TOCALOMA FLOODPLAIN ENHANCEMENT
LAGUNITAS CREEK AT TOCALOMA
MARIN COUNTY, CALIFORNIA

LOCATION MAP

VICTINITY MAP

GENERAL NOTES
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE DRAWINGS. THE CONSTRUCTION SPECIFICATIONS, OR ALL
REQUIRED BY THE MARIN MUNICIPAL WATER DISTRICT (DISTRICT). NO CHANGES ARE TO BE MADE WITHOUT THE
PRIOR APPROVAL OF THE DISTRICT MANAGER.

2. THE DISTRICT SHALL BE RESPONSIBLE FOR OBTAINING ANY
NECESSARY PERMITS, BASEMENTS, AND ACCESS RIGHTS.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND
PROTECTING ALL UTILITIES. ELECTRICAL SERVICE REQUIREMENTS ARE TO
BE MADE IN Accordance WITH THE VICTORY OF GAS, OIL, OR
ELECTRICAL METER LOCATION. CALL UNDERGROUND SERVICE ALERT (CA.
USA. AT (8) 311) DURING PLOTHING TO CONSTRUCTION.

4. CALIFORNIA SAFETY REQUIREMENTS SHALL BE IN EFFECT DURING
ALL CONSTRUCTION.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SECURITY AND
HAZARDOUS MATERIALS. CONTRACTOR SHALL CLEAN UP ALL STORES
AS DESCRIBED IN CALIFORNIA STATE LAW AND AS DIRECTED BY THE
DISTRICT.

6. EXISTING TOPOGRAPHY GENERATED FROM DIFFERENT SURVEYS. TOPOGRAPHY TO THE SOUTH WAS GENERATED USING
SURVEYED SPOT ELEVATIONS TAKEN SPRING TO SUMMER 1982 AND
PROVIDED BY THE DISTRICT. TOPOGRAPHY TO THE NORTH WAS
GENERATED THROUGH THE USE OF GROUND BASED SURVEY. THE
SURVEY WAS PERFORMED JANUARY 1983 BY HOEBER
CONSULTANTS. THE BOUNDARY BETWEEN THE TWO DATASETS
DOES NOT PROVIDE A SMOOTH TRANSITION IN ALL CASES. THE
BOUNDARY IS SHOWN ON THE BOUNDARY SHEET PHASE AND THE GRADE SHEET. CONTRACTOR SHALL INDEPENDENTLY
REVEAL THE EXISTING TOPOGRAPHY SHOWN ON PLANS & PURPOSELY FOR USE IN CONSTRUCTION.
SITE CONSTRUCTION SPECIFICATIONS

100 PERCENT SUBMITTAL

for the

TOCALOMA

FLOODPLAIN ENHANCEMENT PROJECT

COUNTY OF MARIN, CALIFORNIA

MAY 22, 2013
# LAGUNA CREEK
## HABITAT ENHANCEMENT PROJECT

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SECTION 01 00 00

GENERAL PROJECT REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT DESCRIPTION

A. The Project is to provide floodplain enhancement and improved habitat along Lagunitas Creek at Tocaloma.

B. The Project tasks include, but are not limited to:

1. Site preparation.
2. Grading to construct a channel and enhance the floodplain.
3. Installation of log structures and bank protection measures.
4. Installation of erosion control.

1.2 DEFINITIONS

A. District means Marin Municipal Water District.

B. Designer means Balance Hydrologics, Inc.

C. Construction Documents means Drawings, Specifications, and Estimates.

1.3 SPECIFICATION LIMITATIONS

A. The Construction Documents have been prepared assuming the project will be implemented directly by the District. The Construction Documents have not been prepared for and are not suitable for bid purposes or for use by an independent contractor. The Specifications are intended, in conjunction with the Drawings, to provide a design framework and guidance that will allow the District, who is collectively experienced in habitat restoration construction, to implement the Project.

B. At the request of the District, certain aspects of the Project that would typically be included with Construction Documents suitable for bid have been omitted or considered only at a conceptual level. These items include, but are not limited to:

1. Job site controls such as public convenience and safety, worker safety, construction hours, coordination with neighbors, and cleanliness.

2. Environmental controls such as work limits, vegetation protection, creek corridor protection, turbidity control, and compliance with local, state, and federal laws and regulations.
3. Archeological monitoring and procedures.
4. Minimum coordination requirements with Designer, other members of the Project team, and inspectors.
5. Construction management and administration tasks.
7. Construction schedule.
8. Site staging and access.
10. Debris and cleared vegetation collection and disposal plan.
11. Planting and irrigation plan.

