASSIFICATION GROUPS GM, GC, SW, SP, SM, SC, ML, CL, OL, MH, CH, OH, AND PT. OTHER UNACCEPTABLE SOILS WOULD INCLUDE RIP-RAP UNLESS OTHERWISE SPECIFIED HEREIN.
       - 2.3.2.4. THE CBF SHALL BE WELL MIXED PRIOR TO PLACEMENT.
   - 2.4. BOLTED CONNECTIONS
     - 2.4.1. CRIB WALL LOG BOLTED CONNECTIONS SHALL BE ¾-INCH HOT-DIPPED GALVANIZED THREADED ROD OR EQUIVALENT APPROVED BY THE ENGINEER'S REPRESENTATIVE.
     - 2.4.2. BOLTED CONNECTIONS SHALL INCLUDE A 3-INCH GALVANIZED WASHER.
     - 2.4.3. BOLTED CONNECTIONS SHALL INCLUDE HOT-DIPPED GALVANIZED NUTS.
   - 2.5. NAILS SHALL BE 12" GALVINIZED STEEL SPIKE NAILS.
   - 2.6. WILLOW BRANCHES: LIVE BRANCHES DESIGNATED FOR WILLOW BRANCHES SHALL BE SIX (6') LONG (MIN) AND ONE (1") TO TWO INCHES (2") IN DIAMETER. THE STAKES SHALL BE STRIPPED OF LEAVES AND IMMEDIATELY STORED IN BUCKETS FILLED WITH NON-CHLORINATED WATER. THE STAKES SHALL BE STORED WITH THE BUDS ORIENTED UP AND THE ROOTING-END SUBMERGED IN WATER.
   - 2.7. EROSION CONTROL BLANKET (ECB): NORTH AMERICAN GREEN SC150 BN OR EQUIVALENT PRODUCT APPROVED BY THE ENGINEER'S REPRESENTATIVE THAT IS BIODEGRADABLE, CAPABLE OF WITHSTANDING SHEAR STRESS OF 2.1 POUNDS/SQUARE FOOT AND DESIGNED FOR SLOPES OF 2:1 OR STEEPER. STAKES SHALL BE ECO-STAKES OR EQUIVALENT PRODUCT APPROVED BY THE ENGINEER'S REPRESENTATIVE THAT IS BIODEGRADABLE AND MANUFACTURED FROM A HARDWOOD.
3. EXECUTION
   - 3.1. LAY OUT THE WORK, ESTABLISH ALL NECESSARY MARKERS, BENCHMARKS, GRADING STAKES, AND OTHER STAKES AS REQUIRED. THE ENGINEER'S REPRESENTATIVE SHALL APPROVE THE STAKING FOR THE LOG CRIBWALL AND MAKE FIELD ADJUSTMENTS, IF NECESSARY.
   - 3.2. EXCAVATE TO THE SUBGRADE ACCORDING TO THE GRADES AND DIMENSIONS INDICATED ON THE DRAWINGS. MINIMIZE EXCAVATION DISTURBANCE FOR THE FOOTER BOULDERS BY DIGGING A TRENCH JUST LARGE ENOUGH TO ACCEPT THE BOULDERS. THE ENGINEER'S REPRESENTATIVE SHALL APPROVE THE SUBGRADE MATERIAL AS A SUITABLE BEDDING COURSE FOR THE 1.5-TON BOULDERS BEFORE ANY BOULDERS ARE INSTALLED. IF IN THE OPINION OF THE ENGINEER'S REPRESENTATIVE THE SUBGRADE MATERIAL IS NOT A SUITABLE BEDDING COURSE, INSTALL CBF AS SHOWN ON THE DRAWINGS AT NO EXTRA COST TO THE CLIENT.
   - 3.3. INSTALL THE 1.5-TON BOULDERS TO THE GRADES AND DIMENSIONS INDICATED ON THE DRAWINGS. PLACE THE 1.5-TON BOULDERS ONE-BY-ONE, CAREFULLY SELECTING EACH BOULDER FOR BEST FIT BASED ON SITE CONDITIONS, AND TO MAXIMIZE CONTACT AMONG ADJACENT BOULDERS. DUMPING SHALL NOT BE AN ALLOWABLE MEANS OF PLACEMENT. BACKFILL THE TRENCH FOR THE BOULDERS WITH CBF (OR RIVERBED MATERIAL GENERATED DURING TRENCHING IF APPROVED BY THE ENGINEER'S REPRESENTATIVE). THE ENGINEER'S REPRESENTATIVE SHALL APPROVE THE INSTALLATION OF THE 1.5-TON BOULDERS BEFORE PROCEEDING.
