EXHIBIT A

DESIGN

A1: Poppy Drainage Final Plan

A2: Fiddleneck Drainage 90% Plan

Attachment A1

SMART NON-MOTORIZED PATHWAY SEGMENT 3 - POPPY DRAINAGE RIPARIAN MITIGATION

CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

SHEET INDEX

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING UTILITIES AND OTHER INFRASTRUCTURE IN THE PROJECT AREA.
2. EXISTING TOPOGRAPHIC DATA FROM 2013 SONOMAVEG LIDAR.
3. HORIZONTAL DATUM: NAD83 CALIFORNIA STATE PLANES, ZONE II, US FOOT
4. VERTICAL DATUM: NAVD88, U.S. SURVEY FEET.
5. DESIGN IS BASED ON AVAILABLE LIDAR, NOT A TOPOGRAPHY SURVEY.
6. THE CONTRACTOR SHALL UTILIZE A LICENSED SURVEY TO ESTABLISH AND MAINTAIN HORIZONTAL AND VERTICAL CONTROL ON SITE.

EARTHWORK VOLUMES (CY)		
TOTAL CUT	TOTAL FILL	EXCESS CUT
420	80	340

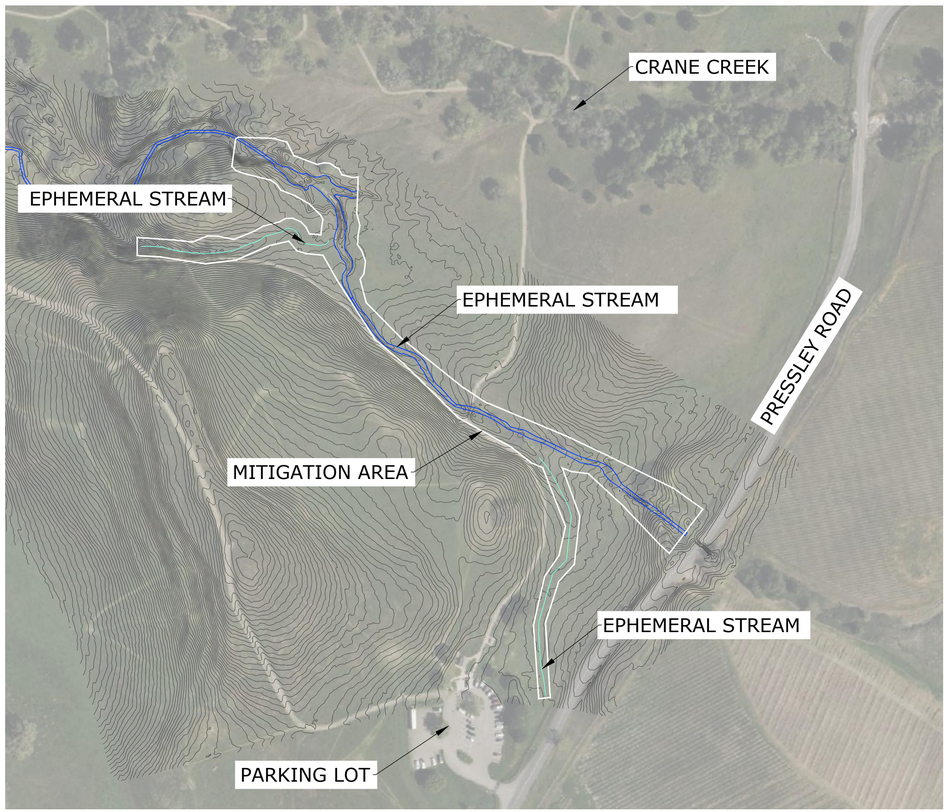
NOTE: NEAT LINE QUANTITIES - DOES NOT ACCOUNT FOR EXPANSION OR COMPACTION.

Applicable Specifications (CALTRANS)	
72	Slope Protection

Applicable Specifications (SMART)	
31 11 00	Site Clearing (Clearing and Grubbing)
31 20 00	Earthwork
31 23 19	Dewatering
31 60 00	Soil Erosion, Sediment Control, Topsoiling and Seeding

1 VICINITY MAP

NOT TO SCALE



2 SITE MAP

SCALE: 1"=150'

wra Environmental Consultants

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CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

LICENSED LANDSCAPE ARCHITECT
Ingrid Christina Markert
Lic. No. 5472
Signature
November 30, 2024
Renewal Date
June 24, 2024
Date
STATE OF CALIFORNIA

06/25/24 100% FINAL PLAN SET
Date Issues And Revisions No.

PROJECT #31368
DRAWN BY: DAG, BMM
CHECKED BY: ICM, AJS
ORIGINAL DRAWING SIZE: 22 X 34

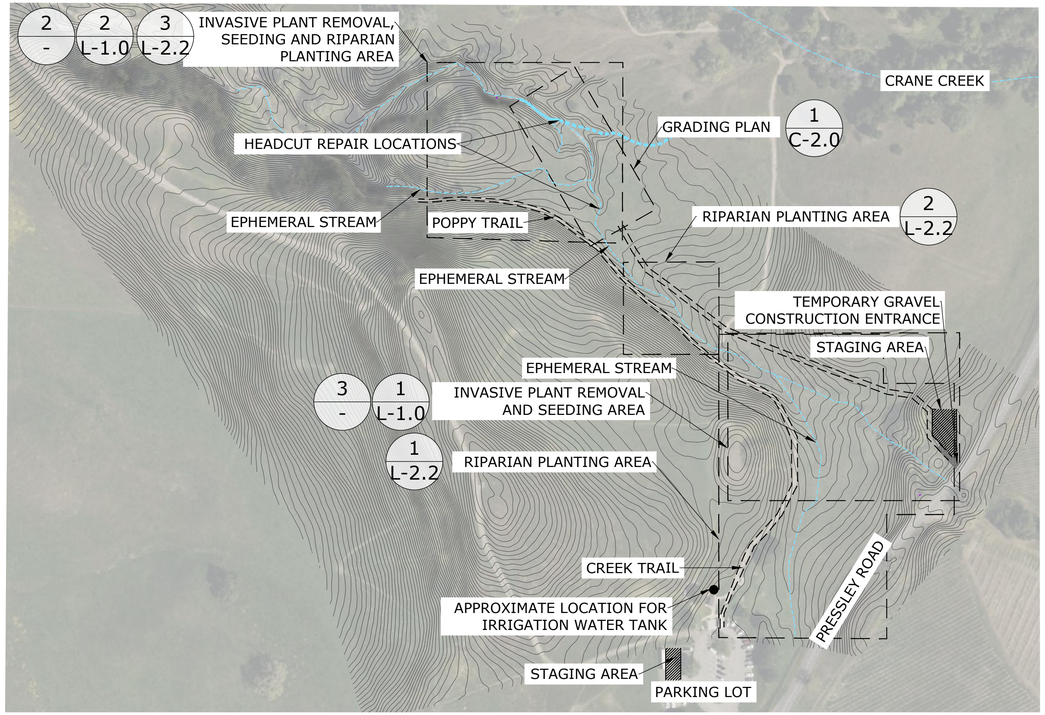
SCALE: AS INDICATED

N

TITLE SHEET AND GENERAL NOTES

Sheet 1 of 14

G-1.0



1 SITE ACCESS AND KEY MAP
SCALE: 1"=150'

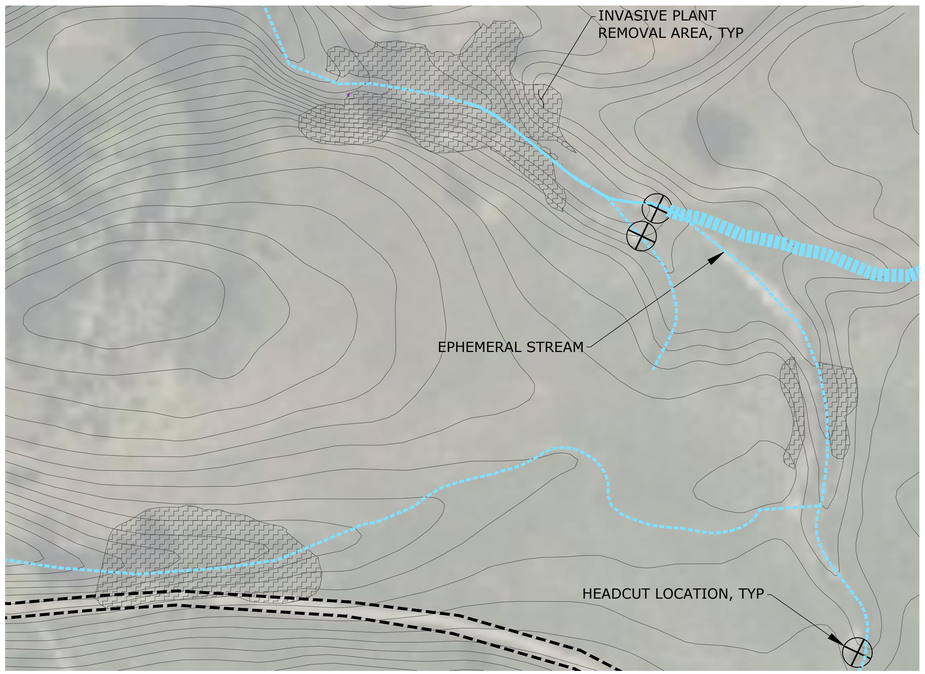
0 150
SCALE: 1 " = 150'

LEGEND

- EXISTING CONTOUR
- SITE ACCESS ROUTE
- INVASIVE PLANT REMOVAL AREA (0.51 ACRE)
- HEADCUT LOCATIONS
- EXISTING STREAM ALIGNMENT

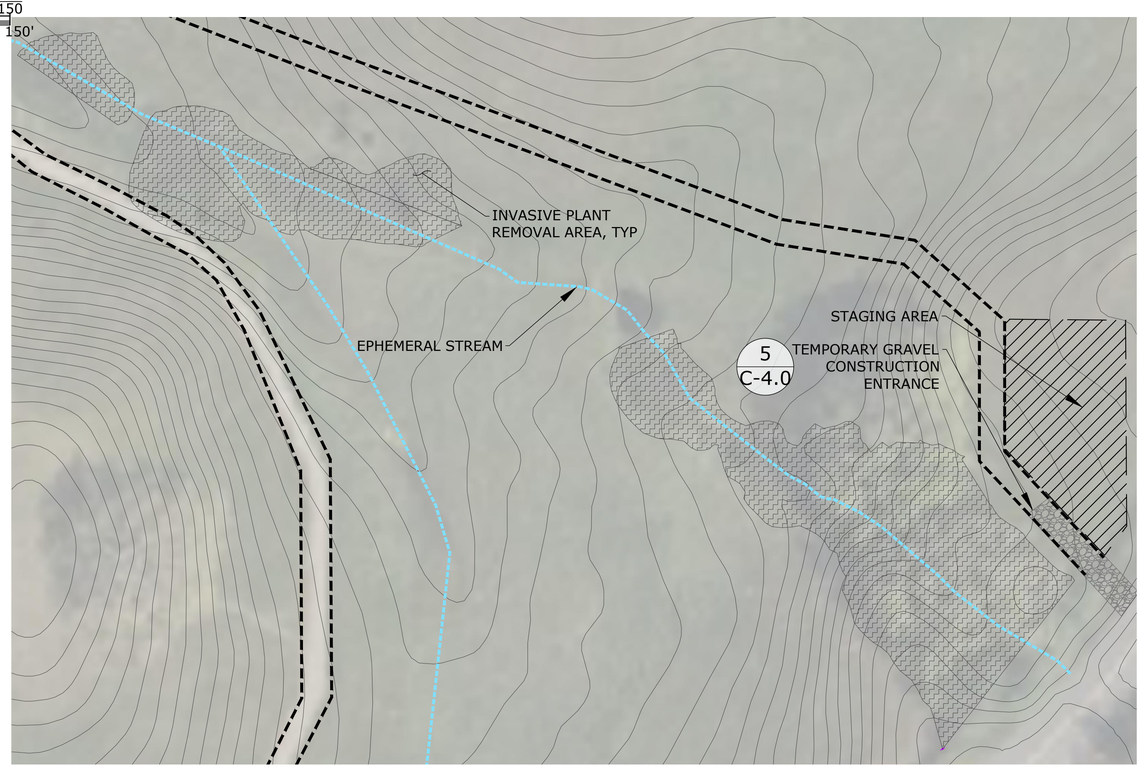
POPPY DRAINAGE SITE PREPARATION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL SENSITIVE HABITATS AS REQUIRED. ORANGE CONSTRUCTION FENCING SHALL BE INSTALLED AROUND WORK AREAS AS NEEDED.
2. THE CONTRACTOR SHALL SUBMIT A SITE CLEARING PLAN PER THE SPECIFICATIONS FOR APPROVAL BY SMART'S PROJECT MANAGER PRIOR TO COMMENCING WORK.
3. THE CONTRACTOR SHALL LAY OUT CONSTRUCTION ENTRANCES/EXITS, HAUL ROUTES, STAGING AREAS, AND CONSTRUCTION FENCE FOR APPROVAL PRIOR TO ANY EARTH DISTURBING ACTIVITIES.
4. INVASIVE NON-NATIVE HIMALAYAN BLACKBERRY AND FULLER'S TEASEL SHALL BE REMOVED PRIOR TO IRRIGATION AND PLANT INSTALLATION.
   - 4.1. THE CONTRACTOR SHALL SUBMIT A NON-NATIVE PLANT REMOVAL PLAN, INCLUDING METHODS FOR HIMALAYAN BLACKBERRY AND FULLER'S TEASEL REMOVAL, TO SMART'S PROJECT MANAGER FOR APPROVAL.
   - 4.2. HIMALAYAN BLACKBERRY (*RUBUS ARMENIACUS*) AND FULLER'S TEASEL (*DIPSACUS FULLONUM*) REMOVAL SHALL BE DONE BY MECHANICAL METHODS SUCH AS CUTTING.
   - 4.3. HERBICIDE APPLICATION SHALL ADHERE TO THE SONOMA COUNTY REGIONAL PARKS INTEGRATED PEST MANAGEMENT PLAN AND APPLICABLE GUIDANCE FROM THE SONOMA COUNTY BOARD OF SUPERVISORS, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, AND THE REGIONAL WATER QUALITY CONTROL BOARD THE INVASIVE PLANT REMOVAL PLAN SHALL INCLUDE THE RELEVANT GUIDELINES AND BEST MANAGEMENT PRACTICES FROM THESE ENTITIES.
   - 4.4. BIOMASS DEBRIS FROM THE INVASIVE NON-NATIVE PLANT REMOVAL ACTIVITIES SHALL BE REMOVED AND PROPERLY DISPOSED OF AT A GREEN WASTE FACILITY.
5. CONTRACTOR SHALL MOW AND/OR TRIM EXISTING GRASSES IN AREAS OUTSIDE LIMIT OF GRADE PRIOR TO PLANT INSTALLATION.
6. CONTRACTOR SHALL CUT FENCE AND REMOVE ONE FENCE POST ALONG PRESSLEY ROAD AT LOCATION IDENTIFIED BY SMART'S PROJECT MANAGER AND INSTALL A TEMPORARY GATE FOR SITE ACCESS. THE STAGING AND SITE ACCESS ROUTE LOCATED HERE SHALL BE USED FOR HEAVY EQUIPMENT AND VEHICLE TRAFFIC FOR ACCESSING PROJECT LOCATIONS WHICH REQUIRE GRADING AND EARTHWORK.
7. THERE SHALL BE NO VEHICULAR SITE ACCESS FROM PARKING LOT, ATVS ARE ALLOWED ON EXISTING TRAILS DURING DRY CONDITIONS ONLY.
8. TEMPORARY CHAINLINK FENCES WITH GATES SHALL BE INSTALLED AROUND STAGING AREAS.
9. EXACT LOCATION OF THE TEMPORARY GRAVEL CONSTRUCTION ENTRANCE WILL BE DETERMINED BY SMART'S PROJECT MANAGER BASED ON SITE CONDITIONS.



2 INVASIVE PLANT REMOVAL PLAN
SCALE: 1"=30'

0 30
SCALE: 1 " = 30'



3 INVASIVE PLANT REMOVAL PLAN
SCALE: 1"=30'

0 30
SCALE: 1 " = 30'

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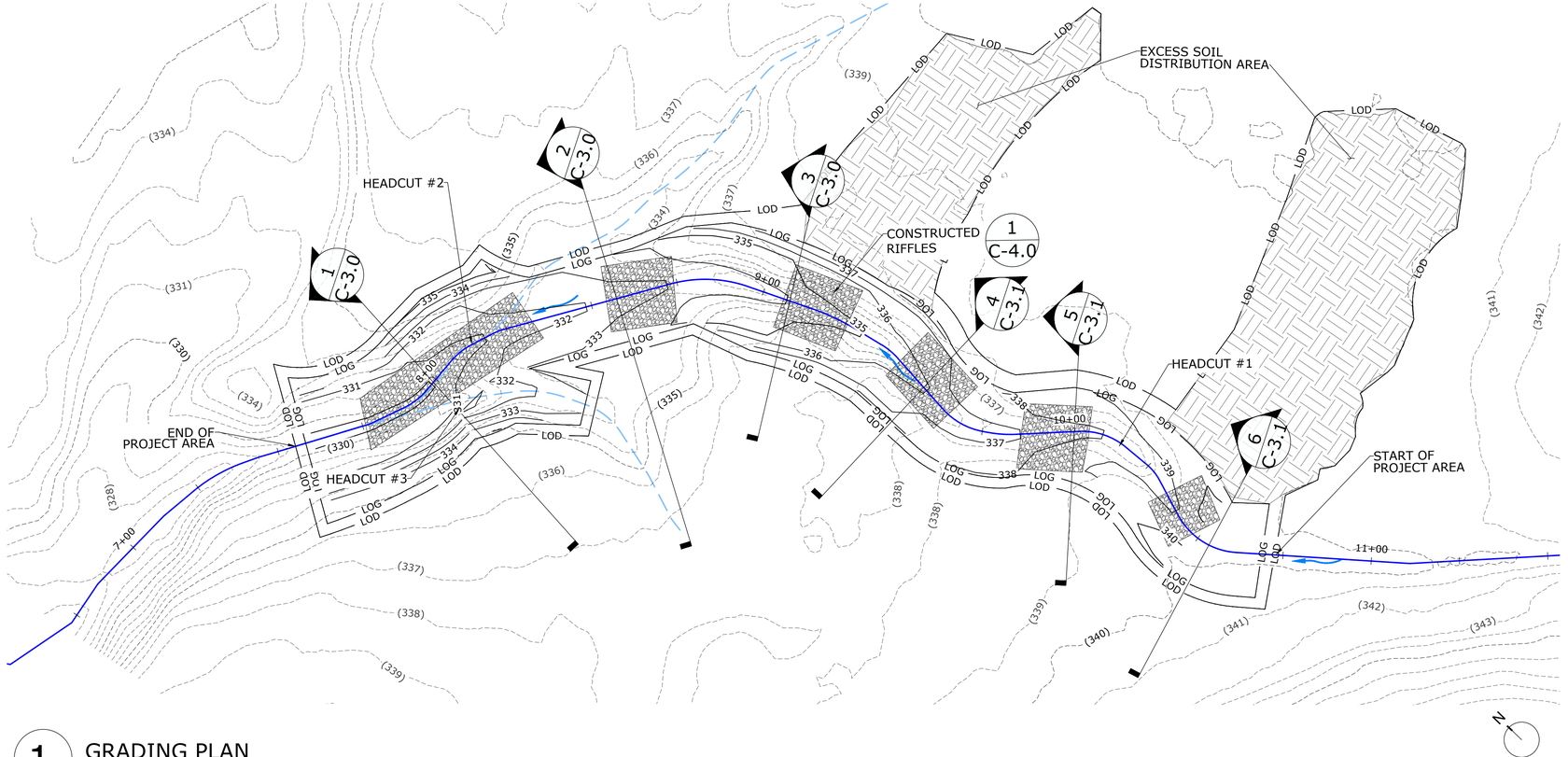
N

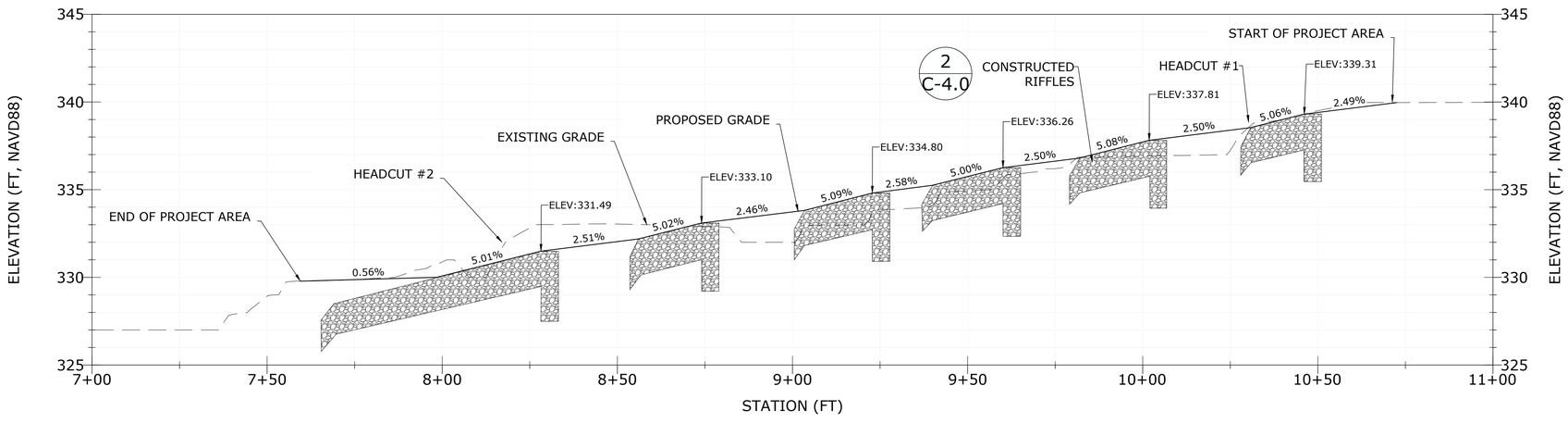
SITE PREPARATION & ACCESS PLAN

Sheet 2 of 14

C-1.1



1 GRADING PLAN



2 PROFILE VIEW

0 20
SCALE: 1 " = 20'

GRADING PLAN LEGEND

SYMBOL	DESCRIPTION
LOD	LIMIT OF DISTURBANCE
LOG	LIMIT OF GRADING
(1)	EXISTING CONTOURS
1	PROPOSED CONTOURS
10+00	CHANNEL ALIGNMENT
	FLOW DIRECTION
	CONSTRUCTED RIFFLE
	EXCESS SOIL DISTRIBUTION AREA

GRADING NOTES:

1. CONTOURS SHOWN IN 1' INTERVALS.
2. THE GRADING PLANS INDICATE FINISHED GRADE ELEVATIONS. ELEVATIONS GIVEN IN NAVD88.
3. NATIVE EXCESS SOIL WILL BE FIELD FIT AS DIRECTED BY THE SMART PROJECT MANGER.
4. NATIVE EXCESS SOIL SHALL BE SPREAD THINLY SUCH THAT IT IS NOT GREATER THAN 6 INCHES DEEP IN ANY ONE LOCATION.
5. EXISTING CONTOURS WITHIN THE ACTIVE CHANNEL, TREE AND BRUSH AREAS MAY NOT MEET 1 FOOT ACCURACY AND SHOULD BE CONSIDERED APPROXIMATE. ANY DISCREPANCIES FROM WHAT IS SHOWN ON THE PLANS SHALL BE MADE CLEAR TO THE SMART PROJECT MANAGER PRIOR TO COMMENCING WORK.
6. FOR ROCK GRADATION, SEE SPECIFICATION SECTION 72 SLOPE PROTECTION SPECIAL PROVISIONS.

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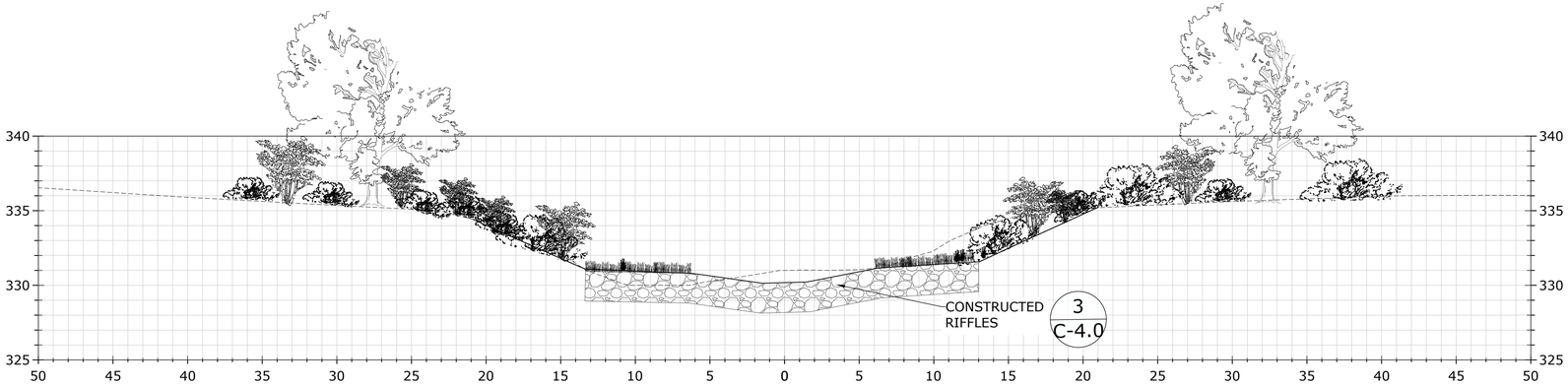
GRADING PLAN & PROFILE

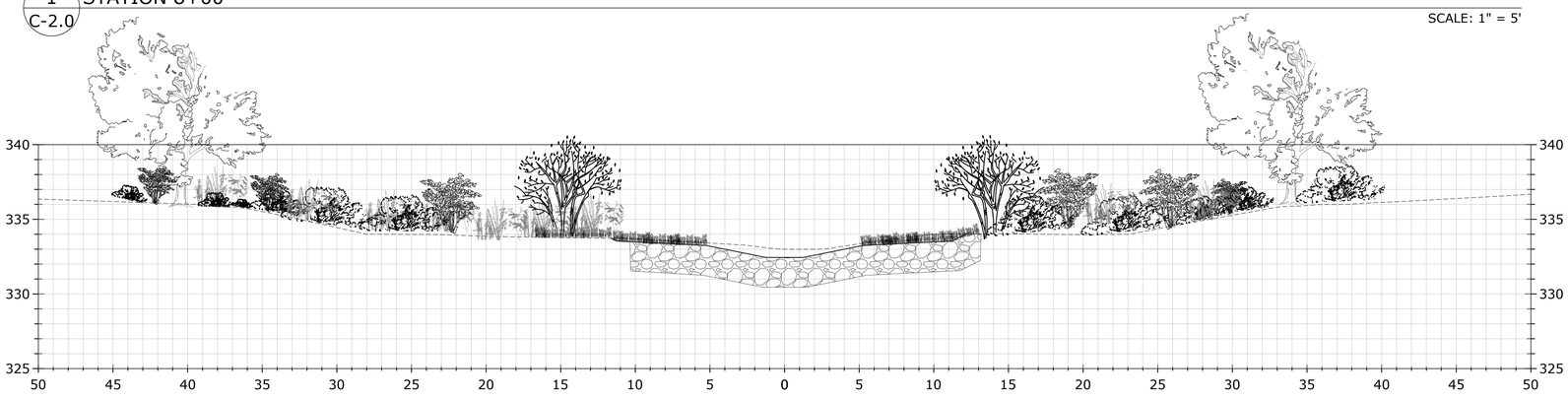
Sheet 3 of 14

C-2.0



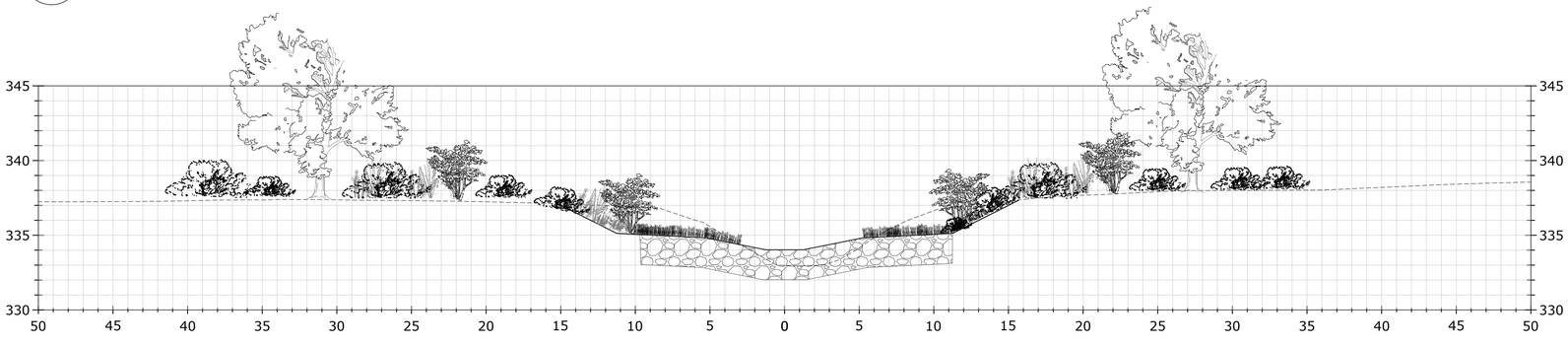
1 C-2.0 STATION 8+00

SCALE: 1" = 5'



2 C-2.0 STATION 8+60

SCALE: 1" = 5'



3 C-2.0 STATION 9+10

SCALE: 1" = 5'

SECTION LEGEND

SYMBOL	DESCRIPTION
	EXISTING GRADE
	PROPOSED GRADE
	PROPOSED ROCK

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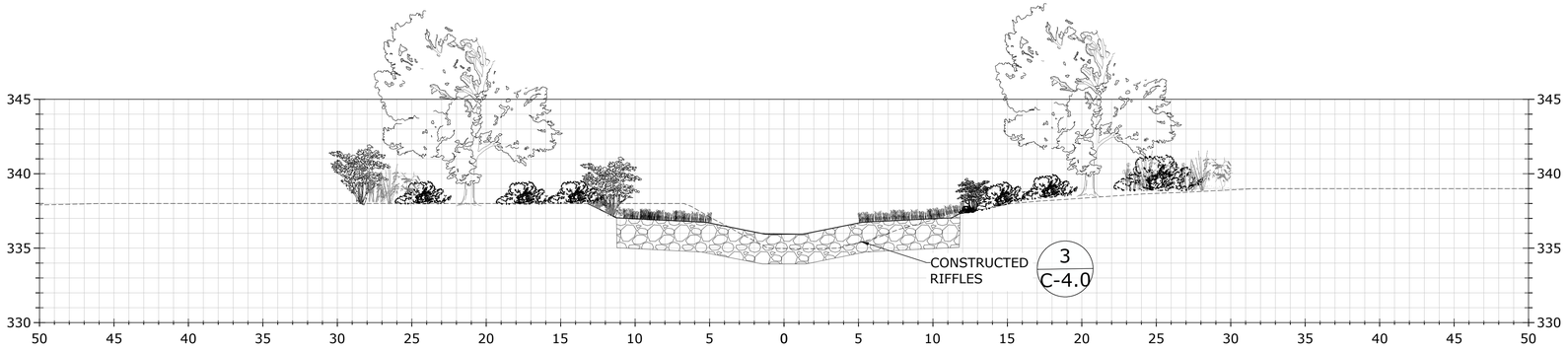
CHANNEL SECTIONS

Sheet 4 of 14

C-3.0



4 C-2.0 STATION 9+50

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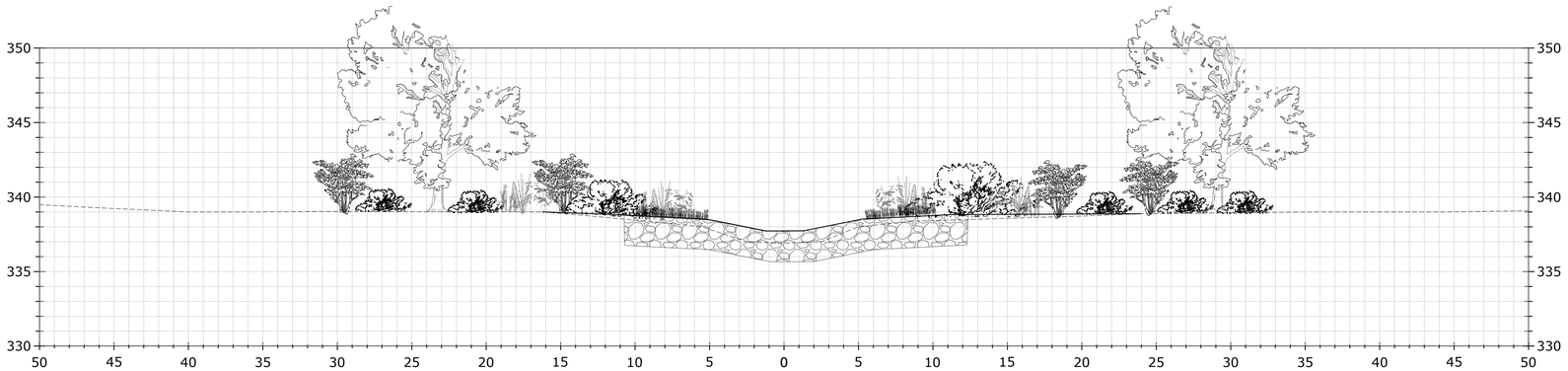
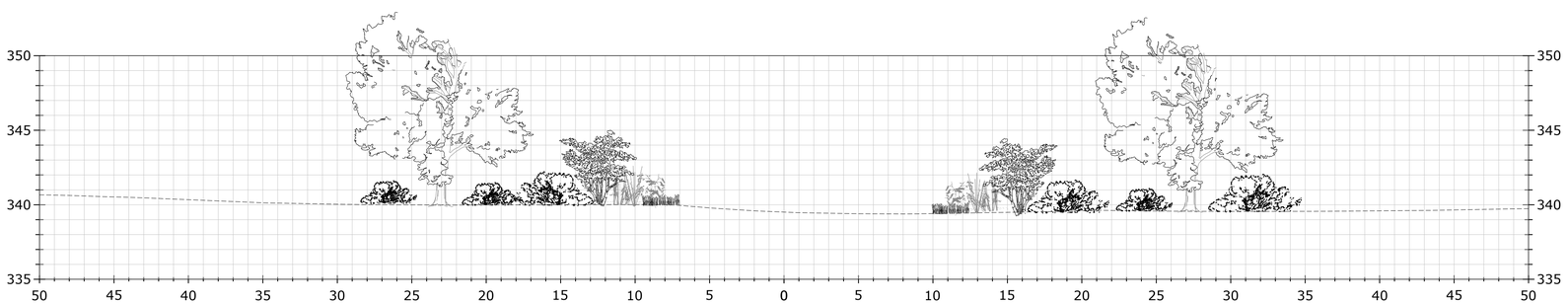


5 C-2.0 STATION 10+00

SCALE: 1" = 5'



