Westminster Woods Water Conservation Project

for

Gold Ridge Resource Conservation District

General Requirements
and Technical Specifications
February 28, 2014

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Revision 2: June 17, 2015

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COUNTY OF SONOMA
PERMIT AND RESOURCE MANAGEMENT DEPARTMENT
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EROSION PREVENTION AND SEDIMENT CONTROL NOTES

GENERAL

1. Perform erosion prevention and sediment control in accordance with chapter 11a and 11 of the Sonoma County Code (SCC).

2. The approved plans shall conform with the Permit And Resource Management Department's (PRMD) Erosion Prevention And Sediment Control Best Management Practices (BMP's) guide as posted on the PRMD website.

3. The owner is responsible for preventing storm water pollution generated from the construction site year round. Work sites with inadequate erosion and sediment control may be subject to a stop work order.

4. If discrepancies occur between these notes, material referenced herein or manufacturer's recommendations, then the most protective shall apply.

5. At all times the owner is responsible for obtaining and complying with the State of California National Pollutant Discharge Elimination System (NPDES) general permit waste discharge requirements for discharges of storm water runoff associated with construction activity. Construction activities include but are not limited to clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement.

RAINY SEASON OPERATIONS

1. The owner must implement an effective combination of erosion prevention and sediment control on all disturbed areas during the rainy season (October 15 - April 15). Construction grading and drainage improvement shall be permitted during the rainy season only when on-site soil conditions permit the work to be performed in compliance with SCC Chapter 11 and 11a. Storm water BMPs referenced or detailed in the permit authority's best management practices guide shall be implemented and functional on the site at all times

2. The area of erodible land exposed at any one time during the work shall not exceed 1 acre or 20% of the permitted work area, whichever is greater, and the time of exposure shall be minimized to the maximum extent practicable.

3. Agricultural grading and drainage improvements, and initial land preparation work for vineyard and orchard planting, shall be permitted during the rainy season only from April 1 to April 15, and only when on-site soil conditions permit the work to be performed in compliance with SCC Ch. 11 and 11a.

YEAR ROUND REQUIREMENTS

1. During the non-rainy season, on any day when the national weather service forecast is a chance of rain of 30% or greater within the next 24 hours, storm water BMPs referenced or detailed in PRMD's best management practices guide shall be implemented, installed, and functional on the site to prevent soil and other pollutant discharges. At all other times, BMPs should be stored on site in preparation for installation prior to rain events.

2. Erosion prevention and sediment control measures shall be inspected by the owner before forecasted storm events and after storm events to ensure measures are functioning properly. Erosion prevention and sediment control measures that have failed or are no longer effective shall be promptly replaced. Erosion prevention and sediment control measures shall be maintained until disturbed areas are stabilized.

3. The limits of grading shall be defined and marked on site to prevent damage to surrounding vegetation. Preservation of existing vegetation shall occur to the maximum extent practicable. Any existing vegetation within the limits of grading that is to remain undisturbed by the work shall be identified and protected from damage by marking, fencing, or other measures.

4. Changes to the erosion prevention and sediment control plan may be made to respond to field conditions and shall be noted on the plan.

5. Discharges of potential pollutants from construction sites shall be prevented using source controls to the maximum extent practicable. Potential pollutants include but are not limited to: sediment, trash, nutrients, pathogens, petroleum hydrocarbons, metals, concrete, cement, asphalt, lime, paint, stains, glues, wood products, pesticides, herbicides, chemicals, hazardous waste, sanitary waste, vehicle or equipment wash water, and chlorinated water.

6. Entrance(s) to the construction site shall be maintained in a condition that will prevent tracking or flowing of potential pollutants offsite. Potential pollutants deposited on paved areas within the county right-of-way, such as roadways and sidewalks, shall be properly disposed of at the end of each working day or more frequently as necessary. The contractor shall be responsible for cleaning construction vehicles leaving the site on a daily basis to prevent dust, silt, and dirt from being released or tracked offsite. All sediment deposited on paved roadways shall be removed at the end of each working day or more often as necessary.

7. All disturbed areas shall be protected by using erosion prevention measures to the maximum extent practicable, such as establishing vegetation coverage, hydroseeding, straw mulch, geotextiles, plastic covers, blankets or mats. Temporary or permanent revegetation shall be installed as soon as practical after vegetation removal but in all cases prior to October 15. Prior to final inspection, all disturbed areas shall be revegetated or landscaping shall be installed.

8. Whenever it is not possible to use erosion prevention measures on exposed slopes, sediment control devices such as fiber rolls and silt fences shall be installed to prevent sediment migration. Fiber rolls and silt fences shall be trenched and keyed into the soil and installed on contour. Silt fences shall be installed approximately 2 to 5 feet from toe of slope.

9. See specifications. Hydroseeding shall be conducted in a three step process. First, evenly apply seed mix and fertilizer to the exposed slope. Second, evenly apply mulch over the seed and fertilizer. Third, stabilize the mulch in place. An equivalent single step process, with seed, fertilizer, water, and bonded fibers is acceptable.

   Applications shall be broadcasted mechanically or manually at the rates specified below. Seed mix and fertilizer shall be worked into the soil by rolling or tamping. If straw is used as mulch, straw shall be derived from wheat, rice, or barley and be approximately 6 to 8 inches in length. Stabilization of mulch shall be done hydraulically by applying an emulsion or mechanically by crimping or punching the mulch into the soil. Equivalent methods and materials may be used only if they adequately promote vegetation growth and protect exposed slopes.

Materials	Application Rate (pounds per acre)
Seed mix	
~~*bromus mollis* (blando brome)~~	~~40~~
~~*trifolium hirtum* (hykon rose clover)~~	~~20~~
Fertilizer	
~~16-20-0 & 15% sulphur~~	~~500~~
Mulch	
straw	4000
Hydraulic stabilizing*	
m-binder ~~or sentinel~~	~~75-100~~
Equivalent material	per manufacturer

   ~~*non-asphaltic, derived from plants~~

10. Dust control shall be provided by contractor during all phases of construction.

11. Storm drain inlets shall be protected from potential pollutants until drainage conveyance systems are functional and construction has been completed.

12. Energy dissipaters shall be installed at storm drain outlets which may convey erosive storm water flow.

13. Soil, material stockpiles, and fertilizing material shall be properly protected to minimize sediment and pollutant transport from the construction site.

14. Solid waste, such as trash, discarded building materials and debris, shall be placed in designated collection areas or containers. The construction site shall be cleared of solid waste daily or as necessary. Regular removal and proper disposal shall be coordinated by the contractor.

15. A concrete washout area, such as a temporary pit, shall be designated to clean concrete trucks and tools. At no time shall concrete products and waste be allowed to enter county waterways such as creeks or storm drains. No washout of concrete, mortar mixers, or trucks shall be allowed on soil.

16. Proper application, cleaning, and storage of potentially hazardous materials, such as paints and chemicals, shall be conducted to prevent the discharge of pollutants.

17. Temporary restrooms and sanitary facilities shall be located and maintained during construction activities to prevent the discharge of pollutants.

18. Appropriate vehicle storage, fueling, maintenance, and cleaning areas shall be designated and maintained to prevent discharge of pollutants.

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GRADING AND DRAINAGE NOTES

1. Perform grading and drainage improvements in accordance with chapter 11a and 11 of the Sonoma County Code (SCC), applicable Sonoma County regulations [and to the recommendations of the soils engineering report, prepared by RGH Consultants, dated May 24, 2013.

2. All work shall be done in compliance with the approved plans and specifications. The contractor shall immediately notify the engineer of record upon discovering discrepancies, errors, or omissions in the plans. Prior to proceeding, the owner shall have the plans revised to clarify identified discrepancies, errors, or omissions. The approved plans and specifications shall not be changed without the written approval of the Sonoma County Permit and Resource Management Department (PRMD). Proposed modifications to the approved plans and specifications shall be submitted to the permit authority (PRMD) in writing, together with all necessary technical information and design details.

3. The grading/drainage permit and an approved copy of the grading/drainage plans shall be maintained on the project site throughout the duration of construction activities.

4. PRMD may order that any work stop immediately if it is performed contrary to chapter 11a and 11 of the Sonoma County Code, the approved plans and specifications, permit conditions, or any work that has become hazardous to property or the public. A grading/drainage permit may be suspended, revoked, or modified by PRMD in accordance with SCC 11.24.040.

5. Issuance of a grading/drainage permit by PRMD does not eliminate the responsibility of the owner to secure permits from other agencies with regulatory responsibilities for the construction activities associated with the work on these plans. Failure to obtain all required permits may result in fines from the respective agency.

6. Issuance of a permit by PRMD to construct a dam or a reservoir does not eliminate the responsibility of the owner to secure permits from other agencies with regulatory responsibilities including the California Division of Safety of Dams when work falls under state jurisdiction. Failure to obtain other permits may result in fines from the respective agency.

7. Existing drainage courses receiving waters from this site and located throughout this site shall remain open and clear of debris to properly convey storm water. If existing drainage courses receiving waters from this site are located in the county right-of-way and need maintenance, contact the department of transportation and public works at (707) 565-2231 for further assistance. In any event, the owner and/or contractor shall be held liable for any damage due to obstructing natural drainage patterns.

