

ITEM 12.2 (ID # 4840)

**MEETING DATE:** Tuesday, July 25, 2017

#### FROM : DEPARTMENT OF WASTE RESOURCES:

**SUBJECT:** DEPARTMENT OF WASTE RESOURCES: Approval of Contract Documents for the Southeast Channel Improvement Project at the Corona Landfill, District 2 [\$0 – Department of Waste Resources Enterprise Funds]; Nothing Further Required under CEQA.

**RECOMMENDED MOTION:** That the Board of Supervisors:

- Find that nothing further is required pursuant to the California Environmental Quality Act (CEQA), whereas on June 21, 2016, the Board of Supervisors adopted a Mitigated Negative Declaration (MND) and Mitigation Monitoring Program (MMP) for the Project, based on the findings incorporated in Environmental Assessment (EA) Corona No. 2015-02, concluding that with mitigation, the Project would not cause significant environmental impacts; and
- 2. Approve the Contract Documents including Specifications (Contract Documents) for the construction of the Southeast Channel Improvement Project at the Corona Landfill; and
- 3. Authorize the General Manager-Chief Engineer of the Riverside County Department of Waste Resources to advertise for bids.
- 4. Direct the Department of Waste Resources to file the Notice of Determination with the County Clerk within five working days of approval by this Board.

**ACTION:** Policy

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#### MINUTES OF THE BOARD OF SUPERVISORS

On motion of Supervisor Tavaglione, seconded by Supervisor Perez and duly carried by unanimous vote, IT WAS ORDERED that the above matter is approved as recommended.

Ayes:	Jeffries, Tavaglione, Washington, Perez and Ashley
Nays:	None
Absent:	None
Date:	July 25, 2017
XC:	Waste

Kecia Harper-Ihem Cler

#### SUBMITTAL TO THE BOARD OF SUPERVISORS COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

SOURCE OF FUNDS: Department of Waste Resources Enterprise Funds					For Fiscal Year:	17/1	18
					Budget Adjustment:	No	
NET COUNTY COST	\$	0	\$	0	<b>\$</b> 0	5	\$ o
COST	\$	0	\$	0	<b>\$</b> 0	\$	0
FINANCIAL DATA	Current Fiscal Y	ear:	Next Fiscal Y	ear:	Total Cost: Ongoin	ig Cost	

C.E.O. RECOMMENDATION:

#### **BACKGROUND:**

#### <u>Summary</u>

The Corona Landfill was in operation from 1951 to 1986 and was closed with a prescriptive landfill cover in 1991. Over the operational life of the landfill, a creek that ran through the site was re-aligned further to the southeast, moving with landfill operations. The creek is now the Corona Landfill Southeast Channel and flows adjacent to the southeastern edge of the landfill. It is a key link in the City of Corona's stormwater drainage system, conveying stormwater from approximately one third of the city's watershed through the landfill property to a Flood Control channel. The channel is under capacity and is suffering severe erosion damage on the channel banks due to an inadequate revetment system. If the channel continues in its current state, stormwater flow may continue to flood the landfill, damaging landfill control systems, and erode the landfill slope, potentially exposing landfilled waste.

The Corona Landfill Southeast Drainage Channel Improvement Project will increase the hydraulic capacity of the channel to a 100yr 24hr storm to meet California Code of Regulations Section 20365 requirements for landfill drainage structure design and armor the slope with articulating concrete blocks strung together with steel cords. Additionally, the California Department of Fish and Wildlife has required that approximately 1.9 acres of the channel remain undisturbed riparian habitat. The undisturbed riparian habitat has been incorporated into the Project design.

#### California Environmental Quality Act (CEQA) Findings

On June 21, 2016, the Board of Supervisors adopted the MND and MMP for the Project based on the analysis and findings contained in EA No. Corona 2015-02, which concluded that with mitigation, the Project would not cause significant environmental impacts. The Project contemplated in this Form 11 merely involves approval of the Contract Documents identifying work within the Southeast Channel at the Corona Landfill. The work contemplated in the Contract Documents, which was already evaluated under CEQA in the adopted EA/MND, involves increasing the hydraulic capacity of the channel through earthwork excavation, engineered fill construction, buried refuse excavation, onsite re-burial of landfill waste, construction of concrete retaining walls, armoring the landfill slope and placing riprap (ungrouted) along the channel bottom. Construction activities will occur within permitted landfill disturbance areas and the Improvement Project does not involve expansion of approved uses. The Contract Documents will be advertised, and ultimately, a contractor will be selected to

#### SUBMITTAL TO THE BOARD OF SUPERVISORS COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

complete the work (under a separate Board action). As determined in the adopted EA/MND, the Project would not cause significant environmental impacts; as such, a Notice of Determination shall be filed by the Department with the County Clerk within in five days of Project approval.

#### Impact on Residents and Businesses

The project limits are located near neighborhoods to the southeast of the landfill site. Temporary sound walls will be installed near the perimeter of the project next to the homes to reduce heavy equipment sound. Additionally, work will not be permitted between 3:30PM and 7:00AM to further minimize sound. A stabilized construction entrance will be installed at the construction entrance on Bel-Air Street to reduce the amount of dirt that leaves the site and the street will also be cleaned as necessary by a street sweeper. No businesses will be affected by construction.

Completion of this project protects the public health and safety from the potential exposure of landfill material.

#### SUPPLEMENTAL:

#### **Contract History and Price Reasonableness**

The Engineer's estimate for this project is \$1,500,000 and the action today, if approved, will authorize the Department to pursue competitive bids through the California Public Works Contract process. The Department will then return to the Board of Supervisors to seek approval to award the Contract to the lowest responsible bidder.

ATTACHMENTS:

ATTACHMENT A. Contract Documents

ATTACHMENT B. <u>Notice of Determination</u>

#### SUBMITTAL TO THE BOARD OF SUPERVISORS COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

Priarios, Director County Counsel Gregory I

7/13/2017 Alex Gan 7/19/2017

Gregory Priarios, Director County Counsel 7/13/2017

Original Negative Declaration/Notice of Determination was routed to County

#### COUNTY OF RIVERSIDE Clerks for posting on. DEPARTMENT WASTE RESOURCES 72517 NOTICE OF DETERMINATION Date

TO:

Office of Planning and Research (OPR) 1400 Tenth Street Sacramento, CA 95814

or County Clerk'	s Use Only:	
v	·	

X County Clerk County of Riverside

FROM:

Riverside County Department of Waste Resources 14310 Frederick Street Moreno Valley, CA 92553

Subject: Filing of Notice of Determination in compliance with Section 21152 of the Public Resources Code

Project Title: Corona Landfill Southeast Drainage Channel Improvement Project

State Clearinghouse (SCH) No.: 2016041027 Contact: Ryan Ross Phone: 951-486-3200

Project Applicant/Property Owner & Address:

Riverside County Department of Waste Resources 14310 Frederick Street, Moreno Valley, CA 92553

**Project Location:** The inactive Corona Landfill is located south of the junction of Magnolia Avenue at the intersection of Magnolia Avenue and Sherborn Street, immediate adjacent to Interstate 15, in the City of Corona, Riverside County (Section 32, T3S, R6W of SBBM). APNs 107-080-010;-034;-005; and -006.

**Project Description:** The proposed Project involves all permitting, agreements, funding, contracts, and work necessary to facilitate erosion control improvements to the existing Southeast Drainage Channel (SE Channel) at the inactive Corona Landfill. The project will repair and improve landfill slope armoring and increase the capacity of the existing drainage channel.

This is to advise that the Riverside County Board of Supervisors has approved the above-referenced project on July 25, 2017 and has made the following determinations regarding that project:

- 1. The project will not have a significant effect on the environment. Project impacts were previously analyzed and mitigated through mitigation measures adopted as part of the Project's Initial Study/Mitigated Negative Declaration (SCH No. 2016041027), which was previously prepared and certified pursuant to the provisions of the California Environmental Quality Act (Public Resources Code, § 21000 et seq.).
- 2. A Mitigated Negative Declaration was prepared for this Project pursuant to the provisions of CEQA.
- 3. Mitigation measures were made a condition of the approval of the Project.
- 4. A mitigation monitoring program was adopted for this Project.
- 5. A statement of Overriding Considerations was not adopted for this Project.
- 6. Findings were made pursuant to the provisions of CEQA.

This is to certify that the Mitigated Negative Declaration and record of project approval is available to the general public at: Riverside County Department of Waste Resources

14310 Frederick Street, Moreno Valley, CA 92553

Signature: Title: Principal Planner Date: 7/25/17 Ryan Ross TO BE COMPLETED BY OPR Date Received for Filing and Posting at OPR:



### **CONTRACT DOCUMENTS**

### FOR

# **CONSTRUCTION OF THE**

### SOUTHEAST DRAINAGE CHANNEL IMPROVEMENT PROJECT

## AT THE

### **CORONA LANDFILL**

# July 2017

Prepared by:

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

14310 Frederick Street Moreno Valley, CA 92553

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#### **GENERAL PROVISIONS**

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#### APPENDICES

Appendix A –SCAQMD Form 403-N & Rule 1150 Excavation Permit Standard Conditions Appendix B – BMP Installation Details from the 2003 CASQA Stormwater BMP Handbook

PROJECT DRAWINGS (HALF SIZE AND FULL SIZE)

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#### NOTICE TO CONTRACTORS

The Riverside County Department of Waste Resources, hereinafter called "County," invites sealed bids for

#### <u>CONSTRUCTION OF THE</u> SOUTHEAST DRAINAGE CHANNEL IMPROVEMENT PROJECT <u>AT THE</u> <u>CORONA LANDFILL</u>

Contract Documents may be examined at the County's office located at 14310 Frederick Street, Moreno Valley, California, and may be obtained at the County office for \$35per set, or \$45 if mailed by U.S. mail (mailing cost does not apply when using recipient's mailing account number). No refund will be made.

The Project Drawings are also available electronically in digital Microstation (.dgn) format. The digital files will be available by email and on the Riverside County Department of Waste Resources Website. No refund will be made. This digital data was created using Microstation software, and will be made available only in the Microstation (.dgn) format. This digital data is to be used at the Contractor's own discretion. The County is not responsible for the manner in which the Contractor chooses to use the digital data. The County is not responsible for how this digital data might be converted by the Contractor to another format. The Contractor is solely responsible for its use of this digital data.

Each proposal must be accompanied by a certified or cashier's check or bid bond equal to ten percent (10%) of the amount bid, payable to the County of Riverside as a guarantee that the Contractor will, if awarded the contract, execute a satisfactory contract and furnish the required bonds and provide the required certificates of insurance.

Proposals must be placed in a sealed envelope clearly marked "Contractor's Proposal". Proposals must be in accordance with the instructions and filed with the County by <u>11:00 am on</u> **Tuesday, August 15, 2017** at 14310 Frederick Street, Moreno Valley, CA 92553 which time and place are fixed for the public opening of bids. A <u>mandatory</u> pre-bid site review will be conducted at the landfill on <u>Thursday, August 3, 2017, at 10:00 am</u>. The Corona Landfill site is located on the southeast corner of the intersection of Interstate Highway 15 and Magnolia Avenue, in the Corona, CA. Access to the site is behind the Corona City Animal Service and Shelter building, off Downs Way. All questions must be submitted in writing by 5:00 p.m. on **Tuesday, August 8, 2017** to Sarah Lunetta via email (<u>slunetta@rivco.org</u>) or fax at 951-486-3250.

General prevailing rate of per diem wages and general prevailing rate of per diem wages for holiday and overtime work, including employer payments for health and welfare, pension, vacation, apprentices and similar purposes for each craft, classification or type of workman needed for execution of contracts under the jurisdiction of the County have been obtained by the County from the Director of Industrial Relations of the State of California for the area where the work is to be done. These are on file at the County's office, and will be made available to any interested person upon request. Contractors submitting proposals for this project shall have a <u>Class A</u> Contractors license from the State of California in order to be considered eligible for the contract award.

#### **BIDDER QUALIFICATIONS:**

A bidder must satisfy the following requirements to bid on this project:

- 1. The Contractor and/or subcontractor shall have successfully completed an earthwork construction project with at least 50,000 CY of engineered fill including soil material processing, placement, compaction, and grading per plan.
- 2. The Contractor and/or subcontractor shall have successfully completed an earthwork construction project with at least 5,000 CY of blending Final Cover Material.
- 3. The Contractor and/or subcontractor shall have successfully completed an earthwork construction project with at least 50,000 CY of excavation to line and grade.
- 4. The Contractor and/or subcontractor shall have successfully completed an earthwork construction project with at least 2,500 CY of landfill refuse excavation.
- 5. The Contractor and/or subcontractor shall have successfully completed a construction project with at least 100 CY of reinforced shotcrete/concrete drainage structures.
- 6. The Contractor and/or subcontractor shall have successfully completed a construction project with installing at least 75,000 SF of Articulated Concrete Blocks mats strung together with steel cords.

#### **SUBMITTAL REQUIREMENTS:**

With the submittal of the Proposal, the Contractor shall submit for approval by the County documented evidence of satisfaction of all of the Bidder Qualifications listed above, including the name and experience of the superintendent and senior personnel that will be responsible for earthwork and concrete placement. As part of this submittal, a project reference list shall be provided indicating at a minimum, the name, address, and phone number of the project owner and owner's representative, the location of the project, the amount of material installed, and completion date.

Dated: \_\_\_\_\_

#### RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans W. Kernkamp General Manager - Chief Engineer

#### **INSTRUCTIONS TO BIDDERS**

**QUANTITIES:** The amount of work to be done or materials to be handled under the Contract as noted in the proposal are but estimates and are not to be taken as an expressed or implied statement that the actual amount of work or materials will correspond to the estimate. The County reserves the right to increase or decrease or to entirely eliminate certain items from the work or materials if found desirable or expedient. The Contractor will be allowed no claims for anticipated profits, loss of profits or for any damages of any sort because of any difference between the estimated and the actual amounts of work done, or materials furnished or used in the completed project. The Contractor is cautioned against unbalancing of his bid by including his overhead into one or two items only when there are a number of items on the schedule. The overhead and indirect charges should be prorated on all items in the schedule.

**DISCREPANCIES AND OMISSIONS:** Discrepancies, omissions, ambiguities, or requirements likely to cause disputes shall be immediately brought to the attention of the County. When appropriate, Addenda will be issued by the County. No communication by anyone as to such matters except by an Addendum affects the meaning or requirements of the Contract Documents. If at any time (before or after submittal of its bid) the Contractor is of the opinion that there is or may be a discrepancy or inconsistency in the plans, drawings, specifications or other Contract Documents, it shall <u>immediately report this in writing to the County</u> and shall not proceed with any related work until ordered so to do.

**WITHDRAWAL OF PROPOSALS:** Any proposal may be withdrawn at any time prior to the hour fixed in the Notice to Contractors for the opening of proposals, provided that a request in writing, executed by the bidder or his duly authorized representative, for the withdrawal of such proposal, is filed with the County. The withdrawal of a proposal shall not prejudice the right of a bidder to file a new proposal.

**AGREEMENT OF FIGURES:** If the unit prices and the total amounts named by the bidder in the proposal do not agree, the unit prices alone will be considered as representing the bidder's intention.

**INVALID PROPOSALS:** Proposals submitted by fax or telegraph and those which fail to reach the place fixed for opening of proposals prior to the date and hour set for opening same will not be considered.

INSPECTION OF SITE, LIKELY RAIN CONDITIONS, AND UNDERSTANDING OF CONTRACT PROVISIONS: Prior to submission of a bid, bidders must have examined the site and fully acquainted themselves with all conditions affecting the work. RAIN IS LIKELY TO OCCUR DURING CONSTRUCTION. STORMWATER RUNOFF FROM APPROXIMATELY ONE THIRD OF THE CITY OF CORONA WILL PASS THROUGH THE CHANNEL DURING A RAIN EVENT. THE CONTRACTOR SHALL THEREFORE PROVIDE A PLAN OF PROTECTION AGAINST DAMAGE CAUSED BY STORMWATER FLOW FOR ALL WORK WITHIN THE DRAINAGE CHANNEL. THIS PLAN SHALL NOT RELIEVE THE CONTRACTOR OF ITS RESPONSIBILITES FOR WEATHER DAMAGE TO THE PROJECT SITE AS STATED IN THE CONTRACT DOCUMENTS. Information derived from maps, plans or specifications, or from the County will not relieve the successful bidder from properly carrying out all the terms of the contract. By the submittal of a proposal, the bidder will be held to have personally examined the site and the drawings, to have carefully read all of the specifications and other Contract Documents, and to have satisfied himself as to his ability to meet all the difficulties attending the execution of the work. The bidder agrees that if he is awarded the contract he will make no claim against the County based on ignorance or misunderstanding of the contract provisions; and that the bidder fully understands the payment method for the work.

**QUALIFICATIONS OF BIDDERS:** No proposal will be accepted from a Contractor who is not licensed under laws of California, as evidenced by the submittal of the Statement of Licensure. No award will be made to any bidder who cannot give satisfactory assurance to the County as to his ability to carry out the contract, both from his financial standing and by reason of his previous experience as a Contractor on work of the nature contemplated in the contract.

**VENDOR REGISTRATION:** Contractors must be registered with the County in order to be considered eligible for the Contract award. To register, Contractors may utilize "Vendor Self-Registration" web site at <u>http://www.purchasing.co.riverside.ca.us</u> and complete the on-line registration form.

#### Information needed in order to register:

- 1. User name (This person will be responsible for original registration and any future change.)
- 2. User Password
- 3. Company information including:
  - a. All Addresses (Corporate, Remit to, Sales, etc)
  - b. Company type (Corporation, partnership, sole proprietorship, etc)
  - c. Tax Identification Number (or social security number for individuals)
  - d. Status (women, minority, Disabled Veteran owned, etc)
  - e. Qualification as a local Riverside County business
  - f. Banking Information for future electronic payment processes
- 4. Contact Information including:
  - a. Names
  - b. Titles/Positions
  - c. Contact Numbers (Phone, Fax, Cell phone, etc
  - d. E-Mail address for future correspondences
- 5. List of items/services you wish to provide to the County.

**PROPOSAL FORMS:** Attention of all bidders is called to the proposal affidavit forms attached hereto and bidders are cautioned that all proposals submitted must be accompanied by the proper affidavit, properly executed. Proposals must be made on the form furnished by the County.

**REJECTION OF PROPOSALS CONTAINING ALTERATIONS, ERASURES OR IRREGULARITIES:** Proposals may be rejected if they show any alterations of form, additions not called for, conditional proposals, incomplete proposals, erasures, or irregularities of any kind. Erasures or interlineations in the proposal must be explained or noted over the signature of the bidder.

**PUBLIC OPENING OF PROPOSALS:** Proposals will be opened and read publicly at the time and place indicated in the Notice to Contractors. Bidders or their authorized agents are

invited to be present.

**DISQUALIFICATION OF BIDDERS:** More than one proposal from an individual, a firm or partnership, a corporation or an association under the same or different names will not be considered. Reasonable ground for believing that any bidder is interested in more than one proposal for the work contemplated will cause the rejection of all proposals in which such bidder is interested. If there is any reason for believing that collusion exists among the bidders, none of the participants in such collusion will be considered in awarding the contract. Proposals in which the prices appear to be unbalanced may be rejected.

**ADDENDA:** County reserves the right to issue Addenda to the Contract Documents at any time prior to the time set to open bids. Each potential bidder shall leave with the County its name, address, and fax number for the purpose of receiving Addenda. To be considered, a Contractor's proposal must list and take into account all issued Addenda.

**AWARD OF CONTRACT:** The County reserves the right to reject any and all proposals or to waive technical defects as the best interests of the County may require. Prior to award of the contract, and if requested by County, the Contractor agrees to meet with the County to review the details and calculations of the Contractor's proposal and the Contractor's understanding of any aspect of the work. The award of the Contract, if it be awarded, will be to the lowest responsible and qualified bidder. The award, if made, will be made within approximately seven (7) to fourteen (14) days after the opening of the proposals. The Contract shall be awarded based upon the total bid including the base bid and all optional bid items. The optional bid items shall be awarded in the County's discretion. Contractor shall be aware that County may not decide to award some optional bid items during the project construction phase.

**BIDDER'S CHECK OR BOND:** Each proposal must be accompanied by a certified or cashier's check or by a bid bond only on the form supplied by the County, drawn in favor of the County in an amount not less than ten percent (10%) of the total bid. This check or bond shall be given as a guarantee that the bidder, if awarded the contract, will execute and deliver the Contract, the required Payment and Performance Bonds, and the required certificates of insurance in accordance with his bid accepted by the County. In default of execution of the Contract upon award and/or delivery of said Payment and Performance Bonds and certificates of insurance, such Bid Bond or check shall be held subject to payment to the County for the difference in money between the amount of the contract with another party to perform the work, together with the cost to the County of redrafting, redrawing and publishing documents and papers necessary to obtain new bids on said work. The check or bond shall, in addition, be held subject to all other actual damages suffered by the County. The check or bond will be returned upon the close of the period mentioned in these Instructions below and to the successful bidder upon execution of the Countract. NO BONDS WILL BE ACCEPTED UNLESS SUBMITTED ON THE FORM SUPPLIED BY THE COUNTY.

**FORFEITURE FOR FAILURE TO POST SECURITY AND EXECUTE CONTRACT:** In the event the bidder, to whom an award is made, fails or refuses to post the required bonds and provide the required certificates of insurance and fails to return executed copies of the Agreement within five (5) calendar days after the prescribed forms are presented to him for signature, the County may award the work to the next best bidder, or may call for new bids.

**RETURN OF PROPOSAL GUARANTEES:** Within ten (10) business days after the award of the contract, the County will return the proposal guarantees accompanying those proposals that are not considered in making the award. All other proposal guarantees will be held until the contract has been fully executed and the required bonds and certificates of insurance have been provided, after which they will be returned to the respective bidders whose proposal they accompany.

**CONTRACT BONDS:** The Contractor shall furnish two (2) surety bonds in duplicate, one as a security for the faithful performance of the contract in the amount equal to one hundred percent (100%) of the contract price, and one as security for the payment of all persons performing labor and furnishing materials in connection with the contract. All bonds must be submitted on forms provided by the County. Bonds submitted in any other form will not be accepted. Should any surety on the Payment Bond or Performance Bond be deemed unsatisfactory by the County, Contractor shall upon notice promptly substitute new bonds satisfactory to the County. All bonds must be issued by sureties which are licensed by the State of California to issue such bonds.

**SUBLETTING AND SUBCONTRACTING:** Bidders are required, pursuant to the Subletting and Subcontracting Fair Practices Act (commencing with Section 4100 of the Public Contract Code), to list in their proposal the name and location of place of business of each subcontractor who will perform work or labor or render services in or about the construction of the work or improvement or a subcontractor who specially fabricates and installs a portion of the work or improvement, in excess of one-half ( $\frac{1}{2}$ ) of one percent (1%) of the prime Contractor's total bid. Failure to list a subcontractor for a portion of the work means that the prime contractor will do that portion of the work.

**"OR EQUAL":** Pursuant to Division 2, Chapter 3, Article 5, commencing at Section 3400 of the Public Contract Code, all specifications shall be deemed to include the words "or equal," provided, however, that permissible exceptions shall be specifically noted in the specifications. Any "equal" proposed by the Contractor must be described in the Contractor's Proposal.

**ANTI-DISCRIMINATION:** It is the policy of the County that in connection with all work performed under this Contract, there be no discrimination against any prospective or active employee engaged in the work because of race, color, ancestry, national origin, religious creed, sex, age, marital status, or sexual preference. The Contractor agrees to comply with applicable Federal and California laws including, but not limited to, the California Fair Employment Practice Act, beginning with Labor Code Section 1410, and Labor Code Section 1735. In addition, the Contractor agrees to require like compliance by any subcontractors employed on the work.

#### **CONTRACTOR'S PROPOSAL**

#### TO THE BOARD OF SUPERVISORS OF THE COUNTY OF RIVERSIDE:

The undersigned hereby declares:

(a) That the only persons or parties interested in this proposal as principals are the following:

(If the Contractor is a corporation, give the name of the corporation and the name of its president, secretary, treasurer, and manager. If a co-partnership, give the name under which the co-partnership does business, and the names and addresses of all copartners. If an individual, state the name and address under which the contract is to be drawn.)

- (b) That this proposal is made without collusion with any other person, firm or corporation.
- (c) That he has carefully examined the location of the proposed work, and has familiarized himself with all of the physical, climatic or other conditions related to the work.
- (d) That he has carefully examined the attached specifications, plans, and other Contract Documents, and makes this proposal in accordance therewith.
- (e) That, if this proposal is accepted, he will enter into a written contract with the County of Riverside.
- (f) That he proposes to enter into such contract and to accept in full payment for the work actually done the prices stated in this proposal. It is understood that final payment will be based on actual quantities of material removed.

Accompanying this proposal is a certified or cashier's check or bid bond payable to the order of the County of Riverside in the sum of

\_\_\_\_\_ Dollars (\$\_\_\_\_\_)

#### THE REQUIRED REFERENCES AND OTHER REQUIRED DOCUMENTS MUST BE ATTACHED TO THIS PROPOSAL

Contractor bids as follows for the <u>Southeast Drainage Channel Improvement Project at the</u> <u>Corona Landfill</u> located in Corona, Riverside County, California:

#### Base Bid Items:

Item	Item of Work	Unit	Quantity	Unit	Sub-Total
No.				Cost	Cost
1	Prepare and Implement NPDES SWPPP	LS	1		
2	Mobilization and Demobilization	LS	1		
3	Install Temporary Sound Barriers	LS	1		
4	Clear and Grub Channel	LS	1		
5	Remove and Stockpile Existing Riprap Rock	SF	30,000		
6	Earthwork – SE Floodplain Engineered Fill to Subgrade	CY	923		
7	Construct Grouted Riprap Inlet	SF	825		
8	ACB Contech Size 50 Material and Installation	SF	60,421		
9	ACB Contech Size 70L Material and Installation	SF	64,206		
10	ACB Drainage Gravel (Floodplains)	SF	33,697		
11	Earthwork - Backfill ACB	SF	110,157		
12	Hydroseed	SF	110,157		
13	Placement of Riprap Rock Over ACB	SF	27,749		
14	Concrete Retaining Wall (Station 6+60)	LF	89		
15	Concrete Retaining Wall End Structure (Station 8+00)	LS	89		
16	Concrete Retaining Wall (Station 9+00)	LF	86		
17	Concrete Retaining Wall End Structure (Station 10+00)	LS	75		
18	Concrete Retaining Wall (Station 11+20)	LF	58		
19	Concrete Retaining Wall End Structure (Station 12+40)	LS	69		
20	Concrete Retaining Wall (Station 13+30)	LF	77		

21	Concrete Retaining Wall End Structure (Station 14+30)	LS	65	
22	Concrete Retaining Wall (Station 17+80)	LF	74	
23	Concrete Retaining Wall End Structure (Station 18+85)	LS	79	

#### Base Bid Items Total Cost \$

#### **Optional Bid Items:**

Item No.	Item of Work	Unit	Quantity	Unit Cost	Sub-Total Cost
24	Earthwork - Excavate to Channel Subgrade	CY	18,072		
25	Earthwork – Excavate NW Floodplain Subgrade	CY	5,073		
26	Earthwork – Excavate Landfilled Material	CY	13,322		
27	Earthwork – Place Final Cover over Landfilled Materials	CY	5,222		
28	Earthwork – Excavate Clay to Subgrade	CY	80		
29	Time and Materials	LS	1	\$100,000	\$100,000

**Optional Bid Items Total Cost** \$

#### TOTAL COST \$\_\_\_\_\_

For Bid Item No. 1 – Prepare and Implement NPDES SWPPP, the Contractor declares the following Schedule of Costs:

#### **BID ITEM NO. 1 – PREPARE AND IMPLEMENT NPDES SWPPP**

Sub-Item of Work	Unit	Quantity	Unit Cost	Sub-Total Cost
Prepare SWPPP	LS	1		
Apply for CGP Coverage	LS	1		
Implement and Maintain Site BMPs	LS	1		
Nuisance Water Diversion	LS	1		
Storm Specific BMPs to Protect Work in the Channel	EA	3		

Bid Item #1 Total Cost \$ \_\_\_\_\_

Contractor acknowledges receipt of Addenda No \_\_\_\_\_\_.

Name of Contractor:

Address:
Telephone:
Contractor's License No. and Classification:
Department of Industrial Relations (DIR) Registration Number:
Signature:
Name:
Title:
Dated:

#### LIST OF SUBCONTRACTORS

The name and the location of the place of business of each subcontractor who will perform work or labor or render service to the Prime Contractor in or about the construction of the work or improvement, or a subcontractor who specially fabricates and installs a portion of the work or improvement, in an amount in excess of one-half ( $\frac{1}{2}$ ) of one percent (1%) of the Prime Contractor's total bid and the portion of the work which will be done by each such subcontractor is as follows:

Item No. (s):	
Name of Subcontractor:	
Phone and Fax Numbers	
Address:	
Subcontractor's License No. and Classification:	
Department of Industrial Relations (DIR) Registration Number:	
Item No. (s):	
Name of Subcontractor:	
Phone and Fax Numbers	
Address:	
Subcontractor's License No. and Classification:	
Department of Industrial Relations (DIR) Registration Number:	
Item No. (s):	
Name of Subcontractor:	
Phone and Fax Numbers	
Address:	
Subcontractor's License No. and Classification:	
Department of Industrial Relations (DIR) Registration Number:	
Item No. (s):	
Name of Subcontractor:	
Phone and Fax Numbers	
Address:	
Subcontractor's License No. and Classification:	
Department of Industrial Relations (DIR) Registration Number:	

Item No. (s):	
Name of Subcontractor:	
Phone and Fax Numbers	
Address:	
Subcontractor's License No. and Classification:	
Department of Industrial Relations (DIR) Registration Number:	

#### STATEMENT OF LICENSURE

Pursuant to California Public Contract Code (commencing with Section 3300), the undersigned does certify as follows:

- 1. That the pocket license/certificate of licensure I have presented to County as of this date is my own license, being State of California Contractors License No.\_\_\_\_;
- 2. That said Contractors License is current and valid; and
- 3. That said Contractors License is of a classification appropriate to the work to be undertaken for County, a Class \_\_\_\_\_\_ license.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Dated:	Signature:	
	Name:	
	Title:	

#### AFFIDAVIT FOR INDIVIDUAL CONTRACTORS

SS

STATE OF CALIFORNIA )

COUNTY OF RIVERSIDE )

\_\_\_\_\_, being first duly sworn, deposes

and says:

That he or she is the party making the foregoing proposal or bid; that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the Riverside County Waste Department of Waste Resources or anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_\_ 20\_\_\_\_.