6 C-2.0 STATION 10+50

SCALE: 1" = 5'

SECTION LEGEND

SYMBOL	DESCRIPTION
	EXISTING GRADE
	PROPOSED GRADE
	PROPOSED ROCK

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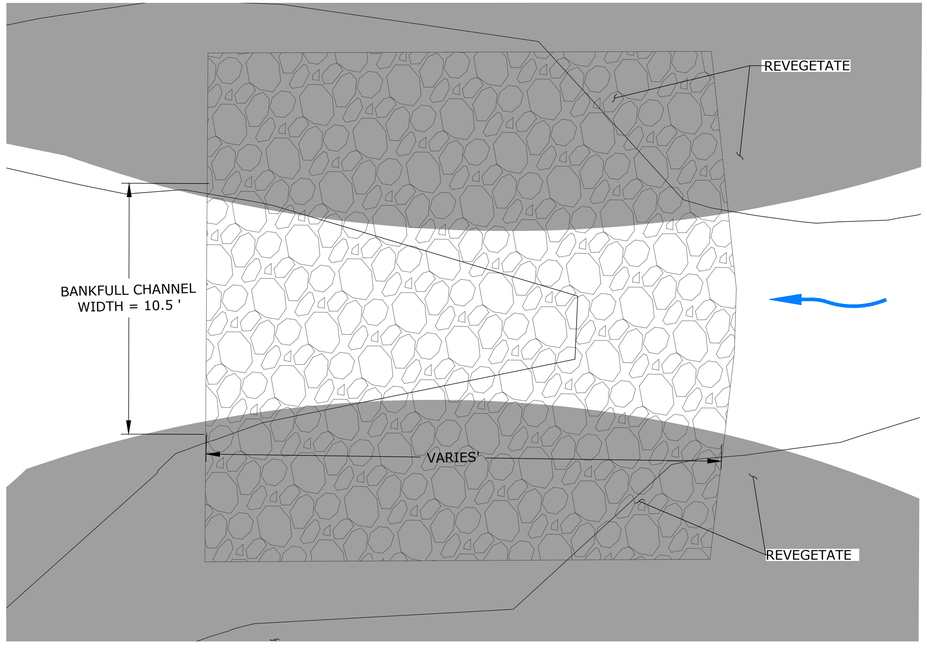
CHANNEL SECTIONS

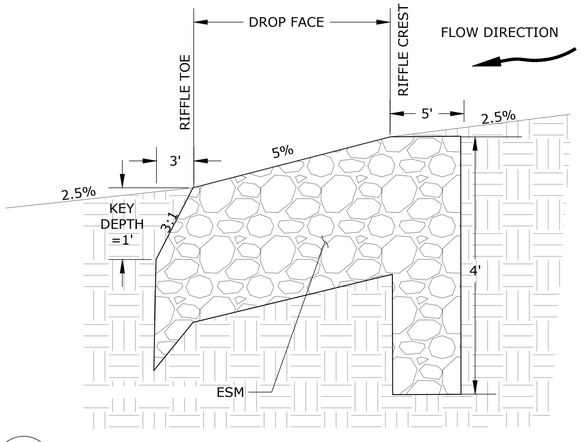
Sheet 5 of 14

C-3.1



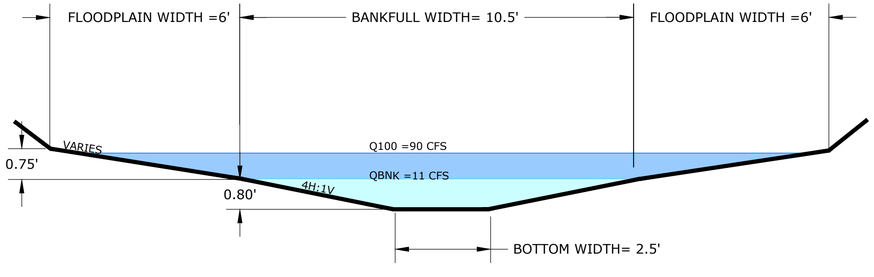
1 C-2.0 CONSTRUCTED RIFFLE - TYPICAL PLAN

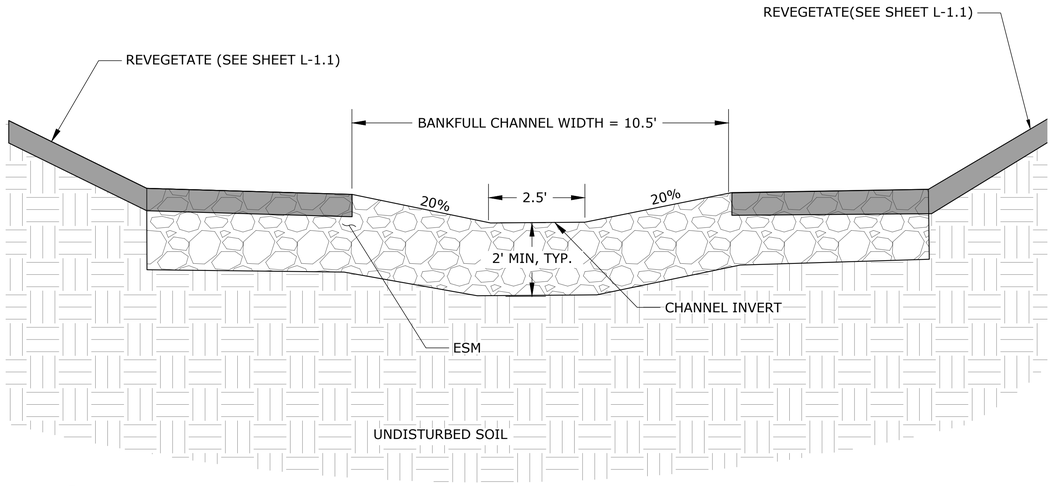
NOT TO SCALE



2 C-2.0 CONSTRUCTED RIFFLE - TYPICAL PROFILE

NOT TO SCALE



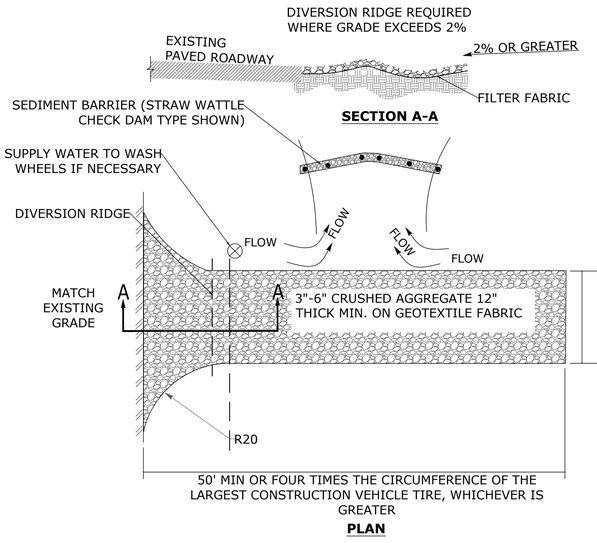


3 C-3.0 CONSTRUCTED RIFFLE - TYPICAL SECTION

NOT TO SCALE

4 C-2.0 TYPICAL CHANNEL SECTION FOR SLOPE OF 2.5%

NOT TO SCALE



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

5 C-1.1 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

NOT TO SCALE

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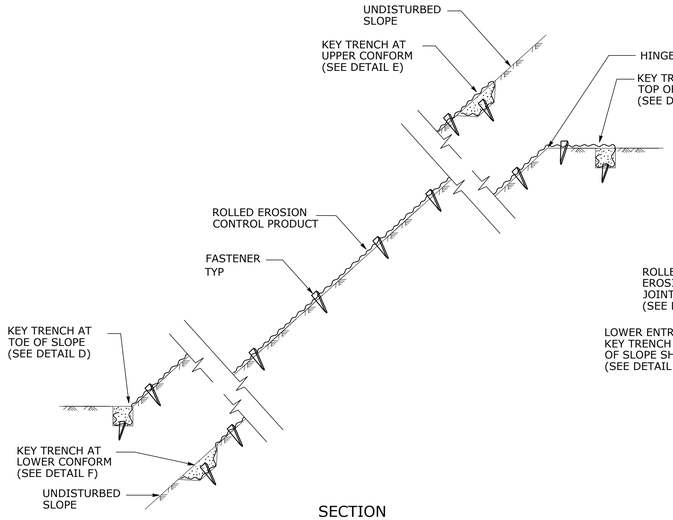
STABILIZATION DETAILS

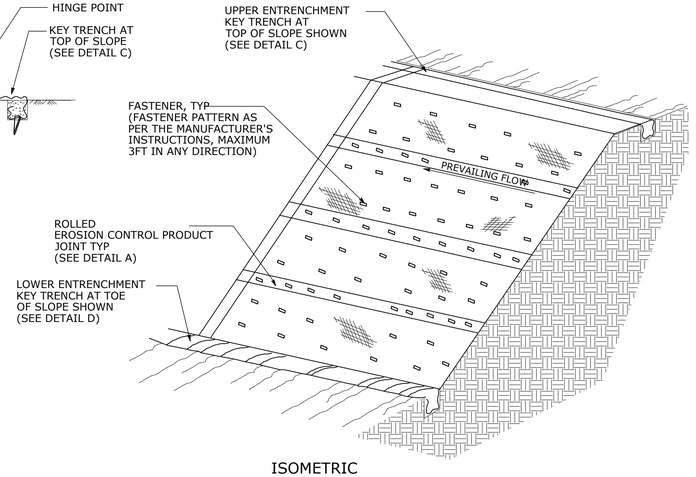
Sheet 6 of 14

C-4.0



SECTION

ROLLED EROSION CONTROL PRODUCT
ON SLOPE WITH VARIOUS KEY ENTRENCHMENTS

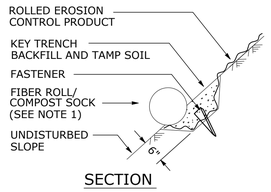


ISOMETRIC

ROLLED EROSION CONTROL PRODUCT
ON SLOPE

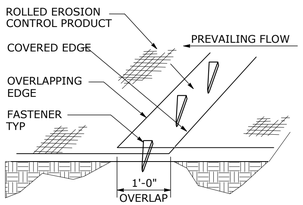
NOTES:

1. TRENCHED FIBER ROLL/COMPOST SOCK SHOWN FOR REFERENCE PURPOSES ONLY.
2. IF TRANSVERSE ROLLED EROSION CONTROL PRODUCT JOINTS ARE REQUIRED ON SLOPES, SEE DETAIL B.
3. EROSION CONTROL FABRIC AND FIBER ROLLS SHALL BE COMPOSED OF BIODEGRADABLE MATERIALS. SEE SMART SPECIFICATIONS 31 60 00.
4. EROSION CONTROL FABRIC SHALL BE PLACED WITHIN BANKFULL CHANNEL WIDTH. SEE SHEET C-4.0 FOR BANKFULL WIDTH.
5. EROSION CONTROL FABRIC STAKES SHALL BE WOOD OR OTHER BIODEGRADABLE MATERIAL APPROVED BY SMART'S PROJECT MANAGER.
6. FABRIC SHALL NOT BE CUT TO INSTALL STAKES.



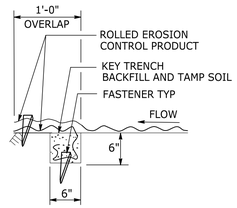
SECTION

DETAIL F
KEY TRENCH AT
LOWER CONFORM



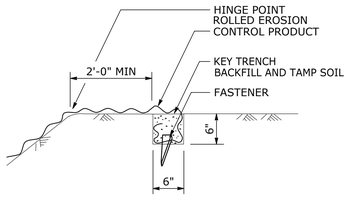
PERSPECTIVE

DETAIL A
LONGITUDINAL ROLLED EROSION
CONTROL PRODUCT JOINT



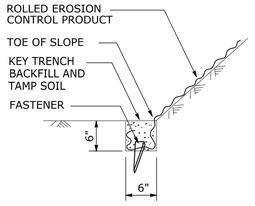
SECTION

DETAIL B
TRANSVERSE ROLLED EROSION
CONTROL PRODUCT JOINT



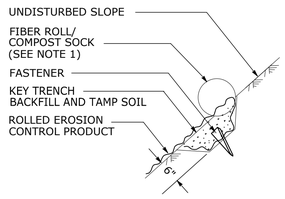
SECTION

DETAIL C
KEY TRENCH AT
TOP OF SLOPE



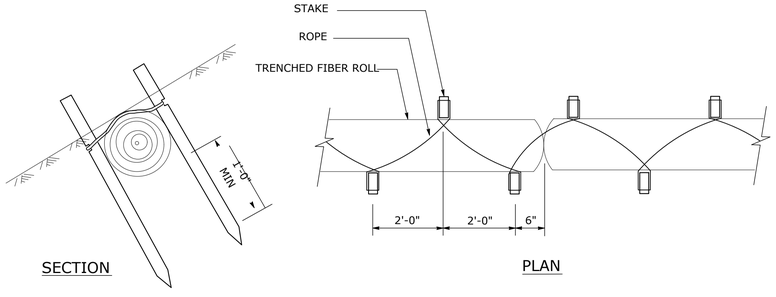
SECTION

DETAIL D
KEY TRENCH AT
TOE OF SLOPE



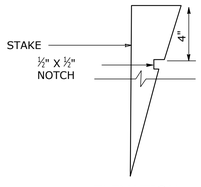
SECTION

DETAIL E
KEY TRENCH AT
UPPER CONFORM



SECTION PLAN

ENTRENCHED FIBER ROLL
(TYPE 2)

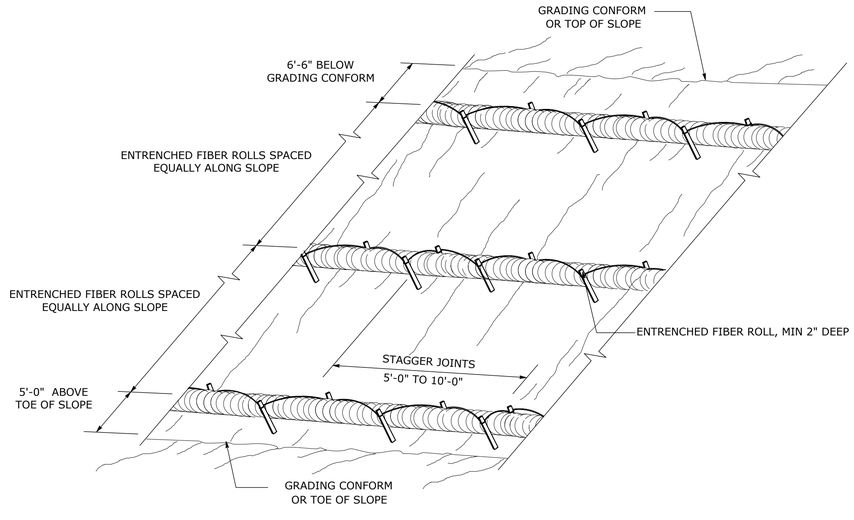


ELEVATION

STAKE NOTCH DETAIL

NOTES:

1. FIBER ROLL SPACING VARIES DEPENDING UPON SLOPE INCLINATION.
2. INSTALLATIONS SHOWN IN THE PERSPECTIVES ARE FOR SLOPE INCLINATION OF 10:1 AND STEEPER.



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SCALE: AS INDICATED

EROSION CONTROL DETAILS

Sheet 7 of 14

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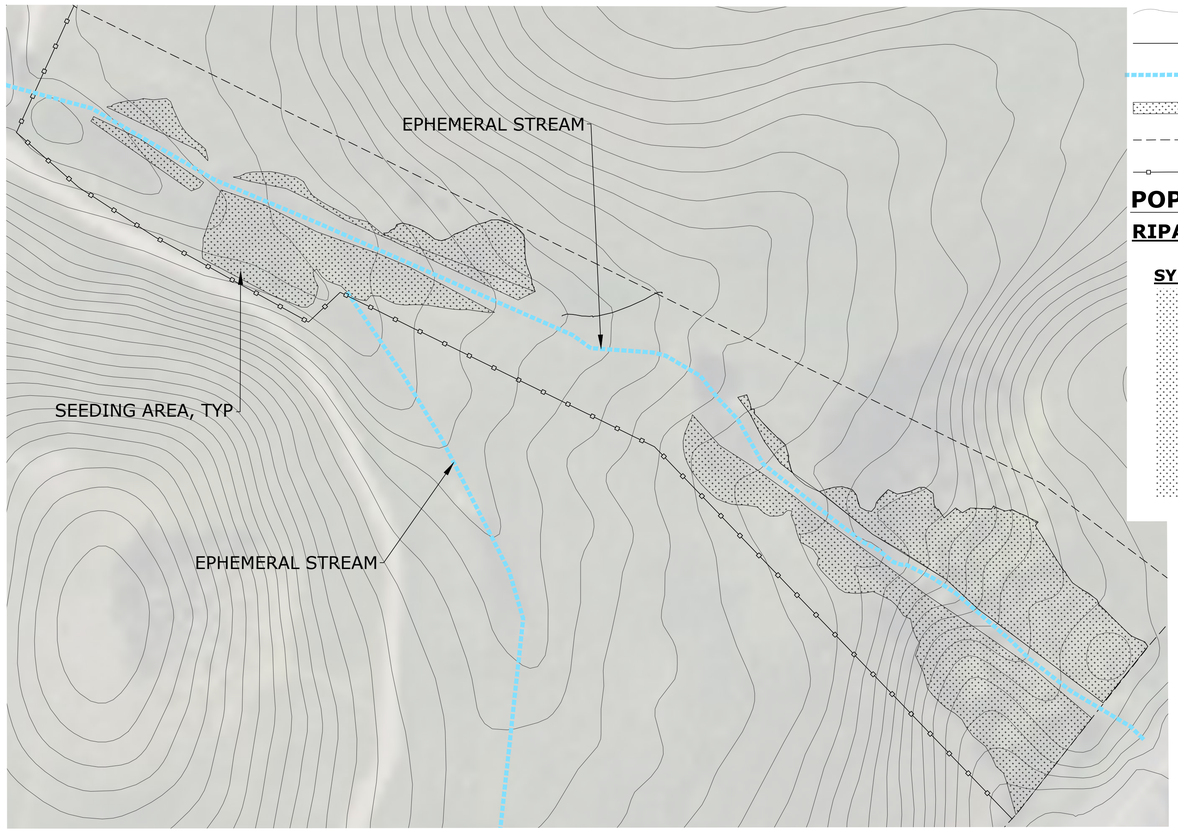


1 SEEDING PLAN - UPPER POPPY DRAINAGE

SCALE: 1"=30'

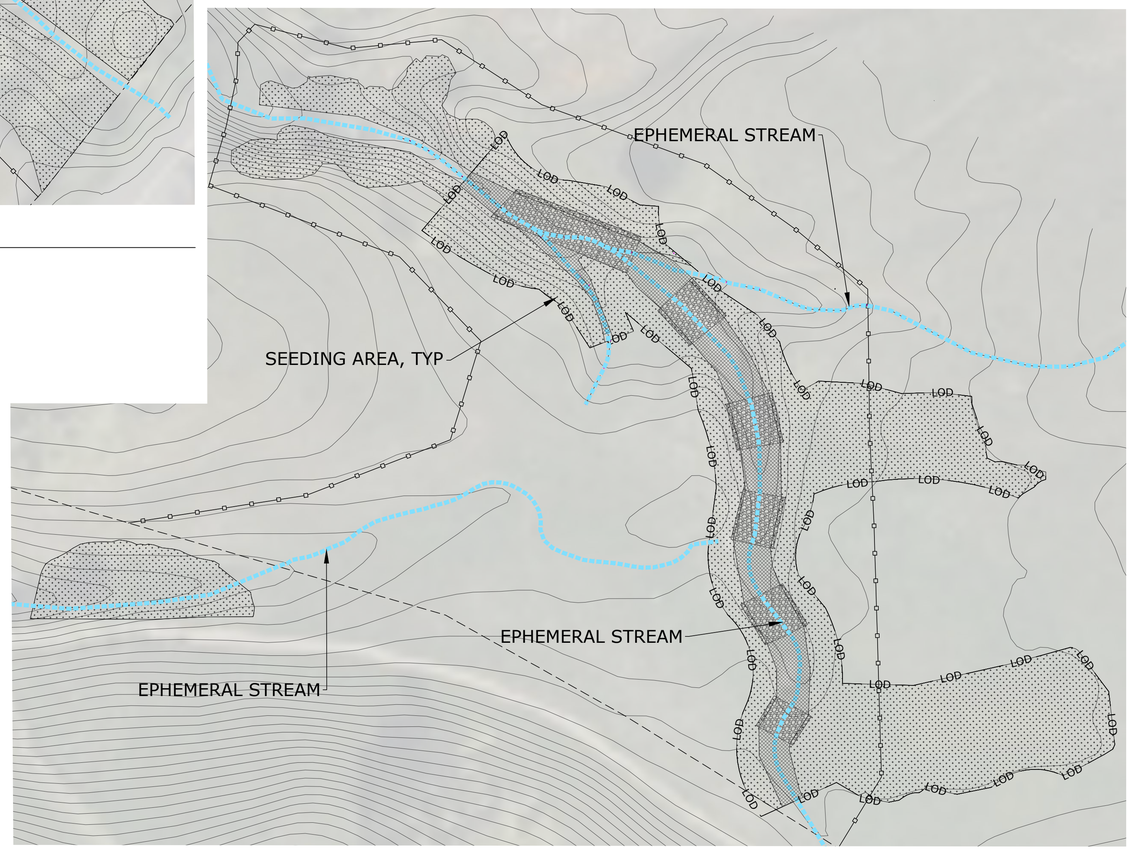
LEGEND

- EXISTING CONTOUR
- PROPOSED GRADE
- EPHEMERAL STREAM
- SEEDING AREA
- EXISTING FENCE
- TEMPORARY ELECTRIC FENCE (BY OTHERS)
- EROSION CONTROL FABRIC

POPPY DRAINAGE - SEED MIX

RIPARIAN SEED MIX (0.73 ACRE)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	PURE LIVE SEED LBS/ ACRE	ESTIMATED LBS PURE LIVE SEED
	ACHILLEA MILLEFOLIUM	YARROW	0.5	0.4
	ASCLEPIAS FASCICULARIS	NARROWLEAF MILKWEED	0.5	0.4
	BROMUS CARINATUS	CALIFORNIA BROME	8	5.8
	ELYMUS GLAUCUS	BLUE WILDRYE	8	5.8
	ESCHSCHLOZIA CALIFORNICA	CALIFORNIA POPPY	2	1.5
	FESTUCA MICROSTACHYS	SMALL FESCUE	8	5.8
	HORDEUM BRACHYANTHERUM	MEADOW BARLEY	8	5.8
	LUPINUS BICOLOR	BICOLORED LUPINE	4	2.9
	SCROPHULARIA CALIFORNICA	BEE PLANT	2	1.5
	STIPA PULCHRA	PURPLE NEEDLEGRASS	5	3.7
	TOTAL		**46**	**33.6**



2 SEEDING PLAN - LOWER POPPY DRAINAGE

SCALE: 1"=30'

SEEDING NOTES

1. SEED PROCUREMENT: SEED SHALL BE PROVIDED BY THE CONTRACTOR ON THE BASIS OF PURE LIVE SEED (PLS). THE SEED TAGS SHALL BE SUBMITTED TO SMART'S PROJECT MANAGER FOR APPROVAL PRIOR TO APPLICATION.
2. SEEDING SCHEDULE: SEEDING SHALL OCCUR BETWEEN SEPTEMBER 15TH AND OCTOBER 15TH UNLESS OTHERWISE APPROVED BY SMART'S PROJECT MANAGER.
3. SEEDING SHALL OCCUR PRIOR TO EROSION CONTROL FABRIC INSTALLATION.
4. SEEDING AREAS SHALL BE MARKED PRIOR TO SEED APPLICATION AND APPROVED BY SMART'S PROJECT MANAGER. SEEDING SHALL OCCUR IN AREAS OF GROUND DISTURBANCE, INCLUDING INVASIVE PLANT REMOVAL AREAS, WITHIN THE LIMIT OF DISTURBANCE, AND OTHER DISTURBED AREAS ASSOCIATED WITH STAGING, SITE ACCESS, AND CONSTRUCTION ACTIVITIES.
5. SOIL WILL BE PREPARED FOR SEED INSTALLATION BY HAND RAKING OR DISKING.
6. THE SEED MIXES SHALL BE MANUALLY BROADCASTED.
7. THE BROADCAST SEED MIX SHALL INCLUDE THE FOLLOWING COMPONENTS:
   - 7.1. SEED
   - 7.2. STRAW: STRAW SHALL BE 100% RICE STRAW.
   - 7.3. SAND: SAND SHALL BE FINE (0.1 - 0.25 MILLIMETER DIAMETER), MEDIUM (0.25 - 0.5 MILLIMETER DIAMETER), OR COARSE (0.5 - 1.0 MILLIMETER DIAMETER) CLASS SAND, AS SPECIFIED. THE SAND SHALL CONTAIN NO GERMINATION, GROWTH-INHIBITING PROPERTIES, OR ELEMENTS OR COMPOUNDS AT CONCENTRATIONS THAT WILL BE PHYTOTOXIC.
   - 7.4. THE CONTRACTOR SHALL PROVIDE SUBMITTALS OF THE COMPONENTS TO SMART'S PROJECT MANAGER FOR APPROVAL.
8. BROADCAST SEEDING SHALL OCCUR AS FOLLOWS:
   - 8.1. RAKING OR TILLING: AREAS DESIGNATED BY SMART'S PROJECT MANAGER SHALL BE RAKED OR TILLED TO A MINIMUM DEPTH OF FOUR (4) INCHES.
   - 8.2. INERT MATERIALS: AFTER RECEIVING APPROVAL FOR THE SEED, THE SEED SHALL BE THOROUGHLY AND COMPLETELY BLENDED WITH INERT MATERIAL. THE MIXING OF THE SEED MIX WITH INERT MATERIAL SHALL BE BY VOLUME AS SPECIFIED: ONE PART SEED MIX / THREE PARTS MEDIUM SAND.
   - 8.3. THE SEED/INERT MATERIAL MIXTURE SHALL BE UNIFORMLY AND EVENLY BROADCAST OVER THE DESIGNATED AREAS. BROADCASTING MAY BE DONE BY HAND-HELD SPREADER, GRAVITY DROP SEEDER, CYCLONE SPREADER, OR ANOTHER TYPE OF EQUIPMENT OR METHOD, AS APPROVED BY SMART'S PROJECT MANAGER.
   - 8.4. THE SEED SHALL BE INCORPORATED INTO THE SOIL TO A MINIMUM DEPTH OF ONE-QUARTER (1/4) INCH AND A MAXIMUM DEPTH OF ONE-HALF (½) INCH. THE INCORPORATION MAY OCCUR BY HAND-RAKING OR THE USE OF A CHAIN HARROW OR TINE HARROW, SUBJECT TO APPROVAL BY SMART'S PROJECT MANAGER.
   - 8.5. STRAW: FOLLOWING SEEDING, RICE STRAW SHALL BE APPLIED TO ALL AREAS OF NATIVE SOIL THAT WERE SEEDED UNLESS OTHERWISE DIRECTED BY SMART'S PROJECT MANAGER. STRAW SHALL BE APPLIED AT A RATE OF 3,000 POUNDS PER ACRE.

wra Environmental Consultants

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SMART NON- MOTORIZED PATHWAY SEGMENT 3 - POPPY DRAINAGE RIPARIAN MITIGATION

CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

LICENSED LANDSCAPE ARCHITECT
Ingrid Christina Marken
Lic. No. 5472
Signature
November 30, 2024
Renewal Date
June 24, 2024
Date
STATE OF CALIFORNIA

Date	Issues And Revisions	No.
06/25/24	100% FINAL PLAN SET	

PROJECT #31368
DRAWN BY: DAG, BMM
CHECKED BY: ICM, AJS
ORIGINAL DRAWING SIZE: 22 X 34

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SCALE: 1 " = 30 '

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EROSION CONTROL AND SEEDING PLAN

Sheet 8 of 14

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POPPY DRAINAGE - PLANTING SCHEDULE

RIPARIAN PLANTING AREA 1.3 ACRES

RIPARIAN TREES

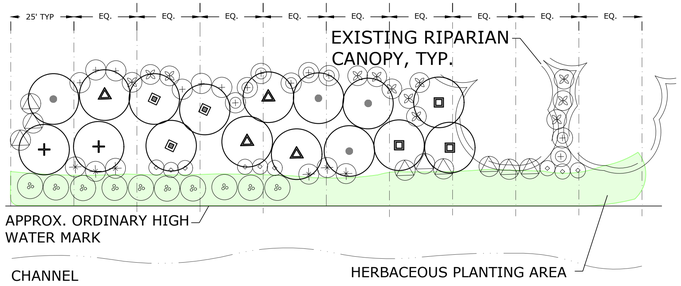
SYMBOL	SCIENTIFIC NAME	COMMON NAME	ON-CENTER SPACING(FT)	CONTAINER SIZE	ESTIMATED QUANTITY
	ACER NEGUNDO	BOX ELDER	20	DEEPOT 40	12
	AESCULUS CALIFORNICA	CALIFORNIA BUCKEYE	20	DEEPOT 40	25
	QUERCUS AGRIFOLIA	COAST LIVE OAK	20	DEEPOT 40	25
	QUERCUS KELLOGGII	BLACK OAK	20	DEEPOT 40	25
	QUERCUS LOBATA	VALLEY OAK	20	DEEPOT 40	25
	SALIX LASIOLEPIS	ARROYO WILLOW	10	LIVE STAKE	19

RIPARIAN SHRUBS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	ON-CENTER SPACING(FT)	CONTAINER SIZE	ESTIMATED QUANTITY
	BACCHARIS PILULARIS	COYOTE BRUSH	8	DEEPOT 40	118
	FRANGULA CALIFORNICA	COFFEEBERRY	8	DEEPOT 40	118
	HETEROMELES ARBUTIFOLIA	TOYON	8	DEEPOT 40	127
	RIBES SANGUINEUM	RED FLOWERING CURRANT	6	DEEPOT 40	97
	ROSA CALIFORNICA	CALIFORNIA ROSE	8	DEEPOT 40	127
	RUBUS URSINUS	CALIFORNIA BLACKBERRY	6	DEEPOT 40	81

HERBACEOUS PLANTS

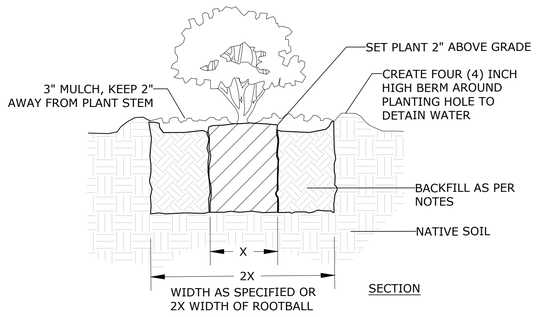
SYMBOL	SCIENTIFIC NAME	COMMON NAME	ON-CENTER SPACING(FT)	CONTAINER SIZE	ESTIMATED QUANTITY
	ACHILLEA MILLEFOLIUM	YARROW	3	DEEPOT 16	19
	ARTEMISIA DOUGLASIANA	MUGWORT	4	DEEPOT 16	13
	CAREX BARBARAE	VALLEY SEDGE	2	DEEPOT 16	42
	ELYMUS TRITICOIDES	CREEPING WILD RYE	2	DEEPOT 16	42
	JUNCUS PATENS	COMMON RUSH	2	DEEPOT 16	50
	SCROPHULARIA CALIFORNICA	BEE PLANT	2	DEEPOT 16	33
	SYMPHYOTRICHUM CHILENSE	PACIFIC ASTER	3	DEEPOT 16	19



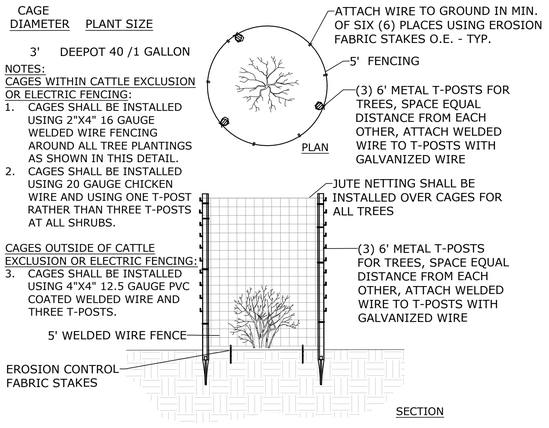
PLANT LEGEND

SCIENTIFIC NAME	COMMON NAME
ACER NEGUNDO	BOX ELDER
AESCULUS CALIFORNICA	CALIFORNIA BUCKEYE
QUERCUS AGRIFOLIA	COAST LIVE OAK
QUERCUS KELLOGGII	BLACK OAK
QUERCUS LOBATA	VALLEY OAK
SALIX LASIOLEPIS	ARROYO WILLOW
BACCHARIS PILULARIS	COYOTE BRUSH
FRANGULA CALIFORNICA	COFFEEBERRY
HETEROMELES ARBUTIFOLIA	TOYON
RIBES SANGUINEUM	RED FLOWERING CURRANT
ROSA CALIFORNICA	CALIFORNIA ROSE
RUBUS URSINUS	CALIFORNIA BLACKBERRY

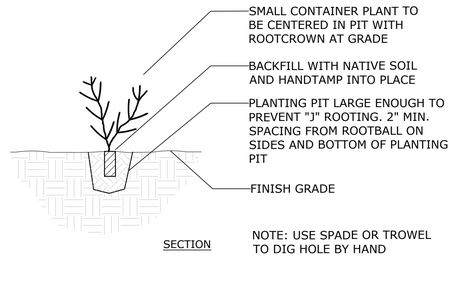
1 TYPICAL PLANT LAYOUT
SCALE: 1"=30'



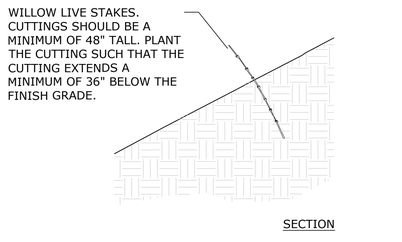
2 TREE & SHRUB PLANTING DETAIL
NOT TO SCALE



3 FOLIAGE PROTECTION CAGE
NOT TO SCALE



4 HERBACEOUS PLANTING DETAIL
NOT TO SCALE



5 WILLOW LIVE STAKE DETAIL
NOT TO SCALE

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SMART
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PLANTING SCHEDULE, DETAILS, AND TYPICAL LAYOUT

Sheet 9 of 14

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PLANTING, WILLOW CUTTING. AND FENCING NOTES

PLANTING NOTES

1. PLANT PROCUREMENT: CONTRACTOR SHALL WORK WITH SMART'S PROJECT MANAGER TO PROCURE THE PLANTS FROM A NURSERY RECOMMENDED BY REGIONAL PARKS. THE PLANTS SHALL BE DELIVERED TO THE PROJECT SITE BY THE OWNER OR NURSERY AND APPROVED BY SMART'S PROJECT MANAGER AND CONTRACTOR.
2. PLANTING SCHEDULE: PLANTINGS SHALL BE INSTALLED IN FALL OR EARLY WINTER (OCTOBER 15TH - DECEMBER 31) TO ALLOW PLANTS TO ESTABLISH DURING THE WINTER RAINY SEASON, UNLESS OTHERWISE APPROVED BY SMART'S PROJECT MANAGER. THE IRRIGATION SYSTEM SHALL BE INSTALLED PRIOR TO PLANTING.
3. PLANTING LAYOUT FOR TREES, SHRUBS, AND HERBACEOUS PLANTINGS: THE CONTRACTOR SHALL USE PIN FLAGS OR OTHER IDENTIFIERS TO MARK THE LOCATION OF THE PLANTS AT THE PROJECT SITE FOR REVIEW BY SMART'S PROJECT MANAGER PRIOR TO THE INSTALLATION OF THE DRIP EMITTERS, TUBING AND PLANTINGS. PIN FLAGS SHALL HAVE A UNIQUE COLOR AND/OR IDENTIFYING MARK FOR EACH PLANT SPECIES.
4. PLANTING HOLES: PLANTING HOLES SHALL BE DUG ACCORDING TO THE DIMENSIONS SHOWN IN THE PLANTING DETAIL.
5. PLANT FERTILIZER: CONTRACTOR SHALL INSTALL '1-YEAR NUTRI-PAK TREES, SHRUBS & EVERGREENS' ONE-YEAR TIME RELEASE FERTILIZER PACKETS BY NUTRI-PAK OR EQUIVALENT SLOW RELEASE FERTILIZER AS APPROVED BY SMART'S PROJECT MANAGER. THE FERTILIZER SHALL HAVE THE FOLLOWING RATIO OF NITROGEN, PHOSPHOROUS, AND POTASSIUM: 16-8-8. THE FERTILIZER SPECIFICATIONS SHALL BE SUBMITTED TO SMART'S PROJECT MANAGER FOR APPROVAL. INSTALL ONE FERTILIZER PACK AT THE BOTTOM OF THE PLANTING HOLE PRIOR TO PLANTING THE TREE/SHRUBS.
6. COMPOST SHALL BE INCORPORATED INTO THE BACKFILL OF PLANTING PITS IN GRADED AREAS AT A RATIO OF 3:1 (NATIVE BACKFILL: COMPOST).
7. MULCH: THE CONTRACTOR SHALL INSTALL A 3-INCH LAYER OF WOOD BARK MULCH AROUND ALL TREES AND SHRUBS AS SHOWN ON THE PLANTING DETAILS. MULCH SHALL BE ORGANIC AND WEED-FREE WITH A ONE-HALF INCH MINIMUM AND A THREE INCH MAXIMUM PARTICLE SIZE. CONTRACTOR SHALL PROVIDE A SUBMITTAL OF THE MULCH TO SMART'S PROJECT MANAGER FOR APPROVAL.
8. FOLIAGE PROTECTION CAGES: THE CONTRACTOR SHALL INSTALL FOLIAGE PROTECTION CAGES FOLLOWING THE COMPLETION OF PLANT INSTALLATION AROUND THE PLANTS IDENTIFIED IN THE PLANT LEGEND AND IN ACCORDANCE WITH THE DETAIL ON SHEET L-2.0
9. WATERING: NEWLY PLANTED TREES AND SHRUBS SHALL BE WATERED REGULARLY TO PREVENT PLANT MATERIAL FROM WILTING. PLANTINGS SHALL BE INSTALLED AFTER THE AUTOMATIC IRRIGATION SYSTEM HAS BEEN INSTALLED AND TESTED. IN THE CASE THAT THIS IS NOT POSSIBLE, PLANTINGS SHALL BE MANUALLY WATERED FROM THE TIME THAT THEY ARE PLANTED UNTIL THE TIME THAT THE AUTOMATIC IRRIGATION SYSTEM IS IN OPERATION.
10. WARRANTY: THE CONTRACTOR SHALL GUARANTEE THE SURVIVAL OF ALL OF THE PLANTS FOR THE DURATION OF THE ONE-YEAR MAINTENANCE PERIOD. THE MAINTENANCE PERIOD SHALL BE 1 YEAR AFTER COMPLETION OF THE PLANTING AND APPROVAL OF THE INSTALLATION BY SMART'S PROJECT MANAGER. AT THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL REPLACE, AT NO ADDITIONAL COST TO THE OWNER, PLANT MATERIAL THAT IS DETERMINED TO BE EITHER DEAD OR IN POOR HEALTH.