8. The contractor shall be responsible for notifying underground service alert (U.S.A.), toll free at 1-800-642-2444, at least two working days but not more than 14 calendar days prior to excavation . The contractor shall uncover relevant utilities to verify their location and elevation. If unexpected or conflicting utilities are encountered during excavation, notify U.S.A, the utility owner, and/or the engineer of record immediately. Utilities include but are not limited to water, sewer, electrical, gas, telephone, and cable/TV. If practical, the excavator shall delineate with white paint or other suitable markings the area to be excavated.

9. In the event cultural resources (i.e., historical, archaeological, and paleontological resources, and human remains) are discovered during grading or other construction activities, work shall immediately be halted within the vicinity of the find. The northwest information center shall be notified at (707) 664-0880. A qualified archeologist shall be consulted for an on-site evaluation. Additional mitigation may be required by the county per the archeologist's recommendations and SCC 11.16.100. If human burials or human remains are encountered, the contractor shall also notify the County coroner at (707) 565-5070.

10. Should grading operations encounter hazardous materials, or what appear to be hazardous materials, stop work immediately in the affected area and contact 911 or the appropriate agency for further instruction.

11. Retaining walls, unless exempted per SCC 7.13(a)(3)4, are not approved under a grading permit. A separate building permit is required.

12. Equipment shall not cross or disturb channels of actively flowing streams without PRMD approved roiling permit and best management practices (SCC 23.1 and 11.04.110d)

13. Grading and drainage improvements shall be set back from streams, lakes, ponds, and wetlands in compliance with the requirements of SCC 11.16.120, 11.16.130, and 11.16.140. Existing vegetation shall be retained in stream setback areas to filter soil and other pollutants carried in stormwater.

14. Excess soil shall be removed from the site unless depicted to remain on site per the approved plan. The site receiving soil may require a grading permit unless exempted by SCC 11.04.020.

15. Contours, elevations, and shapes of finished surfaces shall be blended with adjacent natural terrain to achieve a consistent grade and natural appearance. The top of cut slopes shall be rounded off to blend with the natural terrain. Borders of cut slopes and fills shall be rounded off to a minimum radius of 5 feet to blend with the natural terrain.

16. Fill material shall not include organic, frozen, or other deleterious materials. No rock or similar irreducible material greater than 6 inches in any dimension shall be included in fills except where approved by the soils engineer. Fills shall be constructed in lifts not exceeding 8 inches in depth. Completed fills shall be stable, well-integrated, and bonded to adjacent materials and the materials on which they rest. Fills shall be competent to support anticipated loads and be stable at the design slopes shown on the approved plans and specifications or as directed by the soils engineer.

17. Ground surfaces shall be prepared to receive fill by removing vegetation, topsoil, and other unsuitable materials, and scarifying the ground to provide a bond with the fill material.

18. Fill shall not be placed on natural slopes steeper than 2h:1v (50%).

19. Fills intended to support structures or surcharges shall be compacted to a minimum of 90% of maximum dry density, as determined by astm d 1557, modified proctor. A higher compaction percentage may be required by the soils engineer.

20. Fills not intended to support structures or surcharges shall be compacted as follows: (1) fill greater than 3 feet in depth shall be compacted to the density specified by the soils engineer. (2) Fills no greater than 3 feet in depth shall be compacted to the density necessary for the intended use or as directed by the soils engineer.

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GRADING AND DRAINAGE INSPECTION NOTES

1. The permittee and the property owner shall be responsible for the work to be performed in compliance with the approved plans and specifications and any permit conditions. Work shall be subject to inspection as required by the permit authority, PRMD, to verify compliance. The contractor shall consult the project job card for coordination of inspection requests.

2. Prior to the start of any grading work, the permittee shall have a pre-construction consultation with PRMD staff to discuss the scope of the project, permit conditions, required inspections, appropriate application of best management practices (BMPs) and any other construction issues.

3. Inspection requests shall be made through the Sonoma County Automated Inspection Request System (SELECTRON), 707-565-3551. SELECTRON allows scheduling and canceling of inspections from 6:00am to 12:00am, 7 days a week.

4. PRMD may require professional inspections and certifications to verify proper completion of the work. Where the use of professional personnel is required, these personnel shall immediately report in writing to PRMD and the permittee any instance of work not in compliance with the approved plans, specifications, or any permit conditions. If professional personnel is changed during the course of the work, the work shall be stopped until the replacement individual has notified PRMD in writing of their agreement to accept responsibility for approval of the completed work within the area of their

technical competence.

5. PRMD shall final a permit when all work, including the installation of all drainage improvements and their protective devices, and all storm water best management practices, have been completed in compliance with the approved plans and specifications, and all final reports required by SCC 11.14.040a have been submitted and accepted. Final reports may include: as-built plans, testing records, professional opinions, and declarations about completed work from professional personnel. Similar reports may be required at other stages of the work.

6. The permittee shall provide adequate and safe access to the site for inspection during the performance of all work.

7. During construction activities, the project site address shall be posted as follows: (1) The street numbers must be at least four inches tall, with a reflective surface. (2) The address must be visible from both directions along the road. (3) The address must be posted at all forks in any access road and at the site.

END OF SECTION 00 31 46

SECTION 00 41 00
BID FORM

Total Base Bid

ITEM NO.	WORK	LUMP SUM PRICE	
A	Westminster Woods Water Conservation Project and Storage Project, 2015 Turf and Irrigation Upgrades	$_____	$_____
		(in words)	(in numerals)

Additive or Subtractive Alternate Unit Price Bid Items

Include Costs for each Bid Item below. Costs for these Bid Items will be added or subtracted from the Contract Price based on: actual quantities of materials.

ITEM NO.	WORK OR MATERIAL	UNIT	QUANTITY	UNIT PRICE
1	Turfgrass Sod	SF	1	$_____
2	Irrigation Head	Each	1	$_____
3	Amendment	CY	1	$_____

END OF SECTION 00 41 00

SECTION 01 10 00
SUMMARY

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Description

1. The Work includes but is not limited to:

a. Small Field Site and appurtenances as described below and shown on plans up to Revision 3 dated 9/23/2015.

b. ~~Installation of two water storage tanks~~;

c. Removal of old irrigation system, ~~including pump in creek~~;

d. Amendment and finish grading of ~~two~~ small field turfgrass areas;

e. Installation of new irrigation ~~and tank fill~~ system;

f. Installation of turfgrass sod;

~~g. Water tank site and appurtenances as shown on plans up to revision 2 dated 6/17/2015.~~

h. Coordination with Owner, Owner's Representative, and Engineer of Record;

i. Regulatory Compliance and Environmental Protections such as, dust control and permanent erosion control;

2. Location: 6510 Bohemian Hwy, Occidental, CA 95465. Work areas are shown on Contract Drawings.

1.02 CONTRACT DRAWINGS

A. The following drawings accompany this specification and are a part thereof:

1. "Westminster Woods Water Conservation Project," 2/28/2014, Sheets 1 through 6, prepared by Prunuske Chatham Inc. with revision 3 dated 9/23/2015.

1.03 ORDER OF PRECEDENCE OF DOCUMENTS

A. In case of a difference between drawings and specifications, the specifications shall govern. In case of discrepancy either in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Owner, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at his/her own risk and expense.

B. A component in one Contract part applies as if appearing in each. The parts are complementary and describe and provide for a complete work.

C. The governing ranking of Contract parts in descending order is:

1. Permit Documents;
2. Contract Agreement;
3. Supplementary Conditions, if included;
4. General Conditions;
5. Division 1 Specifications;
6. Other Specifications;
7. Contract Drawings.

D. Any conflict between any quantity or list of materials in the Contract Documents and actual quantities required to perform the Work will be resolved in favor of the actual quantities.

1.04 SPECIFICATIONS LANGUAGE

A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words “shall be” are included by inference where a colon (:) is used within sentences or phrases.

1.05 WORK RESTRICTIONS

A. Work Hours: 7 AM - 5 PM, Monday through Friday; work on Saturdays, Sundays and holidays may be negotiated with Owner.

B. Work Commencement Date: to be determined; Work Completion Date: to be determined.

C. Disturbed Area: no more than 0.9 acres.

1.06 OCCUPANCY OF PREMISES

A. Westminster Woods Camp and Conference Center will remain open to the public during construction.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION 01 10 00

SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section includes specifications for measurement and payment as they apply to the work and includes provisions applicable to lump sum prices and unit prices.

B. Measurement methods specified in the individual sections of these specifications shall govern if they differ from methods specified in this section.

1.02 LUMP-SUM BID ITEMS

A. Bid items for the work of this contract for which contract lump-sum payments will be made are listed in the Bid Schedule and described below. All costs for items of work that are not specifically mentioned to be included in a particular lump-sum or unit-price payment item shall be included in the listed lump-sum item most closely associated with the work involved. The lump-sum price and payment made for each item listed shall constitute full compensation for furnishing all labor, materials, and equipment and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise authorized.

B. Lump-sum measurement will be for the entire item, unit of work, structure, or combination thereof, as specified in and as indicated in the Bid Schedule in the Bid Form.

1. If the Contractor requests progress payments for lump-sum items or amounts in the Bid Schedule, such progress payments will be made in accordance with a well-balanced, detailed program of payment apportioning prepared by the Contractor and submitted to the Owner for approval. Such payment apportioning may require modifications during the Contract, as determined by the Owner.