Signature of officer administering oath

#### AFFIDAVIT FOR JOINT VENTURE OR COPARTNERSHIP CONTRACTOR

STATE OF CALIFORNIA )

SS

COUNTY OF RIVERSIDE )

\_\_\_\_\_, being first duly sworn, deposes and says:

That he or she is a member of the joint venture or co-partnership firm designated as

which is the party making the foregoing proposal or bid; that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the Riverside County Department of Waste Resources or anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

That he has been and is duly vested with authority to make and sign instruments for the joint venture or co-partnership by

who constitute the other members of the joint venture or co-partnership.

Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_\_ 20\_\_\_\_ .

Signature of officer administering oath

#### AFFIDAVIT FOR CORPORATE CONTRACTOR

\_\_\_\_\_, being first duly sworn, deposes

SS

STATE OF CALIFORNIA )

COUNTY OF RIVERSIDE )

and says:

That he or she is \_\_\_\_\_

of \_\_\_\_\_

a corporation which is the party making the foregoing proposal or bid; that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the Riverside County Department of Waste Resources or anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_\_ 20\_\_\_\_

Signature of officer administering oath

#### **BID BOND**

Recitals:

- 1. \_\_\_\_\_\_ (Contractor) has submitted its Contractor's Proposal to the County of Riverside, by and for the Department of Waste Resources, for the construction of the public work known as Construction of the <u>Southeast Drainage Channel Improvement Project at the Corona Landfill</u> in accordance with a Notice to Contractors dated \_\_\_\_\_\_.
- 2. \_\_\_\_\_\_ a \_\_\_\_\_ corporation, hereafter called Surety, is the surety on this Bond.

Agreement: We, Contractor as principal and Surety as surety, jointly and severally agree and state as follows:

- 1. The amount of the obligation of this Bond is 10% of the amount of the Contractor's Proposal and inures to the benefit of County.
- 2. This Bond is exonerated by (1) County rejecting said Proposal or, in the alternate, (2) if said Proposal is accepted, Contractor executes the Agreement and furnishes the Bonds and certificates of insurance as agreed to in its Proposal, otherwise it remains in full force and effect for the recovery of loss, damage and expense of County resulting from failure of Contractor to act as agreed to in its Proposal.
- 3. Surety, for value received, stipulates and agrees that its obligations hereunder shall in no way be impaired or affected by any extension of time within which County may accept the Proposal and waives notice of any such extension.
- 4. This Bond is binding on our heirs, executors, administrators, successors and assigns.

Dated:	
By:	By:
Title:(Surety)	_ Title: (Contractor)

NOTE: This Bond must be executed by both parties with corporate seal affixed. All signatures must be acknowledge by a notary (attach acknowledgments).

#### AGREEMENT

THIS AGREEMENT is made as of \_\_\_\_\_\_ and is between the COUNTY OF RIVERSIDE (County) and \_\_\_\_\_\_ (Contractor).

#### IT IS AGREED BY THE PARTIES AS FOLLOWS:

- 1. The Work. Contractor shall furnish all tools, equipment, apparatus, facilities, labor and material necessary to perform the work for the project, <u>Southeast Drainage</u> <u>Channel Improvement Project at the Corona Landfill</u> in exact conformity with the Contract Documents, subject to such inspection as County deems appropriate.
- 2. Contract Documents. The Contract Documents for the project are:
  - (a) Notice to Contractors;
  - (b) Instructions To Bidders;
  - (c) Contractor's Proposal;
  - (d) Agreement;
  - (e) Bid Bond;
  - (f) Performance Bond;
  - (g) Payment Bond;
  - (h) General Provisions;
  - (i) Special Provisions;
  - (j) Appendix A SCAQMD Form 403-N & Rule 1150 Excavation Permit Standard Conditions;
  - (k) Appendix B BMP Installation Details from the CASQA Stormwater BMP Handbook;
  - (1) Any other documents included in or incorporated into the Contract Documents or in the County's bid package;
  - (m) Addenda Nos.

Each of the above-mentioned documents presently in existence are by this reference incorporated into this Agreement and each of these documents not now in existence are incorporated herein as of the time of their issuance.

3. Contract Price - Payment. **Exhibit A** is attached to and incorporated into this Agreement and states the basis for full payment for this project. Contractor represents that it fully understands the payment method for the work.

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES 14310 Frederick Street Moreno Valley, CA 92553

By: \_\_\_\_\_

Hans W. Kernkamp General Manager - Chief Engineer

COUNTY OF RIVERSIDE

By: \_\_\_\_\_

Chairman, Board of Supervisors

#### ATTEST:

By: \_\_\_\_\_ Kecia Harper-Ihem, Clerk of the Board

By: \_\_\_\_\_

Deputy

(Seal)

Contractor

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title:

(If corporation, attach corporate seal)

#### **EXHIBIT** A

(To Agreement for the Riverside County Department of Waste Resources, Project, <u>Southeast</u> <u>Drainage Channel Improvement Project at the Corona Landfill</u>, located in Corona, Riverside County, California.)

It is understood that the quantities listed (except for those shown as "Lump Sum, [L.S]") are but estimates only and final payment will be based on actual quantities, whatever they may be, subject to such adjustments and alterations as elsewhere provided for in the Contract Documents.

ltem No.	Item of Work	Unit	Quantity	Unit Cost	Sub-Total Cost
1	Prepare and Implement NPDES SWPPP	LS	1		
2	Mobilization and Demobilization	LS	1		
3	Install Temporary Sound Barriers	LS	1		
4	Clear and Grub Channel	LS	1		
5	Remove and Stockpile Existing Riprap Rock	SF	30,000		
6	Earthwork – SE Floodplain Engineered Fill to Subgrade	CY	923		
7	Construct Grouted Riprap Inlet	SF	825		
8	ACB Contech Size 50 Material and Installation	SF	60,421		
9	ACB Contech Size 70L Material and Installation	SF	64,206		
10	ACB Drainage Gravel (Floodplains)	SF	33,697		
11	Earthwork - Backfill ACB	SF	110,157		
12	Hydroseed	SF	110,157		
13	Placement of Riprap Rock Over ACB	SF	27,749		
14	Concrete Retaining Wall (Station 6+60)	LF	89		
15	Concrete Retaining Wall End Structure (Station 8+00)	LS	89		
16	Concrete Retaining Wall (Station 9+00)	LF	86		

#### Base Bid Items:

17	Concrete Retaining Wall End Structure (Station 10+00)	LS	75	
18	Concrete Retaining Wall (Station 11+20)	LF	58	
19	Concrete Retaining Wall End Structure (Station 12+40)	LS	69	
20	Concrete Retaining Wall (Station 13+30)	LF	77	
21	Concrete Retaining Wall End Structure (Station 14+30)	LS	65	
22	Concrete Retaining Wall (Station 17+80)	LF	74	
23	Concrete Retaining Wall End Structure (Station 18+85)	LS	79	

#### Base Bid Items Total Cost \$

#### **Optional Bid Items:**

Item No.	Item of Work	Unit	Quantity	Unit Cost	Sub-Total Cost
24	Earthwork - Excavate to Channel Subgrade	CY	18,072		
25	Earthwork – Excavate NW Floodplain Subgrade	CY	5,073		
26	Earthwork – Excavate Landfilled Material	CY	13,322		
27	Earthwork – Place Final Cover over Landfilled Materials	CY	5,222		
28	Earthwork – Excavate Clay to Subgrade	CY	80		
29	Time and Materials	LS	1	al Cost \$	

**Optional Bid Items Total Cost** \$

#### TOTAL COST \$\_\_\_\_\_

For Bid Item No. 1 – Prepare and Implement NPDES SWPPP, the Contractor declares the following Schedule of Costs:

#### **BID ITEM NO. 1 – PREPARE AND IMPLEMENT NPDES SWPPP**

Sub-Item of Work	Unit	Quantity	Unit Cost	Sub-Total Cost
Prepare SWPPP	LS	1		
Apply for CGP Coverage	LS	1		

Implement and Maintain Site BMPs	LS	1	
Nuisance Water Diversion	LS	1	
Storm Specific BMPs to Protect Work	EA	3	
in the Channel			

Bid Item #1 Total Cost \$

#### **PERFORMANCE BOND**

Recitals:

1. \_\_\_\_\_\_ (Contractor) has entered into an Agreement dated \_\_\_\_\_\_ with the COUNTY OF RIVERSIDE (County) for construction of the public work known as <u>Southeast</u> Drainage Channel Improvement Project at the Corona Landfill (Project).

2. \_\_\_\_\_, a corporation (Surety), is the surety under this Bond.

Agreement: We, Contractor as principal, and Surety as surety, jointly and severally agree, state, and are bound unto County, as obligee, as follows:

- 1. The amount of the obligation of this Bond is 100% of the estimated contract price for the Project of \$\_\_\_\_\_\_ and inures to the benefit of the County.
- 2. This Bond is exonerated by Contractor doing all things to be kept and performed by it in strict conformance with the Contract Documents for the Project, otherwise it remains in full force and effect for the recovery of loss, damage and expense of County resulting from failure of Contractor to so act. All of said Contract Documents are incorporated herein.
- 3. This obligation is binding on our successors and assigns.
- 4. For value received, Surety stipulates and agrees that no change, time extension, prepayment to Contractor, alteration or addition to the terms and requirements of the Contract Documents or the work to be performed there under shall affect its obligations hereunder and waives notice as to such matters, except the total contract price cannot be increased by more than 25% without approval of Surety. (If the total contract price is inadvertently increased by more than 25% without approval of Surety, this performance bond will remain in effect for that portion of the contract existent prior to the 25% exceedance).

Ву:	By:
Title:	Title:
(Surety)	(Contractor)

THIS BOND is executed as of \_\_\_\_\_\_.

NOTE: This Bond must be executed by both parties with corporate seal affixed. All signatures must be acknowledge by a notary (attach acknowledgments).

#### **PAYMENT BOND**

#### (Public Work - Civil Code, Section 3247 et seq.)

The makers of this Bond are	as
Principal and Original Contractor and	
corporation, authorized to issue surety bonds in California, as	Surety, and this bond is issued in
conjunction with that certain public works contract dated	, between
Principal and the COUNTY OF RIVERSIDE (Co	
\$, the total amount payable. Said	contract is for the public work
generally consisting of the Southeast Drainage Channel Imp	provement Project at the Corona
Landfill. The beneficiaries of this Bond are as is stated in Se	ection 3248 of the Civil Code and
Sections 3248, 3249, 3250 and 3252 of said Code. Without no	otice, Surety consents to extension
of time for performance, change in requirements, amount of co	ompensation, or prepayment under
said contract.	
Dated:	
Dated	
By: By:	
Title: Title:	

(Surety)

(Contractor)

NOTE: This Bond must be executed by both parties with corporate seal affixed. All signatures must be acknowledge by a notary (attach acknowledgments).



### **GENERAL PROVISIONS**

## FOR

## **CONSTRUCTION OF THE**

## SOUTHEAST DRAINAGE CHANNEL IMPROVEMENT PROJECT

## AT THE

## **CORONA LANDFILL**

# **July 2017**

Prepared by:

#### **RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES**

14310 Frederick Street Moreno Valley, CA 92553

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# 1. SECTION 1 - DEFINITION OF TERMS

### 1.1. TERMS

Whenever in these specifications, or in any documents or instruments where these specifications govern, the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

- a) AGENCY: Whenever used in the Standard Specifications shall refer to County.
- b) BOARD OF SUPERVISORS: The Board of Supervisors of the County, also sometimes referred to as the Board.
- c) DEPARTMENT, COUNTY, OR OWNER: The County of Riverside, by and for the Waste Management Department.
- d) ENGINEER: The General Manager Chief Engineer of the Riverside County Waste Management Department, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.
- e) LABORATORY: The laboratories authorized by the County to test materials and work involved in the contract.
- f) BIDDER: Any individual, firm or corporation submitting a proposal for the work contemplated, acting directly or through a duly authorized representative.
- g) CONTRACTOR: The person or persons, co-partnership or corporation, private or municipal, who have entered into the Agreement with the County, or his or their legal representatives.
- h) SUPERINTENDENT: The executive representative of the Contractor, present on the work at all times during progress, authorized to receive and execute instruction from the County.
- i) PLANS or PROJECT DRAWINGS: The official plans, profiles, typical cross sections, general cross sections, working drawings, and supplemental drawings, or exact reproductions thereof, approved by the County, which show the location, character, dimension and details of the work to be done, and which are to be considered a part of the Contract Documents.
- j) SPECIFICATIONS: The directions, provisions, and requirements contained in the Contract Documents as to the method and manner of performing the work or to the quantities and qualities of materials to be furnished under the contract.
- k) CONTRACT: The written Agreement covering the work.
- 1) CONTRACT PRICE: Shall mean either the lump sum, unit price, or unit prices named in the Agreement, or the total of all payments under the contract at the lump sum, unit price, or unit prices, as the case may be.
- m) SURETY OR SURETIES: The bondsmen or party or parties, approved by the County, who may guarantee the fulfillment of the contract by bond, and whose signatures are attached to said bond.
- n) RIGHT OF WAY: The whole right of way which is reserved for and secured for use

in constructing the improvement.

o) THE WORK: All the work specified in the Contract Documents.

### **1.2.** SIMILARITY OF WORDS

Wherever in the specifications or upon the plans the words directed, required, permitted, ordered, designated, prescribed, or words of like import are used, it will be understood that the direction, requirements, permission, order, designation, or prescription of the County is intended, and similarly the words approved, acceptable, satisfactory, or works of like import, shall mean approved by, or acceptable to, or satisfactory to, the County, unless otherwise expressly stated.

# 2. SECTION 2 - SCOPE OF WORK

# **2.1.** WORK TO BE DONE

The Contractor shall provide all labor, power, light, water, materials, equipment, tools, scaffolding, machinery, transportation, insurance, permits, bonds, temporary protection, watchmen, and superintendence necessary to construct and complete all work, and to furnish all materials included in the contract, except those furnished by the County as specifically stated in the Contract Documents.

The Contract Documents are complementary, and the work called for by any one shall be as binding as if called for by all.

# **2.2.** CONSTRUCTION SCHEDULE

The Contractor shall submit to the County at least monthly, or at such times as may be requested by the County, a schedule which shall show the order and dates in which the Contractor proposes to carry on the various parts of the work, including estimated completion dates. The County's receipt of such schedule(s) shall not indicate any concurrence by the County in the items or dates described in the schedule(s).

# 2.3. DRAWINGS AND SPECIFICATIONS ON THE WORK

The Contractor shall keep one copy of all drawings and specifications on the work, in good order, available to the County and its representatives.

# 2.4. ESTIMATE OF QUANTITIES

It is understood that the quantities listed (except for those shown as "Final" or "Lump Sum") are but estimates only and final payment will be based on actual quantities for the work whatever they may be, subject to such adjustments and alterations as elsewhere provided for in the Contract Documents. The County is not to be held responsible for the accuracy of the estimate of quantities. The Contractor shall judge for himself, after considering all circumstances and conditions, the costs and quantities of materials involved in the work.

The Contractor shall not at any time assert that there was any misunderstanding in regard to the nature of the work or the kind or amount of materials to be furnished for the work. The Contractor shall not ask, demand, sue for, or seek to recover compensation in excess of the costs or charges for the work as stated in the Agreement.

# 2.5. PROTESTS

If the Contractor considers any work demanded of it to be outside of the requirements of the contract, the Contractor shall immediately and before the start of such work state this in writing to the County. In such writing, the Contractor shall clearly and in detail state the basis of its protest. Except for such protests as are made of record in the manner herein specified, the records, rulings, instruction, or decisions of the County shall be final and conclusive. Written protest by the Contractor shall not in any way relieve the Contractor from proceeding with the work as directed by the County.

#### 2.6. ALTERATIONS

The Contractor agrees that reasonable alterations and modifications may be made by the County and that this may be done without notice to the sureties on the Contractor's bonds. If such changes result in increased or decreased quantities under the items specified in the Agreement, the Contractor will be paid on the basis of actual quantities as measured by the County; and such changes shall not affect the unit prices bid by the Contractor.

### 2.7. EXTRA WORK

# 2.7.1. General

The County reserves and shall have the right to revise the details of the contemplated work, or to add work of a different character or function, and have the Contractor perform such revised or added work as "Extra Work", when such extra work is considered by the County to be appurtenant to the satisfactory completion of the project. "Extra Work" is defined as added work of a different character or function and for which no basis for payment is prescribed; or that work which is indeterminate at the time of advertising and is specifically designated as extra work. The signing of the contract by the Contractor will be deemed to be an agreement on his part to perform extra work, as and when ordered by the County. If required extra work results in delay to the work, the Contractor will be given an appropriate extension of time.

The General Manager – Chief Engineer shall have the authority to approve changes or additions in the work in accordance with Public Contract Code 20142 without Board of Supervisors approval.

# 2.7.2. Procedure for Extra Work

Extra work may not be done by the Contractor without prior request and proper written approval by the County. Upon decision of the County to have extra work performed, the County will so inform the Contractor, acquainting it with the details of the new work. The Contractor shall thereupon present in writing a price for said work to the County, whose written approval shall be secured before work is started; except that the County may order the Contractor to proceed with extra work in advance of the submission of such prices provided that preliminary estimates show that the cost will not exceed \$1,000.

Prices for extra work shall be prepared by the Contractor on one or both of the following methods, as requested by the County, and submitted to the County for approval:

For a stated unit price or lump sum amount based upon current prevailing fair prices for materials, labor, plant, overhead and profit.

On a cost plus 15 percent basis (force account by the Contractor). The cost of all work done by the Contractor on a cost plus 15 percent basis will be computed in the manner described in Section 7, and the compensation thus provided shall be full payment to the Contractor related to the extra work.

Upon receipt of the Contractor's price, the County will make an analysis thereof and in its discretion adopt one of the following procedures:

Accept the Contractor's price for lump sum or unit price amount in the original or amended form and direct it to proceed with the work; or direct it to perform the work on a cost plus 15 percent basis.

Have the work performed by County's forces or by separate contract.

Direct the Contractor to proceed with the work and accept payment therefore in the amount as adjudicated later in a court of law.

The price agreed to by the Contractor for the extra work shall be full compensation to the Contractor for all labor, materials, equipment or other costs related to the extra work.

# **2.8.** PAYMENT FOR EXTRA WORK

At the end of each month the Contractor shall make and deliver to the County a statement of the cost of the extra work completed during the current month, itemized and in a form satisfactory to the County. Payment for extra work shall be added to the monthly partial payment made in accordance with Section 7.5 of the General Provisions.

### 2.9. RIGHTS OF WAY

The County shall provide the rights of way as specifically described in the Contract Documents upon which the work under this contract is to be done, except that the Contractor shall provide land required for the erection of temporary construction facilities and storage of his material, together with right of access to same.

#### **2.10.** CLEANING UP

The Contractor shall, as directed by the County, remove from the County's right of way and from all public and private property, at its own expense, all temporary structures, rubbish and waste materials resulting from its operations.

# **3. CONTROL OF THE WORK**

# **3.1.** AUTHORITY OF THE COUNTY

The County shall have general supervision of the contract under authority of the Board of Supervisors. The County has the authority to stop the work whenever such stoppage may be necessary to ensure the proper execution of the contract. The County shall decide all questions which may arise as to the quality or acceptability of materials furnished, work performed, and rate or progress of the work; all questions which may arise as to the interpretation of the plans and specifications; all questions as to the acceptable fulfillment of the contract on the part of the Contractor; and all questions as to compensation. The County's determination and decision thereon shall be final and conclusive.

# **3.2. DETAIL DRAWINGS**

The approved plans shall be supplemented by such working drawings as are necessary to control the work adequately. All authorized alterations affecting the requirement and information given on the approved plans shall be in writing. No changes shall be made to any plan or drawing after the same has been approved by the County, except by its written direction.

Approval by the County of the Contractor's working drawings (or other documents) does not relieve the Contractor of responsibility for accuracy of dimensions, details or other requirements of the Contract Documents. It is mutually agreed that the Contractor shall be responsible for agreement and conformity of his working drawings with the approved plans and specifications. Full compensation for furnishing all working drawings shall be considered as included in the prices paid for the various contract items of work, and no additional allowance will be made therefore.

# 3.3. CONFORMITY WITH PLANS AND ALL ALLOWABLE DEVIATIONS

Except as otherwise specifically stated in the Contract Documents, finished surfaces in all cases shall conform exactly with the elevations, lines, grades, cross-sections, and dimensions shown or described in the Contract Documents. Any deviations must be authorized in advance in writing by the County.

# 3.4. INTERPRETATION OF PLANS AND SPECIFICATIONS

Should it appear that the work to be done is not sufficiently detailed or explained in the Contract Documents, the Contractor must bring this to the County's attention in writing prior to submittal of the Contractor's Proposal.

In the event of any discrepancy between any drawings and the figures written thereon, the figures shall be taken as correct. The Contractor will not be allowed to take advantage of errors and omissions in the drawings and specifications. When errors or omissions are found, they shall immediately be brought to the attention of the other party in writing.

# **3.5.** SUPERINTENDENCE

The Contractor shall keep on his work, continually during its progress, a competent Superintendent responsible for the construction of the work, as well as any necessary assistants. All such persons shall be acceptable to the County continuously throughout the duration of the

project. The Superintendent shall represent the Contractor in his absence and all directions given to him shall be as binding as if given to the Contractor.

# **3.6.** LINES AND GRADES

The Contractor shall provide opportunities and facilities for setting points and making measurements as requested by the County or otherwise as reasonably required. The Contractor shall not proceed until it has made timely demand upon the County for, and has received from the County, such lines and grades as may be necessary as the work progresses. The work shall be done in strict conformity with such lines and grades.

The Contractor shall carefully preserve benchmarks, reference points and stakes, and in case of willful or careless destruction, the Contractor shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their loss or disturbance.

# **3.7.** INSPECTION OF WORK

The County and its representatives shall at all times have access to the work and shall be furnished with every reasonable opportunity for ascertaining that the materials and workmanship are in accordance with the requirements of the Contract Documents. All work done and all materials furnished shall be subject to the County's inspection and approval.

The inspection of the work by any County representatives shall not relieve the Contractor of any of its obligations to fulfill the requirements of the Contract Documents. Defective work or unsuitable materials may be rejected, notwithstanding that such work or materials may have been previously overlooked by County representatives, accepted, or estimated for payment.

# **3.8. REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK**

All work which has been rejected shall be remedied or removed and replaced by the Contractor in an acceptable manner; and no compensation will be allowed for such removal or replacement. Any work done beyond the lines and grades as described by the Contract Documents, or any extra work done without proper written authority, will be considered as unauthorized and will not be paid for. Work so done may be ordered removed at the Contractor's expense. Upon failure on the part of the Contractor to comply, the County shall have authority to cause defective or unauthorized work to be remedied, or removed and replaced, and to deduct the costs for this work from any monies due or to become due the Contractor.

# **3.9.** EQUIPMENT AND PLANT

Equipment not suitable to produce the quality of work required will not be permitted to operate on the project. Plants shall be designed and constructed in accordance with general practice for such equipment and shall be of sufficient material to carry the work to completion within the time limit. The Contractor shall provide adequate and suitable equipment and plant to meet these requirements and, when ordered by the County, shall immediately remove unsuitable equipment from the work and discontinue the operation of unsatisfactory plants. No worn or obsolete equipment shall be used, and in no case shall the maker's rating of the capacity for any equipment be exceeded. All vehicles used to haul materials over existing highways shall be equipped with pneumatic tires.

# **3.10. FINAL INSPECTION**

The County will not make the final inspection until all the work provided for and contemplated by the contract has been fully completed and the final clean-up has been performed.

# 4. CONTROL OF MATERIAL

# 4.1. COUNTY FURNISHED MATERIALS

The Contractor shall furnish all materials required to complete the work, except those specified in the Contract Documents to be furnished by the County. Any materials furnished by the County will be delivered to the Contractor at the points specified in the Contract Documents. The Contractor will be held responsible for all materials so delivered to him, and deductions will be made from any monies due Contractor to make good any shortages and deficiencies, from any cause whatsoever, which may occur after such delivery, or for any demurrage charges due to delinquency in unloading.

# 4.2. SOURCE OF SUPPLY AND QUALITY OF MATERIALS

At the option of the County the source of supply of any materials shall be approved by the County before the delivery is started. Only materials conforming to the exact requirements of the Contract Documents and approved by the County shall be used in the work. All materials proposed for use may be inspected or tested by the County at any time during their preparation and use. If it is found that sources of supply which have been approved do not furnish a uniform product, or if the product from any source proves unacceptable at any time, the Contractor shall furnish approved material from other approved sources. No material which, after approval, subsequently becomes unfit for use shall be used in the work.

Wherever the name, or brand, or manufacturer of an item is specified, it is used as a measure of quality and utility or a standard. Except in those instances where the product is designated to match others presently in use, or as otherwise stated in the Contract Documents, specifications calling for a designated material, product, thing or service by specific brand or trade name shall be deemed to be followed by the words "or equal" so that the Contractor may propose in the Contractor's bid any equal material, product, thing or service. If the Contractor desires to use any other brand or manufacturer of equal quality or utility to that specified, he shall list definite particulars of that which it considers equivalent to the specified item in its bid. The County will then determine whether or not the proposed name brand or article is equal in quality and utility to that specified, and the County's determination in that regard shall be final and binding upon the Contractor.

# 4.3. SAMPLES AND TESTS

All tests of materials furnished by the Contractor shall be made by the County in accordance with commonly recognized standards of national organizations for this type of landfill project, and such special methods and tests as are in use at the County's approved laboratory or otherwise determined by the County to be needed. The County shall determine what testing is needed.

Field tests of materials will be made by the County or its representative when deemed necessary as determined by the County; and these tests shall be made in accordance with standard practices of the County or as otherwise needed.

The Contractor shall furnish samples of all materials as requested by the County without charge. No material shall be used until it has been approved by the County. Samples will be secured and tested whenever necessary as determined by the County to determine the quality of the material.

Promptly after the approval of the contract, the Contractor shall notify the County of the proposed sources of supply of all materials to be furnished by it, using a form which will be supplied by the County upon request.

Whenever reference is made to standard tests or requirements of the County, the American Society for Testing Materials, the American Railway Engineering Association or the American Association of State Highway Officials, the reference shall be construed to mean the standards that are in effect at the date the Agreement is signed with subsequent amendments, changes, or additions as thereafter adopted and published by the organization referred to.

None of the provisions stated in this section shall relieve the Contractor of its obligations as stated elsewhere in the Contract Documents.

# 4.4. STORAGE OF MATERIALS

Materials shall be so stored as to ensure the preservation of their quality and fitness for the work. When considered necessary by the County, they shall be placed on wooden platforms or other hard, clean surfaces and not on the ground. They shall be placed under cover when so directed by the County. Stored materials shall be so located as to facilitate prompt inspection.

# 4.5. **DEFECTIVE MATERIALS**

All materials not conforming to the exact requirements of the Contract Documents shall be considered as defective; and all such materials, whether in place or not, shall be rejected and shall be removed immediately from the site of the work. No rejected materials, the defects of which have been subsequently corrected, shall be used until approval in writing has been given by the County. Upon failure on the part of the Contractor to comply forthwith with any order of the County made under the provisions of this article, the County shall have authority to remove and replace defective material and to deduct the cost of removal and replacement from any monies due or to become due the Contractor.

# 4.6. ASSIGNMENT OF CLAIMS

In submitting a bid on this public works project, or any subcontractor agreeing to supply goods, services, or materials, and entering a contract pursuant thereto, the Contractor and/or subcontractors do offer and agree to assign to the County all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

# **5. LEGAL RELATIONS AND RESPONSIBILITY**

# 5.1. LAWS TO BE OBSERVED

#### 5.1.1. Compliance with Applicable Law

Reference to and/or incorporation into the Contract Documents of a particular law, statute, ordinance, rule or regulation is not, nor is it intended to be, a definitive statement of the law applicable to the Contract Documents and the accomplishment of the work. Contractor must keep informed as to all such applicable laws - Federal, State, County, Municipal - as they affect the conduct of the work and comply with such law, including, but not limited to, having requisite licenses, obtaining necessary permits, paying necessary fees and taxes, posting notices and installing, operating and maintaining safety precautions and facilities. It is likewise Contractor's responsibility to see to it that its subcontractors also fully comply with such applicable laws. Contractor shall protect and defend County, its officers, agents, employees and contractors against any claim or liability arising from or based upon any alleged violation of such applicable law.

### 5.1.2. Labor Code

The Contractor shall comply with all applicable requirements of the California Labor Code including but not limited to Labor Code, Chapter 2, Subchapter 1, Article 10, Required Apprentices on Public Works Contracts. Reference is made to Chapter 1, Part 7, Division 2 of the California Labor Code (commencing with Section 1720). By this reference said Chapter 1 is incorporated herein with like effect as if it were here set forth in full. The parties recognize that said Chapter 1 deals with, among other things, discrimination, penalties and forfeitures, their disposition and enforcement, wages, working hours and securing workers' compensation insurance and directly affect the method of prosecution of the work by Contractor and subject it under certain conditions to penalties and forfeitures. Execution of the Agreement by the parties constitutes their agreement to abide by said Chapter 1. Their stipulation as to all matters which they are required to stipulate to by the provisions of said Chapter 1, constitutes Contractor's certification that he is aware of the provisions of said Chapter 1 and will comply with them and further constitutes Contractor's certification as follows: "I am aware of the provisions of Section 3700 of the California Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this contract." Contractor and his subcontractors shall comply with the provisions of the Labor Code regarding apprentices. Contractor shall post at each job site during the course of the work a copy of County's "Determination of Prevailing Wage Rate". Copies of this Determination are available from County for this purpose.