   - 3.4. THE CONTRACTOR SHALL INVOLVE THE ENGINEER'S REPRESENTATIVE DURING PLACEMENT OF THE FIRST SECTION OF JOIST AND STRINGER LOGS SUCH THAT SPECIFIC CONSTRUCTION METHODS AND TOLERANCES ARE AGREED UPON. NO FURTHER JOIST OR STRINGER LOGS SHALL BE CONSTRUCTED WITHOUT APPROVAL BY THE ENGINEER'S REPRESENTATIVE OF THE FIRST SECTION.
   - 3.5. LOGS SHALL BE PLACED ON TOP OF THE SUBGRADE AND CRIBWALL FILL BY MECHANICAL MEANS OR HAND PLACEMENT. DUMPING SHALL NOT BE AN ALLOWABLE PLACEMENT METHOD. EACH LOG SHALL MAKE FIRM CONTACT WITH ADJACENT BOULDERS OR LOGS AS SHOWN IN THE DRAWINGS.
   - 3.6. EACH LOG SHALL BE BOLTED TO ALL ADJACENT LOGS AT ALL CONTACT POINTS BETWEEN THE LOGS AS INDICATED ON THE DRAWINGS.
   - 3.7. BACKFILL THE CRIBWALL WITH APPROXIMATELY EQUAL AMOUNTS (BY VOLUME) OF 1/2-TON BOULDERS AND CBF. BACKFILLING SHALL BE DONE BY PLACING ONE COURSE OF 1/2-TON BOULDERS TO FILL AS MUCH OF THE CRIBWALL AS POSSIBLE. PLACE THE BOULDERS CAREFULLY TO AVOID DAMAGING LOG MEMBERS OF THE CRIBWALL. IF IN THE OPINION OF THE ENGINEER'S REPRESENTATIVE LOG MEMBERS OF THE CRIBWALL ARE DAMAGED DURING BACKFILLING, THOSE LOG MEMBERS SHALL BE REPLACED PRIOR TO PROCEEDING AND AT NO ADDITIONAL COST TO THE CLIENT. POUR CBF OVER THE FIRST COURSE OF 1/2-TON BOULDERS TO FILL INTERSTITIAL SPACES. TAMP AND/OR STIR THE BOULDER-CBF MIXTURE TO ENCOURAGE CBF TO PACK AROUND ALL SIDES OF THE BOULDERS. INSTALL ADDITIONAL LIFTS OF BACKFILL AS DESCRIBED ABOVE UNTIL THE TOP ELEVATION OF THE CRIBWALL IS REACHED.
   - 3.8. INSTALL COURSES OF WILLOW BRANCHES CONCURRENT WITH THE RESPECTIVE COURSES OF LOGS (BOTTOM, MIDDLE, AND TOP) AND BACKFILL. THE CUT ENDS OF THE WILLOW BRANCHES SHALL BE INSTALLED AS DEEP AS PRACTICABLE; THE ELEVATION OF THE EXISTING THALWEG IS AN IDEAL MINIMUM TARGET ELEVATION FOR THE CUT ENDS OF THE WILLOW BRANCHES.
   - 3.9. ONCE ALL LOGS ARE IN PLACE, INSTALL THE 1-TON BOULDERS BY THE SAME MEANS AND METHODS AS DESCRIBED FOR THE 1.5-TON BOULDERS, AND TO THE GRADES AND DIMENSIONS SHOWN ON THE DRAWINGS.
   - 3.10. PERFORM FINISH GRADING AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THE EARTHWORK NOTES. MATERIAL EXCAVATED FROM THE UPPER BANK (AND STOCKPILED SEPARATELY FROM THE RIVERBED MATERIAL) SHALL BE USED FOR GRADING THE UPPER PORTION OF THE BANK.
   - 3.11. INSTALL ECB AND STAKES PER THE MANUFACTURER'S INSTRUCTIONS.
   - 3.12. INSTALL WILLOW POLES AND RESEED AS SHOWN ON THE DRAWINGS.