2. Such detailed program for each applicable lump-sum item shall show fixed definable and measurable quantities where possible and unit prices therefor as developed and assigned by the Contractor to the different features of the work and major subdivision thereof. The summations of extension of quantities and unit prices and related costs shall be equal the amount of the lump-sum Contract Price or lump-sum bid item indicated in the Bid Schedule.

3. Following the Owner's approval, progress payments will be made in accordance with the Contractor's payment-apportioning program and from the approved progress schedule, reflecting the progress that has occurred during the payment period as approved by the Owner.

1.03 UNIT PRICE BID ITEMS

A. Bid Items for the work of this contract on which the contract unit-price payments will be made are listed in the Bid Schedule and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all labor, materials, and equipment and performing any associated Contractor quality control, environmental inspection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit items.

B. Measurement Standards:

1. All work to be paid for at a Contract price per unit measurement, as indicated in the Bid Schedule, will be measured by the Owner in accordance with United States Standard Measures.

2. A ton shall consist of 2,000 pounds avoirdupois.

C. Measurement by Weight:

1. Provide or use platform scales of sufficient size and capacity to permit the entire vehicle to rest on the scale platform while being weighed.

2. A licensed weigh master shall weigh all materials on scales, and Contractor shall submit all weight slips and daily summary weigh sheets to the Owner.

D. Measurement by Volume:

1. Measurement by volume will be by the cubic dimension indicated in the Bid Schedule. Method of volume measurement will be by unit volume placed or removed as shown on the Contract Drawings or as specified. No payment will be made for placement or removal of materials other than to the dimensions shown in the Contract Drawings without prior written approval by the Owner's Representative. No allowance will be made for specified tolerances.

2. When material is to be measured and paid for on a volume basis, and it is impractical to determine the volume by specified measure of volume, or when requested by the Contractor in writing and accepted by the Owner's Representative in writing, the material may be weighed in accordance with the requirements specified for weight measurement. Such weights will be converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Owner's Representative and shall be agreed to by the Contractor before such method of measurement of pay quantities will be accepted.

E. Measurement by Area: Measurement by area will be by the square dimension shown on the Contract Drawings or as specified. Method of square measurement will be as directed by Owner's Representative.

F. Linear Measurement: Linear measurement will be by the linear dimension listed or indicated in the Bid Schedule. Unless otherwise indicated, items, components, or work to be measured on a linear basis will be measured at the centerline of the item in place.

G. Field Measurement for Payment:

1. The Owner's Representative will compute all quantities of work performed by the Contractor on a unit-price basis for payment purposes.

2. The Contractor shall assist the Owner's Representative in the taking of measurements by providing all equipment, workers, and survey crews as required to measure quantities.

1.04 VALUES OF UNIT PRICES

A. The number of units and quantities contained in the Bid Schedule as estimated quantities are approximate only, and final payment will be made for the actual number of units and quantities that are incorporated in the work and required by the Contract, as measured by the Owner's Representative.

B. In the event that work or materials or equipment are required to be furnished to a greater or lesser extent than is indicated in the Contract Drawings, and as determined by the Owner's Representative, such greater or lesser work or materials or equipment shall be furnished.

1.05 CONTRACT PAYMENTS

A. Progress Payments:

1. Invoice for Work Completed: Not more than once each month, the Contractor shall submit to the Owner's Representative an invoice for work completed or performed on a form mutually agreed upon by Owner and Contractor. The invoice shall be certified, and shall be supported by evidence as required by the Owner's Representative, that the work invoiced has been completed and that any materials listed were consumed, placed, and or stored at the locations indicated.

B. Full compensation:

1. Payment will be full compensation for furnishing all labor, materials, tools, equipment, transportation, facilities, services, and incidentals and for performing all work necessary for completing the construction or installation of the item or work classification.

2. Whenever it is specified in the Contract Documents that the Contractor is to perform work or furnish materials for which no price is fixed in the Contract, it is understood and agreed that there is included in each lump-sum price bid, or unit-price bid, the entire cost of the work, including all items of work that are incidental to the completion of those portions of the work covered by such lump-sum price bid or unit-price bid, or, if not directly incidental to any specific Bid Item in the Bid Schedule, the cost thereof has been distributed among those Bid Items in the Bid Schedule considered most appropriate by the Contractor.

3. Work that is not clearly indicated in the Contract Documents to be under a particular Bid Item in the Bid Schedule shall be automatically assigned to one of the lump-sum Bid Items in the Bid Schedule by the Contractor, so that all items of work, regardless of their characteristics or anonymity, are included in the Contract Price. Additional compensation will not be made for work items that do not clearly fall under listed Bid Items in the Bid Schedule.

1.06 REJECTED, EXCESS, OR WASTED MATERIALS

A. Quantities of materials wasted or disposed of in a manner not called for under the Contract; rejected loads of material, including material rejected after it has been placed due to the failure of the Contractor to conform to the provisions of the Contract; material not unloaded from the transport vehicle; material placed outside the lines indicated on the Contract Drawings or established by the Owner's Representative; or material remaining on hand after completion of the work will not be paid for, and such rejected, excess, or wasted materials shall not be included in the final total quantities. No additional compensation will be made for loading, hauling, and disposing of rejected materials.

1.07 MEASUREMENT AND PAYMENT

A. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the work.

PART 2 - MATERIALS – NOT USED

PART 3 - EXECUTION

3.01 LUMP-SUM BID ITEM: WESTMINSTER WOODS WATER CONSERVATION PROJECT

A. Mobilization and demobilization, including, but not limited to, mobilization/demobilization, contractor project management and coordination, regulatory and permit compliance, compliance with general conditions and special provisions, location of utilities, environmental protection, public safety protection, field engineering, surveying, and grade staking. This payment item shall be inclusive of all the construction phases. Items and tasks associated with mobilization and demobilization are specified in Section 01 11 00 Summary, Section 01 31 00 Project Management and Coordination, Section 01 35 23 Safety and Health Requirements, Section 01 41 00 Regulatory Compliance.

1. Payment shall be in full compensation for all labor, materials, incidentals, and costs and fees associated with, but not limited to, the following mobilization items: preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; the establishment of temporary facilities and protections necessary for the work on the project; and all other work and operations that must be performed or costs incurred before work begins on the various Contract Items at the project site.

2. Payment shall be in full compensation for all labor, materials, incidentals, and costs and fees associated with, but not limited to, the following demobilization items: work and operations at the conclusion of construction, including, but not limited to, those necessary for the removal of personnel, equipment, supplies, extra materials, and incidentals from the project site; removal of temporary facilities and protections; and all other work and operations that must be performed or costs incurred to conclude work on the various Contract Items for the project.

B. Westminster Woods Water Conservation Project includes, but is not limited to, ~~installation of two water storage tanks and associated tasks,~~ removal and disposal of old irrigation system, installation of new irrigation ~~and tank fill system, removal of trees and shrubs~~, amendment of turfgrass area soil, installation of turfgrass sod, and installation of permanent erosion control.

1. Payment shall be in full compensation for all labor, materials, incidentals, and costs and fees associated with, but not limited to, the aforementioned items.

C. All other work required by the drawings, specifications, or permits except the specific items listed herein below that are not part of the work.

~~3.02 ADD OR SUBTRACT ALTERNATE UNIT-PRICE BID ITEM: GALLON OF WATER STORAGE~~

~~A. Installation of water storage tanks greater than or less than the volume associated with the dimensions shown on Contract Drawings, if required, will be paid for or credited by unit price as submitted by Contractor on the Bid Schedule and as determined by the Owner's Representative. Water Storage Tanks are specified in Section 33 16 13 Above Ground Water Storage Tanks.~~

~~1. Payment shall be in full compensation for all labor, materials, incidentals, and costs and fees associated with Water Storage Tanks.~~

3.03 ADD OR SUBTRACT ALTERNATE UNIT-PRICE BID ITEM: TURFGRASS SOD INSTALLATION

A. Installation of turfgrass sod greater than or less than the area associated with the dimensions shown on Contract Drawings, if required, will be paid for or credited by unit price as submitted by Contractor on the Bid Schedule and as measured by the Owner's Representative. Turfgrass sod installation and preparation is specified in Section 32 92 23 Sodding.

1. Payment shall be in full compensation for all labor, materials, incidentals, and costs and fees associated with turfgrass sod installation.

3.04 ADD OR SUBTRACT ALTERNATE UNIT-PRICE BID ITEM: IRRIGATION HEAD

A. Installation of irrigation heads, and associated piping and wiring more than or fewer than the number shown on Contract Drawings, if required, will be paid for or credited by unit price as submitted by Contractor on the Bid Schedule and as determined by the Owner's Representative. Irrigation is specified in Section 32 80 00 Irrigation.

1. Payment shall be in full compensation for all labor, materials, incidentals, and costs and fees associated with installation of irrigation heads.

END OF SECTION 01 20 00

SECTION 01 26 00
CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 MINOR CHANGES IN THE WORK

A. Engineer will issue Engineer's Supplemental Instructions authorizing minor changes in the work that do not involve adjustments to the Contract Sum or the Contract Time.