WILLOW CUTTING NOTES:

1. WILLOW CUTTING INSTALLATION SHALL OCCUR BETWEEN DECEMBER 1ST AND DECEMBER 31ST OR AS APPROVED BY SMART'S PROJECT MANAGER.
2. WILLOW CUTTINGS WILL BE COLLECTED ON-SITE OR AS APPROVED BY SMART'S PROJECT MANAGER.
3. IN AN ATTEMPT TO INCREASE THE POSSIBILITY THAT WILLOW POLES ARE COLLECTED FROM BOTH MALE AND FEMALE PLANTS, WILLOW POLES SHALL BE COLLECTED FROM A MINIMUM OF 5 INDIVIDUAL TREES.
4. WILLOW POLES SHALL BE CUT FROM ONE-YEAR-OLD BRANCHES. WILLOW POLES SHALL HAVE A MINIMUM LENGTH OF THREE (3) FEET LONG AND A MAXIMUM LENGTH OF FOUR (4) FEET FOR THE WILLOW TRENCHES AND INDIVIDUAL INSTALLATION UPSTREAM OF THE HEADCUT. WILLOW POLES SHALL HAVE A MINIMUM CUT-END DISTAL DIAMETER OF ¾" AND A MAXIMUM CUT-END BASAL DIAMETER OF 1 1/2". WILLOW POLES SHALL HAVE CONTINUOUS BARK AND STEMS THAT ARE NOT SPLIT, AS SOLELY DETERMINED BY SMART'S PROJECT MANAGER.
5. WILLOW POLES SHALL BE HARVESTED FROM A MAXIMUM 30% OF EACH DONOR PLANT AND THE PLANT SHALL BE LEFT IN A HEALTHY, VIGOROUS, AND VISUALLY APPEALING STATE.
6. UNLESS IMMEDIATELY SOAKED AND INSTALLED, WILLOW POLES SHALL BE WRAPPED IN WET BURLAP. POLES MAY BE BUNDLED PRIOR TO BEING WRAPPED WITH A MAXIMUM OF TEN POLES PER BUNDLE. BUNDLES SHALL BE KEPT SHADED, COVERED, COOL, MOIST, AND OUT OF WIND OR SUN AT ALL TIMES UNTIL INSTALLATION OF THE POLES. POLES SHALL BE KEPT FROM FREEZING.
7. SOAK EACH WILLOW POLE IN WATER PRIOR TO PLANTING. THE BASAL END OF EACH WILLOW POLE SHALL BE SOAKED IN A BUCKET OF WATER, TO A MINIMUM DEPTH OF 24", FOR A MINIMUM OF 10 DAYS, IMMEDIATELY PRECEDING PLANTING. POLES SHALL BE INSTALLED WITHIN 14 DAYS FOLLOWING HARVESTING.
8. SMART'S PROJECT MANAGE SHALL ACCEPT PLANT MATERIAL BEFORE THE START OF PLANTING.
9. WILLOW POLES SHALL BE IN INSTALLED IN THE WILLOW PLANTING AREAS SHOWN IN THE PLANS. THE CONTRACTOR SHALL STAKE OR MARK THE OUTER LIMITS OF THE PLANTING AREAS FOR APPROVAL BY SMART'S PROJECT MANAGER PRIOR TO INSTALLATION.
10. DIG PLANTING HOLES A MINIMUM DIAMETER OF 9" AND DEPTH OF 36" OR 75% TOTAL LENGTH OF WILLOW POLE.

FENCING NOTES

1. A TEMPORARY ELECTRIC FENCE SHALL BE INSTALLED BY OTHERS AROUND SOME OF THE PLANTING AREAS TO EXCLUDE CATTLE IN COORDINATION WITH REGIONAL PARKS. THE TEMPORARY ELECTRIC FENCE SHALL BE AT MINIMUM 3 FEET AWAY FROM EXISTING TRAILS.

QUANTITY ESTIMATES FOR POPPY DRAINAGE PLANTING AREAS

SYMBOL	AREA ACRE	AREA SQ. FT.	TREES							SHRUBS							HERBACEOUS								PLANT TOTAL
			ACE NEG	*AES CAL*	*QUE AGR*	*QUE KEL*	*QUE LOB*	*SAL LAS*	**TOTAL**	*BAC PIL*	*FRA CAL*	*HET ARB*	*RIB SAN*	*ROS CAL*	*RUB URS*	**TOTAL**	*ACH MIL*	*ART DOU*	*CAR BAR*	*ELY TRI*	*JUN PAT*	*SCR CAL*	*SYM CHI*	**TOTAL**	
PD-1	0.12	5,160	1	1	3	3	5	0	**13**	10	10	11	8	11	7	**57**	0	0	0	0	0	0	0	**0**	**70**
PD-2	0.12	5,160	1	2	3	2	5	0	**13**	10	10	11	8	11	7	**57**	0	0	0	0	0	0	0	**0**	**70**
PD-3	0.23	9,975	3	4	3	4	0	0	**14**	20	20	22	17	22	14	**115**	0	0	0	0	0	0	0	**0**	**129**
PD-4	0.24	10,270	4	2	3	4	4	0	**17**	21	21	22	17	22	14	**117**	0	0	0	0	0	0	0	**0**	**134**
PD-5	0.01	620	2	0	0	0	0	0	**2**	1	0	2	1	2	0	**6**	0	0	0	0	0	0	0	**0**	**8**
PD-6	0.08	3,514	0	2	3	1	2	0	**8**	8	8	8	6	8	5	**43**	0	0	0	0	0	0	0	**0**	**51**
PD-7	0.08	3,326	0	5	3	0	1	3	**12**	7	7	7	6	7	5	**39**	8	5	15	15	18	12	7	**80**	**131**
PD-8	0.10	4,161	0	2	0	0	2	8	**12**	8	8	9	7	9	6	**47**	3	2	7	8	9	6	4	**39**	**98**
PD-9	0.08	3,305	1	4	0	1	3	0	**9**	7	7	7	6	7	5	**39**	6	4	13	14	17	11	6	**71**	**119**
PD-10	0.10	4,495	0	3	0	1	3	8	**15**	9	9	10	7	10	6	**51**	2	2	7	5	6	4	2	**28**	**94**
PD-11	0.08	3,480	0	0	4	5	0	0	**9**	8	8	8	6	8	6	**44**	0	0	0	0	0	0	0	**0**	**53**
PD-12	0.10	4,537	0	0	3	4	0	0	**7**	9	10	10	8	10	6	**53**	0	0	0	0	0	0	0	**0**	**60**
TOTAL	**1.34**	**58,003**	**12**	**25**	**25**	**25**	**25**	**19**	**131**	**118**	**118**	**127**	**97**	**127**	**81**	**668**	**19**	**13**	**42**	**42**	**50**	**33**	**19**	**218**	**1017**

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SMART
NON- MOTORIZED PATHWAY SEGMENT 3 - POPPY DRAINAGE RIPARIAN MITIGATION

CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

LICENSED LANDSCAPE ARCHITECT
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06/25/24 100% FINAL PLAN SET
Date Issues And Revisions No.

PROJECT #31368
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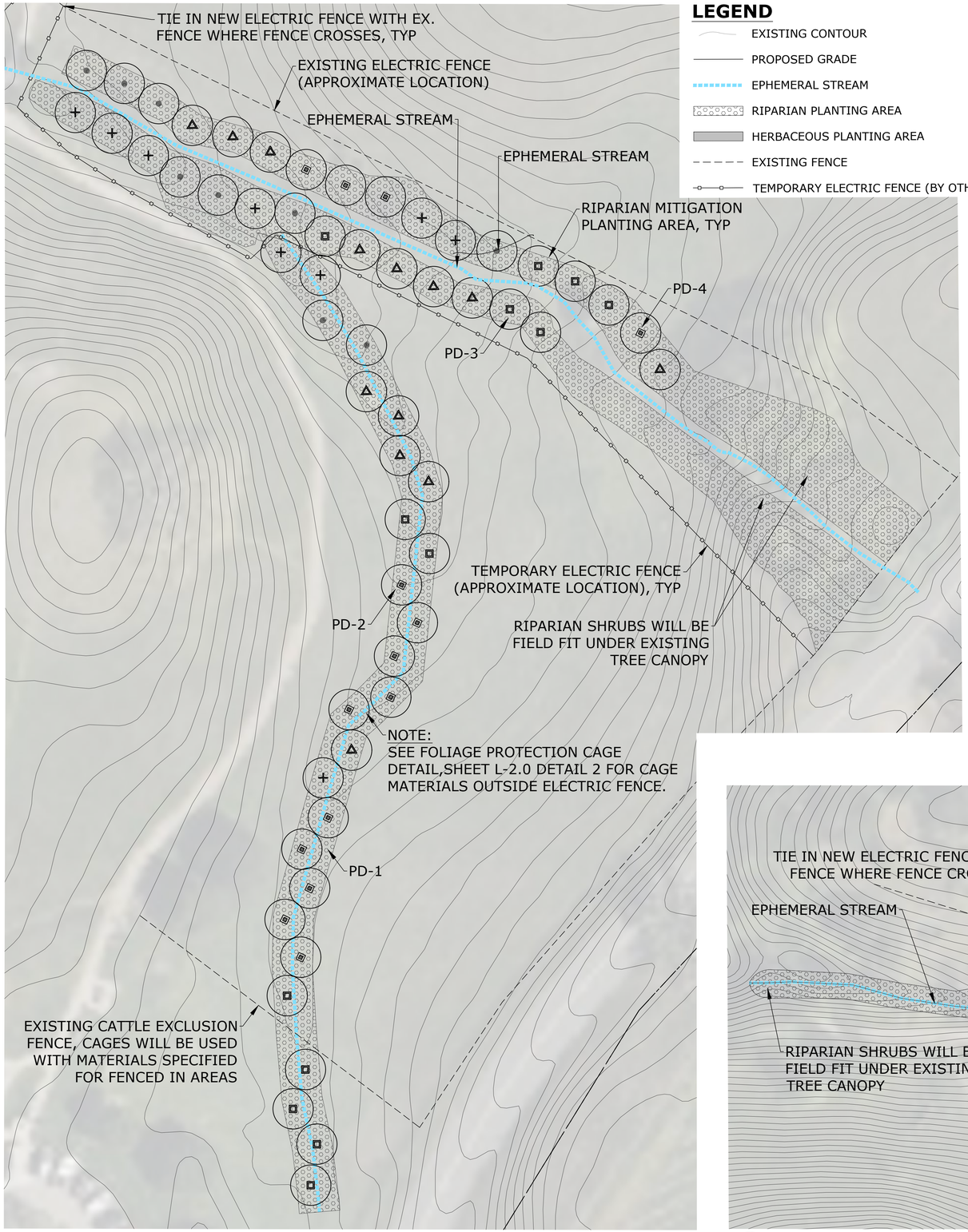
CHECKED BY: ICM, AJS
ORIGINAL DRAWING SIZE: 22 X 34

PLANTING QUANTITIES, AND NOTES

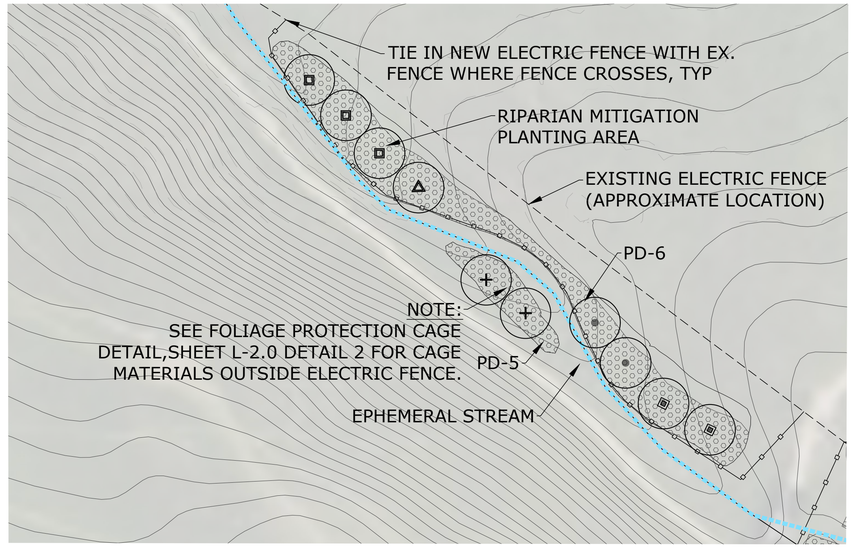
L-2.1



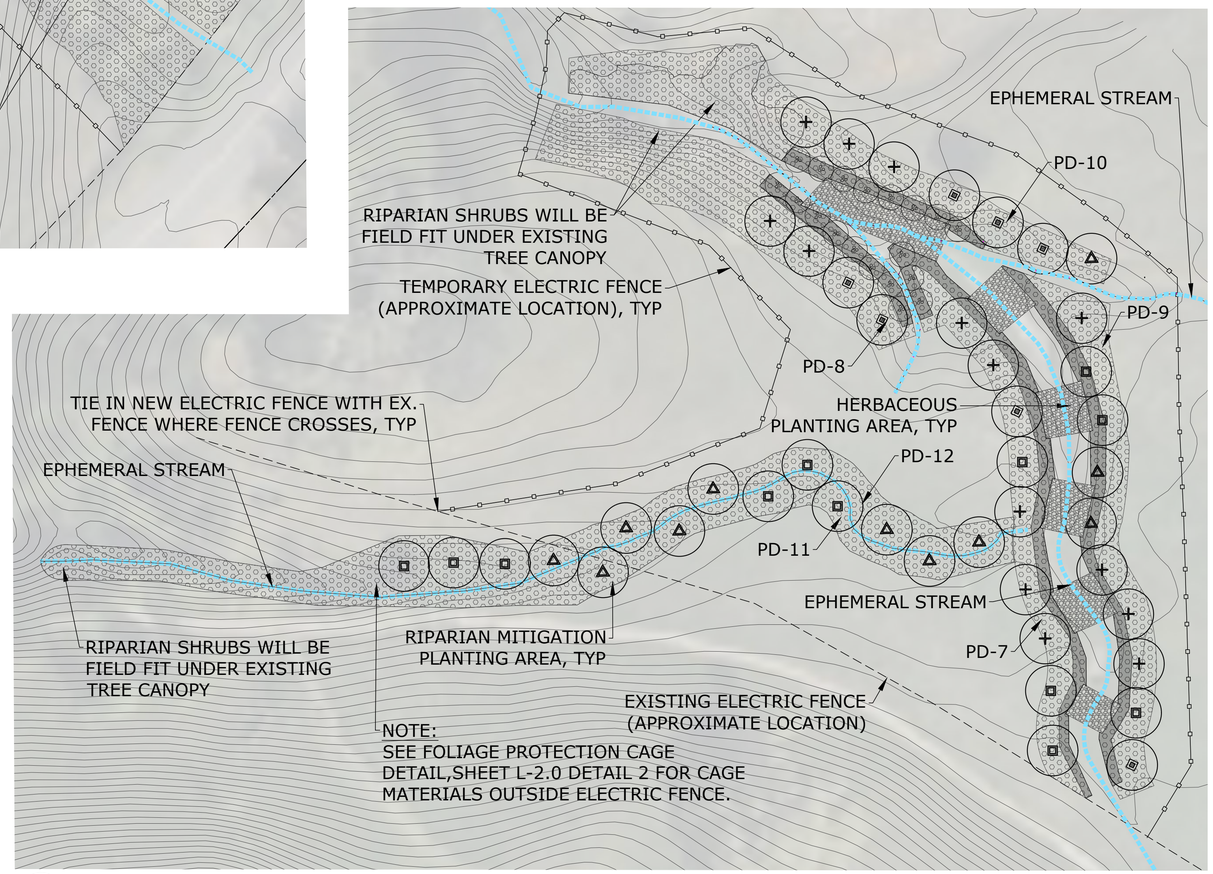
1 PLANTING AND FENCING PLAN - UPPER POPPY DRAINAGE
SCALE: 1"=30'

LEGEND

- EXISTING CONTOUR
- PROPOSED GRADE
- EPHEMERAL STREAM
- RIPARIAN PLANTING AREA
- HERBACEOUS PLANTING AREA
- EXISTING FENCE
- TEMPORARY ELECTRIC FENCE (BY OTHERS)



2 PLANTING AND FENCING PLAN - MIDDLE POPPY DRAINAGE
SCALE: 1"=30'



3 PLANTING AND FENCING PLAN - LOWER POPPY DRAINAGE
SCALE: 1"=30'

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SMART NON- MOTORIZED PATHWAY SEGMENT 3 - POPPY DRAINAGE RIPARIAN MITIGATION

CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

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SCALE: 1 " = 30 '

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PLANTING AND FENCING PLAN

Sheet 11 of 14

L-2.2

IRRIGATION LEGEND

SYMBOL	NAME
●	10,000 GAL. POLY TANK, DARK GREEN
MV	MASTER VALVE: HUNTER ICV-201G-FS-DC; HUNTER NODE-BT-100 BATTERY-OPERATED CONTROLLER OR APPROVED EQUAL, INSTALL IN VALVE BOX
⋈	GATE VALVE. NIBCO T-113 GATE VALVE, SIZE THE SAME SIZE AS THE LARGEST PIPE CONNECTED TO GATE VALVE, INSTALL IN VALVE BOX.
◒	REMOTE CONTROL VALVE. HUNTER "DRIP KIT" ICZ-101-25-LF; OPERATING PRESSURE: UP TO 120 PSI HUNTER NODE-BT-100 BATTERY-OPERATED CONTROLLER OR APPROVED EQUAL, INSTALL IN VALVE BOX.
AV	AIR VACUUM RELIEF VALVE (ARV). HUNTER AVR-075 AIR/VACUUM RELIEF VALVE OR APPROVED EQUAL. INSTALL AT HIGH POINT WITHIN EACH ZONE AFTER REMOTE CONTROL VALVE. INSTALL IN VALVE BOX.
◆	QUICK COUPLING VALVE. HUNTER HQ44-LRC, 1" INLET, 2-PIECE BODY, 2 SLOTS QUICK COUPLING VALVE WITH LOCKING COVER, ACME KEY OR APPROVED EQUAL. OPERATING PRESSURE: UP TO 150 PSI
◬	EMITTER FLUSH VALVE ASSEMBLY
▲	PRESSURE REDUCING VALVE AND PRESSURE GAUGE. WILKINS MODEL 600-L-SC OR APPROVED EQUAL. SIZED TO FIT
▬ ▬	MAINLINE PIPE - ABOVEGROUND: HDPE 4710 SDR 9 PIPE OR APPROVED EQUAL, 1 ½"
▬ ▬	MAINLINE PIPE - TRENCHED: HDPE 4710 SDR 9 PIPE, 1 ½"
= = =	IRRIGATION SLEEVE: PVC SCHEDULE 80 PIPE, SIZED TO FIT
▬▬▬	LATERAL LINE PIPE: SALCO NON-RIGID PVC, PVC TYPE IPS, OR APPROVED EQUAL. SIZED TO FIT
	CONTROLLER STATION #
	APPROXIMATE FLOW (GPM)
	REMOTE CONTROL VALVE SIZE

SUPPLY TUBING AND DRIP EMITTER LEGEND

LOCATION DESCRIPTION	MODEL NUMBER	MODEL DESCRIPTION
ALL DRIP IRRIGATION AREAS	TWPE-700 - 1K	HUNTER 1/2" POLYETHYLENE SUPPLY TUBING
DEEPOT 40 TREE OR SHRUB	HE-050-B	TWO (2) 0.5 GPH HUNTER SINGLE OUTLET POINT SOURCE EMITTERS WITH SELF-PIERCING BARB, BLUE

IRRIGATION NOTES

GENERAL

1. THESE IRRIGATION DRAWINGS ARE DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE INSTALLED. ALL PIPING, VALVES, ETC. SHOWN WITHIN PAVED AREAS ARE FOR GRAPHIC CLARITY ONLY AND ARE TO BE INSTALLED WITHIN PLANTING AREAS WHERE POSSIBLE. DUE TO THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, SLEEVES, ETC., WHICH MAY BE REQUIRED. THE CONTRACTOR IS REQUIRED TO INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING ALL OF THE CONTRACT WORK, INCLUDING OBSTRUCTIONS, GRADE DIFFERENCES OR AREA DIMENSIONAL DIFFERENCES WHICH MAY NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. IN THE EVENT OF FIELD DIFFERENCES, THE CONTRACTOR IS REQUIRED TO PLAN THE INSTALLATION WORK ACCORDINGLY BY NOTIFICATION AND APPROVAL OF SMART'S PROJECT MANAGER. THE CONTRACTOR IS ALSO REQUIRED TO NOTIFY AND COORDINATE IRRIGATION CONTRACT WORK WITH ALL APPLICABLE CONTRACTORS FOR THE LOCATION AND INSTALLATION OF PIPE, CONDUIT OR SLEEVES THROUGH, OVER, OR UNDER WALLS, ROADWAYS, DECOMPOSED GRANITE SHOULDERS, PAVING, STRUCTURE, ETC., BEFORE CONSTRUCTION. IN THE EVENT THESE NOTIFICATIONS ARE NOT PERFORMED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL REQUIRED REVISIONS.

2. THE CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL IRRIGATION COMPONENTS TO SMART'S PROJECT MANAGER FOR APPROVAL PRIOR TO PURCHASE OR INSTALLATION.

3. THE INTENT OF THIS IRRIGATION SYSTEM IS TO PROVIDE THE MINIMUM AMOUNT OF WATER REQUIRED TO SUSTAIN GOOD PLANT HEALTH.

WATER TANK

4. THE WATER TANK SHALL BE 10,000 GALLON POLY TANK (144" DIAMETER x 163" TALL) DARK GREEN IN COLOR.

5. THE BASE OF THE TANK SHALL CONSIST OF 4 TO 6 INCHES OF PEA GRAVEL IN A 14 GAUGE STEEL RETAINING RING.

6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE TANK WITH SMART'S PROJECT MANAGER PRIOR TO INSTALLATION.

FLOW AND PRESSURE REQUIREMENTS

7. THE CONTRACTOR SHALL VERIFY MINIMUM STATIC PRESSURES AND A MINIMUM FLOW RATES AT THE POINTS OF CONNECTION AS NOTED ON THE DRAWINGS AND REPORT ANY DISCREPANCIES TO SMART'S PROJECT MANAGER.

8. THE CONTRACTOR SHALL VERIFY THAT ALL IRRIGATION COMPONENTS OPERATE AT THE OPERATION PRESSURE STATED IN THE MANUFACTURER'S SPECIFICATIONS. REPORT ANY DISCREPANCIES TO SMART'S PROJECT MANAGER.

9. A SOLAR-POWERED BOOSTER PUMP PRESSURE SYSTEM SHALL BE INSTALLED AT THE WATER TANK IN ORDER TO PROVIDE ADEQUATE PRESSURE FOR THE IRRIGATION SYSTEM AS SHOWN IN THE DRAWINGS. THE CONTRACTOR SHALL WORK WITH A PUMP SPECIALIST TO INSTALL THE SOLAR-POWERED BOOSTER PUMP PRESSURE SYSTEM, INCLUDING AN BOOSTER PUMP, SOLAR ARRAY, AND OTHER REQUIRED COMPONENTS AND ENSURE THAT IT MEETS COUNTY REQUIREMENTS. THE CONTRACTOR SHALL SUBMIT THE SPECIFICATIONS AND A DETAILED LAYOUT PLAN FOR THE SYSTEM FOR APPROVAL BY SMART'S PROJECT MANAGER PRIOR TO INSTALLATION.

10. CONTRACTOR SHALL SHALL SUBMIT THE SPECIFICATIONS AND A DETAILED LAYOUT PLAN FOR THE CHAIN LINK FENCE AND GATE SURROUNDING THE SOLAR-POWERED BOOSTER PUMP AND SOLAR ARRAY FOR APPROVAL BY SMART'S PROJECT MANAGER PRIOR TO INSTALLATION.

PIPE AND VALVE INSTALLATION

11 THE ABOVEGROUND MAINLINE SHALL SIT ON TOP OF EXISTING GRADE. INSTALL U-SHAPED STAPLES AT 20-FT. INTERVALS OR AS NEEDED TO SECURE MAINLINE IN PLACE.

12. THE TRENCHED MAINLINE SHALL BE INSTALLED AS SHOWN NEAR THE WATER TANK AND UNDER TRAILS AND PATHWAYS. THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE TRENCHED TO ABOVEGROUND MAINLINE TRANSITION FOR APPROVAL BY SMART'S PROJECT MANAGER.

13. THE CONTRACTOR SHALL ROUTE THE MAINLINE AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL FLAG THE MAINLINE AND VALVE LOCATIONS FOR SMART'S PROJECT MANAGER'S REVIEW AND APPROVAL PRIOR TO GROUND DISTURBANCE.

14. LATERAL LINES AND DRIP SUPPLY TUBING SHALL BE AT GRADE, EXCEPT AT PATHS, CHANNELS, OR ROAD CROSSINGS. THE CONTRACTOR SHALL SLEEVE ALL LATERALS AND MAINLINES PASSING UNDERNEATH PAVEMENT, ROADS, TRAILS, OR OVER DRAINAGE CHANNELS.

15. THE CONTRACTOR SHALL AVOID INSTALLING TRENCHES OR PERFORMING GROUND DISTURBING ACTIVITIES UNDER THE DRIPLINE OF TREES UNLESS APPROVED BY SMART'S PROJECT MANAGER.

16. THE CONTRACTOR SHALL PERFORM A PRESSURE TEST OF THE MAINLINES AT 125 PSI AND THE LATERAL LINES AT 100 PSI FOR FOUR HOURS AS FEASIBLE FOR APPROVAL BY SMART'S PROJECT MANAGER.

17. QUICK COUPLERS SHALL BE INSTALLED AT THE LOWER POPPY DRAINAGE SITE TO ALLOW FOR HAND WATERING OF HERBACEOUS PLANTINGS WITHIN THE CHANNEL.

18. INSTALL CHECK VALVES AS NEEDED AT ELEVATION CHANGES ALONG LATERAL LINES TO MINIMIZE LOW-HEAD DRAINAGE. THE CONTRACTOR SHALL SUBMIT SPECIFICATIONS TO SMART'S PROJECT MANAGER FOR APPROVAL PRIOR TO INSTALLATION.

19. THE IRRIGATION VALVE BOXES SHALL BE BURIED HALFWAY WHERE FEASIBLE SO THAT THEY ARE SECURED IN SOIL BUT ALSO VISIBLE FOR MAINTENANCE.

20. THE CONTRACTOR SHALL OPTIMIZE THE VALVE BOX LAYOUT TO MINIMIZE THE TOTAL NUMBER OF VALVE BOXES REQUIRED.

21. THE CONTRACTOR SHALL LOCK ALL VALVE BOXES UNLESS OTHERWISE SPECIFIED IN WRITING BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL TURN OVER 3 SETS OF KEYS TO THE VALVE BOXES TO SMART'S PROJECT MANAGER.

OPERATION, MAINTENANCE, AND REPORTING

22. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROGRAM THE IRRIGATION CONTROLLERS TO PROVIDE THE MINIMUM AMOUNT OF WATER NEEDED TO SUSTAIN GOOD PLANT HEALTH. THIS INCLUDES MAKING ADJUSTMENTS TO THE PROGRAM FOR SEASONAL WEATHER CHANGES, PLANT MATERIAL, WATER REQUIREMENTS, MOUNDS AND SLOPES, SUN, SHADE, AND WIND EXPOSURES.

23. THE CONTRACTOR SHALL SEND THE IRRIGATION SCHEDULE BY VALVE TO SMART'S PROJECT MANAGER FOR APPROVAL PRIOR TO OPERATION.

24. THE CONTRACTOR SHALL PREPARE AN OPERATION AND MAINTENANCE MANUAL OF THE IRRIGATION SYSTEMS WHICH WILL INCLUDE THE CONTRACTOR'S NAME AND CONTACT INFORMATION, AND INFORMATION ON EACH IRRIGATION COMPONENT, INCLUDING THE MANUFACTURER'S NAME, MAKE AND MODEL NUMBER, NAME AND ADDRESS OF LOCAL MANUFACTURER'S REPRESENTATIVE, AND DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS AS PER MANUFACTURER.

25. MAINTENANCE STAFF TRAINING: THE CONTRACTOR SHALL PERFORM A FULL INSTRUCTION SESSION IN THE PRESENCE OF THE DESIGNATED MAINTENANCE PERSONNEL DEMONSTRATING THE IRRIGATION CONTROLLER SYSTEM,SYSTEM TESTING, TROUBLE-SHOOTING, ETC. INCLUDE INSTRUCTIONS ON HOW TO TURN OFF THE SYSTEM IN CASE OF EMERGENCY.

26. THE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM, REPLACE ANY BROKEN OR DEFECTIVE PARTS, AND ENSURE THE IRRIGATION SCHEDULE IS ADEQUATE TO SUSTAIN THE HEALTH OF THE PLANTS FOR A 1-YEAR MAINTENANCE PERIOD.

27. THE CONTRACTOR SHALL INSPECT THE IRRIGATION SYSTEM AND REPORT TO SMART'S PROJECT MANAGER HOW THE PLANTS AND IRRIGATION SYSTEM ARE PERFORMING DURING THE 1-YEAR MAINTENANCE PERIOD.