RIGHT BANK STABILIZATION NOTES:

1. DEFINITIONS
   - 1.1. BANK LOG: LOGS WITH ROOTWADS ORIENTED NEAR-PERPENDICULAR TO THE DIRECTION OF FLOW. BANK LOGS REST ON TOP OF FOOTER LOGS.
   - 1.2. FOOTER LOG: MOSTLY BURIED LOGS WITH ROOTWADS ORIENTED NEAR-PARALLEL TO THE DIRECTION OF FLOW.
2. MATERIALS
   - 2.1. LOGS
     - 2.1.1. BANK LOGS AND FOOTER LOGS SHALL BE AS DESCRIBED IN THE LOG CRIBWALL NOTES AND SHALL COMPLY WITH THE FOLLOWING:
       - 2.1.1.1. LOGS SHALL BE 18' LONG (AS MEASURED FROM THE ROOTWAD BOLE TO THE CUT END) AND 18" AVERAGE DIAMETER.
       - 2.1.1.2. LOGS SHALL HAVE THEIR ROOTWAD ATTACHED.
   - 2.2. BOULDERS SHALL BE AS DESCRIBED IN THE LOG CRIBWALL NOTES. ALL BOULDERS FOR THE RIGHT BANK STABILIZATION SHALL BE 1.5 TONS.
   - 2.3. LOG ANCHORS SHALL BE FORESIGHT DUCKBILL ANCHOR 138-DBD OR AN EQUIVALENT ANCHOR PROVIDING NO LESS THAN 5,000 LBS HOLDING FORCE IN NORMAL SOIL. CABLE TO ATTACH THE ANCHOR TO THE LOG SHALL BE FLEXIBLE WIRE ROPE HAVING A MINIMUM DIAMETER OF 7/16 INCHES AND A MINIMUM BREAKING STRENGTH OF 9,800 POUNDS.
   - 2.4. EROSION CONTROL BLANKET (ECB) SHALL BE AS DESCRIBED IN THE LOG CRIBWALL NOTES.
3. EXECUTION
   - 3.1. LAY OUT THE WORK, ESTABLISH ALL NECESSARY MARKERS, BENCHMARKS, GRADING STAKES, AND OTHER STAKES AS REQUIRED.
   - 3.2. EXCAVATE TO THE SUBGRADE ACCORDING TO THE GRADES AND DIMENSIONS INDICATED ON THE DRAWINGS. MINIMIZE EXCAVATION DISTURBANCE FOR THE FOOTER BOULDERS AND LOGS BY DIGGING A TRENCH JUST LARGE ENOUGH TO ACCEPT THE MATERIALS.
   - 3.3. INSTALL THE BOULDERS TO THE GRADES AND DIMENSIONS INDICATED ON THE DRAWINGS. PLACE THE BOULDERS ONE-BY-ONE, CAREFULLY SELECTING EACH BOULDER FOR BEST FIT BASED ON SITE CONDITIONS, AND TO MAXIMIZE CONTACT AMONG ADJACENT BOULDERS. DUMPING SHALL NOT BE AN ALLOWABLE MEANS OF PLACEMENT. BACKFILL THE TRENCH FOR THE BOULDERS WITH CBF.
   - 3.4. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER'S REPRESENTATIVE TO ASSURE THAT THEY ARE AVAILABLE DURING PLACEMENT OF THE FIRST SECTION OF FOOTER AND BANK LOGS SUCH THAT SPECIFIC CONSTRUCTION METHODS AND TOLERANCES ARE AGREED UPON. NO FURTHER FOOTER OR BANK LOGS SHALL BE CONSTRUCTED WITHOUT APPROVAL BY THE ENGINEER'S REPRESENTATIVE OF THE FIRST SECTION.
   - 3.5. SECURE THE ROOTWAD ENDS OF BANK LOGS WITH LOG ANCHORS USING 7/16-INCH CABLE LOOPED THROUGH ½-INCH HOLES (MINIMUM) DRILLED THROUGH THE CENTER OF EACH LOG. HOLES SHALL BE DRILLED AND LOGS SHALL BE PLACED SUCH THAT THE CABLES AND ANCHORS ARE NOT VISIBLE WHEN FINISH GRADING IS COMPLETE.
   - 3.6. SECURE THE CUT ENDS OF BANK LOGS WITH BOULDERS AS SHOWN IN THE DRAWINGS.
   - 3.7. PERFORM FINISH GRADING AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THE EARTHWORK NOTES. MATERIAL EXCAVATED FROM THE UPPER BANK (AND STOCKPILED SEPARATELY FROM THE RIVERBED MATERIAL) SHALL BE USED FOR GRADING THE UPPER PORTION OF THE BANK. RIVERBED MATERIAL SHALL BE USED TO EXTEND THE EXISTING BAR; BLEND THE GRADING OF THE EXTENDED BAR WITH THE EXISTING BAR.
   - 3.8. INSTALL ECB AND STAKES PER THE MANUFACTURER'S INSTRUCTIONS.
   - 3.9. INSTALL WILLOW POLES AND RESEED AS SHOWN ON THE DRAWINGS.

PREPARED FOR: MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

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SUBMITTALS / REVISIONS	BY	DATE
DRAFT DESIGN	PK	20170706
FINAL DESIGN	PK	20170718
FINAL DESIGN (REVISED)	PK	20180302

DESIGNED BY	P KULCHAWIK
DRAWN BY	P KULCHAWIK
CHECKED BY	E BALLMAN
IN CHARGE	P KULCHAWIK
DATE	20180302

REGISTERED PROFESSIONAL ENGINEER · PETER L. KULCHAWIK · No. C83062 · Exp. 09-30-19 · CIVIL · STATE OF CALIFORNIA

BANK STABILIZATION NOTES

CARMEL RIVER BANK STABILIZATION
AT RANCHO SAN CARLOS ROAD
MONTEREY COUNTY, CALIFORNIA
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

PROJECT NUMBER 217107

SCALE --

SHEET 4.4

Y:_PROJECTS\217107 CARMEL RIVER - SAN CARLOS STREAMBANK RESTORATION\217107 CAD\217107 SHEETS\217107-044-DETL NOTES.DWG

FINAL DESIGN