# 5.1.3. Equal Employment Opportunity

The Contractor shall comply with all applicable non-discrimination and equal employment laws. The Contractor shall not discriminate in his recruiting, hiring, promotion, demotion or termination practices on the basis of race, religious creed, color, national origin, ancestry, sex, age or physical handicap in the performance of this contract

and shall comply with the provisions of the California Fair Employment Practice Act (commencing with S1410 of the Labor Code), the Federal Civil Rights Act of 1964 (P.L. 88-352) and all amendments thereto, Executive Order No. 11246 (30 Federal Register 12319), as amended, and all administrative rules and regulations issued pursuant to said Acts and Order. See particularly 41 Code of Federal Regulation (CFR) Chapter 60.

Contractor shall require each of its subcontractors to comply with the preceding paragraph and shall include in each subcontract language similar to the preceding paragraph.

Contractor shall permit access to its records of employment, employment advertisement, application forms and other pertinent data and records (including but not limited to certified payroll information) by County and any state or federal agency having jurisdiction for the purpose of investigation to ascertain compliance with this Section. Notwithstanding, Contractor shall submit certified payroll to the County every 14 calendar days.

County may assign an affirmative action representative to monitor Contractor and his subcontractor(s) conduct required by this section, including the right of entry to the construction site for the purpose of obtaining information from persons performing work on the project providing such inspection does not interfere with the progress of the work.

Elsewhere in the Contract Documents more specific requirements may be contained covering the same subject matter of this Section. If so, such more specific requirements prevail over this section in case of conflict.

Transactions of \$10,000 or under - Contracts and subcontracts not exceeding \$10,000 are exempt from the requirements of this section. No Contractor or subcontractor shall procure supplies and/or services in less than usual quantities to avoid applicability of this section. With respect to contract and subcontracts for indefinite quantities, this section applies unless the amount required in any one year under such contract will reasonably be expected not to exceed \$10,000.

Transactions in Excess of \$10,000, but less than \$50,000 - At County's request, Contractor shall certify that he has in effect an affirmative action plan and agrees to comply with all state and federal laws and regulations regarding Fair Employment Practices. Contractor shall maintain a written copy of his affirmative action plan and furnish County a copy of the Plan upon request. County may require Contractor to complete an Affirmative Action Compliance Report, on a form furnished by County, setting forth definite goals during the term of this contract.

Transactions of \$50,000 or more - If Contractor has 50 or more employees and a contract for \$50,000 or more, he shall develop and submit to County within 30 days after award, a written affirmative action compliance program providing in detail specific steps to guarantee equal employment opportunity. Contractor shall include in his affirmative action program a table of job classifications, which table shall include but need not be limited to job titles, duties and rates of pay.

Contractor shall in each subcontract let to do a portion of the work covered hereunder, where the subcontractor involved has 50 or more employees and the subcontract is for \$50,000 or more, impose in the subcontract the above requirements.

For the purpose of determining the number of employees, the average of the Contractor's or his subcontractor's employees from the 12 month period immediately prior to award, or the total number of employees contractor or its subcontractor will have when performing this contract, whichever is higher, shall be used.

Federally Assisted Construction - If this project is a federally assisted construction project, then the contract provisions contained 41 CFR S60-1.4(b) are incorporated herein and Contractor shall likewise incorporate said provisions in each subcontract entered into by Contractor to perform the work. Federally assisted construction is identified as such in the Notice Inviting Bids.

# 5.1.4. Registration of Contractors

In order to be considered, a prospective bidder must be licensed in accordance with Division 3, Chapter 9 (commencing with Section 7000) of the Business and Professions Code.

# 5.1.5. Accident Prevention

Particular attention shall be given to relevant Division of Industrial Safety Construction and Electrical Safety Orders. Said Orders are contained in Title 8 of the California Code of Regulations, Chapter 4, Subchapters 4 and 5. Specific attention shall be taken of the California Occupational Safety and Health Act of 1973 (commencing with Section 6300 of the Labor Code) and the Federal Occupational Safety and Health Act of 1970 (P.L. 91-596) and rules and regulations issued pursuant to said Acts. Specific reference is made to Article 6 of said Construction Safety Orders. Contractor shall submit to County, in advance of excavation a detailed plan showing the design of shoring, bracing, sloping of the sides of trenches, or other provisions to be made for protection of personnel during earthwork operations. In event the Contractor's plan does not conform to the shoring system requirement of Article 6, the contractor's proposed shoring design shall be prepared and signed by a civil or structural engineer registered in the State of California. The Contractor shall also impose these requirements on all subcontractors involved and enforce compliance therewith. The duties here set forth are nondelegable by Contractor.

# 5.2. CONTRACTOR'S RESPONSIBILITY

Contractor is under the absolute duty in fulfilling his contractual obligations hereunder to proceed, and cause his subcontractors to proceed, in a safe, workmanlike manner, with adequate safeguards for the protection of the public, the workmen and persons from time to time inspecting the work. If at any time Contractor finds any of his subcontractors are allowing work to proceed in an unsafe manner or contrary to the terms of the Contract Documents, Contractor shall immediately cause such action to stop and immediately take all action necessary to protect workmen, inspectors and the general public and cause the work to proceed in a safe manner or in accordance with the terms of the Contract Documents.

# 5.3. CONTRACTOR'S RESPONSIBILITY FOR WORK

Until the formal final acceptance of the completed work by the County, the Contractor shall have the charge and care of the work and shall bear the risk of injury or damage to any part of the work by the action of the weather or from any other cause, whether or not arising from the execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work.

# 5.4. PROPERTY RIGHTS IN MATERIALS

Nothing in the contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil. All such materials shall become the property of the County upon being so attached or affixed.

# 5.5. PERMITS AND LICENSES

The Contractor shall procure all permits and licenses (including but not limited to: National Pollution Discharge Elimination System (NPDES) and South Coast Air Quality Management District (AQMD) permit requirements), pay all charges and fees, and give all notices necessary and incident to prosecution of the work.

### 5.6. ROYALTIES AND PATENTS

The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the County and its duly authorized representatives, from all suits at law, or actions of every nature for, or on account of, the use of any patented materials, equipment, devices, or processes.

# 5.7. SANITARY PROVISIONS

Necessary conveniences, properly secluded from public observation, shall be provided by the Contractor where needed for the use of laborers on the work. Their location, construction and maintenance shall be subject to the approval of the County. The Contractor shall obey and enforce such sanitary regulations as may be prescribed by the State Department of Health or other authorities having jurisdiction.

# 5.8. PUBLIC SAFETY

The Contractor at its own expense shall furnish, erect, and maintain such fences, barriers, lights, and signs as are necessary to give adequate warning to the public at all times that the work is under construction; and the Contractor shall erect such warning and directional signs and employ such flagmen as are required and shall maintain same throughout the construction period. Full compensation for the work involved in carrying out the precautionary measures above specified shall be considered as included in the prices paid for the various contract items of work and no additional payment will be made therefore.

# **5.9.** Use OF Explosives

When the use of explosives is necessary for the prosecution of the work, the Contractor shall use the utmost care not to endanger life or property. All explosives shall be stored in accordance with the provisions of Division II Part I, Chapter 3, of the Health and Safety Code of the State of California and other applicable laws or regulations.

### **5.10. PROVISIONS FOR EMERGENCIES**

Unusual conditions may arise on the work which will require that immediate and unusual provisions be made to protect the public from danger or loss or damage to life or property, and it is part of the service required of the Contractor to make such provisions and to furnish such protection.

The Contractor shall use such foresight and shall take such steps and precautions as its operations make necessary to protect the public from danger or damage, or loss of life or property.

Whenever work is undertaken pursuant to this Section, Contractor shall promptly file with County a verified report setting forth the nature of the emergency and the action taken by the Contractor by reason of the emergency.

Whenever, in the opinion of the County, an emergency exists against which the Contractor has not taken sufficient precaution for the safety of the public or the protection of utilities or of adjacent structures or property which may be injured or damaged because of the Contractor's work; and, in the opinion of the County, immediate action shall be considered necessary in order to protect public or private, personal or real property interests, or prevent likely loss of human life or damage; then the County may provide suitable protection to said interests by causing such work to be done and material to be furnished as, in the opinion of the County, may seem reasonable and necessary. The cost and expense of all such emergency work shall be borne by the Contractor, and if he shall not pay said cost and expense upon presentation of the bills therefore, duly certified by the County, then said cost and expense will be paid by the County and shall thereafter by deducted from any amounts due or which may become due said Contractor. Failure of the County, however, to take such precautionary measures, shall not relieve the Contractor of its full responsibility for public safety.

# **5.11.** UNFORESEEN DIFFICULTIES

The risk of all loss or damage, except as noted in Section 8.4, arising out of the work, or from any unforeseen obstructions or difficulties which may be encountered during the progress of the work, or from the action of the weather, or from encumbrances in the line of work, shall be the responsibility of the Contractor.

# 5.12. ACCESS TO THE WORK

Unless provided for in the Special Provisions, access to the work from existing roads shall be provided by the Contractor at its expense and maintained in a manner so as not to create a public nuisance. The County assumes no responsibility for the condition or maintenance of any existing road or structure thereon that may be used by the Contractor for performing the work or for traveling to and from the site of the work. No additional payment will be made to the Contractor for constructing any temporary road used for construction operations or for improving, repairing, or maintaining any existing road or structure thereon that may be used by the Contractor for performance of the work under these specifications. The cost of all work described in this paragraph shall be included in the prices bid in the schedule for other items of construction work.

### 5.13. GUARANTEE OF WORK

All work shall be guaranteed by Contractor for a period of two (2) years from the recordation of the Notice of Completion against any defects, including but not limited to those resulting from the use of inferior materials, equipment, or workmanship. Upon notice from County, Contractor shall promptly remedy such defects at its expense, including payment to County of its expenses in connection with such defects; otherwise County shall proceed to remedy such defects and Contractor shall reimburse County for its expenses.

This guarantee is in addition to any specific guarantee(s) provided for elsewhere in the Contract Documents or provided by manufacturers or suppliers.

### 5.14. SURETY OF GUARANTEE

The performance of guarantee and conditions specified in Section 5.13., shall be secured by a surety bond which shall be delivered by the Contractor to the County prior to the date on which final payment is made to the Contractor. Said bond shall be in an approved form and executed by a surety company or companies satisfactory to the County, in the amount of 10 percent of the final contract price. Said bond shall remain in force for the duration of the guarantee period specified in Section 5.13. Instead of providing such a bond as described above, the Contractor may, at its option, provide for the performance bond furnished under the contract to remain in force for said amount until the expiration of said guarantee period; and the amount of said performance bond may be reduced to 10 percent of the final contract price beginning at the time of recordation of the Notice of Completion.

### 5.15. DAMAGES BY ACT OF GOD

If the construction of the project herein is damaged, which damage is determined to have been proximately caused by an act of God, in excess of 5% of the contract amount, provided that the work damaged is built in accordance with applicable building standards and the plans and specifications, then the County may, without prejudice to any other right or remedy, terminate the contract.

# 6. PROSECUTION AND PROGRESS

# 6.1. **PROGRESS OF THE WORK**

The Contractor shall begin the work within ten (10) calendar days after the date of receipt by Contractor of notice to proceed from the County and shall <u>diligently and continuously</u> prosecute the same to completion within the time limit provided in the Special Provisions.

### 6.2. OVERTIME WORK AND WORK AT NIGHT

The Contractor shall conduct the work on a five (5) day, forty (40) hour work week with no work on legal holidays (as further described in the Special Provisions). If the Contractor feels it is necessary to work more than the normal 40 hour work week, he will make a written request for permission from the County, outlining the reasons for such request. The decision of granting permission for overtime work shall be in the sole discretion of the County; and the decision of the County shall be final. If granted, a condition will be imposed requiring the Contractor to pay the County the cost incurred at overtime rates for additional inspection and engineering time required in connection with the overtime work.

When any work is performed at night, only such classes of work shall be done as can be properly inspected. Adequate light must be provided for the safety of the workers and for proper inspection.

#### **6.3.** SUBCONTRACTING

Reference is made to the Subletting and Subcontracting Fair Practice Act contained in the California Public Contract Code (commencing with Section 4100). By this reference, said Act is incorporated herein with like effect as if it were here set forth in full and the parties shall abide by its terms and substitution shall be only as allowed by that Act. County reserves the right to approve all subcontractors whether or not they are required to be listed in the Contractor's Proposal.

Contractor shall be responsible for the acts and omissions of its subcontractors and shall make certain that at all times its subcontractors comply with the terms of the Contract Documents and applicable law. Where a portion of the work which has been subcontracted by the Contractor is not being prosecuted in a manner satisfactory to the County, the subcontractor shall be removed immediately on the request of the County and shall not again be employed on the work.

The Contractor shall give its personal attention to the fulfillment of the contract and shall keep the work under its control. The Contractor shall perform with its own organization work of a value amounting to not less than 50 percent of the remainder obtained by subtracting from the total original contract value the sum of any item designated herein or in the Special Provisions as Specialty Items. The furnishing and placing of reinforcing steel, when placing is performed by the supplier, will be considered as a Specialty Item for this purpose; however, he shall be designated in the list of subcontractors. The value of the work subcontracted will be based on the contract item bid price, if any subdivision of a contract unit is subcontracted, the entire unit shall be considered as subcontracted.

#### 6.4. CHARACTER OF WORKMEN

If any subcontractor or person employed by the Contractor shall fail or refuse to carry out the directions of the County or shall appear to the County to be incompetent or to act in a disorderly or improper manner, he/she shall be discharged immediately upon the request of the County and such person shall not again be employed on this work.

### 6.5. TEMPORARY SUSPENSION OF THE WORK

The County shall have the authority to suspend the work wholly or in part, for such period as the County may deem necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the work, or for such time as the County may deem necessary due to the failure on the part of the Contractor to properly perform the work. The Contractor shall immediately comply with the order of the County to suspend the work wholly or in part. The work shall be resumed when conditions are favorable or methods are corrected, as ordered or approved by the County.

### 6.6. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

The Contractor shall complete the work called for under the contract in all parts and requirements within the number of working days specified in the Special Provisions. Liquidated damages shall apply as stated in the Special Provisions.

A working day is hereby defined as any day (except Saturdays, Sundays, legal holidays, and days on which the Contractor is specifically required by the Special Provisions to suspend construction operations) on which the Contractor is not prevented by inclement weather or resulting conditions from proceeding with at least 60 percent of the normal labor and equipment force engaged in the controlling operation or operations for at least five hours.

The County will furnish the Contractor a weekly statement showing the number of working days charged to the contract for the preceding week, the number of working days specified for completion of the contract, and the number of working days remaining to complete the contract. The Contractor will be allowed one week in which to file a written protest setting forth in what respects the weekly statement is incorrect, otherwise the statement shall be deemed to have been accepted by the Contractor as correct.

The following holidays will be considered as legal holidays: New Year's Day; Martin Luther King Jr. Birthday, Lincoln's Birthday; Washington's Birthday (observed); Memorial Day; Independence Day; Labor Day; Columbus Day; Veteran's Day; Thanksgiving Day; day after Thanksgiving; Christmas; and such other days as are declared County holidays by ordinance passed by the Board of Supervisors. Please refer to specific holiday dates listed in the Special Provisions.

Contractor acknowledges that failure to perform in strict accordance with the Contract Documents and within the time limits specified in the Special Provisions will cause County to suffer special damages in addition to cost of completion of the work in accordance with the provisions of the Contract Documents. Such special damage could include, but is not limited to, lease and rental cost, additional salaries and overhead, interest during construction, attorney expense, additional engineering, inspection expense, cost of maintaining or constructing alternate facilities, and injury to the property of the County or others. Such special damage could also include penalties assessed against the County by other governmental agencies for failure to have the project completed in a timely manner or as required by law. The County may withhold from any money due or that may become due the Contractor under the contract such amount as the County may elect to offset the damages incurred. Any withholding or failure to withhold shall not in any way limit recovery for damages actually incurred.

It is further agreed that in case the work called for under the contract is not finished and completed in all parts and requirements within the time specified, the County (in its sole discretion) shall have the right to extend the time for completion or not. If the County decides to extend the time limit for the completion of the contract, the County shall further have the right to charge to the Contractor and to deduct from the Contractor's payment all or any part of the actual cost of engineering, inspection, superintendence, and other related expenses caused by the Contractor's failure to complete the project as required. Liquidated damages shall apply as stated in the Special Provisions.

# 6.7. DELAYS AND EXTENSION OF TIME

If delays are caused by unforeseen causes beyond the control of either the Contractor or the County, such as war, strikes, fire, floods, or other action of the elements, such delays will entitle the Contractor to an equivalent extension of time for the completion of the contract but not damages or additional payments over the contract price. Furthermore, if the Contractor suffers any delay caused by the failure of the County to furnish the necessary right of way or materials agreed to be furnished by it, or by failure to supply necessary plans or instructions concerning the work to be done after written request therefore has been made, the Contractor shall be entitled to an extension of time equivalent to the time lost for any of the above-mentioned reasons but shall not be entitled to any damages for such delay.

RAIN IS LIKELY TO OCCUR DURING CONSTRUCTION. STORMWATER RUNOFF FROM APPROXIMATELY ONE THIRD OF THE CITY OF CORONA WILL PASS THROUGH THE CHANNEL DURING A RAIN EVENT. THE CONTRACTOR SHALL THEREFORE PROVIDE A PLAN OF PROTECTION AGAINST DAMAGE CAUSED BY STORMWATER FLOW FOR ALL WORK WITHIN THE DRAINAGE CHANNEL. THIS PLAN SHALL NOT RELIEVE THE CONTRACTOR OF ITS RESPONSIBILITES FOR WEATHER DAMAGE TO THE PROJECT SITE AS STATED IN THE CONTRACT DOCUMENTS.

#### 6.8. ASSIGNMENT

The contract may be assigned only upon prior written consent of the County. Such written consent to sublet, assign or otherwise dispose of any portion of the contract, shall not be construed to relieve the Contractor of any responsibility for the fulfillment of the contract.

# 6.9. TERMINATION OF CONTRACT

If the Contractor fails to begin delivery of material and equipment or to commence work within the time specified herein, or to maintain the rates of delivery of materials, or to execute the work in the proper manner, written notice by the County may be served upon the Contractor demanding compliance with the contract. If the Contractor refuses or neglects to comply with such notice within five (5) working days after receipt of the notice, then the County may take possession of the work, together with all material and equipment thereon, and may complete the work itself in the manner the County determines to be appropriate. The cost of the completion of the work shall be charged against the Contractor and its surety and may be deducted from any money due to the Contractor; and if the sums due under the contract are insufficient, the Contractor and/or its surety shall pay to the County within five (5) working days after the completion of the work all of such cost in excess of the contract price.

# 7. PAYMENT

### 7.1. SCOPE OF PAYMENTS

The compensation described in the Agreement shall be complete and full payment to the Contractor for furnishing all materials, labor, tools, equipment and related items necessary to complete the work; and for all obligations imposed upon the Contractor pursuant to the Contract Documents. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material.

### 7.1.1. Measurement and Computation of Quantities

Unless otherwise stated, all items of the work to be paid for at a contract price per unit of measurement will be measured by the County in accordance with United States Standard Measures. A ton shall mean 2,000 pounds, avoirdupois. Except as otherwise expressly provided in the specifications, the methods of measurement and computation of quantities will be determined by the County.

The weights of metalwork, and other metal parts to be paid for by weight will be determined by the County on the basis of handbook weights, scale weights, or manufacturer's catalog weights, or in the absence of any of the foregoing, on the basis of estimated weights; provided, that weights of nonmetallic coatings will be excluded.

### 7.1.2. Payment at Contract Prices

The contract price for an item of the work shall include full compensation for all costs of that item, including the costs of any work, materials and equipment incidental to the item but not specifically shown or described in the Contract Documents.

The contract prices shall include full compensation for all costs of any work, materials, and equipment required by the Contract Documents, but not covered by a contract price or otherwise expressly made the subject of direct payment.

#### 7.2. PAYMENT AND COMPENSATION FOR ALTERED QUANTITIES

When alterations in plans or quantities of work are ordered and performed, the Contractor agrees to accept payment in full at the contract unit price for the actual quantities of work done; and no additional payment will be made for anticipated profits.

#### 7.3. FORCE ACCOUNT PAYMENT

When extra work is to be paid for on a force account basis, compensation will be determined as follows:

#### 7.3.1. Work Performed by Contractor

The Contractor will be paid for labor, materials, and equipment rental as hereinafter provided, except where agreement has been reached to pay in accordance with Section 7.3.2. Only materials incorporated in the work will be paid for.

To the total computed as provided in Section 7.3.1.1, 7.3.1.2 and 7.3.1.3 will be added the following percentages:

Labor -- 24 percent Materials -- 15 percent Equipment Rental -- 15 percent

It is understood labor, materials, and equipment may be furnished by the Contractor or by the subcontractor or by others on behalf of the Contractor.

When extra work paid for on a force account basis is performed by forces other than the Contractor's organization, the Contractor shall reach agreement with such other forces as to the distribution of the payment made by the County for such work and no additional payment therefore will be made by the County.

#### 7.3.1.1. Labor

The Contractor will be paid the cost of labor for the workmen (including foremen when authorized by the County), used in the actual and direct performance of the work. The cost of labor, whether the employer is the Contractor, subcontractor, or other forces, will be the sum of the following:

#### 7.3.1.1.1.Actual Wages

The actual wages paid shall include any employer payments to or on behalf of the workmen for health and welfare, pension, vacation, and similar purposes.

#### 7.3.1.1.2.Labor Surcharge

To the actual wages as defined in Section 7.3.1.1.1., will be added a labor surcharge set forth in the Special Provisions Section 1.21, which labor surcharge shall constitute full compensation for all payments imposed by State and Federal laws and for all other payments made to, or on behalf of, the workmen, other than actual wages as defined in Section 7.3.1.1.1 and subsistence and travel allowance as specified in Section 7.3.1.1.3.

#### 7.3.1.1.3. Subsistence and Travel Allowance

Subsistence and travel allowance paid to such workmen as required by collective bargaining agreements.

#### 7.3.1.2. Materials

The cost of materials incorporated in the work will be the cost to the purchaser, whether Contractor, subcontractor or other forces, from the supplier thereof, except as the following are applicable:

(a) If a cash or trade discount by the actual supplier is offered or available to the purchaser, it shall be credited to the County notwithstanding the fact that such discount may not have been taken.

- (b) If the materials are procured by the purchaser by any method which is not a direct purchase from and a direct billing by the actual supplier to such purchaser, the cost of such materials shall be deemed to be the price paid to the actual supplier as determined by the County. No markup except for actual costs incurred in the handling of such materials will be permitted.
- (c) If the materials are obtained from a supply or source owned wholly or in part by the purchaser, payment therefore will not exceed the price paid by the purchaser for similar materials furnished from said source on contract items or on the current wholesale price for such materials delivered to the job site whichever price is lower.
- (d) If the cost of such materials is, in the opinion of the County, excessive, then the cost of such materials shall be deemed to be the lowest current wholesale price at which such materials are available in the quantities concerned delivered to the job site, less any discounts as provided in Section 7.3.1.2(a).
- (e) If the Contractor does not furnish satisfactory evidence of the cost of such materials from the actual supplier thereof, the cost shall then be determined in accordance with Section 7.3.1.2(d).

The County reserves the right to furnish such materials as it deems advisable, and the Contractor shall have no claims for costs and profit on such materials.

# 7.3.1.3. Equipment Rental

The Contractor will be paid for the use of equipment at the rental rates listed for such equipment in the Special Provisions regardless of ownership and any rental or other agreement, if such may exist, for the use of such equipment entered into by the Contractor. If it is deemed necessary by the County to use equipment not listed in the Special Provisions, a suitable rental rate for such equipment will be established by the County. The Contractor may furnish any cost data which might assist the County in the establishment of such rental rate.

The rental rates paid as above provided shall include the cost of fuel, oil, lubrication, supplies, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals.

Operators of rented equipment will be paid for as provided under Section 7.3.1.1

All equipment shall, in the opinion of the County, be in good working condition and suitable for the purpose for which the equipment is to be used.

Unless otherwise specified, manufacturer's ratings and manufacturer approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer. Individual pieces of equipment or tools having a replacement value of \$25.00 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore.

Rental time will not be allowed while equipment is inoperative due to breakdowns.

In computing the rental time of equipment, less than 30 minutes shall be considered  $\frac{1}{2}$  hour.

# 7.3.1.3.1.Equipment on the Work

The rental time to be paid for equipment on the work shall be the time the equipment is in operation on the extra work being performed, and in addition, shall include the time required to move the equipment to location of the extra work and return it to the original location or to another location requiring no more time than that required to return it to its original location, except that moving time will not be paid for if the equipment is used at the site of the extra work on other than such extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made if the equipment is used at the site of the extra work on other than such extra work.

# 7.3.1.3.2.Equipment not on the Work

For the use of equipment moved in on the work and used exclusively for extra work paid for on a force account basis, the Contractor will be paid the rental rates listed in the Special Provisions or as agreed to as provided in Section 7.3.1.3 and for the cost of transporting the equipment to the location of the work and its return to its original locations, all in accordance with the following provisions:

- (i) The original location of the equipment to be hauled to the location of the work shall be agreed to by the County in advance.
- (ii) The County will pay the costs of loading and unloading such equipment.
- (iii) The cost of transporting equipment on low bed trailers shall not exceed the hourly rates charged by established haulers.
- (iv) The cost of transporting equipment shall not exceed the applicable minimum established rates of the Public Utilities Commission.
- (v) The rental period shall begin at the time the equipment is unloaded at the site of the extra work, shall include each day that the equipment is at the site of the extra work, excluding Saturdays, Sundays, and legal holidays unless the extra work is performed on such days, and shall terminate at the end of the day on which the County directs the Contractor to discontinue the use of such equipment. The rental time to be paid per day will be in accordance with the following:

Hours In	Hours to be Paid
0	4
0.5	4.25
1	4.5
1.5	4.75
2	5
2.5	5.25
3	5.5
3.5	5.75
4	6
4.5	6.25
5	6.5
5.5	6.75
6	7
6.5	7.25
7	7.75
8	8
Over 8	Hours in operation

When hourly rates are listed, less than 30 minutes of operation shall be considered to be  $\frac{1}{2}$  hour of operation.

When daily rates are listed, payment for  $\frac{1}{2}$  day will be made if the equipment is not used. If the equipment is used, payment will be made for one day.

The minimum rental time to be paid for the entire rental period on an hourly basis shall not be less than 8 hours or if on a daily basis shall not be less than one day.

- (i) Should the Contractor desire the return of the equipment to a location other than its original location, the County will pay the cost of transportation in accordance with the above provisions, provided such payment shall not exceed the cost of moving the equipment to the work.
- (ii) Payment for transporting, loading and unloading equipment, as above provided, will not be made if the equipment is used on the work in any other way than upon extra work paid for on a force account basis.

#### 7.3.2. Work Performed by Special Forces or Other Special Services

When the County and the Contractor, by advance agreement, determine that a special service or an item of extra work cannot be performed by the forces of the Contractor or those of any of his subcontractors, such service or extra work item may be performed by a specialist. Invoices for such service or item of extra work on the basis of the current market price thereof may be accepted without complete itemization of labor, material, and equipment rental costs when it is impracticable and not in accordance with the established practice of the special service industry to provide such complete itemization.

In those instances wherein a Contractor is required to perform extra work necessitating a fabrication or machining process in a fabrication or machine shop facility away from the job site, the charges for that portion of the extra work performed in such facility may, by agreement, be accepted as a specialist billing.

To the specialist invoice price, less a credit to the County for any cash or trade discount offered or available, whether or not such discount may have been taken, will be added 15 percent in lieu of the percentages provided in Section 7.3.1.

# 7.3.3. Records

The Contractor shall maintain his records in such manner as to provide a clear distinction between the direct costs of extra work paid for on a force account basis and the costs of other operations.

The Contractor shall furnish the County (on a form provided by the County) report sheets in duplicate of each day's extra work paid for on a force account basis no later than the working day following the performance of said work. The daily report sheets shall itemize the materials used, and shall cover the direct costs of labor and the charges for equipment rental, whether furnished by the Contractor, subcontractor, or other forces, except for charges described in Section 7.3.2. The daily report sheets shall provide names or identifications and classifications of workmen, the hourly rate of pay and hours worked, and also the size, type and identification number of equipment, and hours operated.

Materials charges shall be substantiated by valid copies of vendor's invoices. Such invoices shall be submitted with the daily report sheets, or if not available, they shall be submitted with subsequent daily report sheets. Should said vendor's invoices not be submitted within 15 days after acceptance of the work, the County reserves the right to establish the cost of such materials at the lowest current wholesale prices at which said materials are available in the quantities concerned delivered to the location or the work, less any discounts provided in Section 7.3.1.2 (a).

Daily report sheets shall be signed by the Contractor or its authorized agent.

The County will compare its records with the daily report sheets furnished by the Contractor, make any necessary adjustments, and compile the costs of work paid for on a force account basis on daily extra work report forms furnished by the County. When these daily extra work reports are agreed upon and signed by both parties, they shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit.

The Contractor's cost records pertaining to work paid for on a force account basis shall be open to inspection or audit by representatives of the County, during the life of the contract and for a period of not less than 18 months after the date of acceptance thereof, and the Contractor shall retain such records for that period. Where payment for materials or labor is based on the cost thereof to forces other than the Contractor, the Contractor expressly guarantees that the cost records of such other forces shall be open to inspection and audit by representatives of the County on the same terms and conditions as the cost records of the Contractor. If an audit is to be commenced more than 60 days after the acceptance date of the contract, the Contractor will be given a reasonable notice of the time when such audit is to begin.