1.02 OWNER-INITIATED CHANGE ORDER REQUESTS

A. Owner, Owner's Representative, and/or Project Engineer will issue a detailed description of proposed changes in the work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised drawings or specifications.

B. "Change Order Requests" are for information only. Do not consider them instructions to stop work in progress or to execute the proposed change.

C. Within time specified in the Change Order Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

1. Include a list of the quantities of materials or products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey and/or other data to substantiate quantities.

2. Indicate taxes, delivery charges, equipment rental, and amounts of trade discounts.

3. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including but not limited to, changes in activity duration, start and finish times, and activity relationship.

1.03 CONTRACTOR-INITIATED CHANGE ORDER REQUESTS

A. If latent or unforeseen conditions require modification to the Contract, Contractor may propose changes by submitting a written request for a Change Order.

1. Include a statement outlining reasons for the change and the effect of the change on the work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

2. Include a list of the quantities of materials or products required or eliminated and unit costs with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

3. Indicate taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including but not limited to, changes in activity duration, start and finish times, and activity relationship.

5. Submit substantiation of change in scope of work, if any, claimed in the Change Order Request related to unit-cost price. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

1.04 CHANGE ORDER PROCEDURE

A. On Owner's approval of a Change Order Request, Owner, Owner's Representative, or Project Engineer will issue a Change Order for signatures of Owner and Contractor.

1.05 CHANGE ORDER DIRECTIVE:

A. Engineer may issue a Change Order Directive that instructs Contractor to proceed with a change in the work for subsequent inclusion in a Change Order.

1. A Change Order Directive contains a complete description of change in the work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

2. Documentation: Maintain detailed records on a time-and-materials basis of work required by the Change Order Directive.

3. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustment to the Contract.

1.06 MEASUREMENT AND PAYMENT

A. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the work.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION 01 26 00

SECTION 01 26 13
REQUESTS FOR INTERPRETATION

PART 1 - GENERAL

1.01 DEFINITIONS

A. Request for Interpretation: A document submitted by the Contractor requesting clarification of a portion of the Contract Documents.

1.02 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS

A. Carefully study and compare Contract Documents with existing conditions at Project site and immediately report in writing to the Engineer, any error, inconsistency, or omission discovered, or any materials, systems, procedures, or methods of construction, either shown on the Drawings or specified, which the Contractor feels are incorrect, inadequate, obsolete, or unsuitable for purpose intended.

B. Before starting each portion of the Work, carefully study and compare Drawings and other Contract Documents related to that portion of the Work, and information furnished by the Owner, take field measurements of existing conditions related to that portion of the Work, and observe conditions at the site.

C. Any errors, discrepancies, inconsistencies, or omissions discovered shall be promptly reported to the Engineer as a Request for Interpretation. Contractor shall not proceed with the Work without written clarification from the Engineer.

D. In the case of conflicts or discrepancies between Drawings and Specifications, or within either Document not clarified by addendum, promptly submit written request to Engineer as a Request for Interpretation. Contractor shall not proceed with the Work without written clarification from the Engineer.

E. Contractor shall request clarification in sufficient time to avoid delays and increases in the Contract Sum.

1.03 CONTRACTOR'S REQUEST FOR INTERPRETATION (RFIs)

A. Contractor's Requests for Interpretation (RFIs): Should Contractor be unable to determine from the Contract Documents the exact materials, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of Work is described differently at more than one place in the Contract Documents; the Contractor shall request that the Engineer make an interpretation of the requirements of the Contract Documents to resolve such matters. Contractor shall comply with procedures specified herein to make Requests for Interpretation (RFIs).

B. Submission of RFIs: RFIs shall be prepared and submitted on a form provided by the Engineer.

1. Forms shall be completely filled in.

2. Each RFI shall be given a discrete, consecutive number.

3. Contractor shall sign all RFIs attesting to the good faith effort to determine from the Contract Documents the information requested for interpretation. If the information requested by the Contractor is apparent from field observations, is contained in the Contract Documents or is reasonably inferable from them, the Contractor shall be responsible to the Owner for all reasonable costs charged by the Engineer to the Owner for the additional services required to provide such information. Frivolous RFIs shall be subject to reimbursement from Contractor to Owner for fees charged by Engineer, Engineer's consultants, and other design professionals engaged by the Owner.

1.04 DISPUTED REQUIREMENTS

A. In the event that the Contractor believes that a clarification by the Engineer results in additional cost or time, Contractor shall not proceed with the Work indicated by the RFI until authorized to proceed by the Owner and Engineer and claim, if any, are resolved in accordance with provisions in the General Conditions of the Contract.

1.05 RFI LOG

A. Contractor shall prepare and maintain a log of RFIs, and at any time requested by the Engineer, the Contractor shall furnish copies of the log showing all outstanding RFIs.

1.06 REVIEW TIME

A. Engineer will respond to RFIs within 10 working days of receipt.

1.07 MEASUREMENT AND PAYMENT

A. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the Work.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION 01 26 13

SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes administrative provisions for coordinating construction operations for the project, including, but not limited to, the following:

1. General project coordination,
2. Administrative and supervisory personnel,
3. Project meetings,
4. Project schedule,
5. Submittal procedures, and
6. Project management and coordination submittals.

1.02 COORDINATION

A. Coordination: Coordinate construction operations included in various sections of the specifications to ensure efficient and orderly execution of each part of the work. Coordinate construction operations that depend on each other for proper installation, safety and health requirements, regulatory compliance, demolition, and operation.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with construction activities and activities of other contractors (where applicable) to avoid conflicts and to ensure orderly progress of the work.

C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.03 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. Staffing the project: Employ a competent superintendent and necessary assistant personnel consistent with the size and complexity of the project, who shall be in attendance at the project site during performance of the work. The superintendent shall have completed a 30-hour OSHA training course and a copy of their training card shall be submitted to the Owner. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

1.04 PROJECT MEETINGS

A. Construction progress meetings: Coordinate and conduct weekly meetings and conferences at the project site, unless otherwise notified. Attend additional progress meetings as requested by the Owner's Representative or Owner, or as required by the progress of the work. All participants shall be familiar with the project and authorized to resolve matters relating to the work.

1. Requirements for each progress meeting:

a. Updates of all administrative materials, including Construction Progress Schedule, Submittal Log, RFI log, and Change Order Requests are to be distributed by the Contractor at each construction progress meeting;

b. Updated 3-week look-ahead schedule and a verbal report on job status and progress, and

c. Status of any issues that may impact the Construction Schedule or Contract Price.

B. Preconstruction conference: Coordinate and conduct a preconstruction conference before starting construction, no later than fifteen (15) days after Notice of Award, to review project requirements, responsibilities, and personnel assignments.

1. Attendees: Authorized representatives of the Owner, Contractor, major subcontractors, and other concerned parties shall attend the conference. All participants shall be familiar with the project and authorized to resolve matters relating to the work.

2. Agenda: Discussion shall cover items of significance that could affect progress, including:

a. Construction schedule,

b. Mobilization,

c. Staging areas, truck unloading,

d. Phasing,

e. Critical work sequencing,

f. Provisions for public safety,

g. Designation of responsible personnel,

h. Procedures for processing Construction Change Directive and Change Orders,

i. Procedures for processing applications for payment,

j. Distribution of the Contract Documents,

k. Submittal procedures,

l. Preparation of Record Documents,

m. Use of premises by public during construction, and

n. Responsibility for temporary facilities and controls,

o. Parking availability,

p. Office, work, and storage areas,

q. Equipment deliveries and priorities,

r. Site security,

s. Site cleanliness, and

t. Working days and hours.

C. Pre-task meeting: Coordinate and conduct a pre-task meeting with the Owner or Owner's Representative at the project site before each new, significant construction activity listed below:

1. Demolition, tree removal, grading, etc. at water storage tank site,

2. Installation of water storage tanks,

3. Installation of irrigation system, and

4. Installation of turfgrass sod.

D. Subcontractor meetings: Conduct weekly coordination meetings with subcontractors and suppliers, as appropriate, to progress of the work. The Contractor shall have responsible representation, as appropriate, at these weekly coordination meetings.

E. Safety meetings: Coordinate and conduct weekly safety meetings with all on-site personnel, including Owner or Owner's Representative, and subcontractor personnel. Document meeting attendance and topics covered.

F. Post-construction pre-demobilization meeting: Coordinate and conduct on-site post-construction meeting with Owner or Owner's Representative for final inspection of work. Do not demobilize equipment, materials, or other resources before post-construction meeting.

1.05 PROJECT SCHEDULE

A. Create and maintain as current a project schedule showing all construction activities. Show expected duration and end dates of each activity.

1.06 SUBMITTAL PROCEDURES

A. Submittals: Submit all schedules, certificates, design data, field test reporting, shop drawings, product data, and samples to Owner.

B. Submittal Log: Maintain Submittal Log.

1.07 PROJECT MANAGEMENT AND COORDINATION SUBMITTALS

A. Project personnel: Submit list of project personnel, including superintendent, standby/substitute superintendent, and other key personnel. Include the following information:

1. Names and titles,

2. Duties and responsibilities, and

3. Contact information, including home and cell phone numbers.

B. Project meetings: Submit list of invitees and agenda prior to each meeting.

C. Safety meetings: Submit attendance record and topics covered.

D. Project schedule: Submit initial project schedule within fifteen (15) days of Notice of Award. Before each construction progress meeting, submit updated construction progress schedule.