1.4 DRAWINGS

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<td>Grading Plan</td>
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<tr>
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<td>Erosion Control Plan</td>
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END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION

A. The work of this Section consists of providing temporary measures designed to limit the areas of disturbance during construction. These measures include gravel bag fences or barriers, silt fencing, and straw placed on access routes.

PART 2 - PRODUCTS

2.1 GRAVELBAGS

A. Gravelbag fabric shall be woven polypropylene, polyethylene, or polyimide with a minimum unit weight of 0.25 lbs/sq. yd. The fabric shall have a mullen burst strength of at least 300 psi per ASTM Designation D3786 and an ultraviolet ability exceeding 70 percent.

B. Gravelbag fill material shall be non-cohesive gravel and sand, free from deleterious material, silt, clay, or fines.

2.2 SILT FENCING

A. Silt Fencing shall conform to CALTRANS standard specification 13-10.03F Temporary Silt Fences.

2.3 STRAW

A. The straw placed on access routes shall conform to CALTRANS standard specification 21-1.03I Straw.

PART 3 - EXECUTION

3.1 GRAVELBAG PLACEMENT

A. Construct gavel bag barrier at the locations shown on the drawing or as directed by the District.

B. Gravel bag barriers shall be of sufficient length, height and width to protect against accidental discharges of sediment or debris into Lagunitas Creek during construction activities. These dimensions must accommodate whatever construction means and methods chosen by the District or contractor.

C. The District shall approve Gravelbag barrier alignment and dimensions prior to the commencing of clearing and grubbing.
3.2 GRAVELBAG REMOVAL
   A. Remove gravelbag barrier after grading work in complete and prior to placing erosion control measures.
   B. Remove gravelbag fabric and fill material from the site when work is complete.

3.3 SILT FENCE PLACEMENT
   A. Install silt fencing per CALTRANS standard specification 13-10.03F Temporary Silt Fences.
   B. Install sufficient silt fencing to ensure that there is no discharge of sediment into Lagunitas Creek as a result of construction activities.

3.4 STRAW PLACEMENT
   A. Place and maintain a minimum of 10 inches of straw on all access routes for the duration of construction activities.

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION

A. This section includes the work of construction layout and staking.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 ENGINEERING REQUIREMENTS

A. It shall be the responsibility of the District to establish and maintain construction staking sufficient to allow for the Project to be built to the tolerances outlined in these Specifications.

END OF SECTION
SECTION 31 00 00

EARTHWORK

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Excavate, stockpile, and place native soils to complete the grading and installation of structures and other work, to the required lines and grades as indicated on the Drawings.

1.2 JOB CONDITIONS

A. Soil classification:

1. Soils generally consist of clays, silts, and sands that can be readily excavated with a backhoe. Cobbles may be encountered near the creek invert elevations.

2. The District is responsible to determine the equipment and construction methods necessary to efficiently perform the work with the soils.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Excavated material used for fill shall be an inert, inorganic soil, free from delirious substances and of such quality that it will compact thoroughly without the presence of voids when watered and rolled. Inorganic soil is defined as soil containing less than two percent by weight of organic material when tested in accordance with ASTM D2974.

B. Remove from the site any materials generated during clearing and grubbing or excavation that do not meet the requirements for use as fill.

PART 3 - EXECUTION

3.1 FIELD ENGINEERING

A. See Section 01 71 23 for Field Engineering requirements.

3.2 TOLERANCES

A. Construct finished surfaces to plus or minus 3 inches of the elevations indicated on the Drawings and as acceptable to the District.

B. Complete slopes to plus or minus 6 inches of the slope line indicated on the Drawings and as acceptable to the District.
3.3 EXCAVATION AND EMBANKMENT

A. Excavate and fill to the lines and grades shown on the Drawings.

B. Provide smooth horizontal and vertical transition with existing features.

C. Place fill in layers not to exceed eight inches of loose material and compact each layer to specified density before next layer is placed.

D. Fill areas shall be compacted to 85 percent of the maximum relative density at 4% over optimum moisture content.

E. Construct keyways at the toe of any embankment where greater than 2 feet of fill will be placed. Keyways shall have the following minimum dimensions: 4 foot bottom width and 6 foot top width. Side slopes shall be 1:1.

3.4 FINISH GRADING

A. Scarify finish grades to a depth of 6 inches to loosen soil for planting.

END OF SECTION
SECTION 31 11 00
CLEARING AND GRUBBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section includes all site preparation activities including:

1. Vegetation clearing.

2. Willow and willow pole harvesting.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 VEGETATION CLEARING

A. Remove all vegetation from the areas to be graded and as directed by the District.

B. Minimize to the maximum extent practicable clearing limits.

3.2 WILLOW AND WILLOW POLE HARVESTING

A. Identify willows scheduled for removal for reuse in bank protection. Select willows that meet the criteria described in Section 31 35 01.