# 7.3.4. Payment

Payment as provided above in Sections 7.3.1 and 7.3.2 shall constitute full compensation to the Contractor for performance of work paid for on a force account basis and no additional compensation will be allowed therefore.

# 7.4. ACCEPTANCE

The work shall be inspected for final acceptance by the County promptly upon receipt of notice in writing from the Contractor that the completed work is ready for such inspection.

# 7.5. PARTIAL PAYMENTS

On or about the last day of each month, the County shall make an estimate in writing of the total amount of work done by the Contractor to the time of such estimate and the value thereof. The County shall retain 10 percent (10%) of such estimated value of the work or partial payment for the fulfillment of the contract by the Contractor. The County may reduce the retention from 10% to 5% if, the project is more than 50% completed, no stop notices have been received, the project is proceeding as scheduled, and the County has accepted the work.

After deducting all previous payments and all sums to be kept or retained under the provisions of the contract or applicable law, the County shall make monthly progress payments to the Contractor. No such estimate or payment shall be required to be made when, in the judgment of the County, the work is not proceeding properly. No payment shall be required to be made by the County unless and until all required submittals have been delivered to the County, including but not limited to the following: certified payroll information at a frequency specified in the Section 5.1.3, Construction schedule updates as listed in Section 2.2, and National Pollution Discharge and Elimination System permit requirements and frequencies as stated in the Special Provisions.

In accordance with Public Contract Code Section 22300 and other applicable law, the Contractor may substitute securities for any monies withheld to ensure performance under the contract. Such substitution shall be made only upon a separate agreement between the County Board of Supervisors and the Contractor which contains terms and conditions in compliance with all laws applicable to monies withheld under the contract.

# 7.6. DELAYED PAYMENTS

All the monies due the Contractor under the contract will be paid by the Treasurer of the County of Riverside, prepared and approved as required by law; and it is understood that any delay in the preparation, approval and payment of these demands will not constitute a breach of the County's obligations.

#### 7.7. FINAL PAYMENT

The County, after completion of the work, and submittal of any final documents or reports required by the Special Provisions, shall make a final estimate in writing to the County Board of Supervisors of the amount of work done and the value of such work; and pursuant to order of the Board of Supervisors the County shall pay the sum found to be due after deducting therefrom all previous payments and all amounts to be kept and retained under the provisions of the contract or applicable law. All prior partial estimates and payments shall be subject to correction in the final estimate and payment. The withheld retention funds shall not be due and payable to the Contractor until the expiration of thirty-five (35) days after the date of approval by the Board of Supervisors and recordation of the notice of completion.

The Contractor agrees that no certificate given or payments made under the contract except the final payment and approval by the Board of Supervisors shall be conclusive evidence of the performance of the contract. No payment shall be construed to be an acceptance of any defective work or improper materials.

The Contractor's agreement to the final payment shall release the County, including its officers, employees, agents and contractors, from any and all claims from the Contractor for further or additional compensation related to the work.

# 7.8. CLAIMS RESOLUTION - CLAIMS UP TO \$375,000

In accordance with Public Contract Code Section 20104 - 20104.8 and other applicable law, public works claims of \$375,000 or less which arise between the Contractor and the County shall be resolved following the statutory procedure unless the County has elected to resolve the dispute pursuant to Public Contract Code 10240 et seq.

# 7.8.1. Submission of Claims

All claims shall be submitted in writing and accompanied by substantiating documentation. Claims must be filed before processing of the final payment unless other notice requirements are provided in the contract. "Claim" means a separate demand by the claimant for (1) a time extension, (2) payment of money or damages arising from work done by or on behalf of the claimant and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled, or (3) an amount the payment of which is disputed by the County.

# 7.8.1.1. Claims Under \$50,000.00

The County shall respond in writing to the claim within 45 days of receipt of the claim, or, the County may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the County may have. If additional information is needed thereafter, it shall be provided upon mutual agreement of the County and the claimant. The County's written response shall be submitted 15 days after receiving the additional documentation, or within the same period of time taken by the claimant to produce the additional information, whichever is greater.

#### 7.8.1.2. Claims over \$50,000.00 but less than or equal to \$375,000.00

The County shall respond in writing within 60 days of receipt, or, may request in writing within 30 days of receipt of the claim, any additional documents supporting the claim or relating to defenses or claims the County may have against the claimant. If additional information is needed thereafter, it shall be provided pursuant to mutual agreement between the County and the claimant. The County's response shall be submitted within 30 days after receipt of the further documents, or within the same period of time taken by the claimant to produce the additional information or documents, whichever is greater.

### 7.8.2. Meet and Confer

If the claimant disputes the County's response, or if the County fails to respond within the statutory time period, the claimant may so notify the County within 15 days of the receipt of the response or the failure to respond, and demand an informal conference to meet and confer for settlement. Upon such demand, the County shall schedule a meet and confer conference within 30 days.

### 7.8.3. Filing of Claims

If following the meet and confer conference, the claim or any portion thereof remains in dispute, the claimant may file a claim pursuant to Government Code 900 et seq. and Government Code 910 et seq.

### 7.8.4. Mediation and Judicial Arbitration

If a civil action is filed to resolve any claim, the provisions of Public Contract Code 20104.4 shall be followed providing for nonbinding mediation and judicial arbitration.

# 7.8.5. Location for Filing of Claims, Jurisdiction

Any legal action related to the performance of the work or the terms of the Contract Documents shall be filed only in the Superior Court of the State of California located in Riverside, California.

#### 7.9. CLAIMS RESOLUTION – ALL CLAIMS (PUBLIC CONTRACT CODE SECTION 9204)

7.9.1 This section is intended to help resolve disputes between the parties related to this project. Such disputes shall be brought to the attention of the County at the earliest possible time, so that such disputes may be promptly resolved, if possible, or other appropriate action or investigation may be promptly undertaken. Public works claims which arise between the Contractor and the County shall be resolved using the following procedure:

7.9.2 A "claim" means a separate demand by the Contractor sent by registered mail or certified mail return receipt requested for one or more of the following: (a) a time extension including, without limitation, for relief from damages or penalties for delay assessed by the County; (b) payment by the County of money or damages arising from work done by or on behalf of the Contractor and payment for which is not otherwise

expressly provided or to which the Contractor is not otherwise entitled; (c) payment of an amount that is disputed by the County. The Contractor shall furnish reasonable documentation to support the claim.

7.9.3 Upon receipt of a claim, the County shall conduct a reasonable review of the claim and within 45 days, or an extended period as may be set by mutual agreement of the parties, provide the Contractor with a written statement identifying what portion of the claim is still disputed and what portion is undisputed. (If consultation with the Board of Supervisors is required, the County may have additional time as stated in Section 9204.) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the County issues its written statement.

7.9.4 If the County fails to issue a written statement, the claim shall be deemed rejected in its entirety. A claim that is denied by reason of the County's failure to respond to a claim, or its failure to otherwise meet the applicable time requirements, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the Contractor.

7.9.5 If the Contractor disputes the County's written response, or if the County fails to respond within the time prescribed, the Contractor may demand in writing, sent by registered mail or certified mail return receipt requested, an informal meet and confer conference to attempt to reach settlement of the portion of the claim in dispute. Upon receipt of the demand, the County shall schedule a meet and confer conference within 30 days.

7.9.6 Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion thereof remains in dispute, the County shall provide the Contractor a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion shall be processed and made within 60 days after the County issues its written statement.

7.9.7 Any disputed portion of the claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the County and Contractor sharing the mediator costs equally. The County and Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful to resolve all issues, the parts of the claim remaining in dispute shall be subject to other applicable legal procedures.

7.9.8 As used herein, mediation includes any nonbinding process, including but not limited to neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute with resolution through negotiation or by issuance of an evaluation.

7.9.9 Additional applicable requirements, including but not limited to subcontractor claims, may be stated in Public Contract Code Section 9204.

7.9.10 Any legal action related to the performance of the work or the terms of the Contract Documents shall be filed only in the Superior Court of the State of California located in Riverside, California.

# 8. GENERAL

# 8.1. COOPERATION BETWEEN CONTRACTORS

The Contractor shall fully cooperate and coordinate its work with all utility and public agency representatives engaged in construction, relocation, altering or otherwise rearranging any facilities interfering with the progress of the work, and with any other contractors working at or near the project site. Full compensation for any delay or inconvenience to the Contractor's operation due to such operations shall be considered included in the prices for the other items of work and no additional allowance will be made therefore.

# 8.2. HOLD HARMLESS / INDEMNIFICATION

Contractor shall indemnify and hold harmless the County of Riverside, its Agencies, Districts, Special Districts and Departments, their respective directors, officers, Board of Supervisors, elected and appointed officials, employees, agents and representatives from any liability claim, action, or damages whatsoever, based or asserted upon any services of Contractor, its officers, employees, subcontractors, agents or representatives arising out of or in any way relating to this Agreement, including but not limited to property damage, bodily injury, or death or any other element of any kind or nature whatsoever arising from the performance of Contractor, its officers, agents, employees, subcontractors, agents or representatives relating to this Agreement. Contractor shall defend, at its sole expense and pay all costs and fees including, but not limited to attorney fees cost of investigation, defense and settlements or awards, the County of Riverside, its Agencies, Districts, Special Districts and Departments, their respective directors, officers, officers, Board of Supervisors, elected and appointed officials, employees, agents and representatives in any claim or action to which this indemnification and hold harmless obligation applies.

With respect to any action or claim subject to indemnification herein by Contractor, Contractor shall, at their sole cost, have the right to use counsel of their own choice and shall have the right to adjust, settle, or compromise any such action or claim without the prior consent of County; provided, however, that any such adjustment, settlement or compromise in no manner whatsoever limits or circumscribes Contractor's indemnification to County as set forth herein.

Contractor's obligation hereunder shall be satisfied when Contractor has provided to County the appropriate form of dismissal relieving County from any liability for the action or claim involved.

The specified insurance limits required in this Agreement shall in no way limit or circumscribe Contractor's obligations to indemnify and hold harmless the County herein from third party claims.

In the event there is conflict between this clause and California Civil Code Section 2782, this clause shall be interpreted to comply with Civil Code 2782. Such interpretation shall not relieve the Contractor from indemnifying the County to the fullest extent allowed by law.

#### 8.3. INSURANCE

Without limiting or diminishing the Contractor's obligation to indemnify or hold the County harmless, Contractor shall procure and maintain or cause to be maintained, at its sole cost and expense, the following insurance coverage's during the term of this Agreement.

# 8.3.1. Workers' Compensation:

If the Contractor has employees as defined by the State of California, the Contractor shall maintain statutory Workers' Compensation Insurance (Coverage A) as prescribed by the laws of the State of California. Policy shall include Employers' Liability (Coverage B) including Occupational Disease with limits not less than \$1,000,000 per person per accident. The policy shall be endorsed to waive subrogation in favor of The County of Riverside, and, if applicable, to provide a Borrowed Servant/Alternate Employer Endorsement.

# 8.3.2. Commercial General Liability:

Commercial General Liability insurance coverage, including but not limited to, premises liability, contractual liability, products and completed operations liability, personal and advertising injury, cross liability coverage and employment practices liability, covering claims which may arise from or out of Contractor's performance of its obligations hereunder. Policy shall name the County of Riverside, its Agencies, Districts, Special Districts, and Departments, their respective directors, officers, Board of Supervisors, employees, elected or appointed officials, agents or representatives as Additional Insureds. Policy's limit of liability shall not be less than \$1,000,000 per occurrence combined single limit and \$2,000,000 annual aggregate. If such insurance contains a general aggregate limit, it shall apply separately to this agreement or be no less than two (2) times the occurrence limit.

# 8.3.3. Vehicle Liability:

If Contractor's vehicles or mobile equipment are used in the performance of the obligations under this Agreement, then Contractor shall maintain liability insurance for all owned, non-owned or hired vehicles so used in an amount not less than \$1,000,000 per occurrence combined single limit. If such insurance contains a general aggregate limit, it shall apply separately to this agreement or be no less than two (2) times the occurrence limit. Policy shall name the County of Riverside, its Agencies, Districts, Special Districts, and Departments, their respective directors, officers, Board of Supervisors, employees, elected or appointed officials, agents or representatives as Additional Insureds.

# 8.3.4. Environmental Impairment Insurance:

Contractor shall maintain Environmental Impairment Insurance providing coverage for the Contractor's performance of work included within this Agreement, with a limit of liability of not less than \$1,000,000 per occurrence and \$1,000,000 annual aggregate.

#### 8.3.5. General Insurance Provisions - All lines:

Any insurance carrier providing insurance coverage hereunder shall be admitted to the State of California and have an A M BEST rating of not less than A: VIII (A:8) unless such requirements are waived, in writing, by the County Risk Manager. If the County's Risk Manager waives a requirement for a particular insurer such waiver is only valid for that specific insurer and only for one policy term.

The Contractor's insurance carrier(s) must declare its insurance deductibles or selfinsured retentions. If such deductibles or self-insured retentions exceed \$500,000 per occurrence such deductibles and/or retentions shall have the prior written consent of the County Risk Manager before the commencement of operations under this Agreement. Upon notification of deductibles or self insured retention's unacceptable to the County, and at the election of the County's Risk Manager, Contractor's carriers shall either; 1) reduce or eliminate such deductibles or self-insured retention's as respects this Agreement with the County, or 2) procure a bond which guarantees payment of losses and related investigations, claims administration, and defense costs and expenses.

Contractor shall cause Contractor's insurance carrier(s) to furnish the County of Riverside with either 1) a properly executed original Certificate(s) of Insurance and certified original copies of Endorsements effecting coverage as required herein, and 2) if requested to do so orally or in writing by the County Risk Manager, provide original Certified copies of policies including all Endorsements and all attachments thereto, showing such insurance is in full force and effect. Further, said Certificate(s) and policies of insurance shall contain the covenant of the insurance carrier(s) that thirty (30) days written notice shall be given to the County of Riverside prior to any material modification, cancellation, expiration or reduction in coverage of such insurance. In the event of a material modification, cancellation, expiration, or reduction in coverage, this Agreement shall terminate forthwith, unless the County of Riverside receives, prior to such effective date, another properly executed original Certificate of Insurance and original copies of endorsements or certified original policies, including all endorsements and attachments thereto evidencing coverage's set forth herein and the insurance required herein is in full force and effect. Contractor shall not commence operations until the County has been furnished original Certificate (s) of Insurance and certified original copies of endorsements and if requested, certified original policies of insurance including all endorsements and any and all other attachments as required in this Section. An individual authorized by the insurance carrier to do so on its behalf shall sign the original endorsements for each policy and the Certificate of Insurance.

It is understood and agreed to by the parties hereto and the insurance company(s), that the Certificate(s) of Insurance and policies shall so covenant and shall be construed as primary insurance, and the County's insurance and/or deductibles and/or self-insured retention's or self-insured programs shall not be construed as contributory.

The County's Reserved Rights--Insurance. If, during the term of this Agreement or any extension thereof, there is a material change in the scope of services; or, there is a material change in the equipment to be used in the performance of the scope of work

which will add to additional exposures (such as the use of aircraft, watercraft, cranes, etc.); or, the term of this Agreement including any extensions thereof exceeds five (5) years the County reserves the right to adjust the types of insurance required under this Agreement and the monetary limits of liability for the insurance coverage's currently required herein, if; in the County Risk Manager's reasonable judgment, the amount or type of insurance carried by the Contractor has become inadequate.

Contractor shall pass down the insurance obligations contained herein to all tiers of subcontractors working under this Agreement.

The insurance requirements contained in this Agreement may be met with a program(s) of self-insurance acceptable to the County.

Contractor agrees to notify County of any claim by a third party or any incident or event that may give rise to a claim arising from the performance of this Agreement.

#### **8.4. PUBLIC UTILITIES**

The locations of all pipelines, power lines, communication lines and other utility components known to County to exist within the limits of the work, are indicated on the drawings and may be the subject of a specific section in the Special Provisions. Size, location and characteristics of such utilities are based upon information made available to County, generally from the owner of the utility in question. The exactness of such information is not guaranteed but may be assumed to have been accomplished with reasonable accuracy.

In addition to the drawings and any such provision regarding utilities, Contractor is under a duty to take into account the location of service laterals or other appurtenances which can be inferred from the presence of facilities such as buildings, meter, junction boxes or similar items in or about the limits of the work.

Unless otherwise directed by the Contract Documents, all existing utilities, whether shown or described or not, shall be left in place and Contractor must conduct its operations so that such utilities are protected from damage at all times during the course of the work; and the work must be accomplished so as to give such utilities proper protection and support upon completion of the work by Contractor.

If during the course of the work, Contractor discovers underground utility components not indicated in the drawings or elsewhere in the Contract Documents, Contractor must immediately notify, in writing, the County and the utility company (public or private) involved, stating with exactness the condition found.

If Contractor encounters a utility not shown or described in the Contract Documents, Contractor shall cease all work which would disturb such utility and its support until given specific instructions as to how to proceed regarding such utility by County.

All work needed to protect existing utilities shown or described in the Contract Documents, or which can be reasonably inferred from the presence of other visible facilities, is to be done at Contractor's expense.

Contractor's cost of locating and repairing damage not due to the failure of Contractor to exercise reasonable care, and removing or relocating utility components and facilities not indicated in the drawings or elsewhere in the Contract Documents, and for equipment on the project necessarily idled during such work shall be paid Contractor as Extra Work.

County may direct the Contractor to do such repair or relocation work as required. When such repair or relocation work is not elsewhere provided for in these Contract Documents, or reasonably inferred therefrom, Contractor shall be compensated for such work as Extra Work.

#### 8.5. PROTECTION OF EXISTING STREET FACILITIES

The Contractor shall be responsible for the protection of existing signs, fences, concrete curbs, gutters and other facilities or structures. The Contractor shall be responsible to repair or replace any such items which are damaged.

Excavation within the street right of way shall be conducted in a manner to cause the least interruption to traffic. Where traffic must cross open trenches, the Contractor shall provide suitable bridges at street intersections and driveways. Hydrants under pressure, valve pipe covers, valve boxes, curb stop boxes, fire or police call boxes, or other utility controls shall be left unobstructed and accessible during construction.

#### 8.6. DIVERSION AND CONTROL OF WATER

Unless otherwise provided in the Agreement, no separate or additional payment will be made for diversion or control of surface or groundwater. All costs incidental to maintaining dry working areas shall be the responsibility of the Contractor and shall be included in the unit prices paid for other items of work.

RAIN IS LIKELY TO OCCUR DURING CONSTRUCTION. STORMWATER RUNOFF FROM APPROXIMATELY ONE THIRD OF THE CITY OF CORONA WILL PASS THROUGH THE CHANNEL DURING A RAIN EVENT. THE CONTRACTOR SHALL THEREFORE PROVIDE A PLAN OF PROTECTION AGAINST DAMAGE CAUSED BY STORMWATER FLOW FOR ALL WORK WITHIN THE DRAINAGE CHANNEL. THIS PLAN SHALL NOT RELIEVE THE CONTRACTOR OF ITS RESPONSIBILITES FOR WEATHER DAMAGE TO THE PROJECT SITE AS STATED IN THE CONTRACT DOCUMENTS.

#### 8.7. DUST ABATEMENT

During the performance of all work, the Contractor shall take the necessary precautions to avoid any loss or damage resulting from its operations that raise or produce dust. The Contractor will be required to have a positive and continuous method of dust control which is satisfactory to the County. The methods to be used for controlling dust in the construction area and along haul roads shall be approved by the County prior to starting any of the work. All costs incidental to dust control shall be included in the unit prices paid for other items of work.

#### 8.8. **PROJECT SIGNS**

The Contractor shall erect a maximum of two project signs at the locations designated by the County. The signs will be furnished by the County. The signs shall be erected as soon as

possible and within 15 days after date of Notice to Proceed. The signs are 4 feet by 8 feet in size, with two 4" x 4" x 12' posts. The sign posts shall be set 5.0 feet in good solid ground and the backfill carefully tamped into place.

#### 8.9. EXAMINATION OF PLANS, SPECIFICATIONS, CONTRACT, AND SITE OF WORK

The Contractor shall examine fully and carefully the site of the work, the plans, the specifications, and any other Contract Documents prior to submitting its bid. The submission of a bid shall be conclusive evidence that the Contractor has investigated the site and is satisfied as to the conditions and requirements of the work to be performed.

Where the County has made investigations of subsurface conditions in areas where work is to be performed, or in other areas, such investigations are made only for the purpose of study and design. Where such investigations have been made, bidders may, upon request, inspect the records of the County as to such investigations. The records of such investigations are not a part of the contract and are solely for the convenience of the bidders. It is expressly understood and agreed that the County assumes no responsibility whatsoever in respect to the sufficiency or accuracy of the investigations thus made, the records thereof; or of the interpretations set forth therein or made by the County in its use thereof and there is no warranty or guarantee, either express or implied, that the conditions indicated by such investigations or records thereof are representative of those existing throughout such areas, or any part thereof, or that unlooked-for developments may not occur, or that materials other than, or in proportions different from those indicated, may not be encountered. No information derived from inspection of such records will in any way relieve the Contractor from its obligations under the Contract Documents.

# 9. WATERING

#### 9.1. **DESCRIPTION**

This work shall include providing a water supply for all water required for the work. The application of the water shall be subject to the approval of the County at all times and shall be applied in the necessary amounts and at the necessary locations subject to the approval of the County.

At least one mobile unit of at least 1,000-gallon capacity for applying water shall be available on the project at all times.

Water for compacting embankment material and for dust control shall be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses with nozzles that will ensure a uniform application of water.

# **10. PUBLIC CONVENIENCE, TRAFFIC CONTROL AND DETOURS**

#### 10.1. GENERAL

The Contractor shall so conduct its operations as to offer the least possible obstruction and inconvenience to the public and it shall have under construction no greater length or amount of work than it can prosecute properly with due regard to the rights of the public.

Unless otherwise provided in the Special Provisions, all public traffic shall be permitted to pass through or near the work with as little inconvenience and delay as possible.

Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately at the Contractor's expense.

Construction operations shall be conducted in such a manner as to cause as little inconvenience and annoyance as possible to abutting and nearby property owners.

Convenient access to driveways, houses and buildings along or near the work shall be maintained and temporary approaches to crossings or intersecting highways shall be provided and kept in good condition.

#### **10.2.** SIGNS

It shall be the responsibility of the Contractor to provide and maintain all traffic control, lights, barricades and signs, both on and off the site of work, subject to approval of the County; and all such devices shall be of a type approved by the County.

If, in any case, the County finds it necessary to replace, add to or erect said barricades, signs, or lights when the Contractor fails to do so, the Contractor shall be billed for all costs thereof.

#### **10.3. MATERIALS STORAGE**

Storing or stockpiling of excavated material, imported backfill material or construction materials on any street or highway will not be permitted except as approved in advance in writing by the County.

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# SPECIAL PROVISIONS FOR

# CONSTRUCTION OF THE SOUTHEAST DRAINAGE CHANNEL IMPROVEMENT PROJECT

# AT THE CORONA LANDFILL

July 2017

Prepared by:

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

14310 Frederick Street Moreno Valley, CA 92553

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# SECTION 1. GENERAL

#### **1.1.** Introduction

These Special Provisions have been prepared for the construction of the Southeast Channel Remediation project at the closed Corona Landfill. Work to be done under this contract shall include, but is not limited to the implementation of a storm water pollution prevention plan (SWPPP), installation and maintenance of noise barriers for the duration of the project, clearing and grubbing the vegetation overgrowth and damaged grouted rip rap within designated areas in the channel, construct floodplains and channel to design grade, prepare slopes for the installation of articulated concrete blocks (ACB), install ACB mats in designated areas within the channel, place riprap rocks on the channel, back fill on top of the ACB mats, and spray hydroseed over the backfill on the mats. Optional work includes excavating landfilled refuse and re-constructing an engineered final cover over the exposed waste. The optional work shall be performed only if landfilled refuse is encountered in excavation areas. All work to be implemented under this contract shall consist of furnishing equipment, superintendence, labor, skills, materials, and all other items necessary for the execution of the Project and shall conform to the Contract Documents for this Project.

The Southeast Channel of the closed Corona Landfill primarily sits on land owned by the County of Riverside Department of Waste Resources. The inlet of the channel is on a California Department of Transportation (CalTrans) right-of-way for interstate highway 15 and the outlet is a right-of-way for the BSNF Railroad. Site location and vicinity map are included in the Project Drawings.

### **1.2.** Definition of Terms

#### Construction Manager

The Construction Manager is the individual assigned by the County Project Manager to be on the site to manage and oversee the administration of the construction project. The Construction Manager, an authorized employee of the County, is the on-site representative reporting to the Project Manager during the construction phase of the project.

#### Contractor's Surveyors

The Contractor's Surveyors are responsible to perform control of the actual construction based on bench marks established by County Surveyors.

#### Cubic Yard

Where the term cubic yard appears in these specifications, it shall mean bank volume in the case of excavation, and compacted volume yielding the specified relative compaction, moisture content, and hydraulic conductivity, if required, in the case of engineered fill. In case of concrete, it shall mean delivered and installed in place concrete material used for concreted-rock slope protection and Concrete and Reinforced Shotcrete Drainage Structures.

#### **County Surveyors**

Surveyors representing the County shall establish reference bench marks for construction, and shall perform surveys to check line, grade, and calculate volumes, as required. The County Surveyor's work shall in no way relieve the Contractor of its obligation to properly perform the work as specified in the Contract Documents.

#### General Contractor

The General Contractor is the firm responsible for all construction aspects of the project. The General Contractor may use subcontractors for specialized portions of the project, such as grading and earthworks, and other parts of the project.

#### Line

This term means a line having a specified horizontal angle between it and a meridian belonging to the North American datum of 1983.

#### Manufacturer

The firm or firms responsible for the production of construction materials.

#### Moisture Content

This term is defined as the percentage of water contained in a soil, clay or bentonite mixture in relation to its dry weight, using ASTM D2216 and other approved methods as stated in the Contract Documents.

#### *Optimum Moisture Content (OMC)*

This term is defined as the moisture content that corresponds to the maximum dry density, as determined by the specified laboratory Moisture Density Relationship Test, ASTM D1557.

#### Project Manager

The Project Manager is the designated representative of the County responsible for the project.

#### **Relative Compaction**

This term is defined as the ratio of field compacted dry density to the maximum dry density as determined by the Moisture Density Relationship Test, ASTM D1557.

*Sieve Sizes* These are defined as U.S. Standard sieve sizes.

#### *Slope/Grade*

Slope or grade is described in terms of horizontal distance, perpendicular to contour lines, to vertical distance (H:V) where V is generally fixed as unity. It is also expressed as a percent (%) equal to the vertical distance divided by the horizontal distance, and multiplied by 100.

#### Specifications

The Specifications are the contract specifications prepared for this project. These include the General Provisions, the Special Provisions and any other Contract Documents.

#### Subgrade

This term refers to native or constructed base material on which all construction elements of this project shall be placed.

#### Thickness

The distance measured vertically, as indicated by a plumb line, between two opposing surfaces.

Ton

In the case of <sup>1</sup>/<sub>2</sub> Ton Class Rock or Light Class Rock specified for use in the Contract Documents it shall mean 2,000 pounds avoir du pois.

## **1.3.** General Scope of Work

This project is formatted to meet strict State and Federal requirements for post-closure landfill maintenance as administered by the California Department of Resources Recycling and Recovery (CalRecycle), California Regional Water Quality Control Board (CRWQCB), Local Enforcement Agency (LEA), and other regulatory agencies

The major features of the work to be performed shall include, but are not limited to:

- A. Clearing and grubbing designated areas within the channel
- B. Earthwork Excavation and Engineered Fill
- C. Landfill Excavation and Final Cover construction
- D. Installation of Articulated Concrete Blocks (ACB) mats
- E. Spreading earthen material over the ACB mats and spraying Hydroseed over the earthen material
- F. Installation of riprap rocks along the channel bottom
- G. Construction of concrete retaining walls

# **1.4.** Notice to Proceed

Within five (5) business days of the award of contract by the Riverside County Board of Supervisors, or sooner, the Contractor shall submit all the following items:

- A. Performance Bond and Payment Bond (Instructions to Bidders)
- B. Required Certificates of Insurance (General Provisions Section 8.2.)
- C. Construction Schedule (Special Provisions Section 1.4.1.)
- D. Contractor project specific Public/Site Safety Plan (Special Provisions Section 1.4.2.)
- E. Project Specific SWPPP (Special Provisions SECTION 2.)

Also within five (5) business days of the award of contract by the Riverside County Board of Supervisors, the County will hold a mandatory pre-construction meeting (Special Provisions Section 1.4.3.) to be attended by the Contractor. The County will <u>not</u> issue the Notice to Proceed before the Contractor submits the Performance Bond, Payment Bond, Certificates of Insurance, Construction Schedule, Public/Site Safety Plan, and Project Specific SWPPP Supplement, and attends the mandatory pre-construction meeting.

After receipt of the Construction Schedule, Public/Site Safety Plan and Project Specific SWPPP Supplement, the County will review the documents and provide appropriate comments. The Contractor will be required to address all comments from the County and resubmit within five (5) business days.

### **1.4.1.** Construction Schedule

The Contractor shall submit construction schedule to the County in accordance with Section 6-1 of the Standard Specifications. The Contractor shall submit updated construction schedule to the County on a bi-weekly basis and as required by Section 2.2 of the General Provisions. Before commencement of construction, the Contractor shall also provide a map showing the proposed phasing of construction activities. This map shall delineate the timing and phasing to be utilized of all items as required by the work.

The County shall have the right to withhold progress payments until the updated construction schedule is submitted and accepted. The Contractor shall be responsible for all impacts due to its failure to submit acceptable updates in a timely manner.

The County's acceptance of a construction schedule from the Contractor does not in any way limit the Contractor's obligation to complete the work in accordance with all the requirements of the Contract Documents.

At the completion of the work, the Contractor shall submit a final as-built schedule showing the complete actual construction history as a condition of formal final acceptance of the work by the County.