1.08 MEASUREMENT AND PAYMENT

A. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the work.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION 01 31 00

SECTION 01 35 23
SAFETY AND HEALTH REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. The Contractor is responsible for the health and safety of its employees, employees of subcontractors, and any persons otherwise associated with the project. The Contractor is responsible for ensuring public safety in, around, and relating to the project.

1.02 REFERENCE STANDARDS

A. The latest published edition of a reference shall be applicable to this project unless identified by a specific edition date.

B. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

C. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this project.

D. All materials, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references:

1. American Society of Safety Engineers (ASSE/SAFE):

a. ASSE/SAFE A10.34 (2001, R 2012) Protection of the Public on or Adjacent to Construction Sites.

2. U.S. National Archives and Records Administration (NARA):

b. 29 CFR 1910 Occupational Safety and Health Standards,

c. 29 CFR 1926 Safety and Health Regulations for Construction.

1.03 PUBLIC HAZARD CONTROL PLAN

A. Provide and implement a Public Hazard Control Plan, including, but not limited to:

1. Provisions for public safety,

2. Safe practice standards for unloading trucks near public areas.

1.04 SITE-SPECIFIC HEALTH AND SAFETY PLAN

A. Provide and implement a Site-specific Health and Safety Plan, including, but not limited to:

1. Specific job hazard analyses,

2. Emergency contact information,

3. Emergency procedures,

4. First-aid/CPR certificates, and

5. OSHA 30-hour training certificates.

1.05 SANITARY FACILITIES

A. Provide sanitary facilities, including hand washing, in accord with all applicable laws and regulations including but not limited to public health regulations.

B. Stake down facilities to prevent wind-toppling.

C. Sanitary facility shall be installed and maintained to the current stormwater best management practices for the duration of the project. Locate sanitary facilities a minimum 150 feet away from the Dutch Bill Creek and the unnamed tributary next to the water storage tank site.

1.06 DUST CONTROL

A. Control all dust in project area.

1.07 SUBMITTALS

A. Public Hazard Control Plan.

B. Site-specific Health and Safety Plan.

1.08 MEASUREMENT AND PAYMENT

A. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the work.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

END OF SECTION 01 35 23

SECTION 01 41 00
REGULATORY COMPLIANCE

PART 1 - GENERAL

1.01 AUTHORITY AND PRECEDENCE OF CODES, ORDINANCES, PERMITS, AND STANDARDS

A. Authority: All codes, ordinances, permits, and standards referenced in the Contract Drawings and Specifications shall have the full force and effect as though printed in their entirety in the specifications.

B. Precedence:

1. Where specified requirements differ from the applicable codes, ordinances, permits, or standards, the more stringent requirements shall take precedence.

2. Where the drawings or specifications require or describe products or execution of better quality, higher standard, or greater size than required by applicable codes, ordinances, permits, and standards, the Contract Drawings and Specifications shall take precedence, so long as such increase is in conformance with legal requirements.

3. Where no requirements are required in the Contract Drawings or Specifications, comply with all requirements of applicable codes, ordinances, permits, and standards of authorities having jurisdiction.

1.02 APPLICABLE CODES, LAWS, PERMITS, AND ORDINANCES

A. Performance of the work shall be governed by all applicable codes, laws, permits, ordinances, and rules and regulations of federal, state, and local governmental agencies and jurisdictions having authority over the project.

B. Performance of the work shall meet or exceed the minimum requirements of the series of codes published by the California Building Standards Code (CBSC) and the National Electric Code (NEC), as adopted and interpreted by local authorities having jurisdiction.

C. Performance of the work shall be accomplished in conformance with all rules and regulations of public agencies, public utilities, utility districts, and other agencies serving or associated with the project.

D. Where such codes, laws, permits, ordinances, and rules and regulations require more care or greater time to accomplish work, or require better quality, higher standards, or greater size of products, work shall be accomplished in conformance to such requirements with no change to the Contract Time and Contract Sum, except where changes in codes, laws, permits, ordinances, rules, and regulations occur subsequent to the execution date of the Contract.

E. Local, state, and federal codes, laws, permits, ordinances, rules, and regulations relating to any portion of the work are hereby incorporated into and made part of these specifications, and their provisions shall be carried out by the Contractor. The Contract Drawings and Specifications shall not be construed to conflict with any of the above rules and regulations. When the Contract Drawings and Specifications call for or describe any material, workmanship, or method of construction that exceeds the requirements of the above rules and regulations, the Contract Drawings and Specifications shall take precedence.

1.03 PROJECT PERMITS

A. Sonoma County Grading and Drainage, Erosion and Sediment Control, and Grading and Drainage Inspection Notes as amended and attached herein are hereby incorporated into these specifications.

B. Compliance with the all necessary building, grading and drainage, or other permits, is part of the work.

1.04 WATER QUALITY

A. Contractor is responsible for maintaining water quality in Dutch Bill Creek and the unnamed tributary next to water storage tank area in relation to the project.

B. Provide and implement a Spill Prevention and Clean-up Plan, including spill prevention policies, clean-up procedures, and locations of refueling and minor maintenance areas.

1.05 SUBMITTALS

A. Spill Prevention and Clean-up Plan.

1.06 MEASUREMENT AND PAYMENT

A. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the Work.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION 01 41 00

SECTION 01 57 13
TEMPORARY EROSION AND SEDIMENTATION CONTROLS

PART 1 - **GENERAL**

1.01 DESCRIPTION

A. This section describes the temporary erosion, sedimentation, and tracking controls, required to minimize sediment pollution during construction.

B. Disturbed area relating to the Project will be less than one acre, and therefore will not require a Storm Water Pollution Prevention Plan; however, Contractor shall comply with the 2009-0009-DWQ Construction General Permit, amended by 2010-0014 & 2012-0006-DWQ.

C. Install Best Management Practices according to the California Stormwater Quality Association (CASQA) Stormwater Best Management Practices Handbook, updated 2012.

D. Contractor is accountable for temporary erosion control and ensuring no turbid water leaves the site. If turbid water leaves the site, Contractor is to make corrections outlined by the Owner or Owner's Representative. Contractor is to be in compliance with the California General Construction Permit for stormwater management.

E. Temporary erosion control BMPs will be required. The Owner or Owner's Representative will direct installation of BMPs that need to be installed around the perimeter of the site at the beginning of the project. In addition the Contractor is to submit a Rain Event Action Plan (REAP) to the Owner or Owner's Representative for approval 48 hours prior to any rain event with a 50% probability or greater. The REAP will specify construction preparation measures for protecting the site from weather. There will be no additional payment for the preparation of the REAP. Contractor shall also refer to Section 01 57 13 Temporary Erosion and Sedimentation Controls for guidelines during the course of construction.

F. The Bid Sheet will include a list of temporary BMPs and the Contractor will submit unit prices for each. Costs will be paid on a unit price basis for installed BMPs and unit prices shall include all Contractor costs. Cost for temporary erosion control will not be included in the bid and will be approved on an as needed basis by the Owner or Owner's Representative in conformance with the Bid Schedule.

1.02 SUBMITTALS

A. Product Data:

1. Steel grate tire cleaner,

2. Weed-free certification for rice straw.

B. Samples:

1. Rice straw fiber roll,

2. Steel fabric pins.

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

2.02 MATERIALS

A. Rice straw fiber roll: 100 percent bio-degradable, approximate dimensions 9 inches x 25 feet.

B. Steel fabric pins: 18 inch long, 6 gauge wire pins with chisel point and peened or welded head. Each pin shall be provided with a fender washer.

C. Steel grate tire cleaner.

D. Certified weed-free rice straw.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.

B. Install fiber rolls in all disturbed areas. On slopes 4 percent or flatter, install continuous lines of fiber rolls every one vertical foot. On slopes steeper than 4 percent, install continuous lines of fiber rolls every three vertical feet. Other than aforementioned spacing, install fiber rolls according to detail SE-5 in the CASQA handbook.

C. Install Entrance/outlet tire cleaner according to detail TC-3 in the CASQA handbook. Remove soil or gravel as necessary to maintain effectiveness of tire cleaner.

D. Apply weed-free rice straw pneumatically or by hand-spreading evenly at a rate of 3000 pounds per acre on all disturbed areas before any predicted rain event.

END OF SECTION 01 57 13

SECTION 02 32 00
GEOTECHNICAL INVESTIGATION

PART 1 - **GENERAL**

1.01 AVAILABLE DATA

A. The geotechnical report by RGH Consultants, “Geotechnical Study Report, Westminster Woods Water Tanks, 6510 Bohemian Highway, Occidental, CA,” Project Number 2817.03.04.1, dated May 24, 2013 can be made available to prospective bidders or Contractor for review upon request to the GRRCD Representative.

PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION 01 57 13

SECTION 02 41 00
DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. This section specifies demolition and removal of the old irrigation system in the large and small fields, and removal of the irrigation pump in Dutch Bill Creek.

1.02 PROTECTION

A. Perform demolition in such a manner as to eliminate hazards to persons and property and to minimize impacts on adjacent areas.

B. Coordinate with Owner's Representative before beginning creek pump removal work. Protect creek from turbid water or any work which could cause turbidity.