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SMART NON- MOTORIZED PATHWAY SEGMENT 3 - POPPY DRAINAGE RIPARIAN MITIGATION

CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

LICENSED LANDSCAPE ARCHITECT
Ingrid Christina Markert
Lic. No. 5472
Signature
November 30, 2024
Renewal Date
June 25, 2024
Date
STATE OF CALIFORNIA

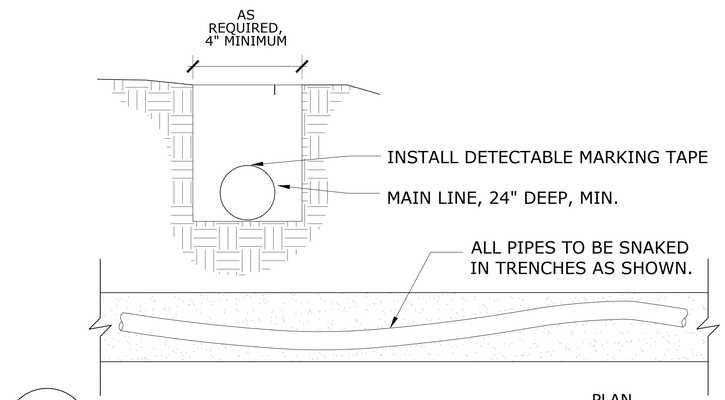
Date	Issues And Revisions	No.
06/25/24	100% FINAL PLAN SET	

PROJECT #31368
DRAWN BY: DAG, BMM
CHECKED BY: ICM, AJS
ORIGINAL DRAWING SIZE: 22 X 34

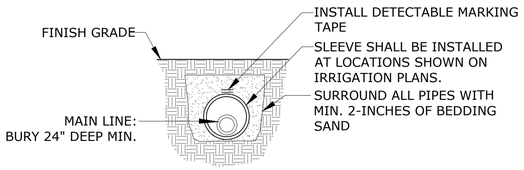
IRRIGATION NOTES AND DETAILS

Sheet 12 of 14

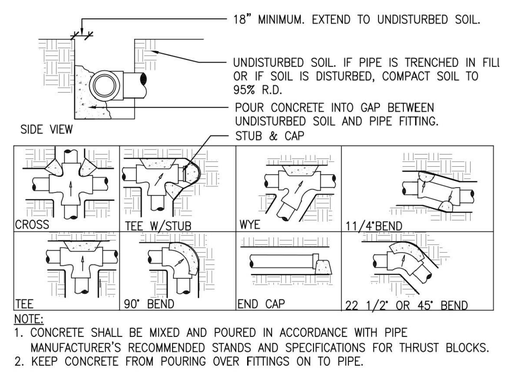
L-3.0



1 TRENCHING
NOT TO SCALE

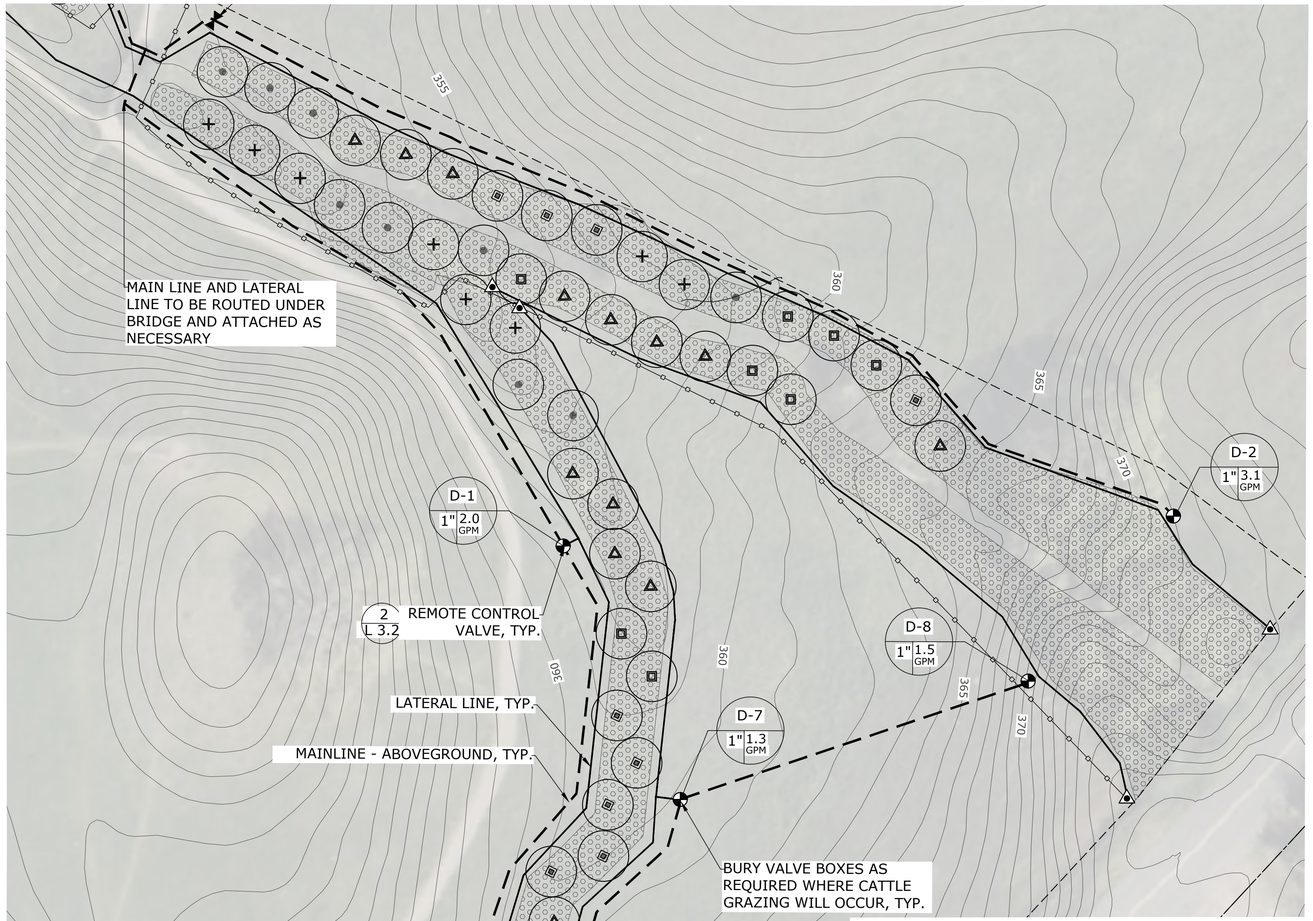


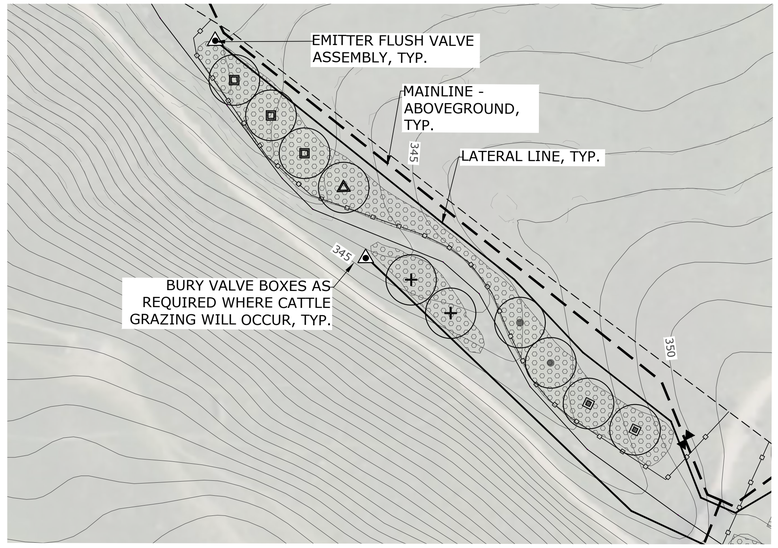
2 SLEEVE TRENCHING
NOT TO SCALE



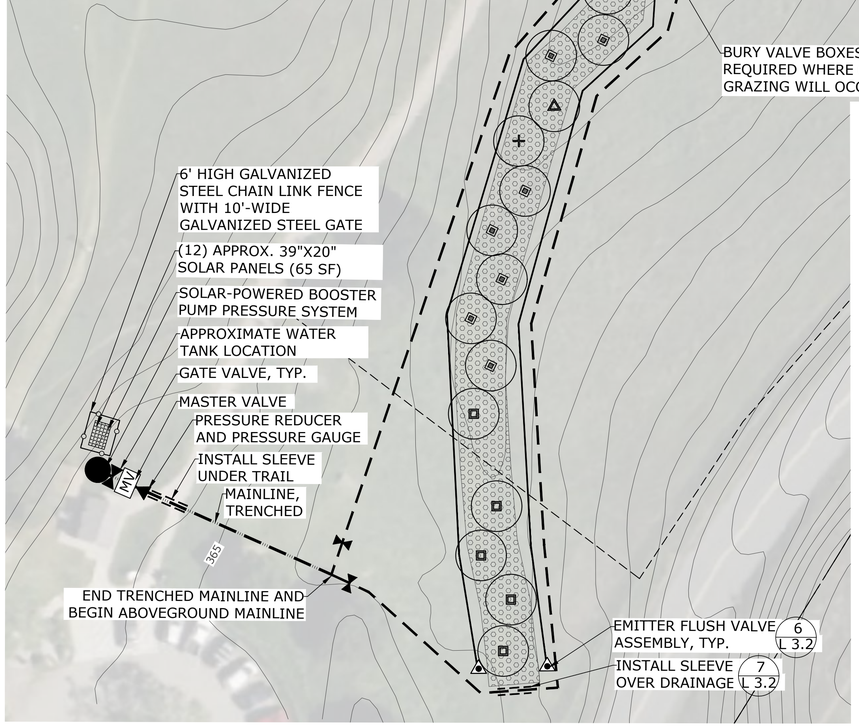
NOTE:
1. CONCRETE SHALL BE MIXED AND POURED IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDED STANDS AND SPECIFICATIONS FOR THRUST BLOCKS.
2. KEEP CONCRETE FROM POURING OVER FITTINGS ON TO PIPE.

3 THRUST BLOCK
NOT TO SCALE

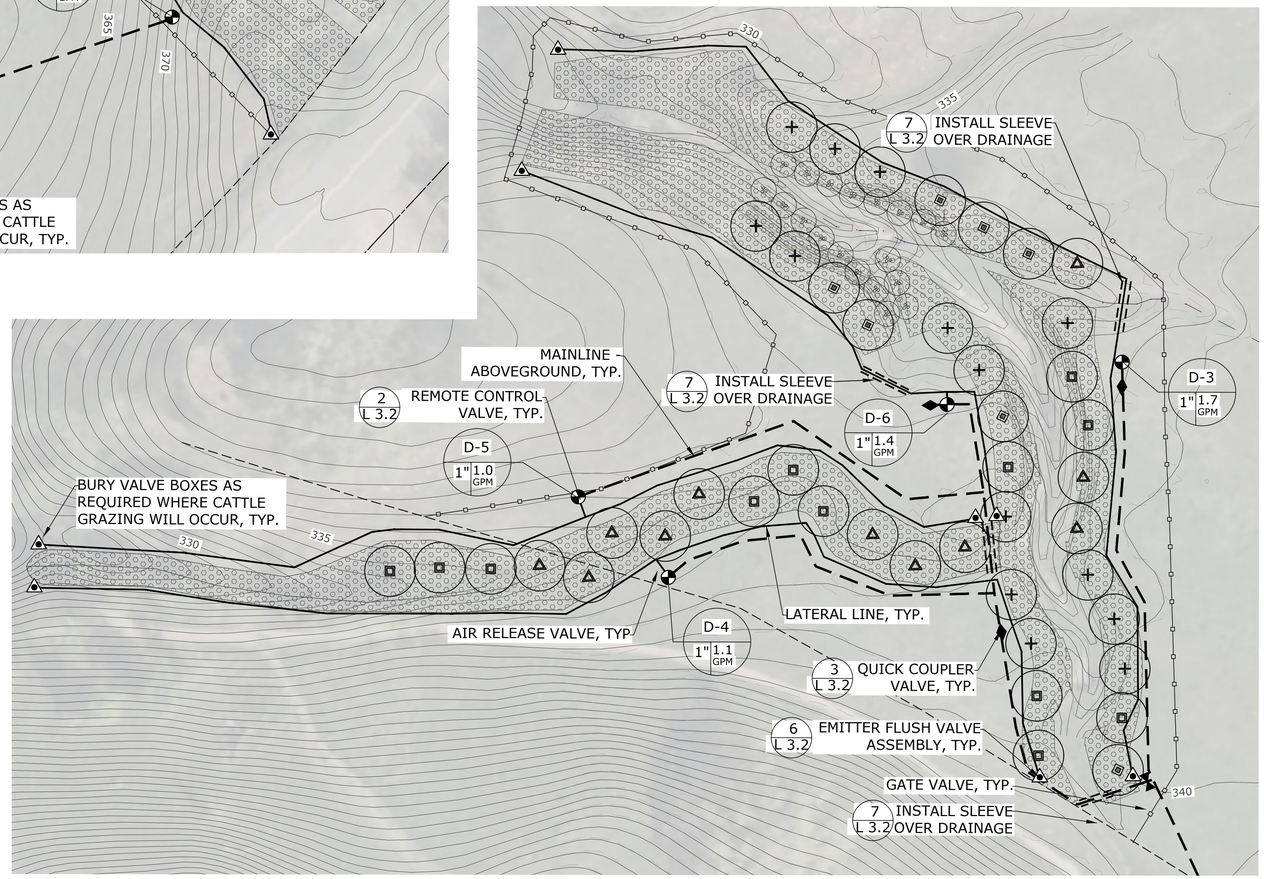




2 IRRIGATION PLAN - MIDDLE POPPY DRAINAGE
SCALE: 1"=30'



1 IRRIGATION PLAN - UPPER POPPY DRAINAGE
SCALE: 1"=30'



3 IRRIGATION PLAN - LOWER POPPY DRAINAGE
SCALE: 1"=30'

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SMART NON- MOTORIZED PATHWAY SEGMENT 3 - POPPY DRAINAGE RIPARIAN MITIGATION

CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

LICENSED LANDSCAPE ARCHITECT
Ingrid Christina Marken
Lic. No. 5472
Signature
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Renewal Date
June 24, 2024
Date
STATE OF CALIFORNIA

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CHECKED BY: ICM, AJS
ORIGINAL DRAWING SIZE: 22 X 34

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SCALE: 1 " = 30 '
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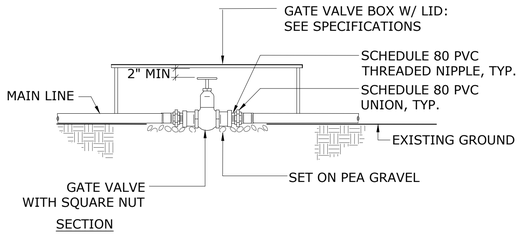
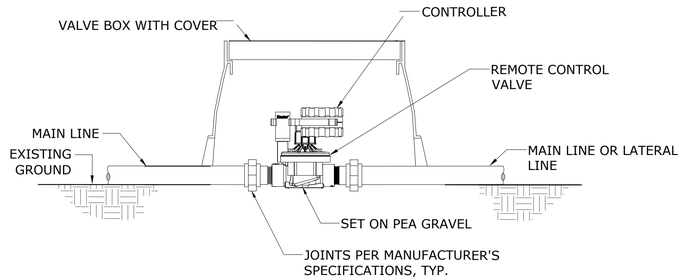
IRRIGATION PLAN

Sheet 13 of 14

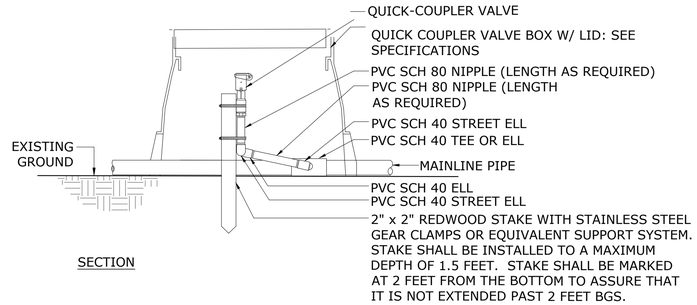
L-3.1



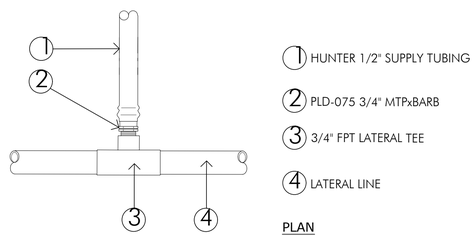
1 GATE VALVE ASSEMBLY
NOT TO SCALE



2 MASTER VALVE AND REMOTE CONTROL VALVE
NOT TO SCALE



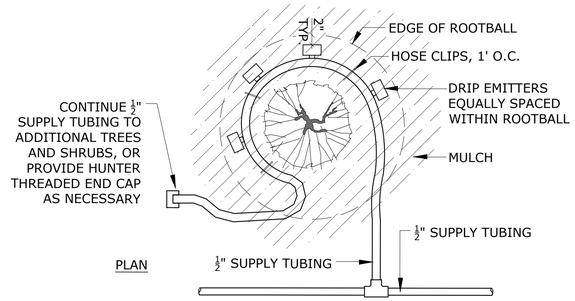
3 QUICK COUPLING VALVE
NOT TO SCALE



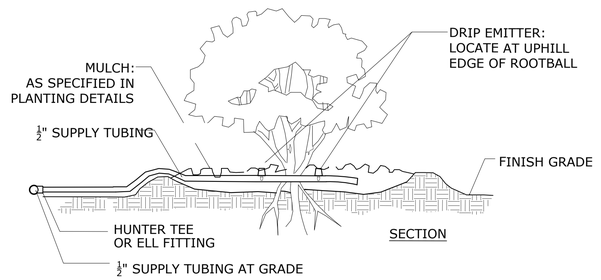
1 HUNTER 1/2" SUPPLY TUBING
2 PLD-075 3/4" MTPxBARB
3 3/4" FPT LATERAL TEE
4 LATERAL LINE

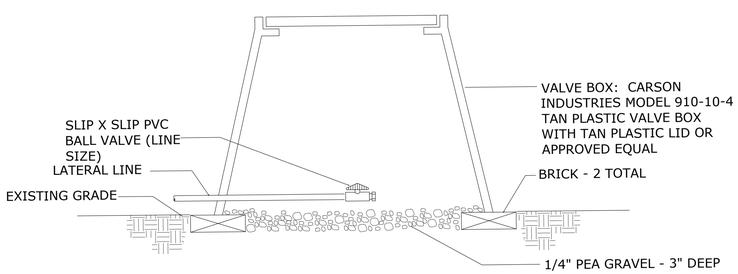
PLAN

4 LATERAL LINE TO AT-GRADE SUPPLY TUBING CONNECTION
NOT TO SCALE

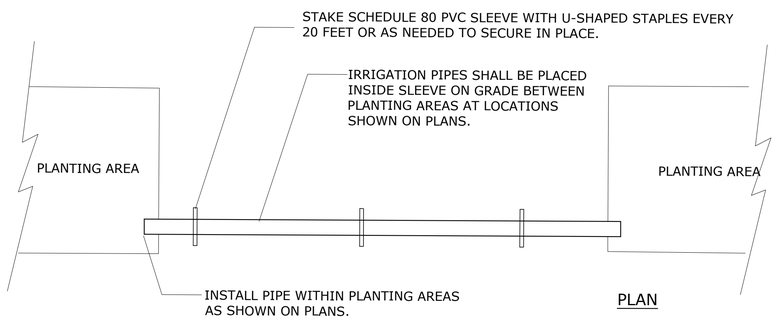


5 DRIP EMITTERS WITH SUPPLY TUBING
NOT TO SCALE

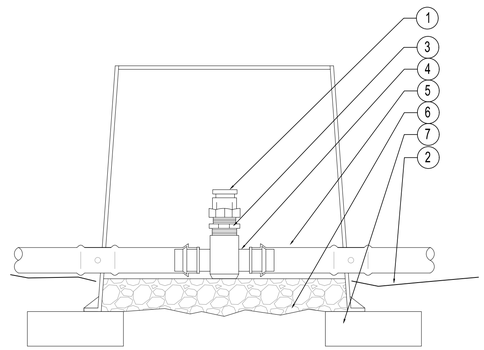




6 EMITTER LINE FLUSH ASSEMBLY
NOT TO SCALE



7 MAINLINE AND LATERAL LINE ABOVE GROUND SLEEVE
NOT TO SCALE



LEGEND:

1 AIR RELIEF VALVE
2 FINISHED GRADE
3 3/4" MPT X 1/2" FPT BUSHING
4 PLD-075-TBTEE FITTING
5 SUPPLY LINE
6 FILTER FABRIC
7 BRICK

NOTES:
AIR RELIEF VALVE TO BE INSTALLED AT OPTIMAL HIGHEST POINT FROM CONTROL ZONE KIT. MULTIPLE AIR RELIEF VALVES MAY BE NEEDED TO ACCOMMODATE DIFFERENCES IN GRADE.

8 AIR RELIEF VALVE
NOT TO SCALE

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SMART NON- MOTORIZED PATHWAY SEGMENT 3 - POPPY DRAINAGE RIPARIAN MITIGATION

CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

LICENSED LANDSCAPE ARCHITECT
Ingrid Christina Morken
Lic. No. 5472
Signature
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PROJECT #31368
DRAWN BY: DAG, BMM
CHECKED BY: ICM, AJS
ORIGINAL DRAWING SIZE: 22 X 34

IRRIGATION DETAILS

Sheet 14 of 14

L-3.2

Attachment A2

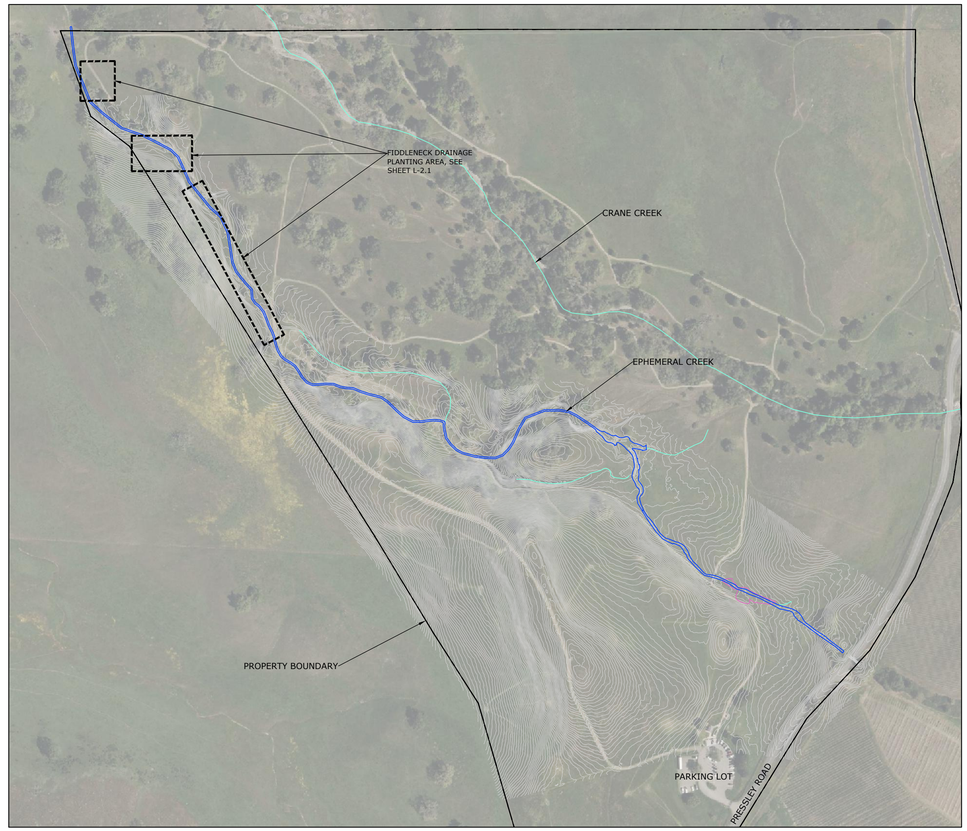
SMART NON-MOTORIZED PATHWAY - SEGMENTS 37 AND 38
FIDDLENECK DRAINAGE
RIPARIAN MITIGATION
CRANE CREEK REGIONAL PARK
SONOMA COUNTY, CALIFORNIA

SHEET INDEX

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING UTILITIES AND OTHER INFRASTRUCTURE IN THE PROJECT AREA.
2. EXISTING TOPOGRAPHIC DATA FROM 2013 SONOMAVEG LIDAR.
3. HORIZONTAL DATUM: NAD83 CALIFORNIA STATE PLANES, ZONE II, US FOOT
4. VERTICAL DATUM: NAVD88, U.S. SURVEY FEET.

1 VICINITY MAP
NOT TO SCALE



2 FIDDLENECK DRAINAGE SITE MAP
SCALE: 1"=250'

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SMART NON- MOTORIZED PATHWAY SEGMENTS 37 AND 38 - FIDDLENECK DRAINAGE RIPARIAN MITIGATION

CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

NOT FOR CONSTRUCTION

05/29/24 90% PSE
Date Issues And Revisions No.

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DRAWN BY: DG
CHECKED BY: IM
ORIGINAL DRAWING SIZE: 22 X 34

SCALE: AS INDICATED

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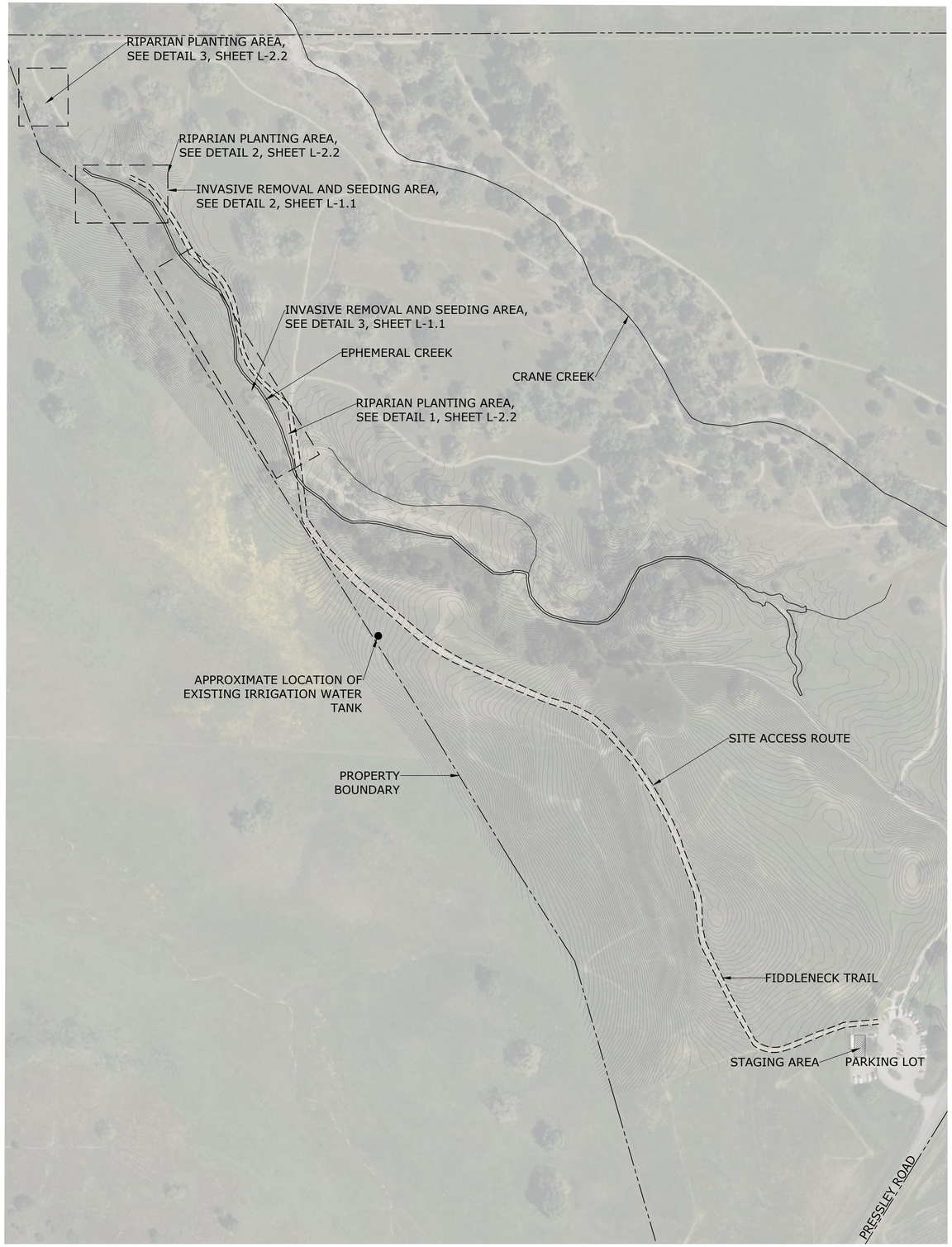
COVER SHEET

Sheet 1 of 9

L-1.0



1 FIDDLENECK DRAINAGE - SITE ACCESS PLAN
SCALE: 1"=150'

0 150
SCALE: 1 " = 150 '

LEGEND

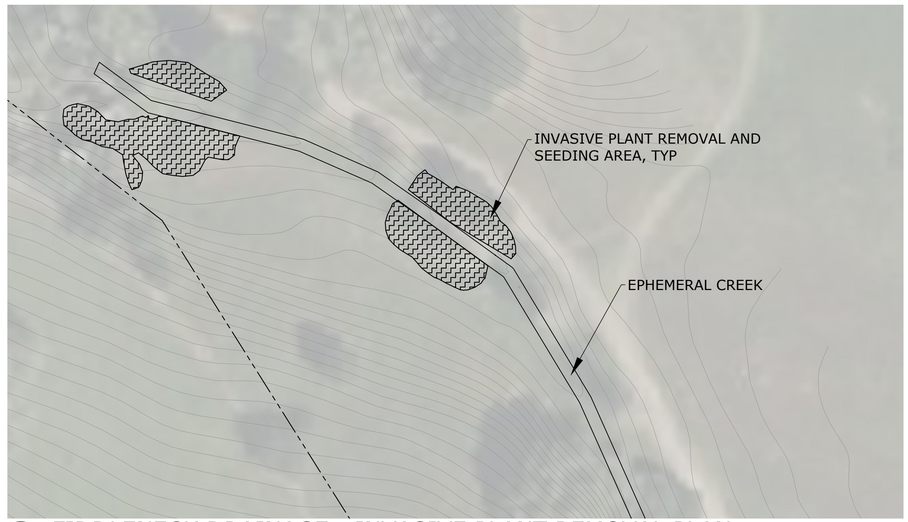
EXISTING CONTOUR

SITE ACCESS ROUTE

INVASIVE PLANT REMOVAL AND SEEDING AREA (0.1 ACRE)

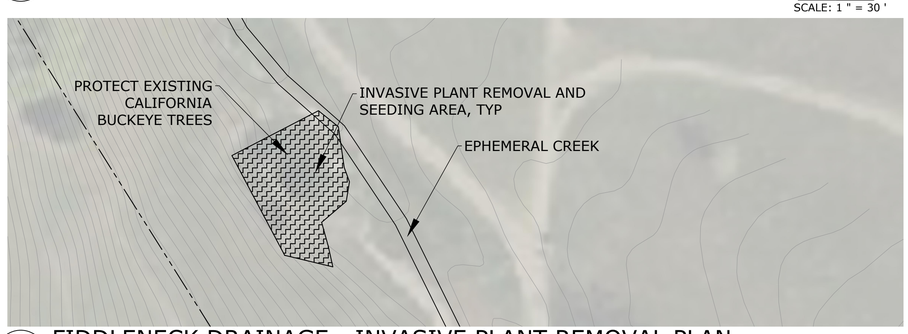
FIDDLENECK DRAINAGE SITE PREPARATION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL SENSITIVE HABITATS AS REQUIRED. ORANGE CONSTRUCTION FENCING SHALL BE INSTALLED AROUND WORK AREAS AS NEEDED.
2. THE CONTRACTOR SHALL SUBMIT A SITE CLEARING PLAN PER THE SPECIFICATIONS FOR APPROVAL BY SMART'S PROJECT MANAGER PRIOR TO COMMENCING WORK.
3. THE CONTRACTOR SHALL LAY OUT CONSTRUCTION ENTRANCES/EXITS, HAUL ROUTES, STAGING AREAS, AND CONSTRUCTION FENCE FOR APPROVAL PRIOR TO ANY EARTH DISTURBING ACTIVITIES.
4. INVASIVE NON-NATIVE HIMALAYAN BLACKBERRY SHALL BE REMOVED PRIOR TO IRRIGATION AND PLANT INSTALLATION.
   - 4.1. THE CONTRACTOR SHALL SUBMIT A NON-NATIVE PLANT REMOVAL PLAN, INCLUDING METHODS FOR HIMALAYAN BLACKBERRY REMOVAL, TO THE SMART'S PROJECT MANAGER FOR APPROVAL.
   - 4.2. HIMALAYAN BLACKBERRY REMOVAL SHALL BE DONE BY MECHANICAL METHODS SUCH AS CUTTING DURING INITIAL REMOVAL ACTIVITIES. FOLLOWING CUTTING, AN HERBICIDE MAY BE APPLIED TO THE CUT STEMS. THE MOST EFFECTIVE AND LEAST TOXIC HERBICIDE SHALL BE USED.
   - 4.3. HERBICIDE APPLICATION SHALL ADHERE TO THE SONOMA COUNTY REGIONAL PARKS INTEGRATED PEST MANAGEMENT PLAN AND APPLICABLE GUIDANCE FROM THE SONOMA COUNTY BOARD OF SUPERVISORS, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, AND THE REGIONAL WATER QUALITY CONTROL BOARD. THE INVASIVE PLANT REMOVAL PLAN SHALL INCLUDE THE RELEVANT GUIDELINES AND BEST MANAGEMENT PRACTICES FROM THESE ENTITIES.
   - 4.4. BIOMASS DEBRIS FROM THE INVASIVE NON-NATIVE PLANT REMOVAL ACTIVITES SHALL BE REMOVED AND PROPERLY DISPOSED OF AT A GREEN WASTE FACILITY.
5. TEMPORARY CHAINLINK FENCES WITH GATES SHALL BE INSTALLED AROUND STAGING AREAS.
6. SEEDING SHALL BE MANUALLY BROADCASTED IN INVASIVE PLANT REMOVAL AREAS USING THE SEED MIX SPECIFIED ON PAGE L-2.1.



2 FIDDLENECK DRAINAGE - INVASIVE PLANT REMOVAL PLAN
SCALE: 1"=30'

0 30
SCALE: 1 " = 30 '



3 FIDDLENECK DRAINAGE - INVASIVE PLANT REMOVAL PLAN
SCALE: 1"=30'

0 30
SCALE: 1 " = 30 '

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SMART NON- MOTORIZED PATHWAY SEGMENTS 37 AND 38 - FIDDLENECK DRAINAGE RIPARIAN MITIGATION

CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

NOT FOR CONSTRUCTION

05/29/24 90% PSE
Date Issues And Revisions No.