### 1.4.2. Public/Site Safety Plan

Prior to delivering equipment to the construction site, the Contractor shall submit a Public/Site Safety Plan to the County for review and acceptance. This Public/Site Safety Plan shall address the Project Site, including the three (3) parcels of property on Bel-Air Street (south of the channel), Bel-Air Street, the access road to the site off Magnolia Avenue, and the route between the access road and the Offsite Water Source. Acceptance of the Public/Site Safety Plan does not release the Contractor of liability in the event of an accident or injury, nor does it place any liability on the County or any County employee. The Site Safety Plan must, at a minimum, meet all the requirements of Federal and State regulations regarding all construction and hauling activities. The Contractor shall be solely responsible for adherence to the Public/Site Safety Plan at all times.

It is the responsibility of the Contractor to confirm compliance with all relevant health and safety regulations. The Contractor shall take proper safety and health precautions to protect the workers, the public, and County employees. Contractors shall comply with Provisions of the Occupational Safety and Health Administration Regulations for Construction, CFR 1926/1910 and CFR 1910.12, the California Department of Industrial Relations, Division of Industrial Safety (Safety Orders), and all other applicable Federal, State, County, and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of this Contract. If any of the requirements are in conflict, the more stringent requirement shall apply. The Contractor's failure to be thoroughly familiarized with the aforementioned safety and health provisions shall not relieve the Contractor of responsibility for full compliance with the obligations and requirement set forth herein. The Contractor shall be responsible for providing all items necessary for health and safety, including dust control, personal protective equipment, decontamination equipment if required, and collection and disposal of rinse waters, in accordance with applicable Federal and state regulations. The County shall reserve the right for direct removal of any of the Contractor's employees or subcontractors who are not adhering to or meeting the requirements of the law, the Public/Site Safety Plan, or applicable regulations.

Public/Site Safety Plan Shall include a traffic control plan that contains procedures that address traffic control for approaching, crossing, or traveling along public access roads, including access to and from the Project Site according to the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) 2009 edition as amended by the MUTCD supplement which prescribes uniform standards and specifications for all official traffic control devices in California. The MUTCD can be viewed in the Federal Highway Administration website at http://mutcd.fhwa.dot.gov/kno\_2009r1r2.htm. The Public/Site Safety Plan shall state that all construction traffic shall not exceed 15 miles per hour when traveling on landfill site access road used by other government agency vehicles or along residential neighborhood roads. The Public/Site safety Plan shall also address procedure and protocol for clean-up in the event of a spill as defined in Section 1.4.2. of these Special Provisions, and human protection from exposure to uncovered refuse.

To comply with the South Coast Air Quality Management District (SCAQMD) requirements, the County will obtain a Rule 1150 permit for refuse excavation. Any time refuse is encountered, the Contractor shall comply with all the requirements of the SCAQMD permit conditions (including, but not limited to emissions monitoring, daily cover, transportation, and dust suppression). The Contractor shall address this work in the Public/Site Safety Plan submittal. The typical SCAQMD Rule 1150 conditions are included in Appendix B. In addition, the Contractor shall provide proper personal protective equipment (PPE) and training for the handling of exposed landfilled material for workers in the Public/Site Safety Plan.

The Public/Site Safety Plan shall include procedures that address clean-up in the event of a spill. Any accidental spills or spills that are produced during routine equipment maintenance shall be cleaned up by removing all the contaminants and the contaminated soil, disposing of it at an approved facility, and replacing the removed contaminated soil volume with clean soil material. The County may require documentation showing proper containment and removal of any toxic materials or contaminated soil that the Contractor has introduced or produced on site.

The Public/Site Safety Plan shall also address the procedure and protocol for employee head illness protection. When the temperature exceeds 85 degrees Fahrenheit in the heat index chart, at minimum, the Public/Site Safety Plan shall guarantee the employee with the following: access to fresh, cool drinking water throughout the day; access to shade for five minutes at a time to rest and cool down; training on how to work safely in the heat, including how to call for emergency services if someone is overcome by heat. Particular attention shall be given to relevant Division of Industrial Safety of the State of California. Said Orders are contained in Title 8 of the California Code of Regulations, Chapter 4, Subchapter 7, and Group 2. Specific reference is made to Article 10 of said Construction Safety Orders, Section 3395 Heat Illness Prevention.

The Contractor shall be responsible for holding mandatory weekly safety meetings at the site. The Contractor shall notify the County of the time and place of all meetings and allow the County to participate. Meetings shall reiterate all safety measures to be taken and shall discuss any violations committed and preventative measures to avoid subsequent violations. The Contractor shall provide the County with a copy of the minutes and the attendance of the safety meetings.

#### **1.4.3. Pre-Construction Meeting**

Within ten (10) business days of the award of contract by the Riverside County Board of Supervisors, the County will hold a mandatory pre-construction meeting to be attended by the Riverside County Department of Waste Resources, the Contractor's superintendent, the Contractor's surveyors, major subcontractors, regulatory agency representatives, and other individuals involved in the execution of the work.

During the pre-construction meeting, the Contractor shall be issued four complete copies of the Contract Documents (which includes four full-sized sets of Project Drawings and four half-sized sets of Project Drawings). Digital information of the Project Drawings will be made available upon written request from the Contractor. The cost of any additional copies requested shall be deducted from payment to the Contractor.

### **1.5.** Contractor's Responsibility

The Contractor shall examine the Contract Documents, and shall be aware of conditions at the site that may affect execution of the work. These conditions include, but are not limited to, the following:

- A. Applicable health and safety regulations.
- B. Transportation and access conditions.
- C. Availability of utilities.
- D. Existing and subsurface conditions.
- E. Location, availability, and condition of construction materials.
- F. Weather Conditions.
- G. Onsite soil characteristics to be used in construction, including but not limited to

size, type, and variation; location of material stockpile and concrete washout areas, and related matters.

H. Construction conditions at the site.

The Contractor shall assume full responsibility for any theft or vandalism occurring to the Contractor's equipment, tools, materials, supplies, or work that has not yet reached formal final acceptance by the County, <u>and shall take appropriate measures necessary to eliminate their occurrences</u>.

#### RAIN IS LIKELY TO OCCUR DURING CONSTRUCTION. STORMWATER RUNOFF FROM APPROXIMATELY ONE THIRD OF THE CITY OF CORONA WILL PASS THROUGH THE CHANNEL DURING A RAIN EVENT. THE CONTRACTOR SHALL THEREFORE PROVIDE A PLAN OF PROTECTION AGAINST DAMAGE CAUSED BY STORMWATER FLOW FOR ALL WORK WITHIN THE DRAINAGE CHANNEL. THIS PLAN SHALL NOT RELIEVE THE CONTRACTOR OF ITS RESPONSIBILITES FOR WEATHER DAMAGE TO THE PROJECT SITE AS STATED IN THE CONTRACT DOCUMENTS.

The Contractor shall maintain all completed earthwork construction in an undisturbed and compacted state at all times. In the event of slides, sloughing, erosion, or disturbances due to construction activities in any part of the work, the Contractor shall remove the disturbed material from the damaged area and shall rebuild such portions as directed by the County. The removal of material and the rebuilding of the damaged area shall be performed at no additional cost to the County.

The Contractor shall be responsible for the coordination and cooperation of all subcontractors, material suppliers, utilities, and any required testing agencies, so that all components of the project are properly integrated into the construction, and so that there are no resulting delays of the progress of the project. The Contractor shall fully cooperate with County.

#### 1.6. Permits

Applicable permits shall be procured and adhered to at the Contractor's sole expense. Required permits include but are not limited to the California Department of Transportation (CalTrans) Encroachment Permit, the South Coast Air Quality Management District (SCAQMD) Rule 403 Fugitive Dust, and the State Water Resources Control Board (SWRCB) National Pollution Discharge and Elimination System (NPDES) Construction General Permit. The Contractor will be required to comply with the NPDES permitting process as stated in SECTION 2. The permit application Fee for the CalTrans Encroachment Permit shall be \$1,000. Payment for the permits shall be included Bid Item No. 2 – Mobilization and Demobilization.

# **1.7.** Environmental Requirements

The Contractor shall at all-times keep the site (including, but not limited to the landfill property, Bel-Air Street parcels, the offsite water source, and associated access routes) neat, tidy, and free of refuse resulting from work. Toxic materials, including oil, fuel oil, gasoline, coolant, fluid filters, and other contaminants, shall be transported off site and disposed of at an approved facility. Containers temporarily holding these toxic materials shall be covered and have no leaks, and shall be removed from the site as quickly as is reasonably possible.

Any accidental spills or leaks that are produced during routine equipment maintenance shall be cleaned up by removing all the contaminants and the contaminated soil, disposing of it at an approved facility, and replacing the removed contaminated soil, volume with clean soil material. The Contractor shall also be responsible for any spills caused by any of the Contractor's subcontractors or suppliers. The Public/Site Safety Plan, required under Section 1.4.2. shall include the procedure the Contractor shall follow in the event there is a spill. The County may require documentation showing proper containment, removal, and disposal of any toxic materials or contaminated soil that the Contractor has introduced or produced on site.

# **1.8.** Contractor's and Manufacturer's Qualifications

The Contractor shall be, at the time of bidding, and throughout the period of the work, licensed by the State of California to do the type of work required under the terms of these Contract Documents. The Contractor, or the Contractor's personnel, shall hold appropriate certificates, licenses, and permits necessary to perform the work.

# **1.9.** Detail Drawings and Submittals

The Contractor shall submit all materials and four copies of all shop drawings at least five (5) working days before they are scheduled to be integrated into the project, in order to give the County adequate time to review, test, and approve the materials. Once a material has been integrated into the project, submittals of documentation and samples of such materials shall be submitted to the County for review and approval at least two (2) working days prior to fabrication or installation of any work pertaining to them.

The review and approval of shop drawings, samples, submittals, specifications and descriptive literature submitted by the Contractor will be only for general conformance with design concept and shall not be construed as:

- A. Permitting any departure from the project requirements.
- B. Relieving the Contractor of the responsibility for any error in detail, dimensions, or otherwise that may exist in such submittals.
- C. Constituting a blanket approval of dimensions, quantities or details of the material or equipment shown.

D. Approving departures from additional details or instructions previously furnished by the County.

Such check or review by County shall not relieve the Contractor of the full responsibility of meeting all of the requirements of the Contract Documents.

# **1.10.** Reference Specifications and Contract Documents

## **1.10.1.** Standard Specifications

The term Standard Specifications is a direct reference to the publication entitled "Standard Specifications for Public Works Construction" (2015 edition) written and promulgated by Public Works Standards, Inc. and all subsequent amendments, supplements, and additions. This publication is also known as the "Greenbook." The U.S. Standard Measures, also called the U.S. Customary System, is the method of measurement to be used at all times.

# **1.10.2.** State Standard Specifications

The "State Standard Specifications" are the Standard Specifications of the State of California, Department of Transportation, dated 2010.

## **1.10.3. ASTM Specifications**

The latest revised specifications or tentative specifications of the American Society for Testing and Materials.

# **1.10.4.** Standard Drawings

Unless otherwise noted on the Project Drawings, the Standard Drawings shall be those of the Riverside County Flood Control and Water Conservation District, the Riverside County Transportation Department, and Standard Plans of the State Department of Transportation (CalTrans).

# **1.10.5.** Plans or Project Drawings

The Plans or Drawings are the contract Project Drawings specifically prepared for this project.

# **1.11. Precedence of Contract Documents**

In case of conflict between the Contract Documents, the following order of governing documents shall be followed:

- 1. Special Provisions
- 2. Project Drawings
- 3. General Provisions
- 4. Standard Drawings
- 5. Standard Specifications

6. State Standard Specifications

## **1.12.** Superintendence

The Contractor shall furnish to the County, in writing, the name of the representative who shall have complete authority to act for this project, including, but not limited to: implementation and enforcement of the Public/Site Safety Plan, the maintenance of barricades, signs, traffic control, lights, fencing, erosion, and dust control. The Contractor shall also furnish to the County a telephone number where the Contractor's authorized representative may be contacted 24 hours a day. The representative shall be present at the job site during all working hours.

# **1.13.** Control of Work

In general, at the landfill site, the County surveyors will establish external primary survey control points on firm ground outside the limits of the work to be used throughout the construction period for the Contractor's work. County surveyors shall make verification surveys as various stages of the work are completed. The Contractor's surveyors are responsible for ensuring that all construction conforms to the requirements of the Contract Documents.

The Contractor shall provide County representatives with access to the completed portions of the work before they are covered by subsequent construction to allow County representatives to verify that all construction conforms to the requirements of the Contract Documents. The Contractor shall allow for at least one (1) working day for County survey or any other inspection work required.

Major construction items requiring verification by the County may include but are not limited to:

- Engineered fill to subgrade
- Excavation to subgrade
- Refuse over-excavation and Final Cover to subgrade
- Installation of ACB mats
- Construction of Concrete drop structure/retaining wall
- Earthen material backfill of ACB mats
- Hydroseed earthen material backfill of ACB mats
- Placement of riprap rock

### **1.14.** Inspection of Work

The Contractor shall comply with all requests by the County to alter the work sequence or uncover materials to facilitate testing, inspection or observation, or for the collection of samples or data. The Contractor shall provide the County with safe and suitable access to the work area for testing, inspection or observation. The Contractor is required to submit all materials at least five (5) working days before they are scheduled to be integrated into the project in order to give the County adequate time to review, test, and approve the materials.

Observation and testing by County of a material at the time of its incorporation into the work shall in no way be considered as a guarantee of continued acceptance of material presumed to be similar to that upon which observations and tests have been made. Observation and testing performed by County shall not relieve the Contractor or its suppliers of the responsibility for proper quality control.

## **1.15.** Control of Material

Under no circumstances shall used or secondhand materials, parts, or equipment be used during execution of the work.

### **1.15.1.** Samples and Tests

When, in the opinion of the County, tests are required to indicate compliance with appropriate standards (e.g., ASTM, AASHTO, ACI, local codes, etc.), the Contractor shall make arrangements for the County to perform such tests. The County will pay for the cost of passing tests.

The Contractor shall pay for failing tests, associated Contractor costs, and any costs required for the work to pass tests and conform to the Contract Documents.

## **1.15.2.** Earthwork Testing

Earthwork testing shall be performed by the County. If testing indicates that any area of a completed layer does not meet the specifications, the Contractor shall perform corrective action. The Contractor shall remove, re-work, and upgrade any area that the County considers to be unsatisfactory. The area shall be restored to the complete satisfaction of the County. The Contractor shall be solely responsible for all costs and delays resulting from re-working.

### **1.15.3. Pre-Approved Materials**

Materials to be used in the work shall be subject to inspection, observation, and testing by the County, or by an agency or laboratory approved by the County. The Contractor shall furnish, without charge, any samples that may be requested or required for testing. The Contractor shall submit all materials and four (4) copies of all shop drawings at least five (5) working days before they are scheduled to be integrated into the project in order to give the County adequate time to review, test, and approve the materials.

Manufacturers' warranties, guarantees, instruction sheets, and parts lists that are furnished with materials used in construction shall be delivered to the County before the respective items are incorporated into the work.

### **1.16.** Storage of Materials

When delivery of material occurs, the Contractor shall promptly observe shipments to assure that the material complies with requirements, that quantities are correct, and that

the material is undamaged. The Contractor shall take full responsibility for any delay caused by a supplier or manufacturer. The storage area shall be accessible to the County so the County may observe, verify, and document the presence and condition of materials being stored.

The Contractor shall store materials and maintain construction operations within limits indicated by applicable laws, ordinances, and permits, and as stated in the Contract Documents and as requested by the County. Care shall be exercised to avoid blocking roads, interfering with County operations, or presenting a hazard to County personnel and equipment, or to the public.

# **1.17.** Equipment Staging Area

An Equipment Storage Area for the storage of the Contractor's equipment at the landfill site is delineated on the Project Drawings. Storage of equipment shall not prevent access through the site, and maintenance and access roads shall be provided for at all times.

The storage area shall be accessible to the County so the County may verify the presence and condition of equipment being stored. The stored equipment shall be placed in the location shown on the Project Drawings or as directed by the County. The Contractor shall confine equipment and maintain construction operations within limits indicated by applicable laws, ordinances, and permits, and as outlined by the County. Care shall be exercised to avoid blocking roads or presenting a hazard to County personnel and equipment, or to the public.

The maximum allowable time that a piece of equipment shall remain on site, in a condition that makes it incapable of performing its designed function, shall be four (4) working days. Any equipment needing further maintenance shall be moved off site for repairs at the full expense of the Contractor. Equipment no longer needed for the job shall also be removed within four (4) working days of its last use.

### **1.18.** Working Day Definition

The working day shall be as set forth in Section 6.6 of the General Provisions. The length of each working day shall be from 7:00AM to 3:30PM, including half-hour for lunch break, unless otherwise approved in writing by the County.

### **1.19.** Suspension and Resumption of Operations

The Contractor shall suspend construction operations when, in the County's opinion, the conditions for such operations are unsatisfactory due to rain, wind or any other reason. The Contractor shall not be compensated monetarily for any delays caused by the suspension of operations. Working days shall be charged as appropriate, as stated in Section 6.6 of the General Provisions and Section 1.20. of these Special Provisions.

Whenever operations have been suspended, the effect of rain, wind or other adverse conditions shall be assessed by the County before approval to resume construction is given. Equipment will not be allowed to travel over any portion of the work surface until the construction area has dried sufficiently to prevent excessive rutting and to allow the equipment to be operated safely and satisfactorily. If rutting occurs, the Contractor shall re-level, scarify, and re-compact the materials to whatever depth is required to repair the damage in accordance with the appropriate specifications described herein at the Contractor's expense.

## **1.20.** Time of Completion and Liquidated Damages

The Contractor shall diligently and continuously prosecute the Bid Items to final completion before the expiration of <u>seventy (70)</u> working days from the date of the Contractor's receipt of the Notice to Proceed. This portion of the project will then be inspected by the County for final acceptance in accordance with Section 7.4 of the General Provisions.

The following days have been designated by the County as holidays:

January 1	New Year's Day
Third Monday in January	Martin Luther King, Jr
February 12	Lincoln's Birthday
Third Monday in February	Washington's Birthday
Last Monday in May	Memorial Day
July 4	Independence Day
First Monday in September	Labor Day
Second Monday in October	Columbus Day
November 11	Veteran's Day
Fourth Thursday in November	Thanksgiving Day
Fourth Friday in November	Day after Thanksgiving
December 25	Christmas Day

For a holiday that falls on a Saturday, both the Saturday and the preceding Friday shall be considered legal holidays. For a holiday that falls on a Sunday, both the Sunday and following Monday shall be considered legal holidays.

The Contractor shall not be permitted to work on days designated by the County as holidays unless the Contractor submits a written request to work and the request is approved in writing by the County. All Contractor requests to work on designated holidays shall be submitted at least seven (7) calendar days prior to the requested date(s).

In case all the work called for and all the conditions and requirements of the Bid Items of the project are not completed within seventy working days, as specified above, <u>liquidated</u> damages of Five Thousand Dollars (\$7,500) for each additional working day required to properly complete the project in excess of the allowed number of working days shall be paid by the Contractor to the County.

# **1.21.** Labor Surcharge

Attention is directed to the provisions of Section 7.3.1.1. of the General Provisions. The labor surcharge percentage to be applied to the regular hourly wages paid as defined in Paragraph 7.3.1.1.2. shall be eighteen percent (18%). The labor surcharge percentage to be applied to the overtime hourly wages paid as defined in Paragraph 7.3.1.1.2. shall be fifteen percent (15%).

# **1.22.** Equipment Rental

Attention is directed to the provision of Section 7.3.1.3. of the General Provisions. The equipment rental rates to be applied shall be the rates that are in effect at the time of the award of the contract, as published by the California Department of Transportation. A copy of said equipment rental rates is on file at the County office.

# **1.23.** Dust Abatement

Dust control operations shall be performed by the Contractor at the time, location and in the amount required and as often as necessary to prevent all excavations or fill works, demolition operations or other activities from producing dust in amounts harmful to personnel or causing a nuisance to persons living nearby or occupying buildings in the vicinity of the work. The Contractor shall ensure that the single family residences located adjacent to the project limits receive as close to zero dust as possible. The Contractor is responsible for compliance with Rule 1150 Landfill Excavation and Rule 403 Fugitive Dust Regulations issued by the South Coast Air Quality Management District (SCAQMD) and any other applicable regulations.

Measures to control dust shall include but not be limited to: sprinkling of water, use of approved dust suppressants, modifications of operations or any other means acceptable to the County, CRWQCB, the SCAQMD, and any agency having jurisdiction over the facility. The County shall have the authority to suspend all construction operations if, in the County's opinion, the Contractor fails to adequately provide for dust control.

# 1.24. Water Supply

The Contractor shall be responsible for obtaining a water supply for the project off site as the site does not contain a developed water source. The water shall be clean and free from objectionable deleterious amounts of acids, alkalis, salts, or organic materials. County must approve water source in advance and in writing. The Contractor shall provide all labor and equipment to collect, load, and apply water in their work areas. The Contractor shall submit the meter recordings to the County at the end of each week.

Payment for complying with this section shall be considered as included in **Bid Item No.** 2 - Mobilization and Demobilization and no additional compensation shall be allowed.

# **1.25.** Temporary Haul Roads

The Contractor must obtain advance written approval from the County for location and construction of temporary haul roads within the landfill property limits. The County will designate all necessary roads to be used during the project in the Pre-Construction meeting help prior to the Notice to Proceed.

The Contractor shall install, operate and maintain traffic control devices and measures specified in Section 1.4.2. – Public/Site Safety Plan for the designated routes between the entrance of the landfill and all project areas.

## **1.26. Protection of Existing Utilities**

A number of buried and surface utilities and structures shown on the Project Drawings exist at the landfill. These may include but are not limited to: water lines, power lines and poles, survey monuments, and high pressure gas lines.

The contractor is hereby notified of the possible existence of underground utilities not indicated in the Contract Documents and to the possibility that underground utilities may be at a location different from that which is indicated in the Contract Documents. The Contractor shall be responsible for verifying underground utilities' locations including contact of Underground Service Alert (USA) at 1-800-422-4133, 48 hours prior to beginning work.

Contractor shall be responsible for protection of identified utilities (as shown on the Project Drawings or as identified through utility search) and shall take all necessary precautions by constructing barriers, bridges, and crossings for construction equipment and vehicles to prevent damage to the utilities or as required by the County. Any damage or loss to identified utilities caused by the Contractor's operations shall be promptly repaired at the Contractor's expense and to the satisfaction of the County.

### **1.27. Project Drawings**

The Contractor shall maintain a set of Project Drawings, including all addenda, change orders, and pertinent data related to the project, and shall ensure these drawings are present onsite during designated working hours of the project.

### **1.28.** Measurement and Payment

There shall be no additional payment to the Contractor for complying with all requirements and work listed in this section. Compensation for these requirements and work shall be considered as included in the various other contract bid items of work.

#### **END OF SECTION**

## SECTION 2. PREPARE AND IMPLEMENT NPDES STORMWATER POLLUTION PREVENTION PLANS

#### 2.1. General

This Contract item (Bid Item No. 1) shall include furnishing all labor, supervision, tools, equipment, and materials necessary to comply with the various Federal, State, and County laws and regulations along with specific permit requirements related to the construction activities in this project. This work shall include, but is not limited to: preparation and implementation of a project-specific Storm Water Pollution Prevention Plan (SWPPP); application for coverage under the California Construction General Permit, regular review and updating of those plans, inspections, and reporting; supply, installation, and maintenance of site specific SWPPP Best Management Practice (BMP) measures to prevent erosion and control sediment; and other items as described and required by the Contract Documents.

RAIN IS LIKELY TO OCCUR DURING CONSTRUCTION. STORMWATER **RUNOFF FROM APPROXIMATELY ONE THIRD OF THE CITY OF CORONA** WILL PASS THROUGH THE CHANNEL DURING A RAIN EVENT. THE **CONTRACTOR SHALL THEREFORE PROVIDE A PLAN OF PROTECTION** AGAINST DAMAGE CAUSED BY STORMWATER FLOW FOR ALL WORK WITHIN THE DRAINAGE CHANNEL. THIS PLAN SHALL NOT RELIEVE THE CONTRACTOR OF ITS RESPONSIBILITES FOR WEATHER DAMAGE TO THE PROJECT SITE AS STATED IN THE CONTRACT DOCUMENTS. The Contractor, by submitting a bid, will be held to have investigated the risks arising from such waters and to have made the bid in accordance with such conditions. The Contractor shall be responsible for all costs associated with or resulting from any water at or coming into the project site, including diversion of the constant nuisance water flow and stormwater flows through the channel. The project-specific SWPPP shall include all measures the Contractor shall take to prevent damage to the project during rain events. The Contractor shall include the costs of measures to be taken to protect the work within the drainage channel for a minimum of three storms.

The Contractor shall at all times protect the work from damage by such waters and shall take all due measures to prevent delays in progress of the work caused by such waters. In order to accomplish this, the Contractor shall exercise every reasonable precaution to protect the Southeast Channel and storm drains near the channel from pollution through the use of water pollution control measures consisting of construction of facilities that may be required to provide retention, control, and abatement of water pollution. The Contractor shall also conduct and schedule all operations so as to minimize or avoid muddying and silting of the Southeast channel and nearby storm drains.

All nuisance water shall be disposed of at the Contractor's sole expense in a manner that will not create a nuisance or health menace and complies with all the applicable regulations. The Contractor shall furnish, install, and operate pumps, hoses, pipes, or other equipment of a sufficient capacity to keep all construction excavations free from water until the excavation is backfilled (in the case of the anchor trenches and retaining

walls) or until the Articulated Concrete Block revetment system is installed. Nuisance water and storm water, if odorless and uncontaminated, may be discharged in a manner approved by the County. When required by the County, a means of de-silting the water before discharging shall be provided.

# 2.2. Execution

The County complies with the State NPDES through regular inspections and monitoring and implementation of BMPs for each site. After notification of award and prior to the start of any work, the Contractor shall prepare and submit to the County a project specific SWPPP that addresses construction activities at the site and outlines procedures to reduce pollutants (directly or indirectly related to the Contractor's activities) in storm water runoff.

At a minimum, the Contractor will be required to provide nuisance water diversion, street sweeping on Bel-Air Street and the parking lot for the Corona Animal Shelter (Magnolia Avenue entrance to the site) as often as reasonably required by the County, and a protection plan against a storm for the work contained within the channel for a minimum of three storm events. For all street sweeping and the stabilized construction access, Contractor shall reference the guidelines described in the California Stormwater BMP handbook.

# 2.3. Measurement and Payment

The following schedule will be used to determine measurement of Bid Item No. 1 – Prepare and Implement NPDES SWPPP work and disbursement of the bid price:

Percent of Contract Work Completed (\$ expended/\$ total bid price)	Percent of Prepare and Implement NPDES SWPPP Considered to be Complete
0%-30%	30%
31%-50%	50%
51%-75%	75%
More Than 75%	100%

Payment to Prepare and Implement NPDES SWPPP work shall be based upon the lump sum as stated in **Bid Item No. 1** – "Prepare and Implement NPDES SWPPP". Payments shall constitute full compensation for preparing and implementing the SWPPP including, but not limited to: furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in obtaining coverage under the Construction General Permit and in developing, preparing, obtaining acceptance of, revising, amending and implementing the SWPPP as specified in the Standard Specifications and these detailed Special Provisions, and as directed by the County.

#### **END OF SECTION**

# SECTION 3. MOBILIZATION AND DEMOBILIZATION

#### **3.1.** General

This contract item shall consist of expenditures for all preparatory work and operations including, but not limited to: bond and insurance costs; cost costs necessary for the movement of personnel, equipment, supplies, and incidentals to the project sites; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site as well as the related demobilization costs at the completion of the project. Demobilization shall include, but not be limited to cleaning installations and the removal of temporary structures as required by the County. Throughout all phases of construction, including suspension of work and until final acceptance of the project, the Contractor shall keep each work site clean and free of refuse generated as a result of the Contractor's operations.

#### Landfill and Bel-Air Street locations for this SE Channel Remediation Project:

- 1. Corona Landfill Near the intersection of Magnolia Avenue and Interstate Highway 15 in the City of Corona; APNs: 107-080-006, 107-080-005, 107-080-034, 107-080-010, 107-080-004, 107-201-008, 107-201-009, and 107-201-010.
- 2. Bel-Air Street Properties 1600 Bel-Air Street, Corona, CA 92881; APNs: 107-201-008, 107-201-009, and 107-201-010

#### 3.2. Materials

The Contractor shall provide fire extinguishers and first-aid kits at the project site during construction to provide adequate protection to all personnel anticipated to be at the project site.

All of the aforementioned materials should be made available for use by employees associated with the construction project, including (but not limited to) the Contractor, the County, regulatory agency staff, and any other agencies involved with the construction project.

### 3.3. Execution

Upon receipt of the Notice to Proceed, the Contractor shall furnish, mobilize, and install such temporary works, materials, equipment, supplies, and personnel as necessary for the successful completion of the work. The Contractor shall also operate and maintain temporary works, and equipment throughout the duration of construction. All temporary works, such as sanitation facilities and concrete washouts, shall fully comply with applicable rules and regulations of governing authorities.

The Contractor shall remove and properly dispose of all refuse from the construction site. The County shall have the right to determine what is refuse and to determine the manner of disposal. Any hydrocarbon-impacted soils found on site as a result of the construction operation, such as equipment maintenance, shall be removed and properly disposed of at the Contractor's expense.

The Contractor shall obtain all necessary permits and permission to utilize public roads for mobilization, demobilization, and access to the site. Access to the project site is available through existing public roads during the hours stated in Section 1.18. of these Special Provisions.

Contractor shall notify the County at least 48 hours prior to mobilizing personnel and equipment to the site so that the County representative may meet the Contractor onsite to provide gate keys as necessary to the closed landfill site and to confirm work area limits, "Do Not Enter" zones, and etc.