B. Harvest sufficient willows to accomplish the work described on the Drawings and in Section 31 35 01. If there are insufficient willows available from within the clear and grub limits, the District shall identify an appropriate location for additional harvesting.

C. Willows and willow poles shall be kept alive between the time of harvesting and placement.

END OF SECTION
SECTION 31 25 14
PERMANENT EROSION CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section includes all erosion control and seeding activities including:
   1. Hydroteering.
   2. Erosion control blanket placement.

PART 2 - PRODUCTS

2.1 SEED MIX

A. Seed mix shall be of the District’s choosing applied at 70 lbs. per acre.

2.2 FERTILIZER

A. Fertilizer shall be 16-6-8 (N-P-K) applied at 350 lbs. per acre.

2.3 MULCH

A. The mulch shall be fibrous, wood cellulose containing no growth or germination inhibiting factors. It shall be manufactured in such a manner that after addition and agitation in slurry tanks with fertilizer, seed, water and other approved additives, the fibers in the material will become uniformly suspended to form a homogeneous slurry; and that when hydraulically sprayed on the ground, the material will form a blotter like ground cover impregnated uniformly with seed; and which after application, will allow the absorption of moisture and allow the rainfall to percolate to the underlying soil. Mulch shall be applied at 2,000 lbs. per acre.

2.4 TACKIFIER

A. The tackifier shall be an organic material derived from the plantago husk, "R Binder" as manufactured by Clyde Robbins Seed Co., or equal. Tackifier shall be applied at 100 lbs. per acre.

2.5 WATER

A. Water for hydroteering shall be clean, potable and added to the slurry mixture in sufficient amount to spread uniformly the required quantity of hydroteer solids. Water shall be applied at 3,000 gallons per acre.
2.6 EROSION CONTROL BLANKET
   A. Erosion control blanket shall be C125BN as sold by North American Green or equivalent.

2.7 EROSION CONTROL ANCHORS
   A. U-shaped wire staples or equivalent shall be used to anchor the rolled erosion control blankets to the ground surface. Wire staples should be a minimum of 6 inches long.

PART 3 - EXECUTION

3.1 HYDROSEEDING
   A. Hydroseed over the areas indicated on the Drawings and over any additional areas disturbed during construction. Do not hydroseed inundated areas.
   
   B. All areas to receive hydroseeding shall be sprayed with a uniform, visible coat. The slurry shall be applied in a sweeping motion, in an arched stream, so as to fall like rain allowing the wood fibers to build on each other until a good coat is achieved, and the material is spread at 2,000 pounds wood fiber (plus seed, fertilizer and tackifier) per acre.
   
   C. Time limit: Any slurry mixture which has not been applied within four hours after mixing shall not be used

3.2 EROSION CONTROL BLANKET INSTALLATION
   A. Install erosion control blankets only after finish grading and hydroseeding has been completed.
   
   B. Install erosion control blankets at the locations indicated in the Drawings.

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION

A. The work of this section consists of providing materials for and installing log structures and willow pole bank protection.

PART 2 - PRODUCTS

2.1 LOGS WITH ROOTWAD

A. Logs with rootwad shall have a minimum length of 20 feet.

B. Logs shall be of a minimum diameter of 18 inches.

C. The rootwads shall have a minimum diameter of 48 inches.

2.2 BOULDERS

A. Boulders used to anchor logs shall optimally be 1 ton in weight with a minimum weight of ¾ ton and a maximum weight of 1 ½ ton.

2.3 WILLOWS AND WILLOW POLES

A. Willows and willow poles shall be harvested onsite from areas within the clear and grub limits as described in Section 31 11 00.

B. Willows and willow poles shall be kept moist from the time they are harvested to the time they are placed. Willows and willow poles shall be alive at the time of installation.

C. Willow poles shall be of a minimum diameter of 1 inch.

D. Willow poles shall have a minimum length of 3 feet.

PART 3 - EXECUTION

3.1 LOG WITH ROOTWAD INSTALLATION

A. Logs with rootwads shall be installed in a dry environment to allow for proper placement and anchoring.

B. Install logs with rootwad at the grade and location indicated on the Drawings or as directed by the District.
C. Install and anchor logs per District specifications.

3.2 WILLOW POLE INSTALLATION

A. Install willow poles at the locations indicated on the Drawings.

B. Willow pole spacing shall be determined in the field by the District, and shall depend upon the number of poles made available during harvesting. In no case shall the spacing for willow pole installation be greater than ten feet on center.

END OF SECTION