PROJECT #31368
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ORIGINAL DRAWING SIZE: 22 X 34

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SITE PREPARATION AND ACCESS PLAN

Sheet 2 of 9

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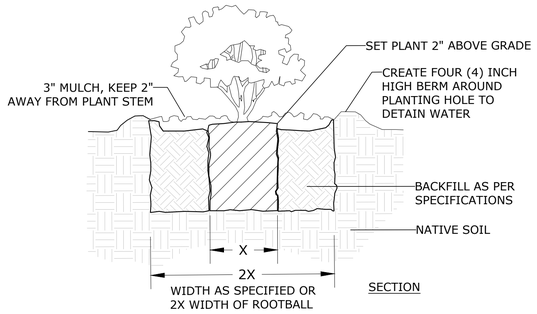
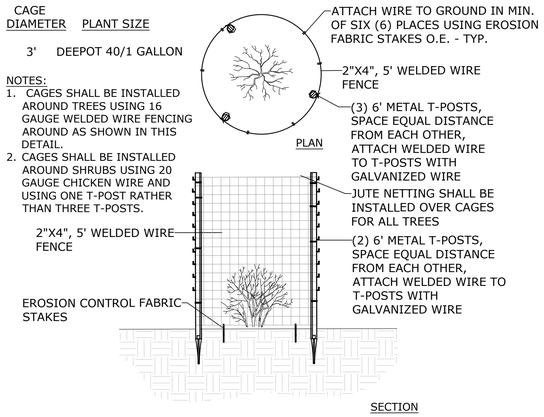


1 TREE & SHRUB PLANTING DETAIL
NOT TO SCALE



2 FOLIAGE PROTECTION CAGE
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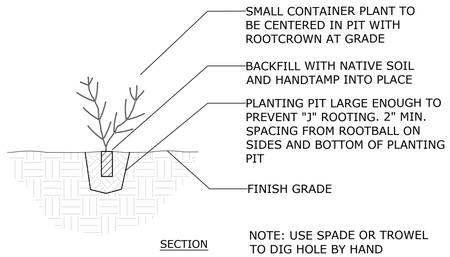
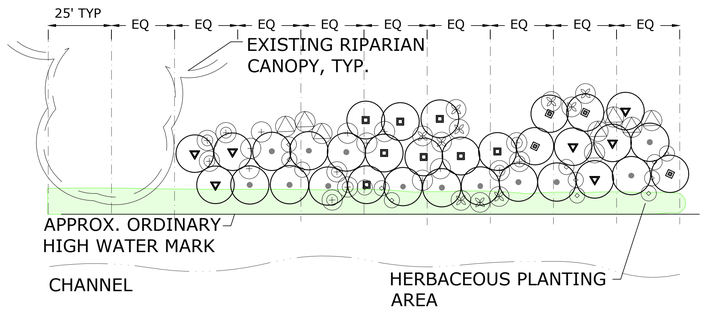


3 HERBACEOUS PLANTING DETAIL
NOT TO SCALE



4 FIDDLENECK DRAINAGE - TYPICAL PLANT LAYOUT
NOT TO SCALE

PLANT LEGEND

SCIENTIFIC NAME	COMMON NAME
AESCULUS CALIFORNICA	CALIFORNIA BUCKEYE
QUERCUS AGRIFOLIA	COAST LIVE OAK
QUERCUS KELLOGGII	BLACK OAK
QUERCUS LOBATA	VALLEY OAK
BACCHARIS PILULARIS	COYOTE BRUSH
FRANGULA CALIFORNICA	COFFEEBERRY
HETEROMELES ARBUTIFOLIA	TOYON
ROSA CALIFORNICA	CALIFORNIA ROSE
RUBUS URSINUS	CALIFORNIA BLACKBERRY
ACHILLEA MILLEFOLIUM	YARROW
ARTEMISIA DOUGLASIANA	MUGWORT
CAREX BARBARAE	VALLEY SEDGE
ELYMUS TRITICOIDES	CREEPING WILD RYE
JUNCUS PATENS	COMMON RUSH
SCROPHULARIA CALIFORNICA	BEE PLANT
SYMPHYOTRICHUM CHILENSE	PACIFIC ASTER

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PLANTING NOTES, DETAILS, AND TYPICAL LAYOUT

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SEEDING NOTES

1. SEED PROCUREMENT: SEED SHALL BE PROVIDED BY THE CONTRACTOR ON THE BASIS OF PURE LIVE SEED (PLS). THE SEED SEED TAGS SHALL BE SUBMITTED TO SMART'S PROJECT MANAGER FOR APPROVAL PRIOR TO APPLICATION.
2. SEEDING SCHEDULE: SEEDING SHALL OCCUR BETWEEN SEPTEMBER 15TH AND OCTOBER 15TH UNLESS OTHERWISE APPROVED BY SMART'S PROJECT MANAGER.
3. SEEDING AREAS SHALL BE MARKED PRIOR TO SEED APPLICATION AND APPROVED BY SMART'S PROJECT MANAGER.
4. SOIL WILL BE PREPARED FOR SEED INSTALLATION BY HAND RAKING OR DISKING.
5. THE SEED MIXES SHALL BE MANUALLY BROADCASTED.
6. THE BROADCAST SEED MIX SHALL INCLUDE THE FOLLOWING COMPONENTS:
   - 6.1. SEED
   - 6.2. STRAW: STRAW SHALL BE 100% RICE STRAW.
   - 6.3. SAND: SAND SHALL BE FINE (0.1 - 0.25 MILLIMETER DIAMETER), MEDIUM (0.25 - 0.5 MILLIMETER DIAMETER), OR COARSE (0.5 - 1.0 MILLIMETER DIAMETER) CLASS SAND, AS SPECIFIED. THE SAND SHALL CONTAIN NO GERMINATION, GROWTH-INHIBITING PROPERTIES, OR ELEMENTS OR COMPOUNDS AT CONCENTRATIONS THAT WILL BE PHYTOTOXIC.
   - 6.4. THE CONTRACTOR SHALL PROVIDE SUBMITTALS OF THE COMPONENTS TO SMART'S PROJECT MANAGER FOR APPROVAL.
7. BROADCAST SEEDING SHALL OCCUR AS FOLLOWS:
   - 7.1. RAKING OR TILLING: AREAS DESIGNATED BY SMART'S PROJECT MANAGER SHALL BE RAKED OR TILLED TO A MINIMUM DEPTH OF FOUR (4) INCHES.
   - 7.2. INERT MATERIALS: AFTER RECEIVING APPROVAL FOR THE SEED, THE SEED SHALL BE THOROUGHLY AND COMPLETELY BLENDED WITH INERT MATERIAL. THE MIXING OF THE SEED MIX WITH INERT MATERIAL SHALL BE BY VOLUME AS SPECIFIED: ONE PART SEED MIX / THREE PARTS MEDIUM SAND.
   - 7.3. THE SEED/INERT MATERIAL MIXTURE SHALL BE UNIFORMLY AND EVENLY BROADCAST OVER THE DESIGNATED AREAS. BROADCASTING MAY BE DONE BY HAND-HELD SPREADER, GRAVITY DROP SEEDER, CYCLONE SPREADER, OR ANOTHER TYPE OF EQUIPMENT OR METHOD, AS APPROVED BY SMART'S PROJECT MANAGER.
   - 7.4. THE SEED SHALL BE INCORPORATED INTO THE SOIL TO A MINIMUM DEPTH OF ONE-QUARTER (1/4) INCH AND A MAXIMUM DEPTH OF ONE-HALF (½) INCH. THE INCORPORATION MAY OCCUR BY HAND-RAKING OR THE USE OF A CHAIN HARROW OR TINE HARROW, SUBJECT TO APPROVAL BY SMART'S PROJECT MANAGER.
   - 7.5. STRAW: FOLLOWING SEEDING, RICE STRAW SHALL BE APPLIED TO ALL AREAS OF NATIVE SOIL THAT WERE SEEDED UNLESS OTHERWISE DIRECTED BY SMART'S PROJECT MANAGER. STRAW SHALL BE APPLIED AT A RATE OF 3,000 POUNDS PER ACRE.

PLANTING NOTES

1. PLANT PROCUREMENT: CONTRACTOR SHALL WORK WITH SMART'S PROJECT MANAGER TO PROCURE THE PLANTS FROM A NURSERY RECOMMENDED BY REGIONAL PARKS. THE PLANTS SHALL BE DELIVERED TO THE PROJECT SITE BY THE OWNER OR NURSERY AND APPROVED BY SMART'S PROJECT MANAGER AND CONTRACTOR.
2. PLANTING SCHEDULE: PLANTINGS SHALL BE INSTALLED IN FALL OR EARLY WINTER (OCTOBER 15TH - DECEMBER 31) TO ALLOW PLANTS TO ESTABLISH DURING THE WINTER RAINY SEASON, UNLESS OTHERWISE APPROVED BY SMART'S PROJECT MANAGER. THE IRRIGATION SYSTEM SHALL BE INSTALLED PRIOR TO PLANTING.
3. PLANTING LAYOUT FOR TREES, SHRUBS, AND HERBACEOUS PLANTINGS: THE CONTRACTOR SHALL USE PIN FLAGS OR OTHER IDENTIFIERS TO MARK THE LOCATION OF THE PLANTS AT THE PROJECT SITE FOR REVIEW BY SMART'S PROJECT MANAGER PRIOR TO THE INSTALLATION OF THE DRIP EMITTERS, TUBING AND PLANTINGS. PIN FLAGS SHALL HAVE A UNIQUE COLOR AND/OR IDENTIFYING MARK FOR EACH PLANT SPECIES.
4. PLANTING HOLES: PLANTING HOLES SHALL BE DUG ACCORDING TO THE DIMENSIONS SHOWN IN THE PLANTING DETAIL.
5. PLANT FERTILIZER: CONTRACTOR SHALL INSTALL '1-YEAR NUTRI-PAK TREES, SHRUBS & EVERGREENS' ONE-YEAR TIME RELEASE FERTILIZER PACKETS BY NUTRI-PAK OR EQUIVALENT SLOW RELEASE FERTILIZER AS APPROVED BY SMART'S PROJECT MANAGER. THE FERTILIZER SHALL HAVE THE FOLLOWING RATIO OF NITROGEN, PHOSPHOROUS, AND POTASSIUM: 16-8-8. THE FERTILIZER SPECIFICATIONS SHALL BE SUBMITTED TO SMART'S PROJECT MANAGER FOR APPROVAL. INSTALL ONE FERTILIZER PACK AT THE BOTTOM OF THE PLANTING HOLE PRIOR TO PLANTING THE TREE/SHRUBS.
6. MULCH: THE CONTRACTOR SHALL INSTALL A 3-INCH LAYER OF WOOD BARK MULCH AROUND ALL TREES AND SHRUBS AS SHOWN ON THE PLANTING DETAILS. MULCH SHALL BE ORGANIC AND WEED-FREE WITH A ONE-HALF INCH MINIMUM AND A THREE INCH MAXIMUM PARTICLE SIZE. CONTRACTOR SHALL PROVIDE A SUBMITTAL OF THE MULCH TO SMART'S PROJECT MANAGER FOR APPROVAL.
7. FOLIAGE PROTECTION CAGES: THE CONTRACTOR SHALL INSTALL FOLIAGE PROTECTION CAGES FOLLOWING THE COMPLETION OF PLANT INSTALLATION AROUND THE PLANTS IDENTIFIED IN THE PLANT LEGEND AND IN ACCORDANCE WITH THE DETAIL ON SHEET L-2.0
8. WATERING: NEWLY PLANTED TREES AND SHRUBS SHALL BE WATERED REGULARLY TO PREVENT PLANT MATERIAL FROM WILTING. PLANTINGS SHALL BE INSTALLED AFTER THE AUTOMATIC IRRIGATION SYSTEM HAS BEEN INSTALLED AND TESTED. IN THE CASE THAT THIS IS NOT POSSIBLE, PLANTINGS SHALL BE MANUALLY WATERED FROM THE TIME THAT THEY ARE PLANTED UNTIL THE TIME THAT THE AUTOMATIC IRRIGATION SYSTEM IS IN OPERATION.
9. WARRANTY: THE CONTRACTOR SHALL GUARANTEE THE SURVIVAL OF ALL OF THE PLANTS FOR THE DURATION OF THE ONE-YEAR MAINTENANCE PERIOD. THE MAINTENANCE PERIOD SHALL BE 1 YEAR AFTER COMPLETION OF THE PLANTING AND APPROVAL OF THE INSTALLATION BY SMART'S PROJECT MANAGER. AT THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL REPLACE, AT NO ADDITIONAL COST TO THE OWNER, PLANT MATERIAL THAT IS DETERMINED TO BE EITHER DEAD OR IN POOR HEALTH.

FENCING NOTES

1. A TEMPORARY ELECTRIC FENCE SHALL BE INSTALLED BY OTHERS AROUND THE PLANTING AREAS TO EXCLUDE CATTLE IN COORDINATION WITH REGIONAL PARKS. THE TEMPORARY ELECTRIC FENCE SHALL BE AT MINIMUM 3 FEET AWAY FROM EXISTING TRAILS.

FIDDLENECK DRAINAGE - PLANTING SCHEDULE

RIPARIAN PLANTING AREA (0.54 ACRE)

RIPARIAN TREES

SYMBOL	SCIENTIFIC NAME	COMMON NAME	ON-CENTER SPACING(FT)	CONTAINER SIZE
	AESCULUS CALIFORNICA	CALIFORNIA BUCKEYE	15	DEEPOT 40
	QUERCUS AGRIFOLIA	COAST LIVE OAK	15	DEEPOT 40
	QUERCUS KELLOGGII	BLACK OAK	15	DEEPOT 40
	QUERCUS LOBATA	VALLEY OAK	15	DEEPOT 40

RIPARIAN SHRUBS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	ON-CENTER SPACING(FT)	CONTAINER SIZE
	BACCHARIS PILULARIS	COYOTE BRUSH	8	DEEPOT 40
	FRANGULA CALIFORNICA	COFFEEBERRY	8	DEEPOT 40
	HETEROMELES ARBUTIFOLIA	TOYON	8	DEEPOT 40
	ROSA CALIFORNICA	CALIFORNIA ROSE	8	DEEPOT 40
	RUBUS URSINUS	CALIFORNIA BLACKBERRY	6	DEEPOT 40

HERBS, FORBS, AND GRASSES

SYMBOL	SCIENTIFIC NAME	COMMON NAME	ON-CENTER SPACING(FT)	CONTAINER SIZE
	ACHILLEA MILLEFOLIUM	YARROW	3	DEEPOT 16
	ARTEMISIA DOUGLASIANA	MUGWORT	4	DEEPOT 16
	CAREX BARBARAE	VALLEY SEDGE	2	DEEPOT 16
	ELYMUS TRITICOIDES	CREEPING WILD RYE	2	DEEPOT 16
	JUNCUS PATENS	COMMON RUSH	2	DEEPOT 16
	SCROPHULARIA CALIFORNICA	BEE PLANT	2	DEEPOT 16
	SYMPHYOTRICHUM CHILENSE	PACIFIC ASTER	3	DEEPOT 16

RIPARIAN SEED MIX (0.1 ACRE)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	PURE LIVE SEED LBS/ ACRE	ESTIMATED LBS PURE LIVE SEED
	ACHILLEA MILLEFOLIUM	YARROW	0.5	0.05
	ASCLEPIAS FASCICULARIS	NARROWLEAF MILKWEED	0.5	0.05
	BROMUS CARINATUS	CALIFORNIA BROME	8	0.79
	ELYMUS GLAUCUS	BLUE WILDRYE	8	0.79
	ESCHSCHLOZIA CALIFORNICA	CALIFORNIA POPPY	2	0.20
	FESTUCA MICROSTACHYS	SMALL FESCUE	8	0.79
	HORDEUM BRACHYANTHERUM	MEADOW BARLEY	8	0.79
	LUPINUS BICOLOR	BICOLORED LUPINE	4	0.40
	SCROPHULARIA CALIFORNICA	BEE PLANT	2	0.20
	STIPA PULCHRA	PURPLE NEEDLEGRASS	5	0.50
	TOTAL		**46**	**4.57**

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PLANTING SCHEDULE AND NOTES

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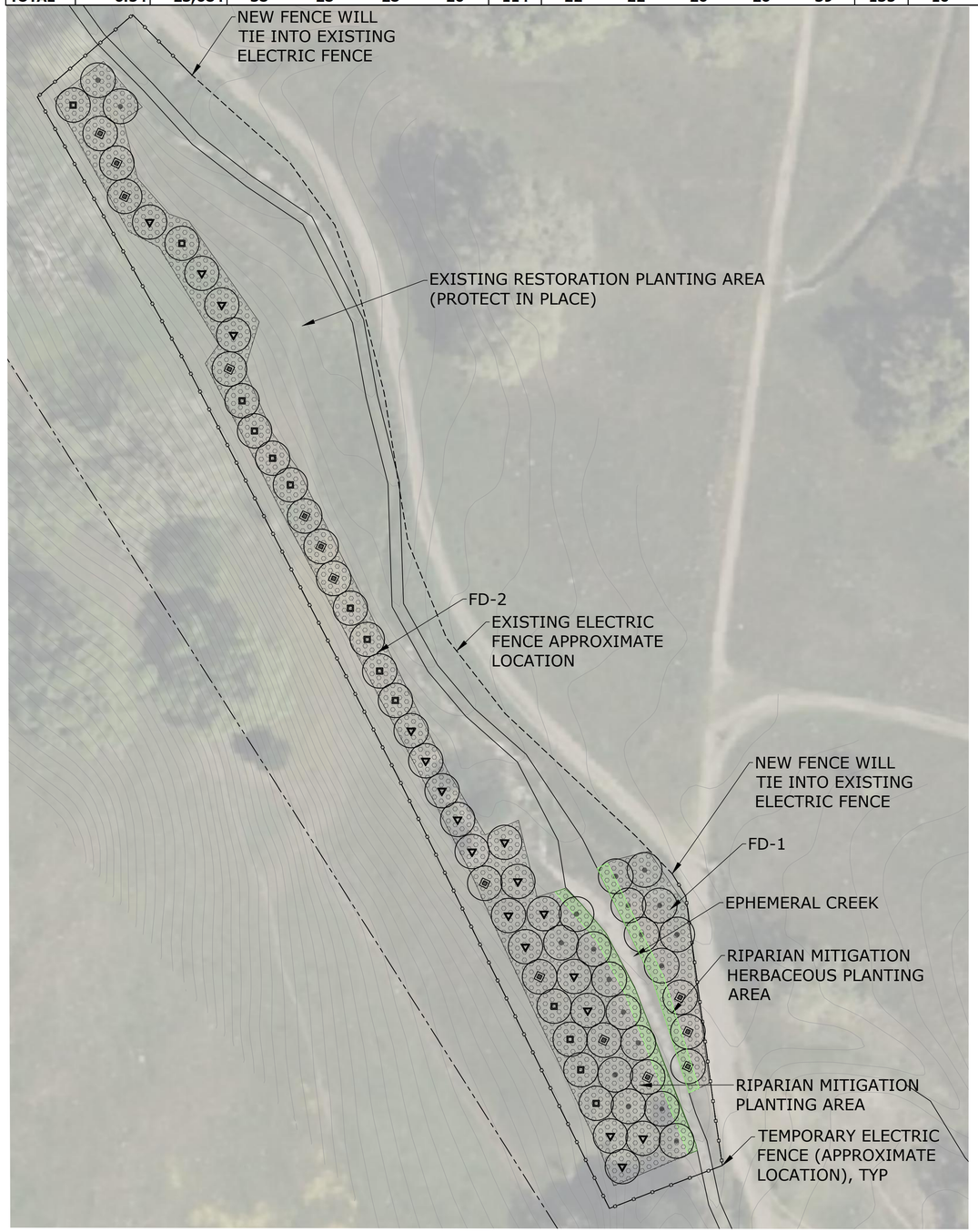
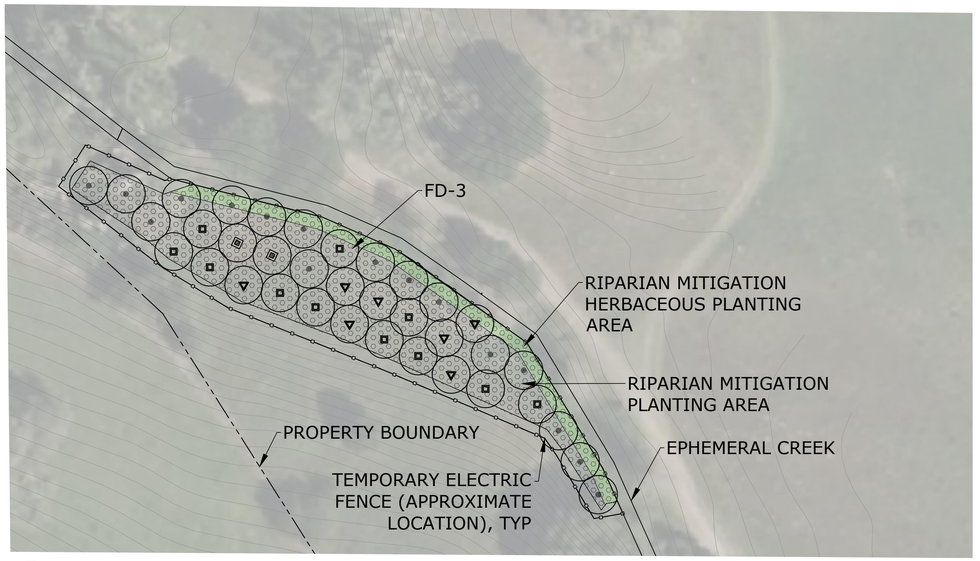
QUANTITY ESTIMATES FOR FIDDLENECK DRAINAGE PLANTING AREAS

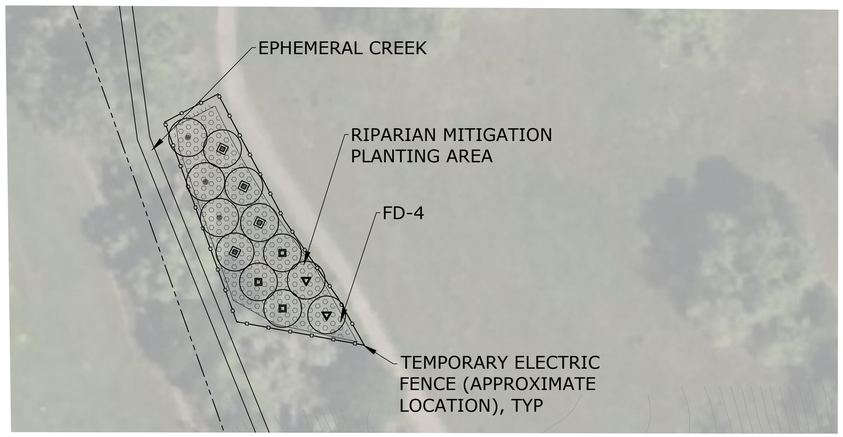
SYMBOL	SIZE ACRE	SIZE SQ. FT.	TREES					SHRUBS						HERBACEOUS								PLANT
			AES CAL	*QUE AGR*	*QUE KEL*	*QUE LOB*	**TOTAL**	*BAC PIL*	*FRA CAL*	*HET ARB*	*ROS CAL*	*RUB URS*	**TOTAL**	*ACH MIL*	*ART DOU*	*CAR BAR*	*ELY TRI*	*JUN PAT*	*SCR CAL*	*SYM CHI*	**TOTAL**	**TOTAL**
FD-1	0.05	2,071	7	0	0	3	**10**	2	2	2	2	3	**11**	2	2	5	5	5	5	2	**26**	**47**
FD-2	0.28	12,077	12	14	19	11	**56**	11	11	13	13	20	**68**	3	3	6	6	6	6	3	**33**	**157**
FD-3	0.16	6,999	16	11	7	2	**36**	7	7	8	8	12	**42**	5	5	11	11	11	11	5	**59**	**137**
FD-4	0.06	2,537	3	3	2	4	**12**	2	2	3	3	4	**14**	0	0	0	0	0	0	0	**0**	**26**
TOTAL	**0.54**	**23,684**	**38**	**28**	**28**	**20**	**114**	**22**	**22**	**26**	**26**	**39**	**135**	**10**	**10**	**22**	**22**	**22**	**22**	**10**	**118**	**367**



1 PLANTING AND FENCING PLAN - UPPER FIDDLENECK DRAINAGE
SCALE: 1"=30'



2 PLANTING AND FENCING PLAN - MIDDLE FIDDLENECK DRAINAGE
SCALE: 1"=30'



3 PLANTING AND FENCING PLAN - LOWER FIDDLENECK DRAINAGE
SCALE: 1"=30'

LEGEND

- EXISTING CONTOUR
- CREEK ALIGNMENT
- TEMPORARY ELECTRIC FENCE (BY OTHERS)
- EXISTING ELECTRIC FENCE
- PLANTING AREA (0.54 ACRE)
- HERBACEOUS RIPARIAN PLANTING AREA

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PLANTING AND FENCING PLAN

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IRRIGATION LEGEND

SYMBOL	NAME
●	EXISTING 5,000 GAL. POLY TANK
MV	MASTER VALVE: HUNTER ICV-201G-FS-DC; HUNTER NODE-BT-100 BATTERY-OPERATED CONTROLLER OR APPROVED EQUAL, INSTALL IN VALVE BOX
⋈	GATE VALVE. NIBCO T-113 GATE VALVE, SIZE THE SAME SIZE AS THE LARGEST PIPE CONNECTED TO GATE VALVE, INSTALL IN VALVE BOX.
◒	REMOTE CONTROL VALVE. HUNTER "DRIP KIT" ICZ-101-25-LF; OPERATING PRESSURE: UP TO 120 PSI HUNTER NODE-BT-100 BATTERY-OPERATED CONTROLLER OR APPROVED EQUAL, INSTALL IN VALVE BOX.
AV	AIR VACUUM RELIEF VALVE (AVRV). HUNTER AVR-075 AIR/VACUUM RELIEF VALVE OR APPROVED EQUAL. INSTALL IN SAME BOX WITH REMOTE CONTROL VALVE.
◆	QUICK COUPLING VALVE. HUNTER HQ44-LRC, 1" INLET, 2-PIECE BODY, 2 SLOTS QUICK COUPLING VALVE WITH LOCKING COVER, ACME KEY OR APPROVED EQUAL. OPERATING PRESSURE: UP TO 150 PSI
◬	EMITTER FLUSH VALVE ASSEMBLY
▲	PRESSURE REDUCING VALVE AND PRESSURE GAUGE. WILKINS MODEL 600-L-SC OR APPROVED EQUAL. SIZED TO FIT
▬▬▬	EXISTING MAINLINE PIPE - ABOVEGROUND IPS, 1 ¼"
▬▬	MAINLINE PIPE - ABOVEGROUND: HDPE 4710 SDR 9 PIPE OR APPROVED EQUAL, 1 ¼"
▬▬	MAINLINE PIPE - TRENCHED: HDPE 4710 SDR 9 PIPE, 1 ¼"
= = =	IRRIGATION SLEEVE: PVC SCHEDULE 80 PIPE, SIZED TO FIT
———	LATERAL LINE PIPE: SALCO NON-RIGID PVC, PVC TYPE IPS, OR APPROVED EQUAL. SIZED TO FIT

CONTROLLER STATION #
APPROXIMATE FLOW (GPM)
REMOTE CONTROL VALVE SIZE

SUPPLY TUBING AND DRIP EMITTER LEGEND

LOCATION DESCRIPTION	MODEL NUMBER	MODEL DESCRIPTION
ALL DRIP IRRIGATION AREAS	TWPE-700 - 1K	HUNTER 1/2" POLYETHYLENE SUPPLY TUBING
DEEPOT 40 TREE OR SHRUB	HE-050-B	TWO (2) 0.5 GPH HUNTER SINGLE OUTLET POINT SOURCE EMITTERS WITH SELF-PIERCING BARB, BLUE

IRRIGATION NOTES

GENERAL

1. THESE IRRIGATION DRAWINGS ARE DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE INSTALLED. ALL PIPING, VALVES, ETC. SHOWN WITHIN PAVED AREAS ARE FOR GRAPHIC CLARITY ONLY AND ARE TO BE INSTALLED WITHIN PLANTING AREAS WHERE POSSIBLE. DUE TO THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, SLEEVES, ETC., WHICH MAY BE REQUIRED. THE CONTRACTOR IS REQUIRED TO INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING ALL OF THE CONTRACT WORK, INCLUDING OBSTRUCTIONS, GRADE DIFFERENCES OR AREA DIMENSIONAL DIFFERENCES WHICH MAY NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. IN THE EVENT OF FIELD DIFFERENCES, THE CONTRACTOR IS REQUIRED TO PLAN THE INSTALLATION WORK ACCORDINGLY BY NOTIFICATION AND APPROVAL OF SMART'S PROJECT MANAGER. THE CONTRACTOR IS ALSO REQUIRED TO NOTIFY AND COORDINATE IRRIGATION CONTRACT WORK WITH ALL APPLICABLE CONTRACTORS FOR THE LOCATION AND INSTALLATION OF PIPE, CONDUIT OR SLEEVES THROUGH, OVER, OR UNDER WALLS, ROADWAYS, DECOMPOSED GRANITE SHOULDERS, PAVING, STRUCTURE, ETC., BEFORE CONSTRUCTION. IN THE EVENT THESE NOTIFICATIONS ARE NOT PERFORMED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL REQUIRED REVISIONS.

2. THE CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL IRRIGATION COMPONENTS TO SMART'S PROJECT MANAGER FOR APPROVAL PRIOR TO PURCHASE OR INSTALLATION.

3. THE INTENT OF THIS IRRIGATION SYSTEM IS TO PROVIDE THE MINIMUM AMOUNT OF WATER REQUIRED TO SUSTAIN GOOD PLANT HEALTH.

WATER TANK

4. AN EXISTING 5,000 GALLON WATER TANK ON SITE SHALL BE USED AND RELOCATED AS SHOWN ON THE DRAWINGS.

5. THE BASE OF THE TANK SHALL CONSIST OF 4 TO 6 INCHES OF PEA GRAVEL IN A 14 GAUGE STEEL RETAINING RING.

6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE TANK WITH SMART'S PROJECT MANAGER PRIOR TO INSTALLATION.

FLOW AND PRESSURE REQUIREMENTS

7. THE CONTRACTOR SHALL VERIFY THAT ALL IRRIGATION COMPONENTS OPERATE AT THE OPERATION PRESSURE STATED IN THE MANUFACTURER'S SPECIFICATIONS. REPORT ANY DISCREPANCIES TO SMART'S PROJECT MANAGER.

PIPE AND VALVE INSTALLATION

8. THE ABOVEGROUND MAINLINE SHALL SIT ON TOP OF EXISTING GRADE. INSTALL U-SHAPED STAPLES AT 20-FT. INTERVALS OR AS NEEDED TO SECURE MAINLINE IN PLACE.

9. THE TRENCHED MAINLINE SHALL BE INSTALLED AS SHOWN NEAR THE WATER TANK AND UNDER TRAILS AND PATHWAYS. THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE TRENCHED TO ABOVEGROUND MAINLINE TRANSITION FOR APPROVAL BY SMART'S PROJECT MANAGER.

10. THE CONTRACTOR SHALL ROUTE THE MAINLINE AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL FLAG THE MAINLINE AND VALVE LOCATIONS FOR SMART'S PROJECT MANAGER'S REVIEW AND APPROVAL PRIOR TO GROUND DISTURBANCE.

11. THE CONTRACTOR SHALL REUSE THE EXISTING MAINLINE TO THE EXTENT POSSIBLE.

12. LATERAL LINES AND DRIP SUPPLY TUBING SHALL BE AT GRADE, EXCEPT AT PATHS, CHANNELS, OR ROAD CROSSINGS. THE CONTRACTOR SHALL SLEEVE ALL LATERALS AND MAINLINES PASSING UNDERNEATH PAVEMENT, ROADS, TRAILS, OR OVER DRAINAGE CHANNELS.

13. THE CONTRACTOR SHALL AVOID INSTALLING TRENCHES OR PERFORMING GROUND DISTURBING ACTIVITIES UNDER THE DRIPLINE OF TREES UNLESS APPROVED BY SMART'S PROJECT MANAGER.

14. THE CONTRACTOR SHALL PERFORM A PRESSURE TEST OF THE MAINLINES AT 125 PSI AND THE LATERAL LINES AT 100 PSI FOR FOUR HOURS FOR APPROVAL BY SMART'S PROJECT MANAGER.

15. QUICK COUPLERS SHALL BE INSTALLED TO ALLOW FOR HAND WATERING OF HERBACEOUS PLANTINGS WITHIN THE CHANNEL.

16. THE CONTRACTOR SHALL OPTIMIZE THE VALVE BOX LAYOUT TO MINIMIZE THE TOTAL NUMBER OF VALVE BOXES REQUIRED.

17. THE CONTRACTOR SHALL LOCK ALL VALVE BOXES UNLESS OTHERWISE SPECIFIED IN WRITING BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL TURN OVER 3 SETS OF KEYS TO THE VALVE BOXES TO SMART'S PROJECT MANAGER.

OPERATION, MAINTENANCE, AND REPORTING

18. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROGRAM THE IRRIGATION CONTROLLERS TO PROVIDE THE MINIMUM AMOUNT OF WATER NEEDED TO SUSTAIN GOOD PLANT HEALTH. THIS INCLUDES MAKING ADJUSTMENTS TO THE PROGRAM FOR SEASONAL WEATHER CHANGES, PLANT MATERIAL, WATER REQUIREMENTS, MOUNDS AND SLOPES, SUN, SHADE, AND WIND EXPOSURES.

19. THE CONTRACTOR SHALL SEND THE IRRIGATION SCHEDULE BY VALVE TO SMART'S PROJECT MANAGER FOR APPROVAL PRIOR TO OPERATION.

20. THE CONTRACTOR SHALL PREPARE AN OPERATION AND MAINTENANCE MANUAL OF THE IRRIGATION SYSTEMS WHICH WILL INCLUDE THE CONTRACTOR'S NAME AND CONTACT INFORMATION, AND INFORMATION ON EACH IRRIGATION COMPONENT, INCLUDING THE MANUFACTURER'S NAME, MAKE AND MODEL NUMBER, NAME AND ADDRESS OF LOCAL MANUFACTURER'S REPRESENTATIVE, AND DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS AS PER MANUFACTURER.

21. MAINTENANCE STAFF TRAINING: THE CONTRACTOR SHALL PERFORM A FULL INSTRUCTION SESSION IN THE PRESENCE OF THE DESIGNATED MAINTENANCE PERSONNEL DEMONSTRATING THE IRRIGATION CONTROLLER SYSTEM,SYSTEM TESTING, TROUBLE-SHOOTING, ETC. INCLUDE INSTRUCTIONS ON HOW TO TURN OFF THE SYSTEM IN CASE OF EMERGENCY.

22. THE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM, REPLACE ANY BROKEN OR DEFECTIVE PARTS, AND ENSURE THE IRRIGATION SCHEDULE IS ADEQUATE TO SUSTAIN THE HEALTH OF THE PLANTS FOR A 1-YEAR MAINTENANCE PERIOD.