1.03 MEASUREMENT AND PAYMENT

A. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the Work.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 PREPARATION

B. Identify and locate all utilities in the project area before beginning demolition work, including contacting Underground Service Alert (USA) at least 48 hours before commencement of any excavation.

3.02 DEMOLITION

A. Completely demolish and remove entire pump structure in creek, including any other adjacent exposed pipes and valves. Confirm what is to be removed with Owner's Representative before proceeding.

B. Completely demolish and remove all old irrigation pipes, heads, valves, and valve boxes from the large and small fields.

C. Debris shall become the property of the Contractor and shall be removed from the site daily to the extent feasible. Store materials that cannot be removed daily in areas specified by the Owner's Representative. Install appropriate stormwater BMPs for any materials stockpiled and/or stored on site.

D. Remove and legally dispose of all materials in compliance with applicable federal, state, local permits, rules, and regulations.

3.03 ACCEPTANCE OF WORK

A. Notify Owner's Representative five (5) days prior to removal of pump to allow planning for inspection of demolition and removal work. Schedule work such that inspection by Owner's Representative may occur during removal of pump.

3.04 CLEAN-UP

A. Leave site in clean condition satisfactory to the Owner or Owner's Representative. Clean-up shall include removal of all items and materials associated with the project.

END OF SECTION 02 41 00

SECTION 31 13 00
TREE AND SHRUB REMOVAL

PART 1 - GENERAL

1.01 SUMMARY

A. This specification describes removal of trees and shrubs in the water storage tank area. See Plans for location of trees to be removed. All trees and shrubs are to be removed from within the water storage tank limits of grading. Some trees and shrubs may not be marked on the Plans.

1.02 MATERIAL OWNERSHIP

A. Except for redwood rootwads, attached trunks, and redwood logs, cleared materials shall become the Contractor's property and shall be removed from the Project Site. Coordinate with Owner's Representative for determining precise quantity and dimensions of redwood rootwads, trunks, and logs to remain on the Project Site.

1.03 PROJECT CONDITIONS

A. Westminster Woods may remain open during construction activities. Provide protection of public and property during tree and shrub removal.

B. Delineate and maintain staging area for processing and loading of tree and shrub materials for removal from Project Site. Coordinate staging area location and schedule with Owner and Owner's Representative before proceeding with tree and shrub removal operation.

1.04 PROTECTION

A. Perform tree and shrub removal in such a manner as to eliminate hazards to persons and property and to minimize impacts on adjacent areas.

B. Locate and protect all underground utilities that may be impacted by the work before beginning work. Follow Underground Service Alert procedure before beginning work.

C. Provide safeguards, including warning signs, barricades, temporary fences, and other similar items that are required for protection of all personnel and public during demolition and removal operations. Comply with the requirements of Section 01 35 23 Safety and Health Requirements and Section 01 41 00 Regulatory Compliance.

D. Maintain fences, barricades, and other similar items around work areas during all tree and shrub removal work.

E. When gas powered equipment is in use, provide and maintain fire extinguishers and other fire-fighting tools, such as MacLeods, shovels, etc., nearby ready for immediate use. Instruct all possible users in use and location of firefighting equipment.

1.05 SUBMITTALS

F. Disposal or reuse site information.

1.06 MEASUREMENT AND PAYMENT

G. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the Work.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.01 TREE AND SHRUB REMOVAL

1. Remove all trees and shrubs from within the limits of grading at the water storage tank site.

2. On all redwood trees, leave a minimum of 12 feet of trunk attached to the rootball.

3. Move rootballs with attached trunks to location determined by the Owner's Representative. Remove from the site all other brush, debris, wood chips, or other materials associated with tree and shrub removal to an approved disposal location.

3.02 CLEANING

A. Clean up all brush, debris, wood chips, or other materials associated with tree and shrub removal debris from staging areas, roads, paths, and areas adjacent to the work areas.

END OF SECTION 31 13 00

SECTION 31 20 00
EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

A. This section specifies the requirements for furnishing all equipment, materials, labor, tools, and techniques for earthwork, including, but not limited to:

1. Site preparation,
2. Excavation,
3. Backfill,
4. Finish Grading,
5. Subsurface Drainage, and
6. Gravel Road Construction.

1.02 RELATED SECTIONS

B. See Section 01 41 00 Regulatory Compliance, Section 01 35 23 Safety and Health Requirements, 31 13 00 Tree and Shrub Material, 31 25 00 Permanent Erosion and Sedimentation Controls, 33 16 13 Above Ground Water Storage Tank.

1.03 RELATED DOCUMENTS.

A. “Geotechnical Study Report, Westminster Woods Water Tanks” by RGH Consultants, Project Number: 2817.03.04.1, dated May 25, 2013.

1.04 MEASUREMENT AND PAYMENT

A. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the Work.

PART 2 - PRODUCTS

A. Aggregate Road Base: 1-1/2” inch, conforms to CalTrans Standard Specification (2010) 26-1.02B.

B. Select Fill: in conformance with Geotechnical Report recommendations.

C. Permeable Material: conform to CalTrans Standard Specification (2010) 68-2.02F(3).

D. Subsurface drain pipe and appurtenances: in conformance with Geotechnical Report recommendations.

PART 3 - EXECUTION

3.01 PREPARATION

A. Before beginning grading operations, radial stake grades at the tank site using a total station.

B. Locate and protect all underground utilities that may be impacted by the work before beginning work. Follow Underground Service Alert procedure before beginning work.

3.02 QUALITY ASSURANCE

A. Comply with recommendations of the Geotechnical Report.

B. Grading Tolerance: less than 0.1 feet.

3.03 TANK SITE GRADING

A. Cut and Fill to dimensions and elevations shown on Contract Drawings. Comply with recommendations of Geotechnical Engineer.

B. Install subsurface drain according to recommendations of Geotechnical Engineer.

3.04 GRAVEL ROAD

C. Scarify sub-grade to a depth of 6 inches, moisture condition, and compact to 95 percent relative compaction.

D. Install 12 inches of aggregate road base on new road to dimensions and elevations shown on Contract Drawings. Moisture condition road base material to near optimum. Compact in 6 inch lifts to 95 percent relative compaction.

3.05 SMALL FIELD

A. Field shall have as uniform and smooth a finished gradient possible with a minimum 2% slope draining towards the creek. Contractor is to check gradients with a laser level. See related Section 32 92 23 Sodding.

END OF SECTION 31 20 00

SECTION 31 25 00
PERMANENT EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

A. The Work in this section includes installation and maintenance of permanent erosion and sedimentation controls on all disturbed areas in the Project.

B. Comply with NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities 2009-0009-DWQ amended by 2010-0014 & 2012-0006-DWQ.

C. . Contractor is to install seed and straw mulch on any disturbed areas not otherwise treated.

1.02 SUBMITTALS

A. Product Data:

1. Rice straw fiber rolls,

2. Redwood bark mulch.

3. Seed tags and sample of rice straw

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

2.02 MATERIALS:

A. Rice straw fiber roll:

1. Certified weed-free rice straw, wrapped in jute netting or burlap;

2. 100 percent bio-degradable;

3. Approximate dimensions 9 inches by 25 feet.

B. Rope: 100 percent biodegradable natural fiber rope, 3/8 inch.

C. Stake: 1 inch by 2 inches by 24 inches wood stake.

D. Redwood bark mulch: coarse ground, natural color.

E. Seed mix shall be:

50% *Festuca rubra 'Molate'* Molate Fescue

50% *Vulpia microstachys* Three Weeks Fescue

2.01 MEASUREMENT AND PAYMENT

A. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the Work.

PART 3 - EXECUTION

3.01 PREPARATION

A. Restore all disturbed areas to original grade.

B. Smooth and compact finish grade surface by “track-walking” with tracked equipment perpendicular to the slope.

3.02 INSTALLATION

A. Order of operations: finish grade, then fiber rolls, then mulch.

B. Fiber rolls:

1. Determine layout of fiber rolls by using a laser level or transit. Install all fiber rolls on contour.

2. Install fiber rolls in all disturbed areas. On slopes 4 percent or flatter, install continuous lines of fiber rolls every one vertical foot. On slopes steeper than 4 percent, install continuous lines of fiber rolls every three vertical feet.

3. Turn ends of each fiber roll line uphill for a distance of approximately 3 feet at a 45 degree angle.

4. Pound wood stakes at spacing shown on plans to a depth of one foot. If stakes are not pre-notched, cut a small notch with a chainsaw or handsaw.

5. Attach rope tightly around stakes using a clove hitch knot around each stake.

6. Pound stakes again to refusal to hold fiber roll tightly against soil below.

C. Mulch:

1. Uniformly apply six inches of mulch between fiber rolls on all disturbed areas.

D. Seed:

1. Apply Seed Mix at a rate of 35 pounds pure live seed per acre. Apply weed free rice straw over seed at a rate of 3,000 lbs. per acre. Contractor to submit seed tags and sample of rice straw to Owner or Owner’s Representative for approval. Lightly rake ground surface before hand-broadcasting seed. Uniformly apply six inches of mulch between fiber rolls on all disturbed areas.

END OF SECTION 31 25 00

SECTION 32 01 80
IRRIGATION SCHEDULE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Specifications: 32 80 00 Irrigation and 32 92 23 Sodding.