### **3.4.** Measurement and Payment

The following schedule will be used to determine measurement of mobilization and demobilization and disbursement of the bid price for mobilization and demobilization:

	Percent of Mobilization and
Percent of Contract Work Completed	Demobilization Considered to be
(\$ Expended/\$ Total Bid Price)	Complete
More than 5%	40%
26%-50%	60%
51%-75%	80%
More than 75%	90%
Upon County's acceptance of work	
including complete demobilization	100%

Payment of mobilization and demobilization shall be based upon the lump sum as stated in **Bid Item No. 2** – Mobilization and Demobilization. Payments shall constitute full compensation for all labor, material, equipment, and all other items necessary and incidental to completion of this item of work. The deletion of work or the addition of extra work, as provided for herein, shall not affect the price paid for mobilization and demobilization.

#### **END OF SECTION 3**

# SECTION 4. DEVELOP WATER

### 4.1. General

The work covered by this section shall consist of furnishing all materials, equipment, labor and supervision to collect, load, transport, and apply water from offsite water sources as necessary for earthwork, hardscape drainage structure installation, rock boulder import and stockpile, dust control, and other project construction use. The work shall include installing and maintaining a water meter at offsite sources; installing and maintaining a stabilized construction entrance/exit at offsite sources (as required); documenting and reporting the amount of water used, performing street cleaning along the designated water haul routes, and maintaining the offsite source properties according to the Contract Documents.

### 4.2. Materials

Clean water shall be used in construction for moisture conditioning, dust control, and all other project uses. Contractor may develop sources of water supply obtain water from private sources. Water shall be clean and free from objectionable amounts of acids, alkalines, salts, or organic materials. The Contractor may be required to furnish the County with a water analysis performed by a laboratory acceptable to the County. The Contractor shall pay all costs of sampling, testing, and reporting the test results. The Contractor may consider use of non-potable water, such as lower quality groundwater and reclaimed water for dust control purposes.

#### 4.3. Execution

Contractor shall document and report meter readings of water usage on a weekly basis to the County. The Contractor shall also document the number of water truck loads used each working day, and shall report the daily load count to the County at the end of each working day.

Contractor shall mitigate track-out by installing and maintaining a Stabilized Construction Entrance/Exit per BMP Fact Sheet Treatment Control-1 (TC-1) at the offsite water source and the landfill entrance gate designated for Contractor use by the County in accordance with details in Appendix A. This will include, but may not be limited to, the installation and maintenance of crushed aggregate rock and corrugated steel panels. The Contractor shall modify the Stabilized Construction Entrance/Exit (TC-1) at the direction of the County, and shall add additional aggregate rock when directed by the County.

Contractor shall utilize established access routes within the landfill site.

Contractor shall implement necessary traffic control devices and/or personnel to ensure public traffic does not access the landfill site through designated entrance gates for project personnel and equipment in accordance with the Site Safety Plan in Special Provisions Section 1.4.2. Contractor shall be responsible for ensuring this gate is locked during non-working hours.

Contractor shall control the generation of dust related to the Contactor's work and use of water sources to the satisfaction of the County, including, without limitation, all work areas, offsite water sources, and associated access routes.

Contractor shall perform street sweeping utilizing a broom-type street sweeper along paved portions of the designated offsite water haul route if requested by the County. Performance and effectiveness of the street sweeper(s) shall be to the satisfaction of the County and in accordance with Special Provisions Sections 2.2 and, and BMP Fact Sheet detail SC-7 in Appendix A.

Contractor shall immediately remove any build-up of mud, dirt or debris along paved public or landfill routes to the satisfaction of the County. Contractor shall utilize broom-type street sweepers and/or laborers for this work.

Contractor shall conduct all activities at the offsite water source only during designated contract working hours.

Once the project has been substantially completed, Contractor shall remove any placed corrugated steel panels and shall re-grade the portion of offsite water source(s) utilized by the Contractor during the construction project to its original condition and as directed by the County.

# 4.4. Measurement and Payment

Payment for complying with this section shall be considered as included in **Bid Item No.** 2 - Mobilization and Demobilization and no additional compensation shall be allowed.

#### **END SECTION 4**

# SECTION 5. SOUND BARRIERS

### 5.1. General

The work covered by this section shall consist of furnishing all materials, equipment, labor and supervision to install, rent, and take down a sound barrier for the project construction duration. The work shall include delivering all materials to the site, installing and maintaining a fence for the sound barrier, installing and maintaining the sound barrier blanket material, and disassembling the sound barrier, including the fence, according to the Contract Documents.

## 5.2. Materials

The materials shall consist of an eight foot (8ft) chain link fence, rigid steel frame, or alternative, approved in writing by the County, for use with the sound barrier. The Contractor may reuse the fence material to be removed from the downstream end of the Southeast Channel. A sound barrier blanket shall be attached to the fence or rigid steel frame. The sound blankets must be fire and UV resistant.

Approximately 1,155 LF of sound barrier shall be installed.

### 5.3. Execution

Contractor shall install the fence along the property limits as shown on the Project Drawings prior to the commencement of any use of heavy equipment. Contractor shall install and maintain the sound barrier as recommended by the manufacturer.

The sound barrier shall be installed along the lines shown in the Project Drawings and at least one foot (1') away from any fence lines. There shall be a gap in the sound barrier along Bel-Air Street at the location of the Bel-Air Street Access Gate to allow for ingress and egress to the project site from Bel-Air Street, as shown in the Project Drawings.

At the end of construction, the County shall give written approval to the Contractor to disassemble the sound barriers once all heavy equipment activity has ceased.

### 5.4. Measurement and Payment

The following schedule will be used to determine measurement of Bid Item No. 3 – Install Sound Barriers and disbursement of the bid price:

Percent of Contract Work Completed	Percent of Sound Barrier Considered
(\$ Expended/\$ Total Bid Price)	to be Complete
More than 5%	40%
26%-50%	60%
51%-75%	80%
More than 75%	90%
Upon County's acceptance of work	100%

including complete disassembly	
mendaling complete disussemery	

Payment for the sound barriers shall be based upon the lump sum as stated in **Bid Item No. 3** – Install Sound Barriers. Payments shall constitute full compensation for all labor, material, equipment, and all other items necessary and incidental to completion of this item of work. The deletion of work or the addition of extra work, as provided for herein, shall not affect the price paid for sound barriers.

# SECTION 7. CLEAR VEGETATION AND DEMOLISH HARDSCAPE IN CHANNEL

# 7.1. General

The work covered by this section shall include: clearing and grubbing all vegetation within channel limits, except within areas designated for conservation; removing and disposing of all litter and debris within the channel; demolishing asphalt concrete drains within grading limits; demolishing, salvaging, and stockpiling riprap rocks; and removing and recycling the fence along the NW bank at the channel outlet. The work in this section shall include furnishing all labor, supervision, tools, equipment, and materials necessary to complete and insure that all clearing, grubbing, and demolishing activities conform to the requirements of the Contract Documents.

## 7.2. Materials

Clear and grub approximately 2.6 acres of mature riparian vegetation, including, but not limited to palm, willow, and tamarisk trees. In-place materials/structures requiring demolition include: 32,310 square feet of grouted riprap, 1,723 square feet of asphalt drain, and 138 linear feet of fencing near outlet.

Clearing and demolition material quantities are approximate. Contractor is responsible for calculating all material quantities for bidding purposes.

# 7.3. Execution

## 7.3.1. Fencing

Remove and salvage approximately 138 linear feet of chain-link fence within the channel grading limits. Fence can be used for sound barrier material or shall be stored in a designated salvage material stockpile.

# 7.3.2. Asphalt Concrete and Concrete Drains

Saw cut, remove, and stockpile approximately 1,723 square feet of the asphalt concrete and concrete within the channel grading limits.

# 7.3.3. Vegetation

Clear approximately 2.6 acres of vegetation within grading limits. The Contractor shall not clear any vegetation with the designated conservation areas. The Contractor shall submit to the County for approval, a letter stating how the Contractor plans to safely transport the vegetation off-site and the disposal location of the vegetation.

## 7.3.4. Riprap Rock

Remove approximately 32,310 square feet of quarter-ton grouted riprap rock from slope and stockpile for later use in the project.

## 7.4. Measurement and Payment

Payment for removing and salvaging the chain link fence, demolishing the asphalt concrete and concrete drains, and removing the vegetation as described in this section shall be at lump sum bid price for **Bid Item No. 4** – Clear and Grub Channel. Payment for the **Bid Item No. 4** shall constitute full compensation for furnishing all labor, materials, tools, and equipment, and doing all the work involved to clear, demolish, salvage, and stockpile material and shall include all costs associated with the demolition operations, compliance with all applicable SCAQMD regulations and the Site Safety Plan.

Payment for **Bid Item No. 5** – Remove and Stockpile Existing Riprap Rock shall be based on the final in-place square footage removed. The final area shall be verified by the County based a ground survey and shall be measured to the nearest square foot. Payment shall be made after acceptance, at the contract unit price per square foot as stated in the Contractor's Proposal, **Bid Item No. 5**. Payment shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to remove and stockpile existing riprap rock in accordance with the Contract Documents. No additional compensation shall be given for remove and stockpile existing riprap rock outside the specified limits and dimensions unless otherwise ordered in writing by the County.

# SECTION 8. EARTHWORK

### 8.1. General

This work shall include furnishing all labor, supervision, tools, equipment, and materials necessary to achieve the design grades and elevations for the channel ACB subgrade at locations shown on the Project Drawings and as required by the Contract Documents or as directed by the County. This work shall include, but is not limited to: clearing, grubbing, excavation of earthen material, excavation of landfill materials, compaction of engineered fill, and subgrade preparation. If landfilled refuse is encountered during exaction work, additional work shall include, but is not limited to refuse excavation to subgrade, refuse over-excavation, refuse onsite disposal, and constructing a monolithic cover over the exposed waste and over the onsite disposal area.

### 8.2. Materials

### 8.2.1. Engineered Fill

Source material for engineered fill shall come from suitable soil excavated onsite to reach the subgrade design surface. The suitability of all earthen materials shall be subject to the acceptance of the County. Fill materials shall not contain brush, roots, sod, or other deleterious or unsuitable materials. Organic material and earthen material particles greater than the specified size shall be deposited in the designated material stockpile, starting the stockpile in the far northwestern corner of the grading plan and filling to design grade towards the southeastern corner of the stockpile. The stockpile shall be constructed to the design grade and lines.

## 8.2.2. Monolithic Final Cover Patch

A four foot (4') thick monolithic cover patch shall be constructed over any exposed waste and shall meet the specifications of 90% relative compaction and a hydraulic conductivity of  $1.0 \times 10^{-5}$  centimeter per second (cm/s) or less. Contractor may use onsite materials that will match the required hydraulic conductivity.

### 8.3. Execution

All work areas within the Project Limits shown on the Project Drawings shall be evaluated and accepted by the County to verify satisfactory completion of clear and grub work, penetration of the excavation into firm natural soils, and removal of all unsuitable materials.

Unless otherwise noted or required, areas where engineered fill is to be placed, or in other areas where unsuitable materials have been removed and where the surface is judged to be loose or otherwise unsuitable, the subgrade or finished grade shall be prepared as follows:

A. The upper six inches (6") of in-situ material shall be ripped, moisture-conditioned, and re-compacted to a minimum of 90 percent relative compaction, at a moisture

content range between 2% below optimum moisture content (OMC) and 2% above OMC in accordance with ASTM D1557 or as determined by the County.

- B. The compacted surface shall be scarified to provide a good bond between the foundation material and the subsequent fill material as appropriate.
- C. Areas of hard or dense, natural soil identified by the County shall be left undisturbed.

### 8.3.1. Excavation

This work may include ripping, breaking, and dozing of materials using standard earthmoving equipment up to and including CAT D-9 with single ripper type equipment. Based on a previous subsurface soil investigation, the material within limits of excavation has been determined to be rippable, except between stations 8+00 and 11+00 along the Channel alignment. In the event non-rippable material is encountered, either between stations 8+00 and 11+00 along the Channel alignment. In the event non-rippable material is encountered, either between stations 8+00 and 11+00 along the Channel alignment or elsewhere, the Contractor and County shall mutually decide upon the most acceptable method of removal for this material. This item shall also include keeping excavation areas neat and orderly, and completing the excavation to the satisfaction of the County.

Area of excavation shall be graded to drain at all times, and necessary precautions shall be taken to control dust and erosion. The Contractor's access roads shall be maintained as necessary for Contractor and County personnel. Unless specifically required by the Contract Documents, excavations shall not be carried below the design lines and grades shown on the plans or as otherwise accepted by the County in writing. Unauthorized over-excavation shall be immediately corrected by backfilling to grade with engineered fill in accordance with Section 8.3.2. of the Special Provisions at the Contractor's expense.

Excavated material from within the Project Limits shall be used by the Contractor as a source of material for executing the following work items and miscellaneous tasks: engineered fill, supplying daily cover material over exposed refuse, and any other miscellaneous tasks required by the Contract Documents or as directed by the County.

Unsuitable excavated material, as identified by the County, shall be placed in an area designated by the County as uncontrolled fill and shall not be used as engineered fill. No additional compensation will be provided by the County for the hauling of unsuitable material to the designated area.

Surface drainage shall be maintained at all times in the Project Limits and these completed areas shall be graded as shown on the Project Drawings and as directed by the County. Final surfaces within the Project Limits, except ACB subgrade surfaces, shall be finished by track walking and left in a uniformly graded condition. Final ACB subgrade surfaces shall be finished-graded and not contain protrusions greater than 3/8". Surfaces of flat areas shall be finished-graded with a small dozer or approved equal. The Contractor shall construct drainage and erosion control facilities in accordance with the Project Drawings within the completed portions of the Project Limits and as required by the Contract Documents, or as directed by the County. All material required for the surface drainage and erosion control facilities shall be supplied and installed by the Contractor.

The Contractor shall not be compensated for any unauthorized earthwork activities which deviate from what is required by the Contract Documents. The Contractor shall remove or correct any unauthorized road alterations at the Contractor's expense.

Side Slopes shall be cut to an inclination not steeper than 2.5:1 (H:V) unless otherwise shown on the Project Drawings. The Contractor shall observe temporary and permanent excavations on a regular basis for signs of instability. Should signs of instability be noted, the Contractor shall notify the County immediately, and shall undertake remedial measures as soon as practicable, subject to the direction and acceptance of the County. It shall be the Contractor's responsibility to remove all loose materials from the excavated slopes, and to maintain the slopes in a safe and stable condition at all times during the progress of the work and during any temporary closure of the work. Permanent cut slopes shall be left in a clean, safe, and stable condition upon completion of the work.

Where necessary, trenches, pits, and other excavation shall be properly sheathed and braced to furnish safe and acceptable working conditions. Any damage occurring from excessive earth pressures, slides, cave-ins, or other causes due to failure to provide proper sheathing or bracing, or through other negligence or fault of the Contractor, shall be repaired by the Contractor at its expense. The manner of bracing for excavations shall be as set forth in the rules, orders, and regulations of the Division of Industrial Safety of the State of California or OSHA California Code of Regulations Subchapter 4, article 6, Section 1540 "Excavations", whichever is more restrictive.

Contractor shall protect in place any existing gas collection pipes and gas monitoring probes. Contractor shall immediately notify the County if a gas collection pipe or monitoring probe is damaged before attempting any repairs. Upon authorization from the County, a gas collection pipe or gas monitoring damaged by the Contractor shall be immediately repaired by the Contractor and the cost associated with the repair shall be borne to the Contractor. Any ramps installed over gas collection lines shall first be propped to and accepted by the County in writing.

## 8.3.2. Engineered Fill

Only suitable material encountered within the excavation areas shall be utilized in the engineered fill areas, and all unsuitable material shall be removed and hauled to an area designated by the County.

The Contractor shall restrict earthwork movement and haul routes to areas within the Project Limits as shown on the Project Drawings. Any earthwork operations requiring activity outside of the Project Limits shall require a written request and written acceptance to and from the County.

Compacted engineered fill is required within the Project Limits, as shown on the Project Drawings or as directed by the County. On-site soil shall be placed and compacted in layers as specified herein. The Contractor shall spread soil evenly by mechanical equipment over the prepared subgrade. The Contractor shall place engineered fill material in thickness of loose lifts no greater than eight inches (8") and compacted lifts no greater than six inches (6"). Each lift shall be spread evenly and compacted to obtain

near uniform condition in each layer. In areas of lift thickness greater than specified herein, the Contractor prior to construction of additional lifts must complete re-grading and compacting of the surface to maximum specified lift thickness. The top of each previously compacted layer shall be scarified so that there is no lamination between layers.

Engineered fill material shall be compacted to a minimum of <u>90% relative compaction or</u> <u>85% relative compaction on slope steeper than 4:1</u>, based on the laboratory maximum dry density, determined by ASTM D1557. Engineered fill over cut slopes, or scarified naturally steep slopes shall be properly keyed into undisturbed bedrock or firm material in accordance with the Contract documents and as accepted by the County.

All general on-site soil material used for engineered fill shall have <u>a moisture content</u> <u>between 2% below and 2% above OMC</u> in accordance with ASTM D1557 or as determined by the County. Additional water may need to be added at any time during construction. The moisture content of the engineered fill materials prior to and during compaction shall be uniform though out each layer of the material.

When the moisture content of the fill material is below optimum, water shall be added until the moisture content is within the limits required to assure an adequate bonding and compaction of all fill material. When the moisture content of the fill material is above the specified limits, the fill material shall be aerated by plowing, disking, blading, or other satisfactory methods until the moisture content is acceptable. All plowing, tamping, blending, disking, or air drying of material is considered incidental to the work and no additional compensation will be allowed. Wetting of materials by rain or artificial means to acceptable moisture content. Complying with this requirement is considered incidental to the work and no additional compensation will be allowed.

Surfaces of all slopes not receiving ACB shall be finished by track walking with a dozertype equipment or approved equal by the County Representative in the field and left in an uniformly graded condition. Surfaces of all slopes receiving ACB shall be finishedgraded, smoothed and shall not contain protrusions greater than 3/8". Surfaces of flat areas shall be finish-graded with a motor grader or approved equal.

### 8.3.3. Southeast Floodplain Engineered Fill

Approximately 720 CY of material shall be hauled to the Southeast Floodplain grading limits on the Bel-Air Street property engineered fill to meet the line and grade for the subgrade.

### 8.3.4. Refuse Removal and Disposal

Refuse or soil co-mingled with refuse may be encountered during excavation within the Edge of Fill Limits; however, while unlikely, it is possible that refuse may also be encountered in any excavation area within the Project Limits shown on the Project Drawings.

Contractor shall haul and dispose of refuse onsite at the designated location. The Contractor shall re-bury the excavated landfill material commencing from the northern most end of the excavated refuse burial grading limits and filling the grading plan moving southwards.

At the end of the workday, the Contractor shall cover all refuse surfaces and may not allow refuse surfaces to be exposed overnight. The Contractor may cover the refuse surface with six inches (6") of cover soil or alternate daily cover including, but not limited to six inches (6") of process greenwaste material, tarps, or approved equal. If refuse excavation within the channel has not been completed by the end of the workday, the Contractor shall use tarps to cover the exposed refuse surface to minimize unnecessary refuse excavation and burial.

If the cover material placed over the landfilled refuse is to be incorporated as part of the Monolithic Final Cover Patch or subgrade for the patch, the Contractor shall prepare the cover soil as described in Section 8.3.2.

In the event the County or Contractor suspects any excavation material from the landfill is hazardous (as defined by CalRecycle or the Local Enforcement Agency), the Contractor shall suspend excavation operations and shall immediately notify the County that the exposed material is suspected to be hazardous. The County will call a Hazardous Waste Inspector (HWI) to the site to make a determination about the suspected material. If the HWI determines that the material is safe to remove, the Contractor shall commence excavation operations; however, if the HWI makes the determination that the material is not safe to be removed, the Contractor shall follow the HWI's instructions on how to work with or around the material.

The County has a South Coast Air Quality Management District (SCAQMD) Rule 1150 Permit for refuse excavation. The Contractor must place refuse within the limits of the landfill footprint as shown on the Project Drawings; and the Contractor shall also comply with all the requirements of the SCAQMD permit conditions (i.e., daily cover, transportation, dust suppression, etc.) at any time refuse is encountered. Permit conditions for refuse excavation are included in Appendix B. The Contractor shall address refuse excavation in the Site Safety Plan submittal, referenced in Section 1.4.2. of these Special Provisions. The County will provide required personnel to monitor the activities in accordance with the SCAQMD 1150 permit.

Excavation within the landfill limits of the site is expected for the subgrade preparation on this project, and as such, the Contractor may encounter refuse during excavation activities. Due to inaccuracies with older files and surveys, the exact landfill limits are questionable and the exact quantity of refuse, if any, to be excavated is unknown. The quantity listed in the Contractor's Proposal is for bidding purposes at this time and may not be the final quantity required to meet the lines and grades specified in the Project Drawings. Regardless of the final quantity (however high or low), the Contractor shall be paid only based upon the unit price stated for Bid Item No. 26 and in no event shall the Contractor be paid any different amount based on upon the Contract Documents, standard specifications, or any other source.

## **8.3.5.** Monolithic Final Cover

A four foot (4') thick monolithic cover patch shall be constructed over any exposed waste and shall be constructed in accordance with Section 8.3.2. ("Engineered Fill") of these Special Provisions. Material onsite near the channel inlet meets Final Cover requirements for hydraulic conductivity and the Contractor may use the onsite material for Final Cover material.

## 8.4. Measurement and Payment

The most recent aerial flight survey, flown in October 2015 has been used to generate earthwork quantities and will be used as a baseline for determining construction quantities. Unless otherwise stated, the final measurement of all earthwork quantities for the various layers shall be calculated to the nearest cubic yard or the nearest square foot based only upon comparison of the pre-construction (the October 2015 aerial flight survey) and the post-construction surfaces of the project work.

Allowable deviation from design grades shown on the Project Drawings shall be  $\pm 0.10$  feet. Limits for measurement of the excavations and fills shall be to the lines and grades as shown on the Project Drawings or as directed by the County. No additional compensation will be given for deviations above the lines and grades shown on the Project Drawings or as directed by the County, even if within the allowable tolerance. No additional compensation will be given for removal and re-compaction of material that does not meet the specifications described in this section.

Payment for **Bid Item No.** 6 – "Earthwork – SE Floodplain Engineered Fill to Subgrade" shall be based on the final cubic yardage of engineered fill constructed within the grading limits to reach the SE Floodplains subgrade. The final volume shall be verified by the County based a ground survey and shall be measured to the nearest tenth (0.1) of cubic yard. Payment shall be made after acceptance, at the contract unit price per cubic yard as stated in the Contractor's Proposal, **Bid Item No.** 6. Payment shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to construct engineered fill in accordance with the Contract Documents. No additional compensation shall be given for constructing engineered fill outside the specified limits and dimensions unless otherwise ordered in writing by the County.

Payment for **Optional Bid Item No. 25** – "Earthwork – Excavate Northwest Floodplain Subgrade" and **Optional Bid Item No. 24** – "Earthwork – Excavate to Channel Subgrade" shall be based on the final excavated quantity of earthen material removed from within the grading limits to reach the Floodplains and Channel ACB subgrade, respectively. The final volume shall be verified by the County based a ground survey and shall be measured to the nearest tenth (0.1) of cubic yard. Payment shall be made after acceptance, at the contract unit price per cubic yard as stated in the Contractor's Proposal, **Optional Bid Item No's 25 and 24**. Payment shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to excavate earthen material to Subgrade in accordance with the Contract Documents. No additional compensation shall be given to excavate material to subgrade outside the specified limits and dimensions unless otherwise ordered in writing by the County. Final quantity completed for optional bid items may range from 0% to 100%.

Payment for **Optional Bid Item No. 26** – "Earthwork - Excavate Landfilled Material" shall be based on the final cubic yardage of landfill material excavated within the grading limits to reach the channel ACB subgrade and the over-excavation of landfilled material to construct Final Cover. The final volume shall be verified by the County based a ground survey and shall be measured to the nearest tenth (0.1) of cubic yard. Payment shall be made after acceptance, at the contract unit price per cubic yard as stated in the Contractor's Proposal, **Optional Bid Item No. 26**. Payment shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to excavate landfilled material in accordance with the Contract Documents. No additional compensation shall be given to excavate landfilled material outside the specified limits and dimensions unless otherwise ordered in writing by the County. Final quantity completed for optional bid items may range from 0% to 100%.

Payment for **Optional Bid Item No. 27** – "Place Final Cover over Landfilled Materials" shall be based on the final in-place cubic yardage of monolithic final cover constructed over exposed waste, within the channel and over the excavated refuse material to be reburied onsite. The final volume shall be verified by the County based a ground survey and shall be measured to the nearest tenth (0.1) of cubic yard. Payment shall be made after acceptance, at the contract unit price per cubic yard as stated in the Contractor's Proposal, **Optional Bid Item No. 27**. Payment shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to construct a monolithic Final Cover in accordance with the Contract Documents. No additional compensation shall be given to construct a monolithic Final Cover outside the specified limits and dimensions unless otherwise ordered in writing by the County. Final quantity completed for optional bid items may range from 0% to 100%.

Payment for **Optional Bid Item No. 28** – "Earthwork - Excavate Clay to Subgrade" shall be based on the final cubic yardage of clay material excavated within the grading limits to reach the channel ACB subgrade. The final volume shall be verified by the County based a ground survey and shall be measured to the nearest tenth (0.1) of cubic yard. Payment shall be made after acceptance, at the contract unit price per cubic yard as stated in the Contractor's Proposal, **Optional Bid Item No. 28**. Payment shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to excavate clay material in accordance with the Contract Documents. No additional compensation shall be given to excavate clay material to subgrade outside the specified limits and dimensions unless otherwise ordered in writing by the County. Final quantity completed for optional bid items may range from 0% to 100%.

# SECTION 9. CONSTRUCT GROUTED RIPRAP INLET

### 9.1. General

The work covered by this section shall consist of furnishing all necessary labor, materials, equipment, tools, and supervision for the construction of the grouted riprap inlet and connection to the existing grouted riprap apron. Construction of the subgrade and any associated excavation and engineered fill shall be covered under Bid Item No. 6 – "Earthwork – SE Floodplain Engineered Fill to Subgrade".

### 9.2. Submittals

### 9.2.1. Mix Design and Certifications

The Contractor shall submit a mix design and certifications for concrete to the County for review and acceptance at least two (2) weeks prior to beginning placement.

## 9.2.2. Concrete Delivery Load Tickets

Each and every concrete load ticket shall be delivered to the County by truck drivers at the point of delivery. The mix plant shall supply delivery ticket for each batch of concrete. The Contractor shall submit delivery tickets to the County. Delivery tickets shall show the following:

- Name of ready mix batch plant
- Serial number
- Date and truck number
- Name of Contractor
- Name and location of job
- Specific classes or designation of concrete in conformance
- Amount of concrete
- Time loaded
- Type, name, and amount of admixtures used
- Amount and type of cement
- Total water content
- Water added by receiver of concrete with his/her signature initials

## **9.2.3.** Concrete Curing Compounds

The Contractor shall submit the manufacturer's product data and installation instructions to the County for review and acceptance at least two (2) weeks prior to application.

### 9.2.4. Weepholes

Weepholes shall be constructed according the details in the Project Drawings. The Contractor shall submit a list of materials to the County for approval at least five days prior to construction. Each hole shall consist of filter material, a geosynthetic filter fabric, and a 16 gage galvanized screen.

# 9.3. Materials

## 9.3.1. Rock

Contractor shall use Light Class and quarter ton rock removed from designated demolition areas with the channel. Debris shall be removed from the rock and Contractor shall clean the rock to the satisfaction of the County prior to placement on the slope.

## 9.3.2. Concrete

Concrete for rip-rap shall be Class 520-C-2500P or 650-D-3250P in conformance with Section 201-1 of the Standard Specifications except that the slump of the concrete shall be adjusted to provide the penetration of ten inches (10") as shown in Table 300-11.3.1, and shall be air-placed in conformance with sub-section 303-2.1.3, Method B (Shotcrete), of the Standard Specifications.

Fiber Reinforcement for concrete riprap shall conform to sub-section 201.2.3 Type III of the Standard Specifications.

Type 2 curing compound shall conform to sub-section 201-4.1.1 of the Standard Specifications.

# 9.3.3. Weepholes

Weepholes shall be constructed according the details in the Project Drawings. The Contractor shall submit a list of materials to the County for approval at least five days prior to construction. Each hole shall consist of filter material, a geosynthetic filter fabric, and a 16 gage galvanized screen.

# 9.4. Execution

In placing the riprap stones, the Contractor shall take adequate precautions to avoid displacement of underlying bedding material. Stones may be placed by dumping and may be spread in by dozers or other suitable equipment. The Contractor may move and place individual stones as necessary to obtain a reasonably well-graded distribution with a minimum of voids. Light Class rock may be placed near the connecting edges of the existing riprap apron inlet or mixed with quarter ton rock to minimize voids. The surface of the stones to be concreted must be cleaned of adhering soil and then moistened. The finish riprap lining shall be free of pockets of small stones or clusters of large rocks and shall be accepted by the County.

Concrete mixing shall comply with Section 201-1.4 of the Standard Specifications.

The grout shall be placed to a minimum penetration depth of ten inches (10") for the reused light class rock and eighteen inches (18") for half-ton rock as listed in Table 300-11.3.1 of the standard specifications. Concrete for grouted riprap shall be air-placed concrete in accordance with sub-sections 303-2.1.3 Method B ("Shotcrete"), part 2 of 303-2.2, 303-2.4, 303-2.6, 303-2.7, 303-2.8, 303-2.9, 303-1.10 and 300-11.3.2 of the Standard Specifications. We epholes shall be placed ten feet (10') off center, one foot from the bottom of the slope, as shown on the Project Drawings.