23. THE CONTRACTOR SHALL INSPECT THE IRRIGATION SYSTEM AND REPORT TO SMART'S PROJECT MANAGER HOW THE PLANTS AND IRRIGATION SYSTEM ARE PERFORMING DURING THE 1-YEAR MAINTENANCE PERIOD.

wra Environmental Consultants
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SMART
NON- MOTORIZED PATHWAY SEGMENTS 37 AND 38 - FIDDLENECK DRAINAGE RIPARIAN MITIGATION

CRANE CREEK REGIONAL PARK

SONOMA COUNTY, CALIFORNIA

NOT FOR CONSTRUCTION

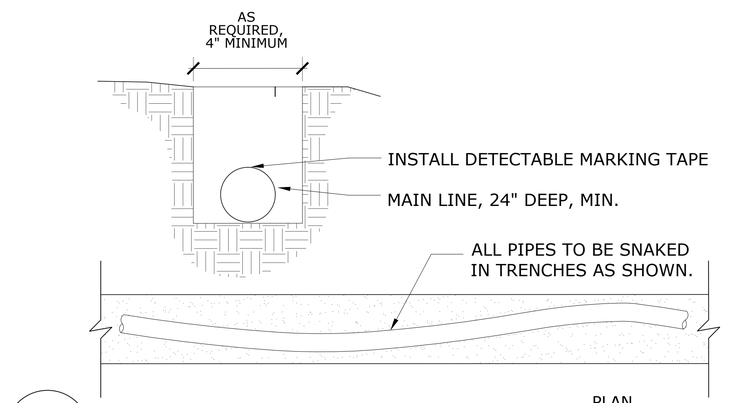
Date	Issues And Revisions	No.
05/29/24	90% PSE	

PROJECT #31368
DRAWN BY: DG
CHECKED BY: IM
ORIGINAL DRAWING SIZE: 22 X 34

IRRIGATION NOTES AND DETAILS

Sheet 6 of 9

L-3.0



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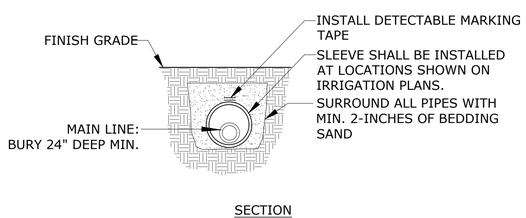

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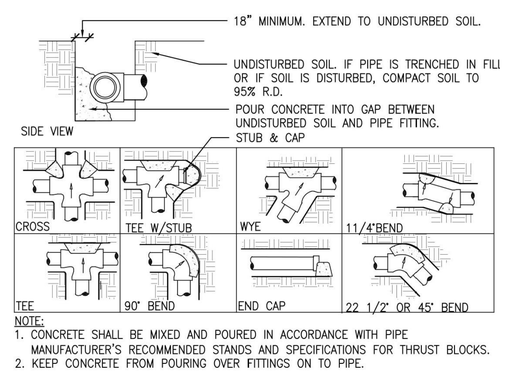
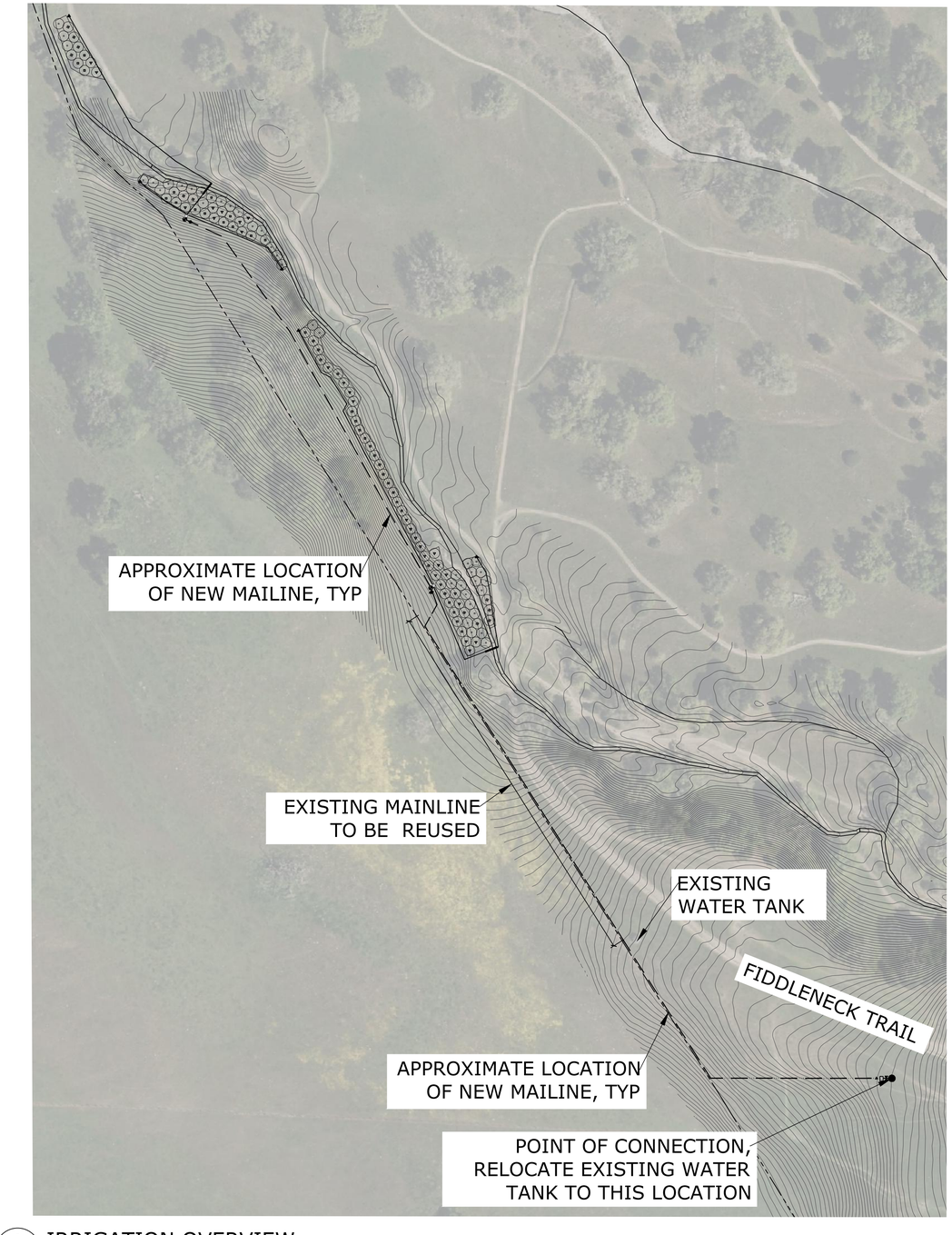


NOTE:
1. CONCRETE SHALL BE MIXED AND POURED IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDED STANDS AND SPECIFICATIONS FOR THRUST BLOCKS.
2. KEEP CONCRETE FROM POURING OVER FITTINGS ON TO PIPE.

3 THRUST BLOCK
NOT TO SCALE



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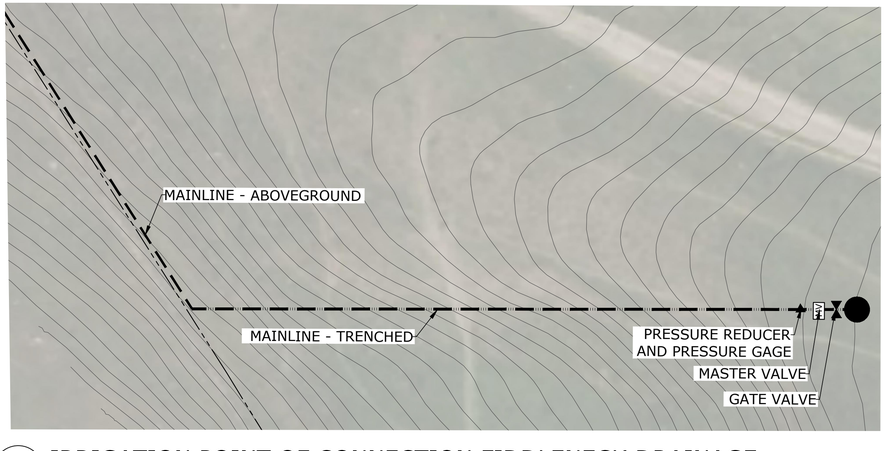

2 IRRIGATION POINT OF CONNECTION FIDDLENECK DRAINAGE
SCALE: 1"=30'

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SMART
NON- MOTORIZED PATHWAY SEGMENTS 37 AND 38 - FIDDLENECK DRAINAGE RIPARIAN MITIGATION

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SCALE: 1 " = 30 '

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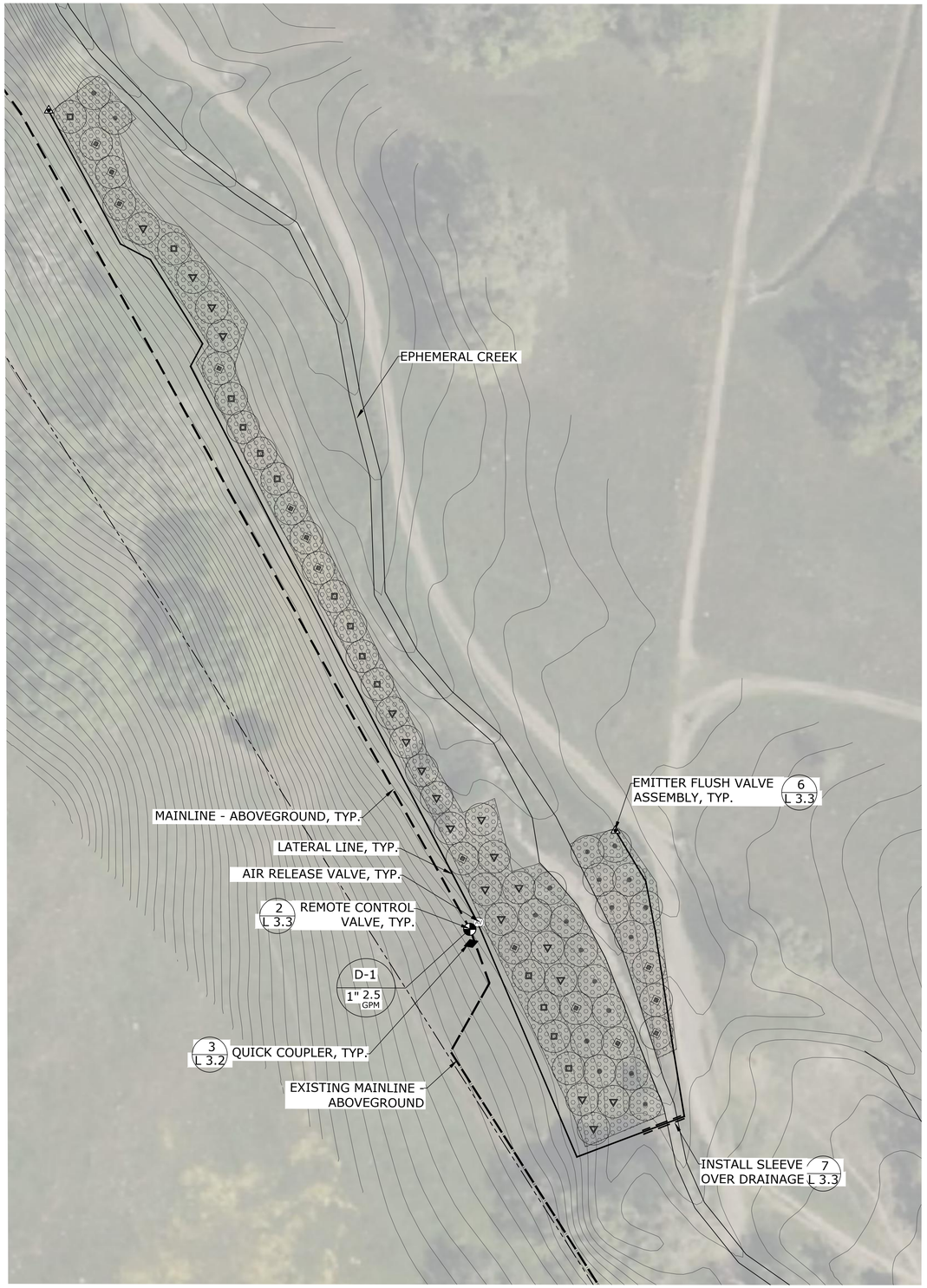
IRRIGATION OVERVIEW

Sheet 7 of 9

L-3.1



1 IRRIGATION PLAN - UPPER FIDDLENECK DRAINAGE
SCALE: 1"=30'

2 IRRIGATION PLAN - MIDDLE AND LOWER FIDDLENECK DRAINAGE
SCALE: 1"=30'

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SMART NON- MOTORIZED PATHWAY SEGMENTS 37 AND 38 - FIDDLENECK DRAINAGE RIPARIAN MITIGATION

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SCALE: 1 " = 30 '

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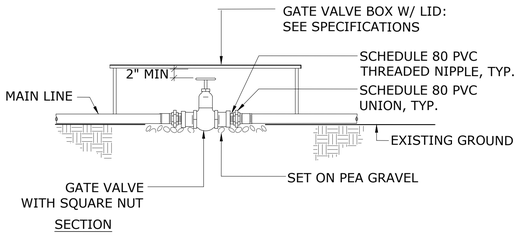
IRRIGATION PLAN

Sheet 8 of 9

L-3.2



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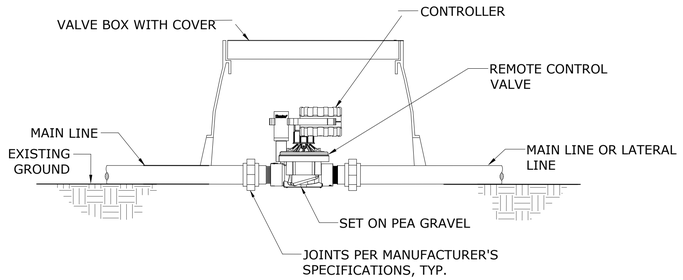

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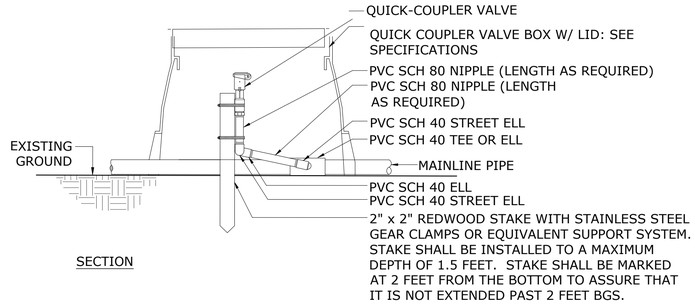

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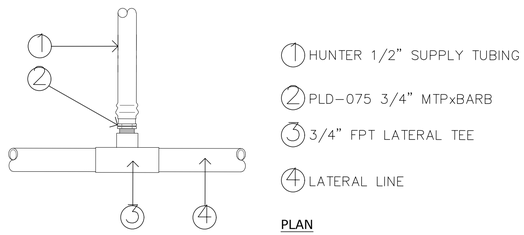

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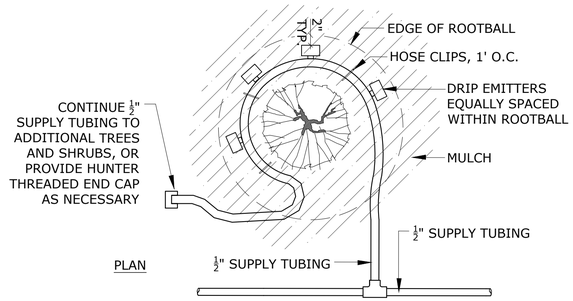

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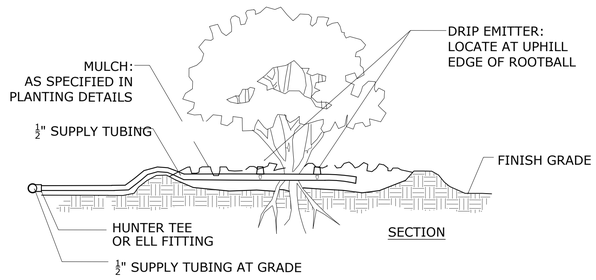

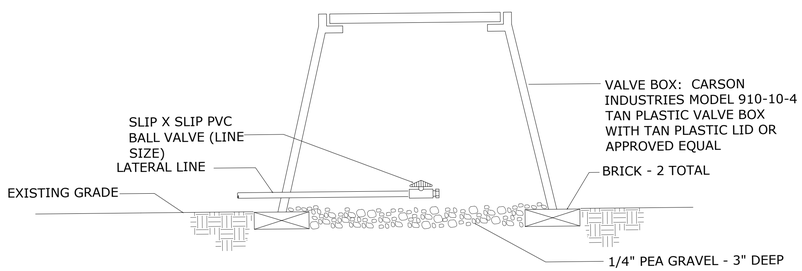

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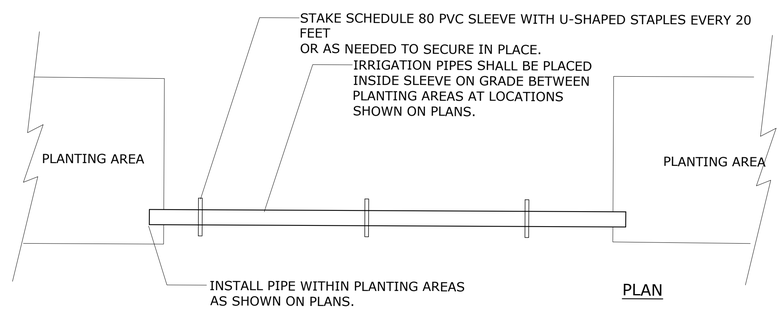

7 MAINLINE AND LATERAL LINE ABOVE GROUND SLEEVE
NOT TO SCALE

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SMART NON- MOTORIZED PATHWAY SEGMENTS 37 AND 38 - FIDDLENECK DRAINAGE RIPARIAN MITIGATION

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IRRIGATION DETAILS

Sheet 9 of 9

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EXHIBIT B

SAMPLE MONITORING REPORT

SONOMA-MARIN AREA RAIL TRANSIT (SMART)

RIPARIAN ENHANCEMENT FOR SEGMENTS 1 & 2: LAKEVILLE STREET (MP 39.0) TO PAYRAN STREET (MP 39.2) AND SOUTHPOINT BOULEVARD (MP 40.4) TO MAIN STREET (MP 43.4) 1ST YEAR MONITORING REPORT (2023)

Sonoma County, California

Prepared For:

Sonoma-Marin Area Rail Transit (SMART)
5401 Old Redwood Highway, Suite 200
Petaluma, California 94954
Contact: Negin Saghaee

Prepared By:

Triangle Properties, Inc.
Contact: Barry Baba
(916) 480-5505
bbaba@teichert.com

Date:

November 2023

TRIANGLE PROPERTIES

CONTENTS

Riparian Enhancement Mitigation Monitoring for Segments 1 & 2: Lakeville Street to Payran Street and Southpoint Boulevard to Main Street
1st Year Monitoring Report (2023)
Sonoma-Marin Area Rail Transit (SMART), Sonoma County, California

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LIST OF FIGURES

LIST OF APPENDICES

1 INTRODUCTION

In June 2022, WRA Environmental Consultants (WRA) prepared a Riparian Enhancement Plan (Plan) for Segments 1 & 2 of the Sonoma-Marin Area Rail Transit District (SMART) Non-Motorized Pathways project (NMP Project) (WRA 2022). Collectively, Segments 1 and 2 of the NMP Project resulted in impacts to 0.046 acre and 411 linear feet of streams or channels (including shading), and 0.06 acre and 30 linear feet of riparian vegetation. Mitigation measures for these impacts were identified in two permits issued for the NMP Project: a California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement (EPIMS-SON-22639-R3) and a San Francisco Bay Regional Water Quality Control Board (RWQCB) Clean Water Act Section 401 Water Quality Certification and Order (WDID#2CW447818) (the Permits). In addition to other mitigation measures,[1] the Permits require that SMART implement the Plan, which involves the enhancement of 0.44 acres and 740 linear feet of stream and riparian habitat through the removal of invasive vegetation and the planting of native trees, shrubs, forbs and grasses within two mitigation areas adjacent to the Project (the Mitigation Sites). In total, as discussed in this report, the Plan provides for compensation at ratios of approximately 4 to 1 by area and 1.7 to 1 by length.

In November 2022, SMART contracted Triangle Properties, Inc. (Triangle) to establish, maintain and monitor the Mitigation Sites for a period of 5 years. In compliance with the Permits and the Plan, this report summarizes the habitat establishment and maintenance performed to date, as well as the first-year monitoring results for the Mitigation Sites.

1.1 Project Site Description

The Mitigation Sites are located along an ephemeral drainage ditch which runs parallel to the SMART railroad track between mile post (MP) 38.9 and 39.1 just northwest of the Petaluma River and southwest of Cedar Grove Park in the City of Petaluma (Figure 1). As described in the Plan, the Mitigation Sites total approximately 19,140 square feet (0.44 acre) in size and 740 feet in length. Site 1 (ESED07), located furthest to the south, is comprised of an approximately 13,290 square foot (0.31 acre) earthen ditch beginning at MP 38.91 just north of the Petaluma River and extending approximately 363 linear feet parallel with the tracks ending just south of Cedar Grove Park Road (MP 38.98). Site 2 (ESED12) consists of approximately 5,850 square feet (0.13 acre) of earthen ditch located just north of Site 1 and west of Cedar Grove Park Road, extending approximately 377 linear feet northwest from MP 38.98 along the SMART railroad track.

Prior to enhancement, the existing vegetation within the Mitigation Sites consisted primarily of non-native blackberries, forbs, and grasses, as well as some native trees and shrubs. Most of the area was dominated by invasive riparian plants, including Himalayan blackberry (*Rubus armeniacus*), perennial pepperweed (*Lepidium latifolium*), black mustard (*Brassica nigra*), poison hemlock (*Conium maculatum*), fennel (*Foeniculum vulgare*), stinkwort (*Dittrichia graveolens*), and harding grass (*Phalaris aquatica*). Coast live oak (*Quercus agrifolia*), arroyo willow (*Salix lasiolepis*), and coyote brush (*Baccharis pilularis*)

[1] In addition to the implementing the Plan, SMART was required to purchase 0.6 acres of seasonal wetland re-establishment credits from the Burdell Ranch Mitigation Bank. (San Francisco Bay Regional Water Quality Control Board Clean Water Act Section 401 Water Quality Certification and Order for SMART Non-Motorized Pathways Segments 1 & 2 Project, Sonoma County (WDID#2CW447818), dated 22 Aug. 2022.)

represent existing native trees and shrubs present within the Mitigation Sites. Within Site 1, the banks of the earthen ditch were densely vegetated with Himalayan blackberry intermixed with native trees and shrubs. Coast live oak spans the western bank along the railroad track and shades much of the site. A dense stand of arroyo willow and coyote brush are present at the south and north ends at Site 1, respectively. Openings within tree/shrub canopies (primarily eastern bank) were dominated by Himalayan blackberry, poison hemlock, fennel, black mustard, perennial pepperweed, and harding grass. Site 2 contains a shallower, vegetated earthen ditch which is hydrologically connected to Site 1 via a culvert beneath Cedar Grove Park Road. Site 2 contains a row of scattered coast live oaks on the western bank closest to the tracks and, prior to the enhancement activities, was also dominated by Himalayan blackberry, perennial pepperweed, and harding grass.

1.2 Non-Motorized Pathways Project Requirements

The NMP Project requires the planting, maintenance, and monitoring of Mitigation Sites 1 and 2 over a 10-year period. To protect the site from human foot traffic and associated impacts, all of Site 1 and the majority of Site 2 are required to be fenced prior to planting. Planting specifications include the installation of native trees, shrubs, forbs, grasses, and rushes within designated areas, as depicted in Appendix C of the Plan (WRA 2022). The Plan also sets forth the requirements for monitoring the performance standards of the newly planted trees and shrubs (WRA 2022).

It is important to acknowledge that there were discrepancies between the planting quantities identified on the plan sheet compared to those calculated in the tables of Appendix C of the Plan. Following a review of the site and proposed plant quantities, Triangle, in collaboration with SMART, determined that the specifications on the plan sheets more accurately reflected field conditions. Consequently, the data in the tables of the Plan regarding plant quantities was disregarded in favor of adhering to the plan sheet specifications. This baseline not only serves as the foundation for minimum planting requirements but also sets the parameters for success criteria.

2 SITE PREPARATION

Prior to fencing and planting, all boundaries of the mitigation sites were delineated in December 2022 using a Trimble GPS unit with sub-meter accuracy. Subsequently, in January 2023, Triangle removed all trash from the area and cleared/grubbed all non-native vegetation (e.g., Himalayan blackberry, fennel, poison hemlock, etc.). In addition, Triangle installed fencing around the perimeter of the Mitigation Sites as outlined in the Plan.

2.1 Trash Removal and Vegetation Clearing

In January 2023, Triangle removed and disposed of all trash observed within the mitigation planting areas. In addition, all non-native, invasive weeds were mechanically cleared from the site with string-trimmers, hedge-trimmers, and by hand-pulling. Triangle's Biologist was present throughout all vegetation clearing to guide laborers and distinguish between non-native and native plants.

2.2 Fencing

Section 3.4 of the Plan recommended the installation of fencing around the perimeter of the Mitigation Sites to protect the plantings from human foot traffic and related impacts. Pursuant to this requirement, Triangle installed a 4-foot-tall chain link fence around the entire perimeter of Site 1 and the majority of Site 2. In addition, three access gates – two at Site 1 and one at Site 2 – were installed to facilitate watering and maintenance activities.

3 PLANTING PLAN

The Plan provides a comprehensive description of the native trees, shrubs, forbs, grasses, and rushes to be installed at each of the Mitigation areas. Table 1 below summarizes the species, container sizes, and quantities of each species to be installed. A more detailed layout was provided for tree, shrub, forb and rush on the plan sheets, while a more general approach was suggested for the grasses. This flexibility was to allow the contractor (Triangle) to adapt and field-fit grass plantings needed.

TABLE 1. PROPOSED PLANTING PLAN

COMMON NAME	BOTANICAL NAME	CONTAINER SIZE*	MITIGATION AREA SITE 1	MITIGATION AREA SITE 2
TREES				
Coast Live Oak	Quercus agrifolia	5-Gal	3	2
Arroyo Willow	Salix lasiolepis	Live Stake	12	--
SHRUBS/VINES				
Coyote Brush	Baccharis pilularis	D-40	11	22
Mule Fat	Baccharis salicifolia	D-40	22	--
Toyon	Heteromeles arbutifolia	1-Gal	--	3
Hairy Honeysuckle	Lonicera hispidula	D-40	7	--
Twinberry	Lonicera involucrata	D-40	20	--
Silver Bush Lupine	Lupinus albifrons	1-Gal	4	10
Red Flowering Currant	Ribes sanguineum	1-Gal	8	8
California Wild Rose	Rosa californica	D-40	6	7
Dwarf Rose	Rosa gymnocarpa	D-40	3	22
California Blackberry	Rubus ursinus	D-40	10	22
FORBS, GRASSES, RUSHES				
Mugwort	Artemisia douglasiana	D-40	15	33
Blue Wildrye	Elymus glaucus	Plug	105	80
Creeping Wildrye	Elymus triticoides	Plug	105	80
Gray Rush	Juncus patens	D-40	78	65

*Container Size Measurements
5-Gallon = 10.25 in. (diameter) x 12” (depth)
1-Gallon = 6 in. (diameter) x 7” (depth)
Deepot (D40L) = 2.7 in. (diameter) x 10 in. (depth), for a total volume of 40 cu. in.
Plug = 2 ¼ in. (square) x 3” (depth)

Triangle installed all tree, shrub, and forb plants in February 2023 in accordance with the planting specifications outlined in Appendix C of the Plan. In addition, common snowberry (*Symphoricarpos albus*), was added to the planting matrix as it was included in the Plan table for Mitigation Site 1 but not

depicted in the planting specification sheet. Individual plants were initially installed with Tubex® shrub shelters to protect them from small herbivores such as rabbits and voles, as well as weed management activities. Immediately following installation, each planting was thoroughly hand-watered, and two 2-gph drip emitter was installed at each planting location to facilitate supplemental irrigation during the establishment period. To help retain water during irrigation events, a crescent-shaped well was created on the uphill side of plantings on slopes.

The actual total number of trees and shrubs installed at the Mitigation sites exceeded the minimum number required. This overplanting of container seedlings was to ensure that the minimum success criteria would be met at the end of the monitoring period without the potential need for replanting.

Native forb (i.e., mugwort) and grass species (i.e., blue wildrye and creeping wildrye) were strategically withheld from planting and are being deferred to Fall 2024. By delaying the planting of native forbs and grasses for two consecutive years, the project aims to concentrate its efforts on reducing the prevalence of existing weeds and minimizing the seed bank. This approach is intended to create conditions more favorable for the successful establishment of the native plants in the future.

4 ESTABLISHMENT AND MAINTENANCE

Following initial planting efforts at the Mitigation Sites, Triangle conducted bi-monthly site visits to maintain and further establish the riparian plantings, as well as monitor the success of plantings and management efforts. Maintenance encompassed a variety of activities, including providing supplemental irrigation, replacement planting, weed management, trash removal, and general fence repairs as needed.

4.1 Irrigation

At the time of planting, an Irrigation system was established, utilizing a 1-inch polypropylene (poly) mainline and ½-inch poly distribution lines. Two 2-gallon-per-hour (gph) emitters were installed at each tree and shrub planting location. During the first year, water was imported to the site using a water wagon and portable 5-HP trash pump to pressurize existing irrigation lines. Gray rushes were installed adjacent to the ephemeral ditch and did not require supplemental watering.

During the 2023 maintenance season, all tree and shrub plantings were watered bi-weekly from April to August, then monthly in September and October. Routine maintenance included checking the irrigation system and individual emitters to ensure all plants were being properly watered. Irrigation schedules are designed to wean plants off supplemental irrigation after a 2- or 3-year establishment period. Generally, plants are watered bi-weekly during the first year of establishment and once monthly during the second year. Supplemental irrigation typically occurs during the dry season (May through September) and will be terminated following the second year of establishment unless drought conditions persist in the third year.

4.2 Weed Management

A 2-foot-diameter weed-free circle was cleared around each seedling and will continue to be maintained during the first 3 years of establishment.

Noxious, invasive, and other non-native plant species that compete with the native plants or reduce the habitat quality of the Mitigation Sites were targeted for removal during regular site visits. Targeted species included Himalayan blackberry, poison hemlock, fennel, black mustard, common bindweed (*Convolvulus arvensis*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), milk thistle (*Silybum marianum*), and perennial pepperweed. Weed control methods included hand-pulling, string-trimming, and herbicide applications.

Weed management efforts were strategically timed to precede the bolting or flowering stage of each targeted species. In cases where these plants were in the flowering or seeding phase, treatment methods included cutting, hand-pulling, and off-site disposal of the removed material. Herbicide selections were based on timing, efficacy, appropriateness for environmental and site conditions, and safety considerations. All herbicide applications were made under the supervision of QAL#117803 and in strict accordance with relevant label requirements. Care was taken to avoid any adverse impact on non-target native species.

4.3 Site Protection/General Site Maintenance

General site maintenance efforts included removing all trash and litter during routine site visits, addressing and repairing damage to irrigation lines, and ensuring that the perimeter fencing and access gates remained in good condition.

In May 2023, an incident occurred where several cattle escaped from a neighboring property, causing damage to the two access gates and numerous plantings at the Mitigation Site. The gates were promptly repaired, and all plantings affected by cattle were replaced in June 2023. Additionally, a third gate located at the far south end of Site 2 was removed (stolen) in May 2023. Since this gate was not necessary for maintenance, Triangle and SMART agreed to just fence off the opening instead of replacing the gate. As part of ongoing maintenance activities, shrub shelters were also removed throughout the summer as seedlings outgrew them.

5 MITIGATION MONITORING AND SUCCESS CRITERIA

Plan requires that the plantings within the Mitigation Sites be monitored annually. The native grasses and forbs are to be monitored for 5 years, while the tree and shrub plantings are to be monitored for 10 years. Success criteria relate to the survival and health of tree and shrub plantings, and the expansion of the grass and forb species. There are no specific survivorship requirements established for the grass/forb plantings. In addition to these annual monitoring requirements, inspections of the entire Mitigation Area are to be conducted periodically or seasonally to assess conditions and the need for and timing of watering and weed management.

All monitoring was designed to evaluate the success of the Project and to identify and evaluate factors influencing plant establishment. Monitoring was also developed with the goal of creating a systematic, adaptive management-based approach to future management efforts at the site.

5.1 Photo Monitoring

Permanent photo stations were established to qualitatively document site conditions and changes in vegetation development over successive monitoring periods. These photo stations included fixed structures (i.e., tree canopies, fence lines, etc.) to provide a consistent reference and background against which yearly comparisons could be made.

5.2 Plant Health, Height, and Survivorship

A census of all tree and shrub plantings was conducted in August 2023 to access percent survival and overall success of the Project. At the time of installation, plants were accurately mapped using a handheld GPS unit with sub-foot accuracy. Subsequently, digital maps were created and utilized in the field to confirm the presence or absence (i.e., death) of plants. Data on plant health, height, and survivorship were collected for each tree and shrub planting.

To evaluate the condition or health of each plant, a rating scale from 0 to 4 was used, where 0 = dead, including instances where plants couldn't be located (i.e., missing); 1 = poor to severe decline, characterized by few green leaves and no apical growth; 2 = fair condition, marked mostly by green foliage, but some defects and minimal apical growth; 3 = good heath, green foliage and some new growth; and 4 = excellent health, healthy foliage and vigorous growth. Visual assessments considered various factors such as the amount of new growth, growth patterns, color, and seasonal characteristics typical of each species. Factors affecting these measurements include weed competition, water availability, herbivory, soil characteristics, and disease. Whenever possible, notes were taken regarding these factors to aid in the explanation and discussion of the results.

To determine survivorship, the number of surviving plants, defined as those with a health rating of 2 or higher, was divided by the minimum number required by the Plan (i.e., Table 1). Additionally, any volunteers established at the site (i.e., health $\geq$ 2 and height $\geq$ 2') because of maintenance activities (e.g., invasive weed control, supplemental watering, etc.) were also noted.

Plant height was visually estimated and categorized into one of the following ranges: < 2ft, 2-4ft, 4-8ft, 8-12ft, 12-16ft, 16-20ft, or ≥ 20ft. The midpoint of each range was used when calculating the average height for each species. Currently, no plants were recorded greater than the 4-8 ft range.

No quantitative monitoring is required for the native forb, grass, or rush plantings. However, a qualitative observation of their presence and expansion is required during the first 5 years of monitoring. In August 2023, a general assessment of the previously installed gray rush seedlings was conducted to review its presence at the site since initial planting efforts.

6 RESULTS AND DISCUSSION

A summary of this year's (2023) monitoring efforts is provided below. Monitoring results include an evaluation of all tree and shrub plantings and an overall assessment of existing vegetation, invasive weeds, and site conditions.

6.1 Photo Monitoring

Five photo monitoring stations have been established for the Project (Appendix A). A map showing the location and directional view of each of the photo stations is also included in Appendix A.

6.2 Tree and Shrub Plantings

Table 2 below provides a summary of the 2023 monitoring results for mitigation tree and shrub plantings. The table includes information on the minimum number of plantings required to be planted per the Plan, actual numbers planted, percent survival (calculated from minimum number required), and average health ratings. Figure 3 shows the locations of all surviving plantings in 2023.

TABLE 2. TREE AND SHRUB MITIGATION PLANTINGS – 2023 MONITORING RESULTS

COMMON NAME	BOTANICAL NAME	MIN. # REQUIRED	TOTAL # PLANTED	TOTAL # SURVIVING	PERCENT SURVIVAL*	AVERAGE HEALTH	AVERAGE HEIGHT
TREES							
Coast Live Oak	Quercus agrifolia	3	8	8	267%	3.6	2.5'
Arroyo Willow	Salix lasiolepis	12	12	8	66.7%	3.6	2.9'
SHRUBS/VINES							
Coyote Brush	Baccharis pilularis	33	45	45	136%	4.0	2.6'
Mule Fat	Baccharis salicifolia	22	24	23	105%	3.9	3.3'
Toyon	Heteromeles arbutifolia	3	4	4	133%	3.0	1.0'
Hoary Honeysuckle	Lonicera hispidula	7	8	8	115%	3.9	1.0'
Twinberry	Lonicera involucrata	20	31	31	155%	3.9	1.4'
Silver Bush Lupine	Lupinus albifrons	14	17	17	121%	4.0	3.7'
Red Flowering Currant	Ribes sanguineum	16	19	16	100%	3.6	1.6'
California Wild Rose	Rosa californica	13	20	19	146%	3.6	1.8'
Dwarf Rose	Rosa gymnocarpa	25	35	26	104%	3.4	0.3'
California Blackberry	Rubus ursinus	32	50	46	144%	3.8	1.2'
Common Snowberry	Symphoricarpos albus	0	4	4	> 100%	3.8	2.0'
TOTALS		**200**	**277**	**255**	**127%**	**3.8**	**N/A**

* Calculated as the "Total Number Surviving" by the "Minimum Number Required to be Planted".