1.02 SUMMARY

A. This specification defines the maximum run time per station by month that the irrigation timer should be programmed in order to efficiently use the water stored in the water storage tanks.

1.03 MAXIMUM IRRIGATION STATION RUN TIMES

A. The chart below shows the maximum recommended daily irrigation system run times in minutes, by irrigation station.

B. Program the irrigation controller to run the all stations every other day for twice the recommended daily rate listed below. For instance, program the controller to run Station 1 for 20 minutes every other day (9.8 minutes plus 9.8 minutes equals 19.6, round up to twenty minutes). Coordinate with Westminster Woods staff for precise time of day to run the irrigation system.

Station	May	June	July	August	September	October
1	9.8	11.3	11.3	9.8	8.3	6.0
2	4.9	5.6	5.6	4.9	4.1	3.0
3	4.9	5.6	5.6	4.9	4.1	3.0
4	2.5	2.8	2.8	2.5	2.1	1.5
5	2.5	2.8	2.8	2.5	2.1	1.5
6	12.2	14.1	14.1	12.2	10.3	7.5
7	6.1	7.0	7.0	6.1	5.2	3.8
8	6.6	7.6	7.6	6.6	5.6	4.0
9	3.3	3.8	3.8	3.3	2.8	2.0
10	3.3	3.8	3.8	3.3	2.8	2.0
11	3.3	3.8	3.8	3.3	2.8	2.0
12	3.3	3.8	3.8	3.3	2.8	2.0

1.04 MEASUREMENT AND PAYMENT

C. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the Work.

END OF SECTION 32 01 80

SECTION 32 80 00
IRRIGATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS.

A. "Geotechnical Study Report, Westminster Woods Water Tanks" by RGH Consultants, Project Number: 2817.03.04.1, dated May 25, 2013.

1.02 RELATED SECTIONS

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

C. Section 32 92 23 Sodding, Section 32 01 80 Irrigation Scheduling, and Section 33 16 13 Above Ground Water Storage Tank.

1.03 SUMMARY

D. This section specifies installation of the irrigation system, including but not limited to:

1. Rotor Sprinklers;
2. Irrigation laterals;
3. Pressurized mainline;
4. Electric valves and valve boxes;
5. Pressure Tank, switch, booster pump, electric panel;
6. Irrigation Controllers with:
    a. Timer,
    b. Soil moisture sensor,
    c. High flow shut-off valve,
    d. Flow-meter.
7. Water storage tank fill system; and
8. Design and provision of electric power to booster pump and irrigation controllers.

1.04 SYSTEM DESCRIPTION

A. The purpose of the project is to eliminate the in-stream pump currently used by the Owner by providing a system of spring water collection, storage, and distribution that will provide the necessary irrigation.

B. Spring water will be collected through an existing system of spring collection pipes. The water will be stored in above ground water storage tanks. The stored water and booster pump will be used to pressurize the water in the irrigation mainline. A smart irrigation controller will ensure that the newly sodded areas are not over-watered.

1.05 SUBMITTALS

A. Product Data:

1. Provide samples of one of each type pipe and fittings. Printed rating of pipe shall be visible and legible on each sample.

2. One each of: rotor sprinkler, remote electric valve, quick coupler, PVC ball valve, check valve and swing joint.

3. Manufacturer information such as Owner's Manuals for each component of the system, including, but not limited to:

a. Booster pump,

b. Pressure tank, and

c. Float valves and floats.

4. Shop Drawings: Provide shop drawings for electric power, booster pump pad configuration, including schematics, details.

5. Design Analysis and Calculations for pump, electric power.

6. Permits as required for electrical work.

B. Record Documents:

1. Manufacturer's warranty form in which manufacturer agrees to repair or replace components that fail in materials or workmanship within specified warranty period.

C. Operation and Maintenance Data: Prepare an Operation and Maintenance Manual for the irrigation system and the tank fill system.

1.06 SEQUENCING

A. Sequencing of work: Remove existing system, amend soil, finish grade sod areas, install irrigation system, prepare finish grade surfaces for sod, lay sod.

1.07 MEASUREMENT AND PAYMENT

B. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the Work.

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

B. Provide the following stock in addition to the required samples: Two rotor sprinklers of each size and type, six rotor nozzles of each size and type, two quick coupler keys with hose swivels, and two irrigation controller housing keys.

C. Critical components of the irrigation system include, but are not limited to the following:

1. Pipe: PVC plastic pipe, Schedule 40, unless otherwise noted. All pipe and appurtenances shall be purple to indicate non-potable water;

2. Fittings: socket fittings with solvent cement, unless otherwise noted;

3. Valves: Hunter PGV-201-AS-ADJ or approved equal;

4. Rotor Sprinkler: Hunter I-25-06-SS-18 or approved equal;

5. Irrigation Controller: Acclima ACC-CON-SC24, or approved equal;

6. Soil Moisture Sensor: Acclima ACC-SEN-TDT, or approved equal;

7. Flow Sensor: Hunter FCT-200, with flow-click interface panel, Hunter controller and master valve, or approved equal;

8. Valve Box: NDS 214 BC or approved equal;

9. Quick Coupler: Hunter HQ-33DLRC, or approved equal;

10. Quick Coupler key: Compatible with quick coupler, include hose swivel;

11. Concrete: 1 sack slurry, or Quikrete concrete mix, or approved mix;

12. Swing joint: Hunter SJ -712;

13. ¾” drain rock;

14. Fill Sand: Conforms with PG&E Engineering Material Specification No. 4123 (2009);

15. Float valve and float;

16. Concrete slurry for thrust blocks;

17. Booster pump and pressure tank to sized provide optimum pressure per manufacturer’s recommendations at the specified gallons per minute at each rotor sprinkler.

PART 3 - EXECUTION

3.01 EXAMINATION

A. After becoming familiar with all the details of the work verify all dimensions on the field and advise the Owner's Representative of any discrepancy before beginning work.

3.02 INSTALLATION

A. Uniform watering rate is critical to the success of the turfgrass. Use total station to lay out rotor heads and adjust to ensure head-to-head coverage.

B. Install irrigation system after finish grading has been completed and before sod has been installed. Conform to Geotechnical Report recommendations for utility trenching.

C. Coordinate with Westminster Woods staff for the tank fill tie-in at the existing sand filter.

D. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.

E. All installation shall be in accordance with manufacturer's published recommendations. Install irrigation system components according to the Contract Drawings and manufacturers' recommendations.

F. Exact field location of irrigation controllers shall be coordinated with Westminster Woods staff and GRRCD representative and location determined before installation. Provide electrical service to irrigation controller.

G. If minimum cover cannot be met, protect pipe by backfilling with concrete slurry.

3.03 ADJUSTMENT:

A. After installation of irrigation system, sprinkler heads shall be adjusted to be flush with finish grade of sod.

3.04 FIELD TESTING

A. Hydrostatic Pressure Test: Piping shall be tested hydrostatically before backfilling and proved tight at a hydrostatic pressure of 150 psi without pumping for a period of one hour with an allowable pressure drop of 5 psi. If hydrostatic pressure cannot be held for a minimum of four hours, make adjustments or replacements and repeat the tests until satisfactory results are achieved and accepted by the Owner's Representative.

B. At conclusion of pressure test, sprinkler heads, quick coupler assemblies, and hose valves shall be installed and entire system tested for operation under normal operating pressure. Operation test consists of the system operating through at least one complete programmed cycle for all areas to be irrigated.

3.05 CLEANUP

A. Upon completion of installation of system, all debris and surplus materials resulting from the work shall be removed.

3.06 FIELD TRAINING

A. Provide a field training course for designated Westminster Woods operating and maintenance staff. Field training shall cover all of the items in the operating and maintenance manual.

END OF SECTION 32 80 00

SECTION 32 92 23
SODDING

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Soils Testing,
2. Soil preparation,
3. Turfgrass Sod installation, and
4. Maintenance and Care.

B. Related Sections:

1. 32 01 80 Irrigation Watering Schedule, and 32 80 00 Irrigation.

1.02 REFERENCE STANDARDS

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

C. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the following references:

1. TPI GSS Guideline Specifications to Turfgrass Sodding (2006)

1.03 SUBMITTALS

D. Product Data:

1. Contractor to provide Owner or Owner's Representative a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of the soil. Contractor to report suitability of tested soil for plant growth.
2. Final soils testing results to be submitted to Owner or Owner's representative for approval before sodding occurs.
3. Submit data for turfgrass sod species and supplier.
4. Manufacturer's Certificate: certify products met or exceed specified requirements.
5. Invoices from supplier to verify quantities specified.

1.04 QUALITY ASSURANCE

A. Turfgrass sod: Root development capable of supporting its own weight without tearing, when suspended vertically by holding upper corner.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver sod on pallets. Protect exposed roots from dehydration.

B. Do not deliver more sod than can be laid in one work day.

1.06 MAINTENANCE

A. Maintain sodded areas immediately after placement until grass is well established and exhibits vigorous growth for three cuttings.

1.07 MEASUREMENT AND PAYMENT

A. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the Work.

B. Cost for (2) soils tests to be included in the bid. Cost for amendments installed (other than compost already specified in the bid documents), to be paid on a unit price basis agreed upon by the Contractor and Owner prior to installation.