## 9.5. Measurement and Payment

The measurement of the final quantity for **Bid Item No. 7** – Construct Grouted Riprap Inlet shall be determined by the County by measuring the surface area within the limits specified in the Contract Documents. Measurement shall be determined after the Grouted Riprap Inlet has been installed and verified by the County based on conventional ground surveying method. Quantity shall be calculated based on "true" area of the riprap surface area and to the nearest square foot utilizing digital terrain modeling method. Payment for the Grouted Riprap Inlet shall be at the contract unit price per square feet as stated in the Contractor's Proposal, **Bid Item No. 7** and shall constitute full compensation to the Contractor for all work related to the construction of the Grouted Riprap Inlet including, but not limited to furnishing all labor, materials, tools, equipment, subgrade preparation, and incidentals, and for doing all work involved in constructing the Grouted Riprap Inlet, complete in place, as shown in the Project Drawings or as directed by the County.

# SECTION 10. ARTICULATED CONCRETE BLOCK (ACB) MAT INSTALLATION

## 10.1. General

The work shall include but not be limited to subgrade preparation, flank, anchor and toe trench construction, geotextile installation, and installation of the ACB at the locations shown on the Project Drawings or as directed by the County. The surface of the ACB revetment subgrade shall be smooth and free of loose or extraneous material, to the satisfaction of the County.

## 10.2. Materials

## **10.2.1.** Concrete Blocks

ACB sizes specified herein and in the Project Drawings are Contech Armortech® sizes. Other brands of ACB may be requested in writing from the Contractor and with written approval from the County. If another type of ACB is proposed, the Contractor shall provide a design report sealed by a Registered Civil Engineer (California) showing calculations that the mats will provide a factor of safety of 1.5 or higher.

ACB Mats shall be prefabricated with galvanized steel connecting the mats longitudinally. Individual units in the system shall be staggered and interlocked for enhanced stability. Each block shall incorporate interlocking surfaces that minimize lateral displacement of the blocks within the mats when they are lifted by the longitudinal revetment cables. The mats must be able to flex a minimum of 18° between any given row or column of blocks in the uplift direction and a minimum of 45° in the downward direction.

## 10.2.2. Grout

Gout used in the anchor trenches, along the concrete seams between the ACB mats, and wherever there is a greater than a two-inch (2") gap, shall be 4,000psi non-shrinking grout or 4,000psi concrete.

The Contractor shall submit a mix design and certifications to the County for review and acceptance at least two weeks prior to beginning placement of concrete for each mix design incorporated for use in this project.

Each and every concrete load ticket shall be delivered to the County by truck drivers at the point of delivery. The mix plant shall supply a delivery ticket for each batch of concrete. The Contractor shall submit delivery tickets to the County. Delivery tickets shall show the following:

- i. Name of ready mix batch plant
- ii. Serial number
- iii. Date and truck number
- iv. Name of Contractor
- v. Name and location of job

- vi. Specific classes or designation of concrete in conformance with that required in job specification
- vii. Amount of concrete
- viii. Time loaded
- ix. Type, name, and amount of admixtures used
- x. Amount and type of cement
- xi. Total water content
- xii. Water Added by receiver of concrete with his/her signature initials.

# **10.2.3.** Geotextile Materials

Rock slope protection fabric shall be nonwoven and shall be treated with ultraviolet ray (UV) protection. The UV treated fabric shall provide a minimum of 70 percent breaking strength retention after 500 hours exposure when tested in conformance with the requirements in ASTM D4355. The edges shall either be selvaged or serged. The minimum parameters of the fabric shall be as follows:

- Grab Strength, 200lbs (in any principal direction) (ASTM D4632)
- Elongation, Minimum (at peak load) 50% Max (ASTM D4632)
- Puncture Strength, 115 lbs, min. (ASTM D3787)
- Permittivity, 1.5sec<sup>-1</sup>, min. (ASTM D4491)
- Burst Strength, 400 psi, min. (ASTM D3786)
- Ultraviolet Resistance 70% Strength retained @ 500 Weatherometer hours (ASTM D4355)

### NE and SW Floodplains

- Apparent Opening Size (AOS), 50 US Std. Sieve (ASTM D-4751)

### Channel Alignment Station 6+60 to 11+20

- Apparent Opening Size (AOS), 200 US Std. Sieve (ASTM D-4751)

### Channel Alignment Station 11+20 to 17+80

- Apparent Opening Size (AOS), 50 US Std. Sieve (ASTM D-4751)

### Channel Alignment Station 17+80 to End

- Apparent Opening Size (AOS), 30 US Std. Sieve (ASTM D-4751)

Material shall be protected from UV sunlight and temperatures greater than 140°F while stored on-site. To the extent possible, the fabric shall be maintained wrapped in its protective covering. If the protective cover is removed from the geotextile for more than 72 hours or has defects, tears, punctures, flow deterioration, or damage incurred during manufacture, transportation, or storage, the material shall be rejected and not used in the project.

# **10.2.4.** Gravel

Gravel shall be used with geotextile fabric, as specified in section 10.2.3. for the drainage layer of the ACB revetment system for both the Northwest and Southeast Floodplains.

The gravel gradation shall meet the grading requirements for three-quarter inch  $(\frac{3}{4})$  uniformly graded gravel.

The Contractor shall submit a grading certification to the County for review and acceptance at least two weeks prior to beginning placement of gravel.

# **10.2.5.** Articulated Concrete Blocks

Concrete shall have an average (of three units) compressive strength net area minimum of 4,000 psi and a water absorption maximum of 9.1 pounds per cubic foot (lb/cf).

All units shall be sound and free of defects that would interfere with either the proper placement of the unit or impair the performance of the system. Surface cracks incidental to the usual methods of manufacture or surface chipping resulting from customary methods of handling in shipment and deliver, shall not be deemed grounds for rejection.

Cracks exceeding 0.25 inches in width and/or 1.0 inch in depth shall be deemed grounds for rejection.

Chipping resulting in a weight loss exceeding 10% of the average weight of a concrete unit shall be deemed grounds for rejection.

Blocks rejected prior to delivery from the point of manufacture shall be replaced at the manufacturer's expense. Blocks rejected at the job site shall be repaired with structural grout or replaced at the expense of the contractor.

# 10.2.6. Revetment Cable

Revetment cable shall be constructed of preformed galvanized cable and shall exhibit resistance to mild concentrations of acids, alkalis, and solvents. The cables shall be strong enough to lift the blocks into place without damaging the concrete blocks.

# 10.3. Execution

The subgrade shall not contain any protrusions greater than 3/8". The excavation and preparation of anchor trenches and flanking trenches shall be constructed to the lines and grades as shown on the Project Drawings. The geotextile shall not be placed until the County has approved the subgrade.

All ACB Revetment System placement and preparation should be performed in accordance with ASTM D6884-03, "Standard Practice for Installation of the Articulating Concrete Block (ACB) Systems".

# **10.3.1.** Geotextile Filter Fabric Installation

Geotextile Filter Fabric shall be placed within the ACB limits, as shown on the Project Drawings. Installation of the geotextile fabric shall be in conformance with the manufacturer's recommendations and as directed by the County. The fabric shall be placed in direct loose contact with the subgrade or gravel and shall be free of folds or wrinkles.

The geotextile shall not be driven nor walked upon after placement to reduce the potential to damage the fabric and maintain contact with the subgrade. Repairing damaged fabric shall consist of placing new fabric over the damaged area. The minimum overlap from the edge of the damaged area shall be three feet.

The geotextile filter fabric shall be placed so that the upstream strip of fabric overlaps the downstream strip and the longitudinal and transverse joints will be overlapped by at least two feet (2').

# **10.3.2.** Gravel Installation

The gravel layer shall be spread on top of the subgrade and below the geotextile fabric shall sit on top of the gravel drainage layer, as shown in the Project Drawings.

# **10.3.3.** Articulated Concrete Blocks (ACB) Installation

The ACB mats shall be directly placed on the geotextile fabric. Once the mat is on the ground, detached from any piece of heavy equipment, laborers can make small adjustments to the mats so that they interlock and secure the blocks to the others with pins. Crowbars may be used with care to not damage the blocks or geotextile fabric, to adjust the blocks. The Contractor, in coordination with the ACB mat manufacturer, shall submit to the County an ACB mat placement plan that conforms to the ACB locations on the floodplains and in the channel shown in the Project Drawings.

The ACB mats shall be prepared such that the bottom of the mat produces a smooth plane surface where no individual block will protrude more than one-half inch. The mats shall be attached to a spreader bar or other approved device and lifted and placed in the designed configuration within the channel or floodplain. The mats shall be placed side-by-side and/or end-to-end, so that the mats abut each other. Mat seams or openings between mats greater than two inches (2") will be backfilled with 4000psi non-shrink concrete.

# **10.3.4.** Anchor and Flank Trench Construction

Anchor and Flank trenches shall be backfilled with 4,000psi non-shrinking grout or concrete or dirt, as specified on the Project Drawings, and made flush with the top of the blocks, according to the Project Drawings. No more than 500 linear feet of placed ACB without a backfilled anchor trench will be permitted at any time.

# 10.3.5. Grouted Seams

Contractor shall place grout to the top or slightly lower than the block. Grout seams shall not extend beyond the height of the connecting blocks.

# **10.4.** Measurement and Payment

The measurement of the final quantity for **Bid Item No. 8** – ACB Contech Size 50 Installation and **Bid Item No. 9** - ACB Contech Size 70L shall be based on the total square footage of ACB delivered and installed onsite. The excavation of the Anchor and Flank trenches shall be paid on **Optional Bid Item No. 24** – Earthwork - Excavate to Channel Subgrade and the measurement of the final quantity for **Bid Item No. 24** shall be based on the total excavation volume, as determined by comparing the pre-excavation surface and the finished excavation surface. Payment for the backfill of the anchor and toe trenches shall be included with **Bid Item No. 8 and Bid Item No. 9**, for the respective ACB sizes. Payment shall constitute full compensation for all labor, material, equipment, and all other items necessary and incidental to completion of these items of work.

# SECTION 11. ACB BACKFILL

## 11.1. General

The work shall include, but not be limited to hauling the excavated clean earthen material (no excavated refuse) to the ACB and placing and spreading the material in the block voids, shown on the Project Drawings or as directed in the field by the County. ACB shall be backfilled with excavated earthen material prior to placement of the Non-Grouted Riprap to encourage growth of shallow-rooted plants and to protect the geotextile filter fabric from Ultra Violet (UV) sun damage.

## 11.2. Materials

Contractor may use material excavated from the Channel Subgrade Excavation to backfill the ACB. Material shall be free of refuse and rocks larger than three-inches (3"). Rocks larger than three-inches (3") may picked out of the material by sight instead of screened before placement.

## 11.3. Execution

The Contractor shall use low ground pressure equipment to spread the backfill dirt to prevent damage to the ACB mats. The backfill shall fill in all voids to the top of the ACB blocks. The backfill shall cover the ACB slopes from the channel bottom to the top anchor and not leave any block exposed.

## **11.4.** Measurement and Payment

The measurement of the final quantity for **Bid Item No. 11** – "**Earthwork - Backfill ACB**" shall be determined by the County by measuring the surface area within the limits specified in the Contract Documents. Measurement shall be determined after the backfill is placed and verified to the satisfaction of the County. The area of the final surface shall be verified by the County based on conventional ground surveying method. Quantity shall be calculated based on "true" area of the backfilled ACB and to the nearest tenth of square foot utilizing digital terrain modeling method. Payment for all backfilled ACB shall be at the contract unit price per square foot as stated in the Contractor's Proposal, Bid Item No. 11 and shall constitute full compensation to the Contractor for all work related to the backfill including, but not limited to furnishing all labor, materials, tools, equipment, subgrade preparation, and incidentals.

# SECTION 12. NON-GROUTED RIPRAP ROCKS

## 12.1. General

The work covered by this section shall consist of furnishing all necessary labor, materials, equipment, tools, and supervision for the construction of the non-grouted riprap lining over the ACB mats for energy dissipation. The work shall include, but not be limited to acquisition of riprap rock and placement along ACB lined portions of the channel to the line and grades shown on the Project Drawings or as directed by the County.

## 12.2. Submittals

Contractor shall notify County at least one day prior to delivery of non-grouted riprap materials to the Corona Landfill. Delivery trucks shall access the work area through the Magnolia Avenue site entrance and follow the designated traffic pathways unless otherwise directed in writing by the County. Contractor shall deliver each and every load ticket to the County.

# 12.3. Materials

# 12.3.1. Onsite Stockpiled Riprap Rock

Existing riprap rock shall be removed from designated demolition areas with the channel prior to channel grading and stockpiled onsite to line the ACB lined channel for energy dissipation. Rock shall be reasonably cleaned and freed of deleterious impurities, including alkali, dirt, clay, and refuse to the satisfaction of the County. Contractor shall use all of the stockpiled riprap rock before using imported material.

Contractor shall use quarter ton (1/4 ton) rock as non-grouted riprap lining over the ACB mats, except between Channel Alignment stations 10+60 to 11+00, where the contractor shall line the channel with half-ton (1/2 ton) rock. Any stockpiled light class rock not used in the grouted riprap inlet shall not be used for energy dissipation.

# 12.4. Execution

The Contractor shall do everything to prevent damage to the ACB lining under the Non-Grouted Riprap and this section shall not release the Contractor from preventing damage to the ACB lining.

Non-grouted riprap rock shall be placed in designated areas over ACB matting. In placing the riprap rocks, the Contractor shall take adequate precautions to avoid damaging the ACB mats.

Contractor <u>shall not</u> dump rocks into place nor will dozers be allowed to push rocks into place once rocks are in the channel. Rocks shall be placed with equipment into the channel, in accordance with Method A of the CalTrans Standard Specifications. The maximum rockfall distance during placement shall be one foot (1').

# 12.4.1. ACB Mat Repair

The Contractor shall do everything to prevent damage to the ACB lining under the Non-Grouted Riprap and this section shall not release the Contractor from preventing damage to the ACB lining.

Concrete chipping resulting in a weight loss exceeding 10% of the average weight of a concrete block shall be repaired; surface chipping where the weight loss is less than 10% the average weight of a block shall not require repair. Depending on the size of the crack or chip, the perimeter and void areas of the block can be filled with grout up to or just below the top grade of the block.

## 12.5. Measurement and Payment

The measurement of the final quantity of **Bid Item No. 13** – "**Placement of Riprap Rock over ACB**" shall be determined by the County measuring the surface area with the limits specified in the Contract Documents. Measurement shall be determined after the Non-Grouted Riprap has been placed and verified to the satisfaction of the County. The area of the final surface shall be verified by the County based on conventional ground surveying method. Quantity shall be calculated based on "true" area of the riprap surface area and to the nearest tenth of square foot utilizing digital terrain modeling method. Payment for placement of riprap rock shall be at the contract unit price per square foot as stated in the Contractor's Proposal, **Bid Item No. 13** and shall constitute full compensation to the Contractor for all work related to the placement of the riprap rock in the project including, but not limited to: furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved placing riprap rock, complete in place, as shown on the Project Drawings or as directed by the County.

# SECTION 13. CONCRETE RETAINING WALL STRUCTURES

## 13.1. General

The work covered by this section shall consist of furnishing all necessary labor, materials, equipment, tools, and supervision for the construction of Portland Cement Concrete (PCC) retaining wall structures. The work shall include, but not be limited to grading, excavation, subgrade preparation, and construction with engineered fill of the PCC structures to the elevations, lines, and grades at all the locations shown on the Project Drawings or as directed by the County. This work shall also include any cut or backfill necessary to achieve finished elevations adjacent to the structures once construction of PCC structures is complete.

### **13.2.** Submittals

## **13.2.1.** Concrete and Grout

# **13.2.1.1.** Mix Design and Certifications

The Contractor shall submit a mix design and certifications to the County for review and acceptance at least two (2) weeks prior to beginning placement of concrete for each mix design incorporated for use into this project.

## **13.2.1.2.** Concrete Delivery Load Tickets

Each and every concrete load ticket shall be delivered to the County by truck drivers at the point of delivery. The mix plant shall supply a delivery ticket for each batch of concrete. The Contractor shall submit delivery tickets to the County. Delivery tickets shall show the following:

- xiii. Name of ready mix batch plant
- xiv. Serial number
- xv. Date and truck number
- xvi. Name of Contractor
- xvii. Name and location of job
- xviii. Specific classes or designation of concrete in conformance with that required in job specification
- xix. Amount of concrete
- xx. Time loaded
- xxi. Type, name, and amount of admixtures used
- xxii. Amount and type of cement
- xxiii. Total water content
- xxiv. Water Added by receiver of concrete with his/her signature initials.

## **13.2.2.** Concrete Reinforcing Steel

The Contractor shall provide mill certificates to the County for approval prior to delivery of material to the job site.

# **13.2.3.** Concrete Curing Compounds

The Contractor shall submit the manufacturer's product data and installation instructions to the County for review and acceptance of at least two (2) weeks prior to application.

## 13.2.4. Weepholes

Weepholes shall be constructed according the details in the Project Drawings. The Contractor shall submit a list of materials to the County for approval at least five days prior to construction. Each hole shall consist of gravel, a geosynthetic filter fabric, and a 16 gage galvanized screen.

## 13.3. Materials

The Contractor shall adhere to and implement the Stormwater Best Management Practice (BMP) WM-8 – Concrete Waste Management as published by the California Stormwater Quality Association. This will include, but not be limited to the installation and removal of onsite temporary concrete washout facilities. Contractor shall provide application of this BMP at the direction of, and location(s) directed by the County. Contractor shall not begin pouring concrete until an onsite temporary concrete washout facility is verified by the County. Any cost associated with the canceling of a concrete order due to the lack of an onsite temporary concrete washout facility shall be at the expense of the Contractor.

Portland Cement Concrete (PCC) material for the retaining wall structures and the ACB trenches, flanks, and seams shall be class 560-C-3250P, in conformance with Section 201-1 of the Standard Specifications.

Reinforcement of the concrete structures varies according to the Project Drawings, from grade 60 #3 bars to grade 60 #5 bars.

Type II white pigmented curing compound for PCC structures shall conform to subsection 201-4.1.1 of the Standard Specifications.

Each weep hole shall consist of gravel, a geosynthetic filter fabric, and a 16 gage galvanized screen.

## 13.4. Execution

The subgrade for PCC retaining walls shall be prepared either by excavating or filling and shall conform to lines, grades, and cross-sections and be located as shown on the Project Drawings. Where the structures are in native cut, the upper six inches of subgrade shall be compacted to a minimum of 90% of the maximum density as determined per ASTM D1557. This shall be achieved by scarifying the exposed surface to a depth of six-inches (6") and re-compacting this earthen section as required by the Specifications. For areas requiring engineered fill, the finished subgrade shall be firm and suitable for placement of PCC structures and shall be compacted to a minimum of ninety-percent (90%) of the maximum density as determined per ASTM D1557. Clearing, grubbing, and excavation for PCC structures shall comply with the provisions of Section 300-7 of the Standard Specifications. Any excess soil material resulting from the excavation shall be hauled to the designated stockpile, as shown on the Project Drawings.

The material behind the wall shall be excavated to the minimum distance of the length of the heel to allow for construction of the heel. On-site soil shall be placed and compacted in layers over the heel and behind the wall, after the retaining wall has been allowed to cure, as specified herein. The Contractor shall spread soil evenly by mechanical equipment cured heel. The Contractor shall place engineered fill material in thickness of loose lifts no greater than eight inches (8") and compacted lifts no greater than six inches (6"). Each lift shall be spread evenly and compacted to obtain near uniform condition in each layer.

Engineered fill material shall be compacted to a minimum of <u>90% relative compaction</u>, based on the laboratory maximum dry density, determined by ASTM D1557. Engineered fill over cut slopes, or scarified naturally steep slopes shall be properly keyed into undisturbed bedrock or firm material in accordance with the Contract documents and as accepted by the County.

All general on-site soil material used for engineered fill shall have <u>a moisture content</u> <u>between 2% below and 2% above OMC</u> in accordance with ASTM D1557 or as determined by the County. Additional water may need to be added at any time during construction. The moisture content of the engineered fill materials prior to and during compaction shall be uniform though out each layer of the material.

Contractor shall notify the County at least one day prior to delivery of PCC material to the Corona Landfill for each day of delivery. Delivery trucks shall access the site through the Magnolia Avenue Entrance and use the designated haul routes to access the project limits.

Concrete mixing shall comply with Section 201-1.4 of the Standard Specifications.

Concrete for the retaining wall shall be placed in accordance with Section 303-1.8 of the Standard Specifications.

When retaining walls and adjoining end of retaining wall structures are constructed on multiple pours, the Contractor shall utilize a construction joint with adjoining steel dowel between the construction joints. Steel dowels shall adhere to Section 201-2.2.1 of the Standard Specifications.

Reinforcing steel shall be placed in accordance with Section 303-1.7 of the Standard Specifications.

As deemed necessary by the County, sets of three (3) test cylinders of PCC being placed will be cast and tested by the County. One (1) of the test cylinders shall be tested at 7 days for 70% or the project-specified design strength. The remaining two cylinders shall be tested at 14 days and 28 days (for full design strength) respectively. PCC compressive strength testing shall be per ASTM C39 and ASTM C31. The cylinders shall be paid for by the County.

Contractor shall collect and retain possession of each and every PCC load ticket at the time of material delivery to the project site. Contractor shall present a complete set of daily load tickets to the County on the day PCC material(s) is placed.

We epholes shall be placed ten feet (10') off center, one foot from the bottom of the slope, as shown on the Project Drawings.

# 13.5. Measurement and Payment

Payment for **Bid Item No's 14-23** shall be based on the final in place linear feet along the wall as specified in the Project Drawings and as directed by the County. The length shall be verified by the County based on conventional ground surveying. Quantity shall be calculated based on the "true" length and to the nearest foot utilizing digital terrain modeling method. Payment shall be made, after acceptance, at the contract unit price per linear foot as stated in the Contractors Proposal, **Bid Item. No's 14-23**. Earthwork performed to construct the retaining walls, as described in Section 13.4. , shall be considered part of the wall and paid for under **Bid Item No's 14-23**. Payment shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to install the concrete retaining wall structures in accordance with the Contract Documents. No additional compensation shall be given for the concrete retaining wall placed outside the specified limits and dimensions unless otherwise ordered in writing by the County. No additional compensation will be given for hauling of excess soil material leftover during subgrade preparation.

# SECTION 14. HYDROSEED

## 14.1. General

The work covered in this section shall consist of furnishing all necessary labor, materials, equipment, tools and supervision for coordinating delivery and spreading of a specified hydroseed material over the backfilled ACB, as shown on the Project Drawings and as directed by the County.

# 14.2. Submittals

Prior to delivery of materials, the Contractor shall submit product data sheet, material specifications, manufacturer's application instructions and seed mix design for the hydroseeding application to the County for approval.

## 14.3. Materials

The seed mixture furnished by the Contractor shall be the Coastal Sage Scrub Mix. The seed shall be installed after October 1 to maximize the benefits of the winter rainy season. The seed shall be less than two years old. A germination test of the seed shall be made less than six months prior to the seeding operations and a certificate of such test shall be furnished to the County. The germination tests, for an acceptable seed, shall indicate a minimum of 85 percent germination. When directed by the County, the above mixture may be varied to suit any special condition of soil peculiar to the areas to be seeded.

Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable.

## 14.4. Execution

Hydroseed shall be spread evenly over all exposed backfilled ACB mats, except where riprap rock has been placed and within the floodplains. The seeds shall be sprayed onto the slope after October 1 to maximize the benefits of the winter rainy season.

Hydroseeding shall consist of applying seed and watering the applied area immediately following installation.

# 14.5. Measurement and Payment

The measurement of the final quantity of **Bid Item No. 12 – "Hydroseeding"** shall be determined by the County measuring the surface area with the limits specified in the Contract Documents. Measurement shall be determined after the Non-Grouted Riprap has been placed and verified to the satisfaction of the County. The area of the final surface shall be verified by the County based on conventional ground surveying method. Quantity shall be calculated based on "true" area of the hydroseed surface area and to the nearest tenth of square foot utilizing digital terrain modeling method. Payment for all Hydroseed shall be at the contract unit price per square foot as stated in the Contractor's

Proposal, **Bid Item No. 12** and shall constitute full compensation to the Contractor for all work related to Hydroseeding the ACB slopes in the project including, but not limited to: furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved with Hydroseeding the ACB slopes, as specified in the Specials or as directed by the County.

# SECTION 15. AUTHORIZED TIME AND MATERIALS

### 15.1. General

Payment for "Authorized Time and Materials" shall be made when prior written authorization and approval has been provided to the Contractor by the County.

Authorized Time and Materials may be used by the County for work that has been negotiated between the County and the Contractor. Use of Authorized Time and Material allocation will be at the sole discretion of the County. All or any portion of the allocation amount may be deleted from the Contract. The County shall have the right to add work of a different character or function, and have the Contractor perform such added work when such work is considered by the County to be appurtenant to the satisfactory completion of the project.

The Contractor shall provide a rate schedule for all labor and equipment that may reasonably be anticipated for use during the project. Labor rates shall be consistent with those required by the prevailing wage rate requirements of the Contract and shall reflect all benefits and employer costs. Once the labor and equipment rates have been approved by the Project Manager, they will become the basis for compensation for any Time and Material work requested by the County.

The signing of the contract by the Contractor will be deemed to be an agreement on their part to perform the added work, as and when ordered by the County. If the required added work results in delay to the project, the Contractor will be given an appropriate extension of time.

Unless otherwise negotiated by the County and Contractor, the cost of all work performed by the Contractor on an "Authorized Time and Material" basis will be computed in the manner described in Section 7.3. of the General Provisions in the Contract Documents, and the compensation thus provided shall be full payment to the Contractor related to the authorized time and material work.

Appendix A SCAQMD Form 403-N & Rule 1150 Excavation Permit Standard Conditions

## RULE 403 - LARGE OPERATION NOTIFICATION SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Drive, Diamond Bar, CA 91765

Is this plan being submitted to comply with the requirements of a Notice to Comply or Notice of Violation? **YES/NO** Notice Number\_\_\_\_\_ Please attach copy

#### Qualifying Criteria:

- 1. Does this operation contain more than 50 acres of disturbed surface area as of the date of submittal? **YES/NO** Please indicate the size of the project \_\_\_\_\_\_.
- 2. Will the earth moving operation exceed a daily earth moving or throughput volume of 5,000 cubic yards three times during the most recent 365-day period from the date grading begins? **YES/NO**

Please Print or Type				
Contractor/ Consultant/ Owner:				
(Circle one of the above)		Phone Num	iber:	
Address: Ci	ty:	State: 2	Zip:	
Project Name:				
Nature of Business: □Construction/Demoliti	on ⊐Sa	nd & Gravel/Mining Operations	□Cement Manufacturing	
Name of Responsible Person of Organization:				
Title:		Phone Number:		
Environmental Observer:		Phone Number:		
Date Attended Dust Class:		ID Number:		
Project Address:	City	: State:	Zip:	
(Attach location map)				
Name of Property Owner:				
(If different than above)				
Anticipated Start Date:		Anticipated Compl	etion Date:	
Telephone Number:				
Emergency Phone Number:				
In accordance with paragraph $(e)(1)$ of Rule 403, I will ensure that the actions specified in Tables 2 and 3 will be implemented on-site for each applicable fugitive dust source type within the property lines and that records are maintained in accordance with Rule 403, subparagraph $(e)(1)(c)$ . Further, I hereby certify that all information contained herein is true and correct.				
SIGNATURE OF RESPONSIBL MEMBER OF ORGANIZATION		TITLE	DATE	

Form403N\_2004

#### SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

#### RULE 1150 EXCAVATION OF LANDFILL SITES PERMIT APPLICATION INSTRUCTIONS

#### **GENERAL INFORMATION:**

This document contains instructions for providing information necessary for the AQMD to process permit applications for Rule 1150 Excavation Permits.

One Application for Permit to Construct and Operate Form 400-A (Indicate in Application Type: Compliance Plan) and one Form 400-CEQA (California Environmental Quality Act Applicability) is generally required for each excavation project. If the project consists of treatment or processing of the excavated materials using equipment which requires a permit to construct/operate, a separate application (Form 400-A) should be filed for each equipment. Examples of these equipment include crushers, screens, mixers, conveyers, vapor extraction systems, incinerators, internal combustion engines (>50 HP), etc.

#### APPLICABILITY:

Except otherwise exempt by Rule 1150(c), a Rule 1150 Excavation Permit is required for all excavation activities involving a landfill. A landfill by definition of the Rule is a place, location, tract of land, area, or premises in use, or which has been used for the disposal of waste. In addition to excavations at a typical landfill being subject to this Rule, excavations of contaminated soil at any location will be subject to this Rule if the contamination occurred from the disposal of unwanted material at the site.

#### **APPLICABLE RULES & REGULATIONS:**

Reg III

Rule 306 Plan Fees, including filing fee per Rule 306(c) and initial payment of evaluation fees per Rule 306(h)(1).

Reg. IV

Rule 402NuisanceRule 403Fugitive Dust

Reg. XI

- Rule 1150 Excavation of Landfill Sites
- Rule 1166 VOC Emissions from Decontamination of Soil

(Copies of Rules & Regulations of AQMD can be obtained through our Public Information Center at (909) 396-3600, or at the AQMD internet home page, www.aqmd.gov.)

#### EMISSIONS:

ROG and particulate emissions are expected from the excavation activities. These emissions shall be mitigated using the measures identified in Item 10 under <u>Requirements</u>.