The Plan specifies the installation of 200 native tree and shrub plantings across both Mitigation Sites 1 and 2. As part of this project, vining shrubs (i.e., California blackberry and twinberry) were considered shrubs for monitoring purposes. The Plan also requires that 100% of the tree plantings must be surviving in Years 1 and 2, and 85% must be alive from Years 3 through 10. Furthermore, shrub plantings must maintain 90%, 85%, 80%, 75%, and 70% in Year's 1, 2, 3, 4, and 5, respectively.

Due to initial overplanting efforts, the percent survival[2] of tree and shrub plantings was 127%, representing Year 1 results. The overall health of plantings in 2003 was assessed at 3.8, signifying healthy plantings throughout both sites. However, it was observed that arroyo willow, designated for planting at Mitigation Site 1, did not maintain 100% survivorship for trees.

The cause of the higher mortality in arroyo willow remains uncertain, but it should also be noted that natural colonization and expansion of existing arroyo willows is occurring at the site. This expansion of willows, notably since initiating weed management efforts, may affect the feasibility or necessity of replacing the four willows that did not survive. Considering this, Triangle plans to reassess the ongoing recruitment of arrow willows each year to determine whether additional replanting is necessary. This adaptive approach recognizes the evolving dynamics of the site and the natural processes occurring there.

6.3 Native Forbs, Grasses, and Rushes

Installed gray rush seedlings were planted along the ephemeral ditch at both Sites 1 and 2 in February 2023. These were all observed successfully growing and establishing in the absence of any supplemental watering, indicating the suitability of their planting locations.

As previously mentioned in Section 3, all native forb and grass species were strategically withheld from planting in 2022/23 and are being deferred to Fall 2024. This delay is a proactive measure intended to focus efforts on reducing the prevalence of existing weeds before introducing native forbs and grasses. By addressing weed management first, this approach aims to facilitate easier establishment and expansion of the natives.

6.4 Vegetation/Invasive Weeds

Prior to enhancement activities, both Mitigation Sites were predominantly overrun by numerous invasive weeds. Native coast live oaks are prevalent at both sites and provide some substantial canopy cover, particularly along the western bank of Site 1. A dense stand of arroyo willows and coyote brush are also present at the south and north ends of Site 1, respectively. Much of the understory vegetation consists of non-native and invasive weeds. A complete list of the flora observed in 2023 is included in Appendix B. First-year (and second-year) vegetation management efforts focus on the control and removal of invasive weeds.

The original Plan identified four invasive species to target for removal. Triangle observed several additional invasive species to include as part of the ongoing vegetation management efforts. Table 3 provides a comprehensive summary of the invasive species identified within the Project Site, which were specifically targeted in the weed control initiatives. The list includes all terrestrial species categorized as “invasive (High or Alert)” by the California Invasive Plant Council (Cal-IPC) or labeled as “noxious” by the California Department of Food and Agriculture (CDFA). Additionally, several other weed species were included if they posed a potential threat to the success of the restoration efforts.

[2] Calculated by dividing the “Total Number Surviving” by the “Minimum Number Required to be Planted.”

TABLE 3. TARGET INVASIVE/NOXIOUS INVASIVE WEEDS

Common Name	*Scientific Name*	Cal-IPC Rating	CDFA Rating
Black mustard	*Brassica nigra*	Moderate	---
Italian thistle	*Carduus pycnocephalus*	Moderate	---
Yellow star-thistle	*Centaurea solstitialis*	High	**C**
Bull thistle	*Cirsium vulgare*	Moderate	**C**
Poison hemlock	*Conium maculatum*	Moderate	----
Stinkwort	*Dittrichia graveolens*	Moderate, Alert	----
Italian thistle	*Festuca perennis*	Moderate	**C**
Fennel	*Foeniculum vulgare*	Moderate	
Perennial pepperweed	*Lepidium latifolium*	High	**C**
Harding grass	*Phalaris aquatica*	Moderate	---
Himalayan blackberry	*Rubus armeniacus*	High	----
Milk thistle	*Silybum marianum*	Limited	---

All invasive species listed in Table 3 were initially manually removed/cleared by hand in January 2023. Subsequent efforts involve the application of herbicides to control any resprouting weeds. As previously mentioned in Section 3, this ongoing maintenance strategy aims to reduce all non-native vegetation, including the existing weed seed bank.

7 SUMMARY

This report represents the first year of monitoring for Segments 1 & 2 of the SMART Non-Motorized Pathways project. The goal of the NMP Project is to enhance and establish riparian vegetation through the installation, maintenance, and monitoring of riparian plantings and removal of invasive weeds.

Prior to initiating enhancement activities, invasive plants (e.g., Himalayan blackberry, poison hemlock, fennel, perennial pepperweed, black mustard, and harding grass) were predominant in the understory at both Mitigation Sites. Four species were originally identified for removal in the Plan. This list was later expanded by Triangle to encompass additional species for ongoing and future management. Initially, these weeds were cleared and removed by hand followed by herbicide applications to effectively manage resprouts and new seedlings.

A total of 200 tree and shrub planting, as outlined in the WRA (2022) plan specifications (Appendix C of the Plan), were installed across both sites in February 2023. Additional contingency plants were also included to address any future mortalities. In addition, 143 gray rush container seedlings were also installed along the edges of the ephemeral ditch per the Plan. All proposed forb (mugwort) and grass (blue wildrye and creeping wildrye) plantings were deferred to November 2024. This was intended to allow for more effective management and reduction of competing invasive weeds during this interim period, ensuring a more favorable environment for the future establishment of the proposed forb and grass species.

To protect mitigation efforts, a 4-foot-tall chain link fence was installed around the entire perimeter of Site 1 and the majority of Site 2. Fencing included the placement of three access gates – two at Site 1 and one at Site 2 – to facilitate activities such as watering and maintenance.

In May 2023, cattle escaped from a neighboring property and unexpectedly entered at the site, resulting in damage to some plantings, as well as the gates along the perimeter fence. Both damaged plantings and gates were replaced and repaired in June 2023. In addition, one of the gates on the far south end of Site 1 was removed and stolen. Since this gate was not integral to maintenance activities, a decision was made to fence off the opening rather than replacing the gate.

Supplemental irrigation was provided bi-weekly to all tree and shrub plantings from April to August, and once monthly in September and October 2023. Irrigation schedules are designed to gradually wean plants off supplemental watering after a 2- or 3-year establishment period. No supplemental irrigation was provided to gray rush plantings, and no such provision or need is planned for the proposed the future forb/grass plantings. These species are more adapted and expected to be established through natural precipitation only. However, a flexible approach to establish and maintain these plantings will be provided should monitoring indicate a necessity. To date, all rushes were successfully established without the need for supplemental watering.

Mitigation efforts for the NMP Project will continue to be monitored annually over the several years. Specifically, forb and grass plantings will be qualitatively monitored annually through 2027, and tree and shrub plantings will be assessed quantitatively over the next 9 years, concluding in 2032. This monitoring aligns with the mitigation monitoring requirements outlined in the WRA 2022 Plan.

All plantings have been recorded with a GPS unit and will be revisited each year with updated information pertaining to plant health and height data. Should any of the mitigation plantings fall below the minimum success criteria for a given year, a detailed framework is in place to guide decision-making. For example, for tree plantings, a success rate of 100% is expected in Years 1 and 2, followed by 85% from Years 3 through 10. Similarly, shrub plantings are expected to achieve success rates of 90%, 85%, 80%, 75%, and 70% in Year's 1, 2, 3, 4, and 5, respectively. Natural recruitment of target native tree and shrub species will also be considered in evaluating success criteria. Currently, no further replanting of additional trees or shrub seedlings is deemed necessary. In the event that mitigation plantings fall below established success criteria, discussions regarding additional replanting or other corrective actions, informed by the circumstances leading to the mortality, will be reviewed and implemented in collaboration with SMART.

8 REFERENCES

California Department of Fish and Wildlife. Streambed Alteration Agreement for Sonoma-Marin Area Rail Transit, SMART Various Non-Motorized Pathways Segments 1 & 2 (EPIMS-SON-22639-R3).

California Invasive Plant Council. 2002. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: https://www.cal-ipc.org/plants/inventory.

San Francisco Bay Regional Water Quality Control Board. 22 Aug. 2022. Clean Water Act Section 401 Water Quality Certification and Order for SMART Non-Motorized Pathways Segments 1 & 2 Project, Sonoma County (WDID # CW447818).

WRA Environmental Consultants (WRA). 2022. Riparian Enhancement Plan for Segments 1 & 2: Lakeville Street (MP 39.0) to Payran Street (MP 39.3) and Southpoint Boulevard (MP 40.4) to Main Street (MP 43.4), SMART Various Non-Motorized Pathways Project, Petaluma and Penngrove, Sonoma County, California. Prepared for the Sonoma-Marin Area Rail Transit (SMART).

LIST OF FIGURES

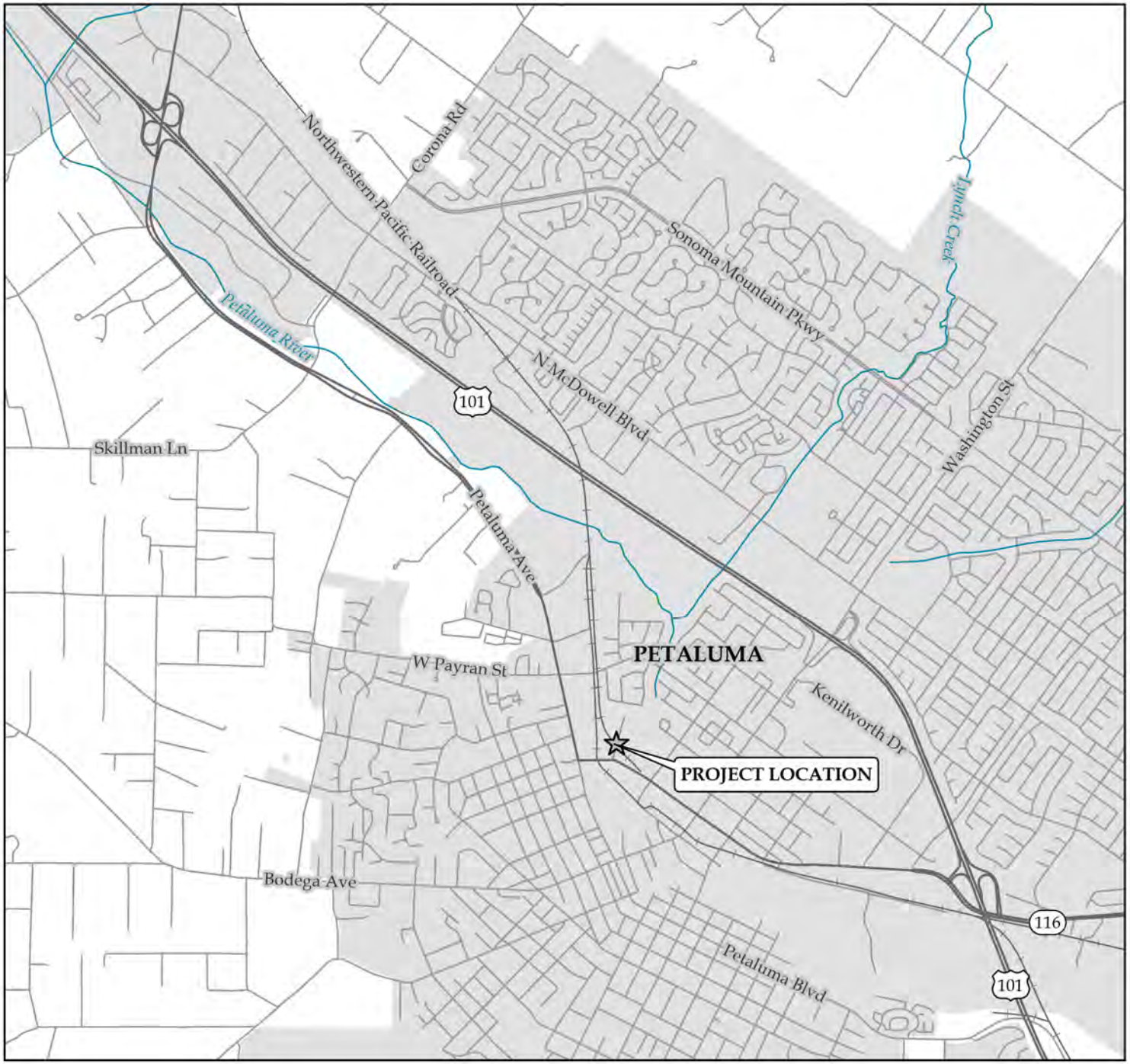


FIGURE 1
PROJECT VICINITY MAP

SMART VARIOUS NON-MOTORIZED PATHWAYS PROJECT (SEGMENTS 1 & 2)

SONOMA COUNTY, CALIFORNIA

LEGEND:

0 ¼ ½ Miles

1 inch = 0.5 mile

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

TRIANGLE PROPERTIES, INC.

T. Yee 11/14/2023 SMART_Segment1_Segment2_MonitoringReport.aprx

FIGURE 2
MITIGATION SITE MAP

SMART VARIOUS NON-MOTORIZED PATHWAYS PROJECT (SEGMENTS 1 & 2)

SONOMA COUNTY, CALIFORNIA

LEGEND:

- Site 1 (ESED07)
- Site 2 (ESED12)

0 65 130 Feet

1 inch = 130 feet

SOURCE:

Aerial Photography Provided by ESRI Basemaps & Affiliates (Sonoma County; February 20, 2021)

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

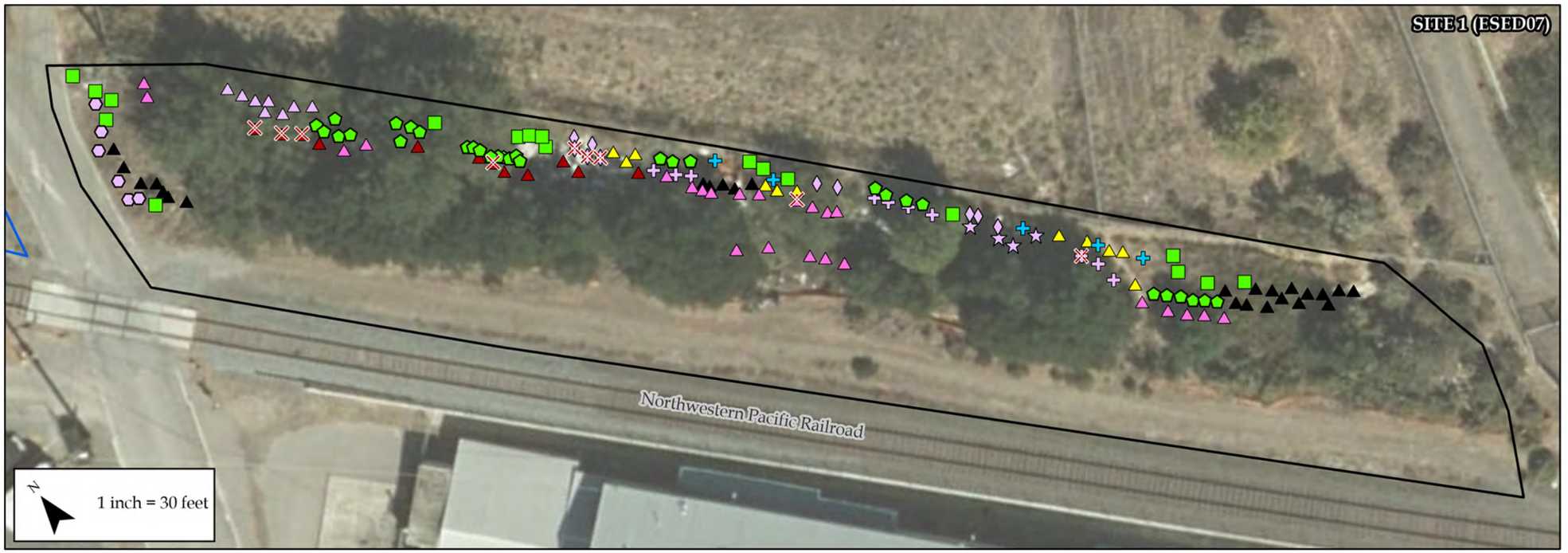
TRIANGLE PROPERTIES, INC.

T. Yee 11/14/2023 SMART_Segment1_Segment2_MonitoringReport.aprx

FIGURE 3
PLANTING LOCATIONS

SMART VARIOUS NON-MOTORIZED PATHWAYS PROJECT (SEGMENTS 1 & 2)

SONOMA COUNTY, CALIFORNIA



LEGEND:

- Dead/Missing
- Arroyo Willow
- Blue Wildrye
- CA Blackberry
- CA Wild Rose
- Coast Live Oak
- Common Snowberry
- Coyote Brush
- Creeping Wildrye
- Dwarf Rose
- Hoary Honeysuckle
- Mule Fat
- Red Flowering Currant
- Silver Bush Lupine
- Toyon
- Twinberry
- Site 1 (ESED07)
- Site 2 (ESED12)

SOURCE:
Aerial Photography Provided by ESRI Basemaps & Affiliates (Sonoma County; February 20, 2021)

DISCLAIMER:
The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

TRIANGLE PROPERTIES, INC.

T. Yee 11/17/2023 SMART_Segment1_Segment2_MonitoringReport.aprx

APPENDIX A

SMART Various Non-Motorized Pathways Project
Riparian Enhancement Plan for Segments 1 & 2

Monitoring Photos (2023)

Photo 1

15 February 2023

Photo Station #1

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 2

24 March 2023

Photo Station #1

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 3

17 August 2023

Photo Station #1

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 4

15 February 2023

Photo Station #2

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 5

24 March 2023

Photo Station #2

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 6

17 August 2023

Photo Station #2

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 7

15 February 2023

Photo Station #3

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 8

24 March 2023

Photo Station #3

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 9

17 August 2023

Photo Station #3

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 10

15 February 2023

Photo Station #4

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 11

24 March 2023

Photo Station #4

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 12

17 August 2023

Photo Station #4

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 10

15 February 2023

Photo Station #5

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 11

24 March 2023

Photo Station #5

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

Photo 12

17 August 2023

Photo Station #5

SMART Various Non-Motorized Pathway Project
Riparian Enhancement Plan for Segments 1 & 2

APPENDIX B

SMART Various Non-Motorized Pathways Project
Riparian Enhancement Plan for Segments 1 & 2

Flora Inventory (2023)

TRIANGLE PROPERTIES, INC.

SMART RESTORATION PROJECT
SONOMA COUNTY

Flora Inventory
Spring/Summer 2023

ANGIOSPERMS, EUDICOTS

AMARANTHACEAE (AMARANTH FAMILY)

*Amaranthus albus**	Tumbleweed

APIACEAE (CARROT FAMILY)

*Conium maculatum**	Poison hemlock
*Foeniculum vulgare**	Fennel

ASTERACEAE (SUNFLOWER FAMILY)

*Anthemis cotula**	Mayweed, Dog fennel
Baccharis pilularis subsp. *consanguinea*	Coyote brush
Baccharis salicifolia subsp. *salicifolia*	Mule fat
Carduus pycnocephalus subsp. *Pycnocephalus*	Italian thistle
*Centaurea solstitialis**	Yellow star-thistle
*Cirsium vulgare**	Bull thistle
*Dittrichia graveolens**	Stinkwort
*Helminthotheca echioides**	Bristly ox-tongue
*Lactuca serriola**	Prickly lettuce
*Logfia gallica**	Daggerleaf cottonrose
*Pseudognaphalium luteoalbum**	Common cudweed
*Senecio vulgaris**	Common groundsel
*Silybum marianum**	Milk thistle
Sonchus asper subsp. *asper**	Prickly sow thistle
*Sonchus oleraceus**	Common sow thistle
Xanthium strumarium	Cocklebur

BRASSICACEAE (MUSTARD FAMILY)

*Brassica nigra**	Black mustard
*Brassica rapa**	Field mustard, Turnip
*Capsella bursa-pastoris**	Shepherd's purse
*Hirschfeldia incana**	Perennial mustard
*Lepidium latifolium**	Perennial pepperweed
*Raphanus raphanistrum**	Jointed charlock
*Raphanus sativus**	Radish

CAPRIFOLIACEAE (HONEYSUCKLE FAMILY)

Lonicera hispidula	Hairy honeysuckle, Hoary honeysuckle
Lonicera involucrata	Twinberry
Symphoricarpos albus var. *laevigatus*	Snowberry

CARYOPHYLLACEAE (PINK FAMILY)

*Cerastium glomeratum**	Sticky mouse-ear chickweed

*Stellaria media**	Common chickweed

CHENOPODIACEAE (GOOSEFOOT FAMILY)

*Atriplex prostrata**	Fat-hen
*Chenopodium album**	Lamb's quarters

CONVOLVULACEAE (MORNING-GLORY FAMILY)

*Convolvulus arvensis**	Bindweed

EUPHORBIACEAE (SPURGE FAMILY)

Croton setiger	Doveweed, Turkey-mullein

FABACEAE (LEGUME FAMILY)

Acmispon americanus var. *americanus*	Spanish clover
Lupinus albifrons	Silver bush lupine
*Medicago polymorpha**	California burclover
*Melilotus indica**	Sourclover
*Vicia sativa**	Spring vetch
Vicia villosa var. *villosa**	Hairy vetch

FAGACEAE (OAK FAMILY)

Quercus agrifolia	Coast live oak

GERANIACEAE (GERANIUM FAMILY)

*Erodium botrys**	Longbeak filaree, Broadleaf filaree
*Erodium cicutarium**	Redstem filaree
*Erodium moschatum**	Greenstem filaree
*Geranium dissectum**	Cutleaf geranium, Cranesbill
*Geranium purpureum**	Little robin

GROSSULARIACEAE (GOOSEBERRY FAMILY)

Ribes sanguineum var. *glutinosum*	Red flowering currant

LYTHRACEAE (LOOSESTRIFE FAMILY)

*Lythrum hyssopifolia**	Hyssop loosestrife

MALVACEAE (MALLOW FAMILY)

Malvella leprosa	Alkali-mallow
*Malva parviflora**	Cheeseweed, Little mallow

ONAGRACEAE (EVENING PRIMROSE FAMILY)

Epilobium brachycarpum	Annual willowherb
Epilobium densiflorum	Denseflower willowherb

PLANTAGINACEAE (PLANTAIN FAMILY)

Kickxia sp.*	Kickxia
*Plantago lanceolata**	English plantain
*Veronica arvensis**	Corn speedwell

POLYGONACEAE (BUCKWHEAT FAMILY)

Polygonum aviculare subsp. *depressum**	Common knotweed

Persicaria sp.	Smartweed
*Rumex crispus**	Curly dock

ROSACEAE (ROSE FAMILY)

Heteromeles arbutifolia	Toyon, Christmas berry
Rosa californica	California wild rose
Rosa gymnocarpa var. *gymnocarpa*	Dwarf rose
*Rubus armeniacus**	Himalayan blackberry
Rubus ursinus	

RUBIACEAE (MADDER FAMILY)

*Galium aparine**	Goose grass

SALICACEAE (WILLOW FAMILY)

Salix lasiolepis	Arroyo willow

SOLANACEAE (NIGHTSHADE FAMILY)

Solanum sp.	Nightshade
Nicotiana acuminata var. *multiflora*	Manyflower tobacco

ANGIOSPERMS, MONOCOTS

CYPERACEAE (SEDGE FAMILY)

Cyperus eragrostis	Tall flatsedge

JUNCACEAE (RUSH FAMILY)

Juncus effusus	Pacific rush
Juncus patens	Spreading rush

POACEAE (GRASS FAMILY)

*Avena barbata**	Slender wild oat
*Avena fatua**	Wild oat
*Bromus diandrus**	Ripgut grass
*Bromus hordeaceus**	Soft chess
*Cynodon dactylon**	Bermuda grass
*Festuca myuros**	Six-weeks fescue, Rattail fescue
*Festuca perennis**	Rye grass
Hordeum murinum subsp. *leporinum**	Hare wall barley
*Phalaris aquatica**	Harding grass
*Polypogon monspeliensis**	Rabbitfoot grass, Annual beard grass
*Poa annua**	Annual bluegrass

EXHIBIT C

YEARLY EXPEDITOR SCHEDULE

Year	Fee	Fiscal Year	Calendar Year
0	$36,712	25/26	2025
1	$77,109	26/27	2026
2	$83,035	27/28	2027
3	$80,035	28/29	2028
4	$71,172	29/30	2029
5	$64,246	30/31	2030
6	$27,534	31/32	2031
Total:	**$439,843**		

Note: “Fiscal Year” is from July 1st to June 30th of the following year.

EXHIBIT D

SONOMA COUNTY REGIONAL PARKS RATE SHEET

Sonoma County Regional Parks

Natural Resources Division

Billing Rates for FY 2024-2025*

Staff Title	Rate
Division Manager	$ 130.68
Park Program Supervisor	$ 93.31
Senior Maintenance	$ 74.15
Park Program Assistant	$ 36.54
Park Ranger Assistant	$ 35.20
Maintenance Worker II	$ 68.94
Park Aide	$ 28.01

Note: Billing Rates will increase for FY2025-26, and subsequent future years

EXHIBIT E

CALIFORNIA WATER QUALITY CONTROL BOARD PERMIT

North Coast Regional Water Quality Control Board

September 29, 2023

Sonoma-Marin Area Rail Transit
Attn: Bill Gamlen
5401 Old Redwood Highway, Suite 200
Petaluma, CA 94954
BGamlen@sonomamarintrain.org

Dear Mr. Gamlen:

Subject: Notice of Applicability (NOA) for Coverage under the State Water Resources Control Water Quality Order 2004-0004-DWQ for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction

File: SMART Non-Motorized Pathway Segment 3 Golf Course to Bellevue Project, ECM PIN CW-876319; WDID 1B21198WNSO

On September 10, 2021, the North Coast Regional Water Quality Control Board (Regional Water Board) received a Notice of Intent seeking coverage under the State Water Resources Control Water Quality Order 2004-0004-DWQ for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction (General WDR) for the SMART Non-Motorized Pathway Segment 3 Golf Course to Bellevue Project (project) from Leslie Allen of WRA on behalf of Bill Gamlen of SMART (applicant). The Notice of Intent was deemed incomplete on September 21, 2021. The final supplemental information to complete the Notice of Intent was received on September 27, 2023.

The project is located adjacent to SMART railroad tracks between Mileposts 46.8 and 51.3, between Golf Course Drive and Bellevue Avenue. The purpose of the project is to add non-vehicular transportation options through Sonoma and Marin counties. This

project provides a new connection between two previously constructed segments. The project involves construction of 2.8 miles of paved pathway adjacent to existing rail in the SMART right of way. The project will include pedestrian crossings at major intersections, utility relocation, fill grading along the pathway, culvert extensions, and a single bridge crossing over a waterway.

Proposed mitigation for project impacts includes the purchase of a t least 0.003 acre of seasonal wetland mitigation bank credits. A bill of sale for the purchase of 0.05 acre of wetland creation credits from Hazel Mitigation Bank was provided on September 27, 2023. Compensation for riparian and stream impacts will be provided with implementation of off-site riparian mitigation at Crane Creek Regional Park.

On July 17, 2023, an off-site riparian mitigation concept was submitted. On September 27, 2023, a supplemental letter, the riparian mitigation concept, and wetland mitigation credits were submitted. The supplemental letter specified the following conditions that SMART will comply with:

1. SMART will advance the Crane Creek riparian mitigation concept by having WRA
    a. Prepare plans and specifications for planting and biotechnical repair of headcuts, and
    b. Prepare a Riparian Mitigation and Monitoring Plan (MMP).
    c. These plans must be developed in cooperation with the Sonoma County Regional Parks and a Memorandum of Understanding between SMART and the Regional Parks must be developed.
2. Drafts of the riparian mitigation design and MMP will be provided to the Water Board and CDFW for review no later than January 31, 2024, providing four months for review and correspondence before pathway construction begins on June 1, 2024.
3. Mitigation planting and headcut repair would be implemented at Crane Creek Regional Park between October and December 2024, the same year as pathway construction.

The pathway generally consists of an 8-foot-wide asphalt concrete pathway with two 2-foot-wide gravel shoulders. As the pathway approaches the roadway crossings, the pathway narrows for safety. Some areas like crossings may be Portland cement rather than asphalt. The pathway alignment shifts from one side of the track to the other at some rail crossings to minimize impacts to existing infrastructure and environmentally sensitive areas.

A pedestrian bridge will be installed over the Laguna de Santa Rosa. The bridge will be a 111-foot-long prefabricated Corten steel bow truss pedestrian bridge. It will be placed on concrete abutments that are placed to clear span the waterway. The abutments will be built on piles to minimize impacts to the creek and surrounding infrastructure. No work would occur within the creek channel for bridge construction.

Five non-jurisdictional culvert locations will be extended, some of which include more than one culvert. One reinforced concrete pipe will be extended at a freshwater seasonal wetland (FSW57). The exiting end of the culvert will be filled with rock slope protection, resulting in 4.69 cubic yards of permanent, unavoidable fill to the wetland. Another reinforced concrete pipe will exit to an ephemeral stream earthen ditch (ESED16), requiring rock slope protection fill of 2.44 cubic yards to the channel. The clear-span bridge over the Laguna de Santa Rosa will result in approximately 500 square feet of new shading over 10 feet of the creek's length.

Impacts to riparian vegetation and trees include 0.31 acre of permanent impact along 1,050 linear feet. In total, 16 riparian trees would be removed; of those, 14 are native species.

Receiving Water:	Laguna de Santa Rosa and an unnamed wetland and an ephemeral stream earthen ditch.
Permanent Area Impacted:	0.003 acre seasonal wetland and 0.002 acre ephemeral stream earthen ditch
Latitude/Longitude:	38.3624 °N / 122.69408 °W

Regional Water Board staff has determined that the proposed activities may proceed under the General WDR and you should familiarize yourself with its provisions. This authorization for any dredge and fill activities expires on September 29, 2028. Conditions and monitoring requirements outlined in this certification are not subject to the expiration date outlined above and remain in full effect and are enforceable.

A complete fee of $2,066, (Category E, Low Impact Discharges), was received for the Project on September 22, 2021. This General WDR will be subject to annual billing while the project is constructed and monitored, per the fee schedule that is current at the time of annual billing. Currently the annual fee is $365; the annual fee is expected to increase every year. The fee calculator may be found at: https://www.waterboards.ca.gov/resources/fees/water_quality/docs/dredgefillcalculator.xlsm

Annual fees will be automatically invoiced to the Applicant. **The applicant must notify the Regional Water Board at project and/or monitoring completion with a final report in order to request to terminate annual billing. Notification should be sent to the staff listed at the bottom of this Order and to Northcoast@waterboards.ca.gov.** Regional Water Board staff will verify that conditions of the General WDR have been met and may request a site visit at that time to confirm status of Project and compliance with this General WDR.

Please contact Kaete King at kaete.king@waterboards.ca.gov or (707) 576-2830 or Gil Falcone at Gil.Falcone@waterboards.ca.gov or (707) 576-2830 if you have any questions.

Sincerely,

_____

Valerie Quinto
Executive Officer

Weblink: State Water Resources Control Water Quality Order 2004-0004-DWQ for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction can be found here: http://www.waterboards.ca.gov//board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

cc: State Water Resources Control Board, Stateboard401@waterboards.ca.gov
Jennifer Siu, EPA Region 9, Siu.Jennifer@epa.gov
Nick Wagner, CDFW, Nicholas.Wagner@Wildlife.ca.gov
Leslie Allen, WRA, allen@wra-ca.com

EXHIBIT F

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE PERMIT

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
BAY DELTA REGION
2825 CORDELIA ROAD, SUITE 100
FAIRFIELD, CA 94534

STREAMBED ALTERATION AGREEMENT
EPIMS-SON-23219-R3
BELLEVUE-WILFRED CHANNEL AND UNNAMED DRAINAGES

SONOMA-MARIN AREA RAIL TRANSIT
SMART VARIOUS NON-MOTORIZED PATHWAYS SEGMENT 3: GOLF COURSE DR. (MP 48.5) TO BELLEVUE AVE (MP 51.3)

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and Sonoma-Marin Area Rail Transit (SMART) (Permittee) as represented by Bill Gamlen.

RECITALS

WHEREAS, pursuant to Fish and Game Code section 1602, Permittee notified CDFW on September 14, 2021 and provided subsequent documentation that Permittee intends to complete the project described herein.

WHEREAS, pursuant to Fish and Game Code section 1603, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement.

PROJECT LOCATION

The project is located at four locations between the Cities of Rohnert Park and Santa Rosa in unincorporated areas of the County of Sonoma, State of California, as described below, from south to north.

Location 1. Bellevue-Wilfred Channel, approximately 0.11 miles west of the northbound Highway 101 Santa Rosa Avenue offramp, 38.371280 and -122.715958, Assessor's Parcel Number (APN) 045-033-046.

Location 2. Unnamed drainage that is a tributary to the Laguna de Santa Rosa, adjacent to the east side of the SMART right of way from approximately 0.16 miles south of Todd Road at 38.384782 and -122.720776 to approximately 0.35 miles north of Todd Road at 38.392405 and -122.720826, APNs 134-102-085 and 134-171-060

Location 3. Unnamed drainage that is a tributary to the Laguna de Santa Rosa, approximately 400 feet north of Todd Road, 38.388270 and -122.720875, APN 134-102-085.

Location 4. Small unnamed drainage, approximately 0.18 miles north of West Robles Avenue, 38.397076 and -122.720918, APN 043-133-016.

PROJECT DESCRIPTION

The project is limited to installing a pedestrian bridge, removing riparian trees, and extending two culverts to accommodate a new non-motorized pathway (NMP) that will be constructed from Mile Post (MP) 48.5 to MP 51.3 (Exhibit A).

A pedestrian bridge (Location 1, Exhibit A Sheet EV622) will be installed where the NMP crosses over the Laguna de Santa Rosa at the Wilfred-Bellevue Channel. The bridge will be a 111 foot long prefabricated Corten steel bow truss pedestrian bridge. The bridge will be placed on concrete abutments that will be located to clear span the stream. The abutments will be built on piles to minimize impacts to the stream and surrounding infrastructure. The piles will be driven outside of the stream. The pedestrian bridge is being constructed adjacent to the existing railroad bridges. No work will occur within the stream channel for the bridge construction.

Up to 16 trees will be removed (Location 2) to accommodate the NMP.

The two existing culverts (Locations 3 and 4, Exhibit A Sheets EV628 and EV631), that will be extended include one 24-inch diameter culvert and one 30-inch diameter culvert composed of reinforced concrete pipe. Culvert work will include removing existing culvert end treatments including rip rap and headwalls. New culvert pipe will be placed under the NMP and minor grading will occur from the end of the extended culvert to the right of way to maintain positive drainage flow. The new end treatment for these culverts will consist of headwalls, retaining walls, riprap, or a combination of these. The culvert diameters and capacities will not be altered.

The project will result in the removal of a total of 16 trees as follows: 14 native trees including oak (*Quercus* sp.), California buckeye (*Aesculus californica*), and arroyo willow (*Salix lasiolepis*) and two nonnative trees including red gum (*Eucalyptus camaldulensis*) and Italian stone pine (*Pinus pinea*).

Access to the project will be from the existing SMART right of way. No work will occur in the stream where surface water is present, therefore dewatering will not be necessary.