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

2.02 MATERIALS

A. Sod: 90/10 Tall Fescue from Delta Bluegrass or approved equal.

B. Soil amendment: “All Green Compost” from Grab-n-Grow, Sonoma County or approved equal.

PART 3 - EXECUTION

3.01 PREPARATION

A. Contractor shall have existing topsoil tested prior to installation of amendments. Soil samples to be taken at three locations equidistant throughout field at a depth of 12”.

B. Based upon the test results, Owner or Owner’s representative will provide written recommendations to Contractor for soil amendments to be incorporated. After amendments have been installed, Contractor shall have amended soil sampled again to ensure it is satisfactory for planting.

C. In all turfgrass areas return grade to original grade. Grade all turfgrass area in a manner that no puddles or low spots will be present after sod is installed.

D. Rip soil in all turf areas to a minimum depth of 12 inches using ripping teeth on a bulldozer or motor grader. Care should be taken not to recompact soil after it has been ripped.

E. Broadcast compost evenly on all turfgrass areas. Minimum thickness of broadcast compost: 2 inches.

F. Disc or rototill compost to a minimum depth of 6 inches until compost has been completely incorporated.

G. Finish grade turfgrass areas. Remove or incorporate into the soil any soil clods or compost particle greater than ¾ inch median dimension. Remove all trash, debris, and other deleterious material.

H. Roll soil with a water-filled, walk-behind, non-motorized roller to a smooth, uniform soil surface which will result in compete contact between the soil and the sod roots.

3.02 INSTALLATION AND MAINTENANCE

A. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.

B. All sod installation shall be in accordance with manufacturer's published recommendations and TPI GSS Guideline Specifications to Turfgrass Sodding (2006).

C. Maintenance: Maintain newly sodded areas until such time that maintenance duties can be transferred to Westminster Woods staff. The effective date of transfer of duties shall be specified in a written notice to the Owner.

3.03 ACCEPTANCE OF WORK

A. Acceptance of work shall be on a daily basis, within 12 hours of completion of an area or section, unless otherwise specified,

END OF SECTION 32 92 23

SECTION 33 16 33
ABOVE GROUND WATER STORAGE TANKS

PART 1 - GENERAL

1.01 SUMMARY

A. This specification covers the furnishing of all labor, material, equipment, tools, services and erection of two water storage tanks, as shown on the plans and specified herein, including concrete footings.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

C. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the following references:

1. ANSI/AWWA D103-09 Factory Coated Bolted Carbon Steel Tanks for Water Storage.

2. “Geotechnical Study Report, Westminster Woods Water Tanks” Number 2817.03.04.1 by RGH Consultants, dated May 24, 2013.

1.03 SUBMITTALS

A. Shop Drawings: Submit shop drawings of the bolted steel reservoir tanks and all accessories for review and approval by the Engineer prior to beginning on any related shop fabrication or erection. Submittals shall include:

1. Design calculations, signed by a civil or structural engineer licensed in the State of California,

2. Fabrication and erection drawings and details for the reservoir and all accessories, and

3. Certified mill tests on steel plate and structural members demonstrating that the physical and chemical requirements of this Specification have been met.

1.04 DELIVERY, STORAGE AND HANDLING

A. Unload components of storage tank in parking area in front of office. Coordinate delivery with Westminster Woods staff prior to unloading.

B. Use long reach forklift to transport materials to erection site.

1.05 MEASUREMENT AND PAYMENT

C. Separate measurement and payment will not be made for work required under this section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form or incidental to the Work.

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

B. The manufacturer shall design, furnish, erect, and test the tank, as required by AWWA D103-09. The manufacturer shall be completely responsible for the construction and satisfactory performance of the tank during the guarantee period. The tank shall conform to AWWA D103-09, to the latest edition Uniform Building Code, and to the requirements of the Contract Drawings and Specifications. The supplier shall submit for approval complete and detailed plans for the tank and appurtenances.

C. Upper Water Storage Tank: the factory powder coated, bolted steel tank, manufactured by American Tank Co., Inc. or approved equivalent shall have a nominal capacity of 75,149 gallons. It shall have a nominal diameter of 23'-0 5/16" and a nominal height of 24'-1 1/2". A cone roof, sloped to drain toward the shell, shall be provided. Provide the reservoir complete with all pipe connections, access openings, nozzles. taps, drains, ladders, vent, and other accessories as shown on the plans or required herein.

D. Lower Water Storage Tank: the factory powder coated, bolted steel tank, manufactured by American Tank Co., Inc. or approved equivalent shall have a nominal capacity of 100,200 gallons. It shall have a nominal diameter of 23'-0 5/16" and a nominal height of 32'-2". A cone roof, sloped to drain toward the shell, shall be provided. Provide the reservoir complete with all pipe connections, access openings, nozzles. taps, drains, ladders, vent, and other accessories as shown on the plans or required herein.

2.02 ACCESSORIES

A. Shell Manhole on each tank: Provide a 24", minimum, hinged shell manhole located as shown on the drawings. The center of the manhole shall be located 30 inches above the bottom of the tank.

B. Pipe Connections on each tank:

1. 3" suction nozzle with anti-vortex plate,

2. 2" NPT inlet at top of tank,

3. 2" NPT outlet/overflow at top of tank, plugged.

C. Ladders on each tank:

1. Provide a galvanized steel welded exterior ladder with backguard. The ladder shall have a lockable closure at the bottom.

D. Roof Openings on each tank:

1. Provide a 20 inch screened opening. The vent shall be fabricated to provide removable screened openings between the vertical support members of the vent. The screened openings of the vent shall be sized by the manufacturer to all venting of a 3,000 gpm pumping rate. An effective area of 75% of screen opening shall be assumed. The screen shall consist of one layer of Type 316 stainless steel: 16 x 16 x 0.018 wire mesh insect screen.

2. The tank roof shall have a curbed, upward opening 24-inches square, minimum hatch located near the ladder. The curb shall extend at least 4 inches above the tank. The hatch cover shall be hinged and shall have locking provisions. The hatch cover lip shall extend for a distance of 2-inches down on the outside of the curb.

E. Liquid Level Indicators on each tank: Provide a American Tank, Liquid Level Indicator with Type 316 stainless steel internals and complete with float and target board assembly.

F. Steel Sheets, Plates, and Shapes:

1. Steel sheets shall have a minimum thickness of 12 gauge and shall conform to ASTM a 570, Grade 36, hot rolled structural quality, having a minimum yield strength of 36,000 psi.

2. Steel plates shall conform to ASTM A283, Grade C, having a minimum yield strength of 30,000 psi.

3. Structural Shapes: Hot-rolled structural shapes shall conform to AISC S326. The material shall conform to ASTM A36.

G. Bolts:

1. Bolts and nuts for joining tank panels shall conform to ASTM A307, A325, A490, AWWA D103-09 or API 12-B.

2. Bolts shall be mechanically galvanized to ASTM A123.

3. All bolt heads exposed to the interior of the tank shall be polycapped.

4. Encapsulated nuts shall be furnished for all nuts exposed to the tank interior.

H. Gaskets and sealants shall meet or exceed AWWA, FDA, and EPA standards for potable water.

I. Anchor bolts and stirrups, if required, to be furnished by the tank manufacturer.

J. Concrete footings: built according to Manufacturer's stamped plans and specifications.

PART 3 - EXECUTION

3.01 PROTECTIVE COATING

A. General: All metal plates, supports, members and miscellaneous parts, except bolts, shall be Factory Powder Coated in accordance with A.W.W.A. D103, Section 12.6 and this Section. Field coating, other than touch-up, will not be permitted.

B. Surface Preparation: All steel surfaces shall be sandblasted to equivalent of a SP 10 commercial blast metal finish. The surface anchor pattern shall be no less than 1.5 mils.

C. Coating:

1. All interior steel surfaces, support members and miscellaneous parts shall receive 5 mils minimum average dry film thickness using Dupont "Tank Tan" (An NSF 61 Approved, Thermal Set Epoxy Powder Coating).

2. All exterior steel surfaces, support members and miscellaneous parts shall receive 3 mils minimum average dry film thickness using Dupont “Green” (A Thermal Set TGlC-Polyester Powder Coating).

3.02 CONSTRUCTION

A. Field erection of Factory Powder Coated bolted steel tanks shall be in strict compliance with manufacturer's recommendations and performed by manufacturer’s employees or certified erection crew to alleviate any potential disputes in coating quality or erection thereof. Particular care shall be exercised in handling and bolting of the tank plates, supports, and members to avoid abrasion or scratching the coating. Prior to placing water in the tank, a “holiday” inspection of the entire tank, corners included, will be provided and performed by the manufacturer in the presence of the owner. Touch-up coating shall be done per the manufacturer's recommendations where needed and as directed.

B. Installation of water tanks shall be in compliance with RGH Consultants Geotechnical study.

3.03 WARRANTY

A. American Tank Co., Inc., the tank manufacturer, shall warrant the tank against any defects in workmanship and materials for a period of five (5) years from the date of shipment. In the event any such defect should appear, it should be reported in writing to the manufacture during the warranty period.

3.04 FOUNDATION

A. See foundation specifications prepared by American Tank Co.

END OF SECTION 33 16 33