The project will result in permanent impacts to 0.32 acres (14,076 square feet) and 1,127 linear feet of stream and riparian habitat, and there will be no temporary impacts.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include:

- California tiger salamander (*Ambystoma californiense*): California Endangered Species Act (CESA) listed as threatened; Sonoma County Distinct Population Segment: Federal Endangered Species Act (ESA) listed as endangered
- tricolored blackbird (*Agelaius tricolor*): CESA listed as threatened
- white-tailed kite (*Elanus leucurus*): California Fully Protected
- California red-legged frog (*Rana draytonii*): California Species of Special Concern (SSC), ESA listed as threatened
- Steelhead – central California coast DPS (*Oncorhynchus mykiss irideus* pop. 8), ESA listed as threatened
- Pallid bat (*Antrozous pallidus*), SSC
- burrowing owl (*Athene cunicularia*): SSC
- western pond turtle (*Actinemys marmorata*): SSC
- American badger (*Taxidea taxus*): SSC
- nesting birds
- waterfowl
- aquatic organisms
- riparian habitat and vegetation
- aquatic habitat
- water quality

The adverse effects the project could have on the fish or wildlife resources identified above include:

- loss of riparian and aquatic habitat
- change in contour of bed, bank, and channel
- change in flow depth, width, or velocity
- change in composition of channel materials
- increase of bank erosion during the project
- change in gradient of bed, channel, or bank
- loss of bank stability during the project
- soil compaction or other disturbance to soil layer
- restriction or increase in sediment transport
- short term release of contaminates
- colonization by exotic plant species
- disruption of nesting birds and other wildlife
- loss of aquatic and terrestrial wildlife species
- temporary impediment to migration of aquatic and terrestrial species
- increased turbidity
- disturbance from project activity

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.

1.4 Project Site Entry. Permittee agrees that CDFW personnel may enter the project site with the Permittee to verify compliance with the Agreement. The Permittee's presence is necessary for safety as SMART's railroad is active.

1.5 No Trespass. To the extent that any provisions of this Agreement provide for activities that require the Permittee to traverse another owner's property, such provisions are agreed to with the understanding that the Permittee possesses the legal right to so traverse. In the absence of such right, any such provision is void.

1.6 Designated Representative. Before initiating ground-disturbing Project activities, Permittee shall designate a representative (Designated Representative) responsible for communications with CDFW and overseeing compliance with this Agreement. The Permittee shall notify CDFW in writing five days prior to commencement of Project activities of the Designated Representative's name, business address, and contact information. Permittee shall notify CDFW in writing if a substitute Designated Representative is selected or identified at any time during the term of this Agreement.

1.7 Notify CDFW Prior to Work. The Permittee shall notify CDFW by email at least five working days prior to commencement of covered activities. See contact information below.

1.8 Unauthorized Take. The Permittee is required to comply with all applicable State and Federal laws, including the California Endangered Species Act (CESA) and

Federal Endangered Species Act. This Agreement does not authorize the take of any state or federal endangered or threatened species. Liability for any take or incidental take of such listed species remains the responsibility of the Permittee for the duration of the project. Any unauthorized take of such species may result in prosecution and nullification of the Agreement. The Permittee has State authorization for incidental take of California tiger salamander under Fish and Game Code section 2081, subdivision (b), *CESA Incidental Take Permit No 2081-2021-089-03, California Department of Fish and Wildlife, dated August 26, 2022.*

1.9 Fish Passage. The Project shall comply with Fish and Game Code section 5901 and shall not install or maintain any device or contrivance that prevents, impedes, or tends to prevent or impede, the passing of fish up and down stream.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

Work Period and Planning

2.1 Work Period. All work shall begin on or after June 15 and all work shall be completed by October 15. Revegetation work is not limited to this work window but must be completed within the same season as project activities. If more time is needed to complete project activities, the work period may be modified in writing on a week-by-week basis by a CDFW representative. Requests for a work period extension shall: 1) describe the extent of work already completed; 2) detail the activities that remain to be completed; 3) detail the time required to complete each of the remaining activities; 4) provide photographs of both the current work completed and the proposed site for continued work; and 5) include an assessment of additional biological impacts as a result of the work extension.

2.2 Conduct Work During Daylight Hours. Work is restricted to daylight hours (one hour after sunrise to sunset).

2.3 Seasonal Work Restricted to Periods of Dry Weather. The work period for completing the work within the project area as defined in the project description shall be restricted to periods of dry weather. The project area is defined as the bed, bank, channel, and associated riparian habitat. The Permittee shall monitor forecasted precipitation. Construction activities shall cease when the National Weather Service 72-hour weather forecast indicates a 30 percent chance or higher of precipitation. All necessary erosion control measures shall be implemented prior to the onset of precipitation. Construction equipment and materials shall be removed if inundation is likely. After any storm event, the Permittee shall inspect all sites currently under construction and all sites scheduled to begin construction within the next 72 hours for erosion and

sediment problems and take corrective action as needed. Seventy-two hour weather forecasts from the National Weather Service shall be consulted and work shall not resume until runoff ceases and there is less than a 30 percent forecast for precipitation for the following 24-hour period.

2.4 No Work in Stream Where Surface Water Present. No work or equipment operation shall occur in the portion of the streambed where surface water is present or anticipated during the term of this agreement.

2.5 Best Management Practices. All Best Management Practices (BMPs) and other conditions as submitted in the Notification shall be implemented as part of this project, unless otherwise conditioned herein.

2.6 Work According to Documents. Except as they are contradicted by measures required by this Agreement, all work shall be conducted in conformance with the project description above and the avoidance, minimization, and mitigation measures provided in the notification package.

2.7 Work According to Plans. All work shall be completed according to the plans and all associated appendices and attachments submitted to CDFW including the engineering plans titled *Non-Motorized Pathway Segment 3*, prepared by SMART with support from GHD and other firms, dated June 2021. If the Permittee finds it necessary to update project plans prior to construction, the updated plans will be submitted to CDFW at least 30 days prior to beginning project activities to determine if an Amendment to this Agreement is required. Project activities shall not proceed until CDFW has accepted the updated plans in writing. At the discretion of CDFW, minor plan modifications may require an amendment to this Agreement. At the discretion of the CDFW, if substantial changes are made to the original plans this Agreement becomes void and the Permittee shall submit a new notification.

Wildlife Protection and Prevention - Biologist

2.8 Qualified Biologist Approval. No later than 30 days prior to project activities covered by this Agreement, the Permittee shall submit to CDFW, for review and approval, the qualifications for the biologist that shall oversee the implementation of the conditions in this Agreement and conduct surveys or monitoring work using the Biologist Resume Form (found at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=202869) or another format containing the same information. Project activities covered by this Agreement may not commence unless CDFW has approved the proposed biologist. At minimum the CDFW approved biologist shall have a minimum of five years of academic training and professional experience in biological sciences and related resource management activities with a minimum of two years conducting

surveys for each species that may be present within the project area.

2.9 CDFW Approved Biologist On-site. A Qualified Biologist shall be on site daily to monitor compliance with all conditions of this Agreement, unless otherwise approved in writing by CDFW. The Qualified Biologist shall have the authority to halt project activities, through communication with the Project Manager or their on-site designee, in order to comply with the terms of this Agreement and otherwise avoid impacts to species and or habitats. If the on-site Qualified Biologist has requested a work stop due to failure to implement any of the conditions CDFW shall be contacted within 24 hours.

2.10 Training Session for Personnel. Permittee shall ensure that a CDFW-approved Qualified Biologist conducts an education program for all persons employed on the project prior to performing covered activities. Instruction shall consist of a presentation by the designated Qualified Biologist that includes a discussion of the biology and general behavior of any sensitive species which may be in the area, how they may be encountered within the work area, and procedures to follow when they are encountered. The status of CESA-listed species including legal protection, penalties for violations and project-specific protective management measures provided in this Agreement shall be discussed. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers prior to on-site project activity. Copies of the Agreement for this project shall be maintained at the worksite with the project supervisor. The Permittee or Qualified Biologist shall prepare and distribute wallet-sized cards or a factsheet handout containing this information for workers to carry on-site. Upon completion of the program, employees shall sign an affidavit stating they attended the program and understand all protection measures. These forms shall be filed at the Permittee's office and be available to CDFW upon request.

Wildlife Protection and Prevention

2.11 Nesting Bird Surveys, Nest Protection, and Monitoring. If project activities are scheduled to occur during the general nesting season for birds (i.e., February 1 to August 31), a Qualified Biologist shall conduct a survey for active nests located within a minimum 500-foot radius of the project site. The survey shall be conducted no more than seven days prior to beginning project activities. The survey shall include searching thoroughly for cavity nesters, canopy nesters, as well as bank nesters. More than one qualified biologist may be needed to adequately search the project site and surrounding area. If tricolored blackbird is found during surveys, CDFW shall be notified immediately. If any active nests are discovered during the survey, the qualified biologist who conducted the survey shall determine appropriate buffer distances and shall consult with CDFW on these distances. No-disturbance buffers shall be demarcated in the field with high visibility fencing or flagging. If appropriately distanced no-disturbance buffers cannot be adhered to

during project activities, project activities shall be delayed until the nest is no longer active, as determined by a Qualified Biologist. The Qualified Biologist shall monitor the nest during project activities each day for one week, and weekly thereafter, to ensure that the nest is not being disturbed by project activities, unless otherwise approved by CDFW in writing. CDFW may increase the level of monitoring and the Permittee shall adhere CDFW required monitoring frequency. If the Qualified Biologist observes potential nest-disturbance behavior being displayed by nesting birds, the Qualified Biologist shall stop all work and contact CDFW within 24 hours. In this event, work shall not resume without CDFW's written permission. Nest monitoring shall occur as described above until the Qualified Biologist determines that the nest is no longer active and young are no longer dependent on parental care. If a delay in project activities greater than seven days occurs during the nesting season, a qualified biologist shall conduct another survey and consult with CDFW if active nests are found, prior to the project resuming work

2.12 Tricolored Blackbird. If nesting tricolored blackbird or evidence of their presence is found, CDFW shall be notified immediately, and work shall not occur without written approval from CDFW allowing the Project to proceed. Project activities shall not occur within 500 feet of an active nest unless otherwise approved in writing by CDFW. Presence of nesting tricolored blackbird may require a CESA Incidental Take Permit before Project activities may commence.

2.13 Bat Surveys. Prior to any tree trimming or removal, a Qualified Biologist shall conduct a habitat assessment for bats. The habitat assessment shall be conducted a minimum of 30 days prior to tree removal and shall include a visual inspection of potential roosting features (e.g., cavities, crevices in wood and bark, or exfoliating bark for colonial species, and suitable canopy for foliage-roosting species). If suitable habitat trees are found, they shall be flagged or otherwise clearly marked, CDFW shall be notified immediately, and tree trimming or removal shall not proceed without approval in writing from CDFW. Trees may be removed only if: a) presence of bats is presumed, or documented during the surveys described below, in trees with suitable bat habitat, and removal using the two-step removal process detailed below occurs only during seasonal periods of bat activity from approximately March 1 through April 15 and September 1 through October 15, or b) after a qualified bat biologist, under prior written approval of the proposed survey methods by CDFW, conducts night emergence surveys or complete visual examination of roost features that establish absence of roosting bats. Two-step tree removal shall be conducted over two consecutive days, as follows: 1) the first day (in the afternoon), under direct supervision and instruction by a qualified bat biologist with experience conducting two-step tree removal limbs and branches shall be removed by a tree cutter using chainsaws only. Limbs with cavities, crevices or deep bark fissures shall be avoided, and 2) the second day the entire tree shall be removed. CDFW reserves the right to provide additional provisions to this Agreement in the event that roosting bats are found and an Amendment to this Agreement may be required.

2.14 Burrowing Owl Surveys. To protect burrowing owl in their winter habitat, if project activities shall occur between September 1 and January 31, a Qualified Biologist shall conduct a habitat assessment and surveys, if warranted based on the habitat assessment, pursuant to the Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012) survey methodology prior to the commencement of project activities. If burrowing owl is detected, a Qualified Biologist shall establish suitable buffers to ensure the owl is not disturbed by the project pursuant to the above survey methodology's buffer distances, unless otherwise approved in writing by CDFW. To prevent encroachment, the established buffers shall be clearly marked by high visibility material. The established buffers shall remain in effect until the burrow is no longer occupied as confirmed by the Qualified Biologist, unless a burrowing owl exclusion plan is submitted to CDFW for review, including but not limited to habitat compensation and funding for management in perpetuity. The habitat compensation and funding shall be approved in writing by CDFW and completed prior to project start unless, otherwise approved in writing by CDFW.

2.15 Western Pond Turtle Surveys. A Qualified Biologist shall conduct a pre-construction survey for the western pond turtle and their nests within 48 hours of the commencement of project activities. If western pond turtle or their nests are detected at any time CDFW shall be notified immediately, and the Qualified Biologist shall relocate the turtle to appropriate habitat within the stream it was found. The Permittee shall prepare and implement a Western Pond Turtle Habitat Improvement Plan, if western pond turtle or their nests are found, if required and approved by CDFW.

2.16 American Badger Surveys. A Qualified Biologist shall conduct a pre-construction survey for the American badger and suitable dens within 48 hours of the commencement of project activities. The survey area shall include the project area and a 50-foot buffer zone within suitable habitat. If badgers are found on or adjacent to the project site a 50-foot construction avoidance buffer shall be established and CDFW shall be immediately notified. If the occupied den must be disturbed, Permittee shall submit a relocation plan to CDFW and receive written approval.

2.17 California Red-legged Frog Habitat Assessment and Surveys. At least two weeks prior to the commencement of ground-disturbing activities, the Project activity area and nearby vicinity, including a minimum 500-foot radius surrounding the Project activity area, shall be assessed by a Qualified Biologist for the presence of California red-legged frog individuals and habitat features. Habitat features include both aquatic habitat such as plunge pools and ponds and terrestrial habitat such as burrows or other refugia. If habitat occurs, then no more than 48 hours prior to ground-disturbing activities the area shall be surveyed by a Qualified Biologist. The results of the habitat feature assessment and survey shall be submitted to CDFW via email (see Contact Information) for written acceptance prior to starting Project activities. Burrows and refugia sites shall be flagged or otherwise marked for

avoidance; Project activities shall avoid habitat features to the extent feasible. If California red-legged frogs are encountered during the assessment or Project activities, the Project activity shall not proceed or all work shall cease, and CDFW shall immediately be notified. Work shall not proceed until the frog, through its own volition, moves out of harm's way and CDFW has provided permission in writing to proceed with the Project activity. In this case, CDFW may require additional protection measures which shall be implemented by the Permittee. If California red-legged frog is encountered or the Qualified Biologist determines that impacts to the species are likely to occur, Permittee shall consult with USFWS pursuant to the ESA and receive written approval from CDFW prior to the impact.

2.18 Daily Inspections. At the beginning of each workday, a Biological Monitor shall inspect the project area unless otherwise approved in writing by CDFW. If special status species are encountered during project activities, all work shall cease and CDFW shall immediately be notified. Work shall not proceed without written approval from CDFW.

2.19 Wildlife Encounters. If any wildlife is encountered during the course of construction, all work in the immediate area shall cease and said wildlife shall be allowed to leave the construction area unharmed. If any listed fish and wildlife are encountered, the Permittee shall contact CDFW immediately.

2.20 Trenches and Holes. At the end of each work all trenches and holes greater than one foot deep shall be covered to prevent wildlife from entering. When trenches cannot be fully covered, an escape ramp shall be placed at each end of any constructed open trench or hole to allow any wildlife that may have become entrapped in the trench or hole to climb out overnight. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle no greater than 30 degrees.

2.21 Pipes, Hoses, and Similar Structures. All pipes, hoses, or similar structures less than 12 inches in diameter shall be closed or covered to prevent animal entry. All construction pipes or similar structures greater than 2 inches in diameter stored at the project area overnight shall be inspected thoroughly for wildlife before the pipe or similar structure is buried, capped, used, or moved.

2.22 Refueling of Equipment. Refueling of construction equipment and vehicles may not occur within 175 feet of any water body, or anywhere that spilled fuel could drain to a water body. Tarps or similar material shall be placed underneath the construction equipment and vehicles, when refueling, to capture incidental spillage of fuels. Equipment and vehicles operating in the project area shall be checked and maintained daily to prevent leaks of fuels, lubricants, or other liquids.

Vegetation Protection

2.23 Habitat Protection. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete the project. Vegetation outside the construction corridor shall not be removed or damaged without prior consultation and approval of a CDFW representative.

2.24 Vegetation Marked for Protection. Prior to project activities, the Permittee shall clearly mark all vegetation within the project area that shall be avoided during project activities.

2.25 Riparian Tree Protection. For each existing tree with a greater than four-inch diameter at breast height within or adjacent to the work area that will be retained following the project, a critical root zone shall be established by the Qualified Biologist. The critical root zone shall extend from the trunk to the dripline (i.e., the outer extent of the tree canopy) of each tree within the project area and shall be flagged or fenced off from work. Protection and avoidance of the critical root zone shall be emphasized during the on-site education program to avoid impacts. If work will be conducted within the root protection zone of a tree that tree shall be considered an “impacted tree”, and the Permittee or Qualified Biologist shall monitor the tree for signs of mortality as a result of project. If the tree becomes injured or shows signs of mortality, additional revegetation actions shall be required.

2.26 Tree Drip Line. Construction materials, equipment storage, and parking areas shall be located outside the drip line of any preserved tree. Construction equipment shall not cause root compaction.

2.27 Riparian Tree Removal. No more than 16 trees shall be removed as part of this project, and no more than 15 percent of the canopy of other trees shall be trimmed. If the removal of additional trees is required or more than 15 percent of a tree is trimmed, the Permittee must receive approval from CDFW in writing before construction activities begin, and additional tree plantings may be required.

2.28 Prohibited Plant Species. Permittee shall not plant, seed or otherwise introduce invasive exotic plant species. Prohibited exotic plant species include those identified in the California Exotic Pest Plant Council's database, which is accessible at: www.cal-ipc.org/paf/.

2.29 Phytophthora. Permittee shall implement measures to avoid using plant stock that may be infected with the plant pathogen Phytophthora sp. Measures to avoid contamination with Phytophthora sp. may include, but are not limited to, avoiding collection of propagules from: 1) known or likely infected areas; 2) during wet conditions; 3) when soil is muddy; or 4) from within 0.5 meters of the soil surface. Measures may also include implementing heat or chemical treatments to collected seeds prior to installation.

2.30 Allowable Herbicide. If herbicide use is necessary, only herbicides registered with the California Department of Pesticide Regulation shall be used. All herbicides shall be applied in accordance with regulations set forth by the California Department of Pesticide Regulation and according to labeled instructions. Only herbicides approved for use in aquatic environments are permitted. Care shall be taken to avoid herbicide contact with native vegetation, and it shall only be applied on calm days (wind speed less than 5 miles per hour) to prevent airborne transfer of herbicide. No herbicides shall be used where threatened or endangered species occur, unless otherwise approved by in writing by CDFW.

2.31 Disposal of Vegetation and Debris. All removed vegetation and debris shall be moved outside the ordinary high-water mark prior to inundation by water. All removed vegetation and debris shall be disposed of according to state and local laws and ordinances.

2.32 Treat Exposed Areas. All exposed/disturbed areas and access points within the riparian zone left barren of vegetation as a result of the construction activities shall be restored by seeding with a blend of native erosion control grass seed. Seeded areas shall be mulched. Landscape fabric shall not be used. Revegetation shall be completed as soon as possible after construction activities in those areas cease. Seeding placed after October 15 must be covered with broadcast straw, jute netting, coconut fiber blanket or similar erosion control blanket.

Culvert Design and Construction

2.33 Culvert Design. The culvert design shall be properly aligned within the channel and otherwise engineered, installed and maintained, to resist washout and erosion of the stream bed, stream banks and/or fill.

2.34 Culvert Backfill. Backfill material shall be free of rocks, limbs or other debris that could dent the pipe or allow water to seep around the pipe. The crossing backfill base and sidewall material shall be compacted before the pipe is placed in its bed. A minimum amount of fill material shall be used for the bed to reduce seepage into and along the fill.

2.35 Culverts shall be kept open. Permanent culverts shall be maintained and kept open year-round. The Permittee is responsible for such maintenance as long as the culvert remains in the stream. Substantial changes to the bed, channel or bank necessary for maintenance may require separate notification under Fish and Game Code section 1602, subdivision (a).

Bridge Design and Construction

2.36 Bottom of Bridges above 100-year Mark. The bottom of bridge superstructure shall be of sufficient height to allow unrestricted passage of water and debris during

100-year storms. As long as the bridge remains, the Permittee is responsible for maintaining free-flowing conditions under the bridge and clearing of all debris. Substantial changes to the bed, channel, or bank necessary for maintenance may require an amendment to this Agreement or separate notification under Fish and Game Code section 1602, subdivision (a).

2.37 Abutment Location. Abutments shall be located outside the stream banks and above ordinary high water.

Concrete and Cement Based Products

2.38 Concrete – Primary Containment. The Permittee shall install the necessary containment structures to control the placement of wet concrete and to prevent it from entering into the channel outside of those structures. No concrete shall be poured within the high flow line if the 15-day weather forecast indicates any chance of rain greater than 20 percent.

2.39 Cement Based Products. All cement-based products (concrete, mortar, etc.) poured or applied wet onsite shall be excluded from the wetted channel or areas where they may come into contact with water for a period of 30 days after application. During that time the product shall be kept moist and runoff from the product shall not be allowed to enter the stream. Commercial sealants may be applied to the product surface or mixture where difficulty in excluding flow for a long period may occur. If sealant is used, water shall be excluded from the site until the sealant is cured.

2.40 Concrete – Designated Monitor. At all times when the Permittee is pouring or working with wet concrete within CDFW jurisdictional area there shall be a designated monitor to inspect the containment structures and ensure that no concrete or other debris enters into the channel outside of those structures.

Rock Slop Protection

2.41 Rock Slop Protection - Limitations. Rock slope protection (i.e., riprap) shall not be used for armoring/protecting the bank if any of the following criteria apply:

- Rock slope protection could transfer erosive forces to the opposite bank or another area downstream;
- Rock slope protection would narrow or otherwise constrain the stream channel, limiting passage of peak flows and debris; or
- Installation of the rock would require removal of woody vegetation and/or trees over a 4-inch diameter breast height, unless otherwise permitted in this Agreement.

2.42 Rock Slope Protection and Rock Trenches. Permittee shall install angular, energy dissipating rock slope protection and rock trenches that are properly sized to withstand wash out during peak flows. Rock that is placed within the channel shall be installed below grade. Only clean material such as rock riprap that is free of trash, debris, and deleterious material shall be used. Asphalt shall not be used.

2.43 Fill Voids in Rock Slope Protection and Rock Trenches. Permittee shall ensure that all voids and spaces within the riprap are filled with smaller rock, gravels, and native soil material, and/or willow cuttings. Cementitious grouts shall not be used.

2.44 Geotextile Lining. Geotextile lining may only be used to ensure the engineered stability of the rock slope protection and the Permittee shall monitor it for the life of the project to ensure that it is never exposed to the stream. If the geotextile lining is exposed to the stream, CDFW must be notified, proper permits acquired, and the rock slope protection structure must be repaired immediately. This may require additional permits from CDFW. **No geotextile lining shall be placed where it may be exposed to stream flows.**

Erosion and Sediment Control

2.45 Erosion Control. At no time shall silt laden runoff be allowed to enter a river, stream, or lake or directed to where it may enter a river, stream, or lake. Erosion control measures shall be utilized throughout all phases of operation where sediment runoff from exposed slopes threatens to enter a river, stream, or lake. Erosion control measures, such as, silt fences, straw hay bales, gravel or rock lined ditches, water check bars, and broadcasted straw shall be used wherever sediment has the potential to leave the work site and enter the river, stream, or lake.

2.46 Excavation. No spoil from the excavation shall be placed on the stream side. Excavated spoil shall be removed to an area where the sediment will not deliver to a watercourse.

2.47 No Monofilament. Permittee shall not use erosion control materials containing plastic monofilament netting (erosion control matting) or similar material containing netting within the project area due to documented evidence of amphibians and reptiles becoming entangled or trapped in such material. Acceptable substitutes include coconut coir matting or similar.

2.48 Erosion Control Monitoring. Permittee shall monitor erosion control measures during and after each storm event and repair and/or replace ineffective measures immediately.

2.49 Groundwater Encountered. Nuisance groundwater encountered during excavation within the streambed or floodplain shall be discharged at a location where it will

infiltrate into the soil, resulting in no overland flow. Turbid water shall not be allowed to flow downstream.

2.50 Disposal and Removal of Materials. All removed spoils and construction debris shall be moved outside of the work area prior to inundation by water. Spoil sites shall not be located within the stream channel or areas that may be subjected to stream flows, where spoil may be washed back into a stream, or where it may impact streambed habitat, aquatic or riparian vegetation. All removed material shall be disposed of according to State and local laws and ordinances.

2.51 Stockpiled Materials. Building materials and/or construction equipment shall not be stockpiled or stored where they may be washed into the water or cover aquatic or riparian vegetation. Stockpiles shall be covered when measurable rain is forecasted.

2.52 No Dumping. Permittee and all contractors, subcontractors, and employees shall not dump any litter or construction debris within the stream, or where it may pass into the stream.

2.53 Pick Up Debris. Permittee shall pick up all debris and waste daily.

2.54 Wash Water. Water containing mud, silt, or other pollutants from equipment washing or other activities shall not be allowed to enter a lake or flowing stream or placed in locations that may be subjected to high storm flows.

Toxic and Hazardous Material

2.55 Toxic Materials. Any hazardous or toxic materials that could be deleterious to aquatic life that could be washed into the stream or its tributaries shall be contained in water tight containers or removed from the project area.

2.56 Hazardous Materials. Debris, soil, silt, bark, slash, sawdust, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, wildlife, or riparian habitat resulting from the project related activities shall be prevented from contaminating the soil and/or entering the Waters of the State.

2.57 Spill Kits. Prior to entering the work site, all field personnel shall know the location of spill kits and trained in their appropriate use.

2.58 Spill of Material Deleterious to Fish and Wildlife. In the event of a hazardous materials spill into a stream (e.g., concrete or bentonite), Permittee shall immediately notify the California Office of Emergency Services State Warning Center by calling 1-800-852-7550 and immediately provide written notification to CDFW by email at R3LSA@wildlife.ca.gov. Permittee shall take all reasonable

measures to document the extent of the impacts and affected areas including photographic documentation of affected areas, injured fish and wildlife. If dead fish or wildlife are found in the affected area, Permittee shall collect carcasses and immediately deliver them to CDFW. Permittee shall meet with CDFW within ten days of the reported spill in order to develop a resolution including: site clean-up, site remediation and compensatory mitigation for the harm caused to fish, wildlife and the habitats on which they depend as a result of the spill. The Permittee shall be responsible for all spill clean-up, site remediation and compensatory mitigation costs. Spill of materials to waters of the state that are deleterious to fish and wildlife are in violation of Fish and Game Code section 5650 et. seq. and are subject to civil penalties for each person responsible. CDFW reserves the right to refer the matter to the District Attorney's Office if a resolution cannot be agreed upon and achieved within a specified timeframe, generally six months from the date of the incident.

2.59 Spill Containment. All activities performed in or near a river, stream, or lake shall have absorbent materials designated for spill containment and cleanup activities on-site for use in an accidental spill. The Permittee shall immediately notify the California Emergency Management Agency at 1-800-852-7550 and immediately initiate the cleanup activities. CDFW shall be notified by the Permittee and consulted regarding clean-up procedures.

3. Compensatory Measures

To compensate for adverse impacts to fish and wildlife resources identified above that cannot be avoided or minimized, Permittee shall implement each measure listed below.

3.1 Revegetation Plan. Permittee shall submit a Revegetation Plan (Plan) for CDFW review and written approval no later than 30 days prior to Plan implementation. The Plan shall be implemented within the same season as project activities unless otherwise approved in writing by CDFW. If planting occurs in a later year, a higher replacement ratio may be required by CDFW to offset the temporal loss of habitat, and an amendment to this or another associated Agreement may be required. The Plan shall include: 1) the revegetation of at least 0.64 acres and 2,254 linear feet of riparian habitat onsite or offsite as close to the project site as possible, and within the same watershed, to offset permanent impacts, unless otherwise approved in writing by CDFW, and 2) a detailed planting plan using native species appropriate to the area. More than restoration one plan may be necessary for restoration activities in different locations. The Plan shall include monitoring and success criteria. An amendment to this Agreement or a separate Agreement may be required by CDFW based on the Plan.

To compensate for the removal of trees, the Permittee shall replace all removed trees at the below minimum ratios within the stream from which they are removed, unless otherwise approved by CDFW. The plan shall describe the number of each species removed, diameter at breast height

(DBH) of each removed tree, and from which stream the removal occurred. If the restoration plan must be revised, the revised plan shall be submitted to CDFW no later than 30 days prior to plan implementation and must be approved by CDFW in writing.

- 1:1 for removal of non-native trees;
- 1:1 for removal of native trees up to 3 inches DBH
- 3:1 for removal of native trees 4 to 6 inches DBH;
- 6:1 for removal of native trees greater than 6 inches DBH;
- 4:1 for removal of oak (*Quercus* sp.) trees up to 6 inches DBH;
- 5:1 for removal of oak trees between 7 and 15 inches DBH; and
- 10:1 for removal of oak trees greater than 15 inches DBH.

Replacement tree plantings shall consist of 5-gallon or greater saplings and locally collected seeds, stakes, or other suitable nursery stock as appropriate, unless otherwise approved by CDFW, and shall be native species to the area adapted to the lighting, soil, and hydrological conditions at the replanting site. If acorns are used for oak tree replanting, each planting will include a minimum of three acorns planted at an approximately two-inch depth to minimize predation risk. Large acorns shall be selected for plantings. Replacement oaks shall come from nursery stock grown from locally sourced acorns, or from acorns gathered locally, preferably from the same watershed in which they are planted.

3.2 Revegetation Success, Monitoring, and Maintenance. Permittee shall monitor and maintain, as necessary, all plants for a minimum of five years. At the end of the five years of monitoring, with at least three years without supplemental irrigation, the plantings shall attain at least 80 percent site cover of the treatment area, 85 percent survival success (for non-tree species), 85 percent survival each for non-oak trees and oaks, and shall not contain more than 5 percent relative cover of plants listed on Cal-IPC high or moderate lists.

If revegetation survival and/or cover requirements do not meet established goals as determined by CDFW, Permittee is responsible for replacement planting, additional watering, weeding, invasive exotic eradication, or any other practice, to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements for five years after planting.

3.3 Irrigation. When supplemental watering is used to establish and maintain plant growth in order to meet success criteria, irrigation shall be done in the most water efficient manner possible, such as using hand watering, drip/microirrigation or through the use of a time release system.

3.4 Control Invasive Species. Permittee is responsible for monitoring and if needed, eradication of invasive exotic species that may occur within the project area for a minimum of two years following project completion. All revegetation efforts shall include local plant materials native to the project area.

4. Reporting Measures

Permittee shall meet each reporting requirement described below.

4.1 Survey Reports. Survey results for nesting birds and special status species described above shall be submitted to CDFW prior to the start of project activities.

4.2 Revegetation Annual Report. Permittee shall submit an annual status report on the revegetation work to CDFW by January 31 of each year after the initial revegetation work for the duration of the monitoring period (see Measure 3.1). This report shall include the percent survival, percent cover, and size of both tree and shrub species; an overview of the revegetation effort; photos from designated photo stations; and the method used to assess these parameters.

4.3 Photographic Documentation of Work. Prior to commencement of work a minimum of four (4) vantage points that offer representative views of the project site and work areas shall be identified. The Permittee shall photograph the project area from each of the vantage points, noting the direction and magnification of each photo. Upon completion of work, the Permittee shall photograph post-project conditions from the vantage points using the same direction and magnification as pre-project photos. A reference key shall be submitted with the photos describing the location of the photo, the direction of the view, and whether the photo is pre- or post-construction. All photos shall be submitted within 30 days of project conclusion.

4.4 California Natural Diversity Data Base. If any special status or other sensitive species are observed during project surveys or at any time during project implementation or mitigation and monitoring work, Permittee shall submit California Natural Diversity Data Base (CNDDB) forms to the CNDDB within five working days of the sightings and provide the CDFW Bay Delta Region (Region 3) with copies of the CNDDB forms and survey maps. Refer to https://wildlife.ca.gov/Data/CNDDB/Submitting-Data for online submission forms and additional information on CNDDB.

CONTACT INFORMATION

Any communication that Permittee or CDFW submits to the other shall be submitted through EPIMS as instructed by CDFW.

To Permittee:

Bill Gamlen
Sonoma-Marin Area Rail Transit
EPIMS-SON-23219-R3
SMART Various Non-Motorized Pathways Segment 3: Golf Course Dr. (MP 48.5) to Bellevue Ave (MP 51.3)
5401 Old Redwood Highway, Suite 200
Petaluma, CA 94954
BGamlen@sonomamarintrain.org

To CDFW:

Department of Fish and Wildlife
Bay Delta Region
EPIMS-SON-23219-R3
SMART Various Non-Motorized Pathways Segment 3: Golf Course Dr. (MP 48.5) to Bellevue Ave (MP 51.3)
R3LSA@wildlife.ca.gov; Nick.Wagner@wildlife.ca.gov

LIABILITY

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with, or obtaining any other permits or authorizations that might be required under, other federal, state, or local laws or regulations before beginning the project or an activity related to it. For example, if the project causes take of a species listed as threatened or endangered under the Endangered Species Act (ESA), such take will be unlawful under the ESA absent a permit or other form of authorization from the U.S. Fish and Wildlife Service or National Marine Fisheries Service.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the Fish and Game Code including, but not limited to, Fish and Game Code sections 2050 *et seq*. (threatened and endangered species), section 3503 (bird nests and eggs), section 3503.5 (birds of prey), section 5650 (water pollution), section 5652 (refuse disposal into water), section 5901 (fish passage), section 5937 (sufficient water for fish), and section 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and Permittee. To request an amendment, Permittee shall use the “Amendments & Extension” form in EPIMS to submit the request. Permittee shall include with the completed form, payment of the corresponding amendment fee identified in CDFW’s current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall use the "Amendments & Extension" form in EPIMS to submit the request. Permittee shall include with the completed form, payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

In accordance with Fish and Game Code section 1605, subdivision (b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall use the "Amendments & Extension" form in EPIMS to submit the request. Permittee shall include with the completed form, payment of the extension fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with Fish and Game Code section 1605, subdivisions (b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (Fish & G. Code, § 1605, subd. (f)).

EFFECTIVE DATE

The Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after Permittee's signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable Fish and Game Code section 711.4 filing fee listed at https://www.wildlife.ca.gov/Conservation/CEQA/Fees.

TERM

This Agreement shall expire on December 31, 2026, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as Fish and Game Code section 1605, subdivision (a)(2) requires.

EXHIBITS

The documents listed below are included as exhibits to the Agreement and incorporated herein by reference.

A. Engineering plans titled *Non-Motorized Pathway Segment 3*, prepared by SMART with support from GHD and other firms, dated June 2021.

AUTHORITY

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with Fish and Game Code section 1602.

CONCURRENCE

Through the electronic signature by the permittee or permittee's representative as evidenced by the attached concurrence from CDFW's Environmental Permit Information Management System (EPIMS), the permittee accepts and agrees to comply with all provisions contained herein.

The EPIMS concurrence page containing electronic signatures must be attached to this agreement to be valid.