#### **REQUIREMENTS:**

An Excavation Management Plan must be submitted to and approved by the AQMD. The Plan shall include the following information:

- 1. Identification (including company name, address, contact person and phone number) of project owner, excavation contractor, on-site safety coordinator, and the firm or individuals preparing the excavation management plan.
- 2. A description of the background of the project site and the purpose of the excavation.
- 3. A contour map showing the location of the excavation site, the proposed excavation area, and the surrounding area up to 2,500 feet away form the perimeter of the proposed excavation area. The map should identify all land uses in the area and highlight areas of high population such as schools, hospitals, residential areas, restaurants, and shopping centers.
- 4. A list of materials buried or suspected materials buried in the site based on all available records.
- 5. Results of any boring tests done to characterize the disposal site including the identification of any EPA priority pollutants.
- 6. Results of landfill gas analyses or soil vapor phase analyses including the concentrations of methane, sulfur compounds, and any speciated non-methane hydrocarbons such as benzene and vinyl chloride, etc.
- 7. The total amount of material to be excavated and the landfill to which the excavated material will be hauled.
- 8. Scheduled excavation starting and completion dates, and number of working days required for the excavation.
- 9. A detailed description of how the excavation will be conducted including:
  - excavation equipment
  - surface area of excavation workface
  - surface area of refuse or contaminated soil to be exposed to the atmosphere at any one time
  - excavated material handling method
  - vehicles hauling the excavated material
  - a site layout showing the excavation area, vehicle route, equipment/vehicle cleaning area, etc.

- 10. A detailed description of the mitigation measures to be implemented during excavation and transportation to minimize potential emissions. The mitigation measures in general includes, but not be limited to:
  - limited excavation workface
  - minimized soil disturbance/transfer
  - minimized refuse/contaminated soil exposure
  - limited working hours

- use of long duration foams, plastic sheeting, and/or clean dirt to cover refuse/contaminated soil during non-working hours and/or when excessive emissions are detected

- water spraying
- cleaning and covering of the trucks
- good housekeeping
- 11. A detailed description of monitoring to be conducted during the excavation. This includes:

- continuous monitoring for organic vapors with OVA's (FID, PID, etc.) at the work face and property line (or other downwind locations within the property line)

- ambient air sampling for particulates, heavy metals, asbestos, and/or specific organic air toxics

- monitoring for odors at and beyond the property line
- monitoring for wind speed and direction
- 12. A contingency plan for actions to be taken when odors or elevated concentrations (specify the concentrations) of air emissions are detected, or when complaints are received from any public member.
- 13. A provision that the excavation activities will cease immediately when the operator is notified by a District staff that a public nuisance has occurred as required by Rule 1150 (b)(3).

#### **RULE 1150 STANDARD CONDITIONS:**

The following is a list of standard conditions that are used for Rule 1150 Permits. Conditions for an actual Permit may be a combination of the following conditions and specific restrictions applicable to the excavation under evaluation. However, all of the following conditions may not be appropriate for every excavation. The conditions for each Permit should be tailored to fit the needs of the individual excavation under review.

- 1. THIS EXCAVATION SHALL BE CONDUCTED IN COMPLIANCE WITH ALL PLANS AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
- 2. THE EXCAVATION SHALL BE COMPLETED BY \_\_\_\_\_\_, OR WITHIN \_\_\_\_\_\_, CALENDAR DAYS AFTER THE EXCAVATION COMMENCES, WHICHEVER OCCURS FIRST, UNLESS AN EXTENSION IS OTHERWISE APPROVED IN WRITING BY THE SCAQMD. ANY EXTENSION REQUEST SHALL BE SUBMITTED IN WRITING TO THE SCAQMD AND SHALL INCLUDE THE REASONS THE EXTENSION IS REQUIRED, THE LENGTH OF THE EXTENSION, AND THE STATUS OF THE EXCAVATION TO DATE.
- 3. THE SCAQMD SHALL BE NOTIFIED IN WRITING AT LEAST TWO (2) DAYS PRIOR TO THE EXCAVATION COMMENCES AND WITHIN FIVE (5) DAYS AFTER IT IS COMPLETED.
- 4. THIS EXCAVATION PERMIT IS VALID ONLY FOR THE REMOVAL OF APPROXIMATELY \_\_\_\_\_ CUBIC YARDS OF (EXCAVATED MATERIAL AND REFUSE) (SOIL CONTAMINATED WITH \_\_\_\_\_\_).

- 5. EXCAVATION SHALL NOT BE CONDUCTED BETWEEN THE HOURS OF AND OR ON SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS.
- EXCAVATION SHALL NOT BE CONDUCTED ON DAYS WHEN THE SCAQMD FORECASTS 6. FIRST, SECOND OR THIRD STAGE EPISODES FOR AREA NUMBER , OR WHEN THE SCAQMD REQUIRES COMPANIES IN AREA NUMBER TO IMPLEMENT THEIR FIRST. SECOND OR THIRD STAGE EPISODE PLANS. EPISODE FORECASTS FOR THE FOLLOWING DAY CAN BE OBTAINED BY CALLING (800) 445-3826 OR (800) 242-4666.
- 7. EXCAVATION SHALL NOT BE CONDUCTED WHEN THE WIND SPEED IS GREATER THAN 15 M.P.H. (AVERAGED OVER 15 MINUTES) OR THE WIND SPEED INSTANTANEOUSLY EXCEEDS 25 M.P.H.

or

EXCAVATION SHALL NOT BE CONDUCTED WHEN THE WIND SPEED IS GREATER THAN M.P.H. (AVERAGED OVER 15 CONSECUTIVE MINUTES) AND THE WIND DIRECTION IS FROM THE ARC DEFINED BY \_\_\_\_\_ THROUGH \_\_\_\_\_ TO \_\_\_\_\_.

- DURING EXCAVATION, ALL WORKING AREAS, EXCAVATED MATERIAL AND UNPAVED 8. ROADWAYS SHALL BE WATERED DOWN UNTIL THE SURFACE IS MOIST AND THEN MAINTAINED IN A MOIST CONDITION TO MINIMIZE DUST AND EMISSIONS.
- WHEN LOADING IS COMPLETED AND DURING TRANSPORT, NO MATERIAL SHALL 9. EXTEND ABOVE THE SIDES OR REAR OF THE TRUCK OR TRAILER WHICH WILL HAUL THE EXCAVATED MATERIAL.
- 10. (for inactive landfills)

EXCAVATED REFUSE SHALL NOT BE STOCKPILED ON-SITE. ALL EXCAVATED REFUSE SHALL BE DEPOSITED DIRECTLY INTO THE TRUCKS OR TRAILERS WHICH WILL HAUL IT. THE TRUCK BEDS OR TRAILERS SHALL BE COMPLETELY COVERED WITH AN IMPERMEABLE COVER, WITH SUCH COVERS TIED DOWN. ALL SEAMS SHALL BE SEALED TO PREVENT ANY MATERIALS FROM ESCAPING DURING TRANSPORT.

(for active landfills)

EXCAVATED REFUSE SHALL BE TRANSPORTED TO THE ACTIVE WORKING FACE OF THE LANDFILL WITHIN ONE HOUR OF GENERATION OR AS DEEMED NECESSARY BY THE SCAQMD PERSONNEL.

- 11. THE EXTERIOR OF TRUCKS OR CARS (INCLUDING THE TIRES) SHALL BE CLEANED OFF PRIOR TO LEAVING THE EXCAVATION SITE.
- 12. THE EXCAVATION WORK FACE EXPOSED TO THE ATMOSPHERE SHALL NOT EXCEED (\_\_\_\_\_\_SQUARE FEET)(\_\_\_\_FT X \_\_\_\_FT).

or

THE EXCAVATION WORK FACE WHICH EXPOSES REFUSE OR OTHER EMISSION GENERATING MATERIALS TO THE ATMOSPHERE SHALL NOT EXCEED \_\_\_\_\_ SQUARE FEET.

- 13. ALL EXCAVATED REFUSE SHALL BE COVERED WITH EITHER A MINIMUM OF 6 INCHES OF CLEAN SOIL, APPROVED FOAM OR HEAVY-DUTY PLASTIC SHEETING WHENEVER THE EXCAVATION IS NOT ACTIVELY IN PROGRESS, AND AT THE END OF EACH WORKING DAY. FOAM BY ITSELF SHALL NOT BE USED AS A NIGHT COVER IF IT IS RAINING OR RAIN IS PREDICTED BY THE NATIONAL WEATHER SERVICE PRIOR TO THE NEXT SCHEDULED DAY OF EXCAVATION.
- 14. VOC CONTAMINATED SOIL (AS DEFINED BY RULE 1166) SHALL NOT BE SPREAD ONSITE OR OFFSITE IF IT RESULTS IN UNCONTROLLED EVAPORATION OF VOC TO THE ATMOSPHERE.
- 15. DURING EXCAVATION, IF A CONSIDERABLE NUMBER OF COMPLAINTS ARE RECEIVED, ALL WORK SHALL CEASE AND THE APPROVED MITIGATION MEASURES SHALL BE IMPLEMENTED IMMEDIATELY. OTHER MITIGATION MEASURES WHICH ARE DEEMED APPROPRIATE BY SCAQMD PERSONNEL TO ABATE A NUISANCE CONDITION SHALL BE IMPLEMENTED UPON REQUEST.
- 16. ALL EXCAVATED MATERIAL SHALL BE TRANSPORTED IN SUCH A MANNER AS TO PREVENT ANY EMISSIONS OF HAZARDOUS MATERIALS.
- 17. ALL HAZARDOUS MATERIALS SHALL BE TRANSPORTED IN CONTAINERS CLEARLY MARKED AS TO THE TYPES OF MATERIAL CONTAINED AND WHAT PROCEDURES SHOULD BE FOLLOWED IN CASE OF ACCIDENTAL SPILLS.
- 18. EXCAVATED LIQUID HAZARDOUS MATERIALS WITH THE POTENTIAL TO CAUSE AIR EMISSIONS SHALL BE ENCAPSULATED OR ENCLOSED IN CONTAINERS WITH SEALED LIDS BEFORE LOADING INTO THE TRANSPORT VEHICLES.
- 19. ALL MATERIALS THAT ARE LISTED AS HAZARDOUS BY A FEDERAL OR STATE AGENCY SHALL BE CONSIDERED "HAZARDOUS MATERIALS" FOR THE PURPOSE OF THIS PERMIT.

- DURING EXCAVATION. MONITORING FOR THE FOLLOWING HAZARDOUS MATERIALS 20. SHALL BE CONDUCTED IN A MANNER APPROVED BY THE SCAQMD. SAMPLES MUST BE ANALYZED AND RESULTS REPORTED TO THE SCAQMD WITHIN DAYS OF TAKING THE SAMPLE. OTHER HAZARDOUS MATERIALS MAY BE ADDED TO THIS LIST IF THEIR PRESENCE BECOMES KNOWN IN THE EXCAVATED MATERIALS:
  - Α. VINYL CHLORIDE Ε. HEAVY METALS-Pb,Cr,Hg F.
  - HYDROGEN CYANIDE Β.
- BENZENE ETC. G.

- C. DDT ASBESTOS D.
- 21. DURING EXCAVATION, CONTINUOUS MONITORING AND RECORDING OF THE WIND SPEED AND DIRECTION SHALL BE CONDUCTED AT A SITE APPROVED BY THE SCAQMD.
- 22. DURING EXCAVATION, MONITORING FOR ORGANICS AS METHANE USING AN ORGANIC VAPOR ANALYZER (OVA) OR OTHER MONITOR APPROVED BY THE SCAQMD SHALL BE CONDUCTED CONTINUOUSLY AT THE WORKING FACE AND AT THE PROPERTY LINE (OR OTHER APPROVED LOCATIONS) DIRECTLY DOWNWIND OF THE EXCAVATION. THE MAXIMUM SUSTAINED READINGS SHALL BE RECORDED EVERY 15 MINUTES.
- IF THE OVA OR OTHER APPROVED ORGANIC MONITOR SHOWS A SUSTAINED 23. (GREATER THAN 15 SECONDS) READING OF 2,000 PPM OR GREATER AT THE WORKING FACE. THE EXCAVATION SHALL CEASE AND THE APPROVED MITIGATION MEASURES IMPLEMENTED IMMEDIATELY. EXCAVATION SHALL NOT RESUME UNTIL THE READINGS RETURN TO THE BACKGROUND LEVEL.
- IF THE OVA OR OTHER APPROVED ORGANIC MONITOR SHOWS A SUSTAINED 24. (GREATER THAN 15 SECONDS) READING OF 200 PPM OR GREATER DOWNWIND FROM THE SITE AT THE PROPERTY LINE (OR OTHER APPROVED LOCATIONS), THE EXCAVATION SHALL CEASE AND THE APPROVED MITIGATION MEASURES IMPLEMENTED IMMEDIATELY. EXCAVATION SHALL NOT RESUME UNTIL THE READINGS RETURN TO THE BACKGROUND LEVEL.
- DURING EXCAVATION, HIGH VOLUME SAMPLING FOR SUSPENDED PARTICULATES 25. SHALL BE CONDUCTED UPWIND AND DOWNWIND OF THE EXCAVATION SITE AT LOCATIONS APPROVED BY THE SCAQMD. SAMPLES SHALL BE TAKEN DURING THE FOLLOWING PERIODS:

ACTIVE WORK PERIOD - FROM START OF EXCAVATION (time) UNTIL ACTIVITY IS Α. CEASED FOR THE DAY, BUT NOT LESS THAN 5 HOURS OF SAMPLING TIME.

INACTIVE WORK PERIOD - IMMEDIATELY FOLLOWING THE ACTIVE WORK Β. PERIOD AND ENDING AT 6 A.M., AND A 24 HOUR SAMPLE FOR EACH NON-WORKING DAY.

- 26. ALL HIGH VOLUME SAMPLES TAKEN DURING ACTIVE WORK PERIODS SHALL BE ANALYZED FOR TOTAL SUSPENDED PARTICULATES AND (other contaminants). RESULTS OF THESE ANALYSES SHALL BE SUBMITTED TO THE SCAQMD WITHIN 5 DAYS OF SAMPLING. ADDITIONAL SAMPLING AND ANALYSES SHALL BE CONDUCTED UPON REQUEST BY THE SCAQMD.
- 27. IF ANY ANALYTICAL RESULTS SHOW THE UPWIND AND DOWNWIND DIFFERENTIAL CONCENTRATIONS OF CONTAMINANTS EXCEEDING THE FOLLOWING LIMITS, EXCAVATION ACTIVITIES SHALL CEASE UNTIL ADDITIONAL MITIGATION MEASURES ARE SUBMITTED TO AND APPROVED BY THE SCAQMD. THESE ADDITIONAL MITIGATION MEASURES SHALL BE IMPLEMENTED WHEN THE ACTIVITIES RESUME.

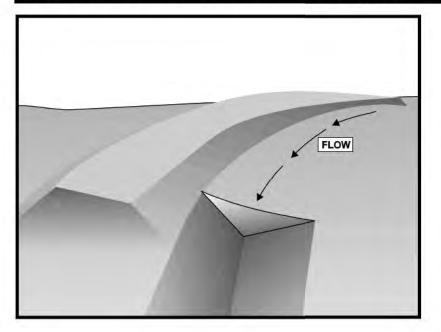
<u>CONTAMINANT</u>	<b>CONDITION</b>	
PM10	50 ug/m <sup>3</sup>	
contaminants	ug/m <sup>3</sup>	

- 28. ALL SAMPLES TAKEN BY THE HIGH VOLUME SAMPLERS SHALL BE PROPERLY STORED FOR AT LEAST 10 DAYS AFTER THE EXCAVATION IS COMPLETED.
- 29.. ALL MONITORS SHALL BE CALIBRATED DAILY USING A METHOD APPROVED BY THE SCAQMD.
- 30. IF A DISTINCT ODOR (LEVEL III OR GREATER) RESULTING FROM THE EXCAVATION IS DETECTED AT OR BEYOND THE PROPERTY LINE, THE EXCAVATION SHALL CEASE AND THE APPROVED MITIGATION MEASURES IMPLEMENTED IMMEDIATELY. ODOR LEVELS WILL BE DETERMINED BY SCAQMD PERSONNEL OR ON-SITE SAFETY COORDINATOR IN THE ABSENCE OF SCAQMD PERSONNEL.
- 31. ALL RECORDS OF EXCAVATION WORKING HOURS, ANALYTICAL RESULTS, DAILY AMOUNTS OF MATERIALS EXCAVATED AND HAULED OFFSITE, AND OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT ON FILE FOR AT LEAST TWO YEARS AND MADE AVAILABLE TO THE SCAQMD UPON REQUEST.
- 32. MITIGATION MEASURES, OTHER THAN THOSE INDICATED IN THESE CONDITIONS, WHICH ARE DEEMED APPROPRIATE BY SCAQMD PERSONNEL AS NECESSARY TO PROTECT THE COMFORT, REPOSE, HEALTH OR SAFETY OF THE PUBLIC, SHALL BE IMPLEMENTED UPON REQUEST.
- 33. THIS PERMIT OR A COPY OF THIS PERMIT SHALL BE PRESENT AT THE EXCAVATION SITE.

Other governmental agencies may require approval before any excavation begins. It shall be the responsibility of the applicant to obtain that approval. The South Coast Air Quality Management District shall not be responsible or liable for any losses because of measures required or taken pursuant to the requirements of this approved Excavation Management Plan.

Appendix B BMP Installation Details from the 2003 CASQA Stormwater BMP Handbook

## Earth Dikes and Drainage Swales



## **Description and Purpose**

An earth dike is a temporary berm or ridge of compacted soil used to divert runoff or channel water to a desired location. A drainage swale is a shaped and sloped depression in the soil surface used to convey runoff to a desired location. Earth dikes and drainage swales are used to divert off site runoff around the construction site, divert runoff from stabilized areas and disturbed areas, and direct runoff into sediment basins or traps.

## Suitable Applications

Earth dikes and drainage swales are suitable for use, individually or together, where runoff needs to be diverted from one area and conveyed to another.

- Earth dikes and drainage swales may be used:
  - To convey surface runoff down sloping land
  - To intercept and divert runoff to avoid sheet flow over sloped surfaces
  - To divert and direct runoff towards a stabilized watercourse, drainage pipe or channel
  - To intercept runoff from paved surfaces
  - Below steep grades where runoff begins to concentrate
  - Along roadways and facility improvements subject to flood drainage

#### Objectives

 $\checkmark$ EC **Erosion Control** SE Sediment Control TR **Tracking Control** WE Wind Erosion Control Non-Stormwater NS Management Control Waste Management and WM Materials Pollution Control Legend: Primary Objective Secondary Objective

EC-9

#### **Targeted Constituents**

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	
	Nutrients Trash Metals Bacteria Oil and Grease

#### Potential Alternatives

None



# EC-9 Earth Dikes and Drainage Swales

- At the top of slopes to divert runon from adjacent or undisturbed slopes
- At bottom and mid slope locations to intercept sheet flow and convey concentrated flows
- Divert sediment laden runoff into sediment basins or traps

### Limitations

Dikes should not be used for drainage areas greater than 10 acres or along slopes greater than 10 percent. For larger areas more permanent drainage structures should be built. All drainage structures should be built in compliance with local municipal requirements.

- Earth dikes may create more disturbed area on site and become barriers to construction equipment.
- Earth dikes must be stabilized immediately, which adds cost and maintenance concerns.
- Diverted stormwater may cause downstream flood damage.
- Dikes should not be constructed of soils that may be easily eroded.
- Regrading the site to remove the dike may add additional cost.
- Temporary drains and swales or any other diversion of runoff should not adversely impact upstream or downstream properties.
- Temporary drains and swales must conform to local floodplain management requirements.
- Earth dikes/drainage swales are not suitable as sediment trapping devices.
- It may be necessary to use other soil stabilization and sediment controls such as check dams, plastics, and blankets, to prevent scour and erosion in newly graded dikes, swales, and ditches.

## Implementation

The temporary earth dike is a berm or ridge of compacted soil, located in such a manner as to divert stormwater to a sediment trapping device or a stabilized outlet, thereby reducing the potential for erosion and offsite sedimentation. Earth dikes can also be used to divert runoff from off site and from undisturbed areas away from disturbed areas and to divert sheet flows away from unprotected slopes.

An earth dike does not itself control erosion or remove sediment from runoff. A dike prevents erosion by directing runoff to an erosion control device such as a sediment trap or directing runoff away from an erodible area. Temporary diversion dikes should not adversely impact adjacent properties and must conform to local floodplain management regulations, and should not be used in areas with slopes steeper than 10%.

Slopes that are formed during cut and fill operations should be protected from erosion by runoff. A combination of a temporary drainage swale and an earth dike at the top of a slope can divert runoff to a location where it can be brought to the bottom of the slope (see EC-11, Slope Drains). A combination dike and swale is easily constructed by a single pass of a bulldozer or grader and

compacted by a second pass of the tracks or wheels over the ridge. Diversion structures should be installed when the site is initially graded and remain in place until post construction BMPs are installed and the slopes are stabilized.

Diversion practices concentrate surface runoff, increasing its velocity and erosive force. Thus, the flow out of the drain or swale must be directed onto a stabilized area or into a grade stabilization structure. If significant erosion will occur, a swale should be stabilized using vegetation, chemical treatment, rock rip-rap, matting, or other physical means of stabilization. Any drain or swale that conveys sediment laden runoff must be diverted into a sediment basin or trap before it is discharged from the site.

#### General

- Care must be applied to correctly size and locate earth dikes, drainage swales. Excessively steep, unlined dikes, and swales are subject to erosion and gully formation.
- Conveyances should be stabilized.
- Use a lined ditch for high flow velocities.
- Select flow velocity based on careful evaluation of the risks due to erosion of the measure, soil types, overtopping, flow backups, washout, and drainage flow patterns for each project site.
- Compact any fills to prevent unequal settlement.
- Do not divert runoff onto other property without securing written authorization from the property owner.
- When possible, install and utilize permanent dikes, swales, and ditches early in the construction process.
- Provide stabilized outlets.

## Earth Dikes

Temporary earth dikes are a practical, inexpensive BMP used to divert stormwater runoff. Temporary diversion dikes should be installed in the following manner:

- All dikes should be compacted by earth moving equipment.
- All dikes should have positive drainage to an outlet.
- All dikes should have 2:1 or flatter side slopes, 18 in. minimum height, and a minimum top width of 24 in. Wide top widths and flat slopes are usually needed at crossings for construction traffic.
- The outlet from the earth dike must function with a minimum of erosion. Runoff should be conveyed to a sediment trapping device such as a Sediment Trap (SE-3) or Sediment Basin (SE-2) when either the dike channel or the drainage area above the dike are not adequately stabilized.

- Temporary stabilization may be achieved using seed and mulching for slopes less than 5% and either rip-rap or sod for slopes in excess of 5%. In either case, stabilization of the earth dike should be completed immediately after construction or prior to the first rain.
- If riprap is used to stabilize the channel formed along the toe of the dike, the following typical specifications apply:

Channel Grade	<b>Riprap Stabilization</b>
0.5-1.0%	4 in. Rock
1.1-2.0%	6 in. Rock
2.1-4.0%	8 in. Rock
4.1-5.0%	8 in12 in. Riprap

- The stone riprap, recycled concrete, etc. used for stabilization should be pressed into the soil
  with construction equipment.
- Filter cloth may be used to cover dikes in use for long periods.
- Construction activity on the earth dike should be kept to a minimum.

## Drainage Swales

Drainage swales are only effective if they are properly installed. Swales are more effective than dikes because they tend to be more stable. The combination of a swale with a dike on the downhill side is the most cost effective diversion.

Standard engineering design criteria for small open channel and closed conveyance systems should be used (see the local drainage design manual). Unless local drainage design criteria state otherwise, drainage swales should be designed as follows:

- No more than 5 acres may drain to a temporary drainage swale.
- Place drainage swales above or below, not on, a cut or fill slope.
- Swale bottom width should be at least 2 ft
- Depth of the swale should be at least 18 in.
- Side slopes should be 2:1 or flatter.
- Drainage or swales should be laid at a grade of at least 1 percent, but not more than 15 percent.
- The swale must not be overtopped by the peak discharge from a 10-year storm, irrespective of the design criteria stated above.
- Remove all trees, stumps, obstructions, and other objectionable material from the swale when it is built.
- Compact any fill material along the path of the swale.

- Irrigation may be required to establish sufficient vegetation to prevent erosion.
- Do not operate construction vehicles across a swale unless a stabilized crossing is provided.
- Permanent drainage facilities must be designed by a professional engineer (see the local drainage design criteria for proper design).
- At a minimum, the drainage swale should conform to predevelopment drainage patterns and capacities.
- Construct the drainage swale with a positive grade to a stabilized outlet.
- Provide erosion protection or energy dissipation measures if the flow out of the drainage swale can reach an erosive velocity.

#### Costs

- Cost ranges from \$15 to \$55 per ft for both earthwork and stabilization and depends on availability of material, site location, and access.
- Small dikes: \$2.50 \$6.50/linear ft; Large dikes: \$2.50/yd3.
- The cost of a drainage swale increases with drainage area and slope. Typical swales for controlling internal erosion are inexpensive, as they are quickly formed during routine earthwork.

#### Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspect ditches and berms for washouts. Replace lost riprap, damaged linings or soil stabilizers as needed.
- Inspect channel linings, embankments, and beds of ditches and berms for erosion and accumulation of debris and sediment. Remove debris and sediment and repair linings and embankments as needed.
- Temporary conveyances should be completely removed as soon as the surrounding drainage area has been stabilized or at the completion of construction

#### References

Erosion and Sediment Control Handbook, S.J. Goldman, K. Jackson, T.A. Bursetynsky, P.E., McGraw Hill Book Company, 1986.

EC-9

# EC-9 Earth Dikes and Drainage Swales

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

National Association of Home Builders (NAHB). Stormwater Runoff & Nonpoint Source Pollution Control Guide for Builders and Developers. National Association of Home Builders, Washington, D.C., 1995

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, United States Environmental Protection Agency, 2002.

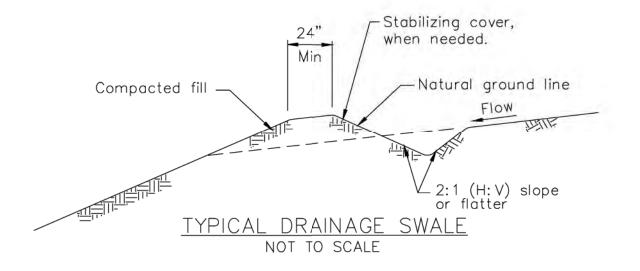
Southeastern Wisconsin Regional Planning Commission (SWRPC). Costs of Urban Nonpoint Source Water Pollution Control Measures. Technical Report No. 31. Southeastern Wisconsin Regional Planning Commission, Waukesha, WI. 1991

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

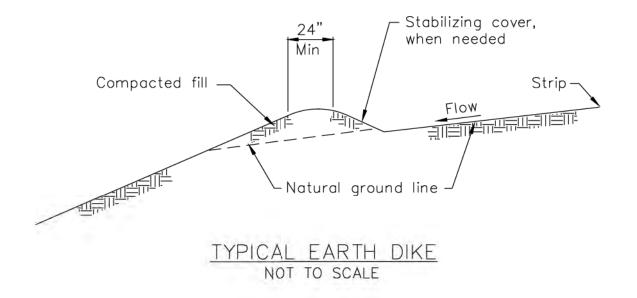
## Earth Dikes and Drainage Swales



NOTES:

1. Stabilize inlet, outlets and slopes.

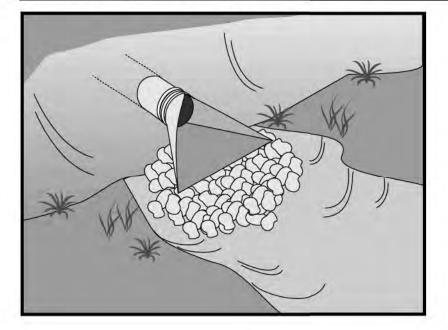
2. Properly compact the subgrade.



EC-9

## **Velocity Dissipation Devices**

## EC-10



## **Description and Purpose**

Outlet protection is a physical device composed of rock, grouted riprap, or concrete rubble, which is placed at the outlet of a pipe or channel to prevent scour of the soil caused by concentrated, high velocity flows.

## **Suitable Applications**

Whenever discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach. This includes temporary diversion structures to divert runon during construction.

- These devices may be used at the following locations:
  - Outlets of pipes, drains, culverts, slope drains, diversion ditches, swales, conduits, or channels.
  - Outlets located at the bottom of mild to steep slopes.
  - Discharge outlets that carry continuous flows of water.
  - Outlets subject to short, intense flows of water, such as flash floods.
  - Points where lined conveyances discharge to unlined conveyances

## Limitations

 Large storms or high flows can wash away the rock outlet protection and leave the area susceptible to erosion.

#### Objectives

EC	Erosion Control	$\checkmark$
SE	Sediment Control	
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	
Lege	end:	
	Primary Objective	
×	Secondary Objective	

#### **Targeted Constituents**

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

#### Potential Alternatives

None



# EC-10

- Sediment captured by the rock outlet protection may be difficult to remove without removing the rock.
- Outlet protection may negatively impact the channel habitat.
- Grouted riprap may break up in areas of freeze and thaw.
- If there is not adequate drainage, and water builds up behind grouted riprap, it may cause the grouted riprap to break up due to the resulting hydrostatic pressure.

## Implementation

## General

Outlet protection is needed where discharge velocities and energies at the outlets of culverts, conduits or channels are sufficient to erode the immediate downstream reach. This practice protects the outlet from developing small eroded pools (plange pools), and protects against gully erosion resulting from scouring at a culvert mouth.

## Design and Layout

As with most channel design projects, depth of flow, roughness, gradient, side slopes, discharge rate, and velocity should be considered in the outlet design. Compliance to local and state regulations should also be considered while working in environmentally sensitive streambeds. General recommendations for rock size and length of outlet protection mat are shown in the rock outlet protection figure in this BMP and should be considered minimums. The apron length and rock size gradation are determined using a combination of the discharge pipe diameter and estimate discharge rate: Select the longest apron length and largest rock size suggested by the pipe size and discharge rate. Where flows are conveyed in open channels such as ditches and swales, use the estimated discharge rate for selecting the apron length and rock size. Flows should be same as the culvert or channel design flow but never the less than the peak 5 year flow for temporary structures planned for one rainy season, or the 10 year peak flow for temporary structures planned for two or three rainy seasons.

- There are many types of energy dissipaters, with rock being the one that is represented in the attached figure.
- Best results are obtained when sound, durable, and angular rock is used.
- Install riprap, grouted riprap, or concrete apron at selected outlet. Riprap aprons are best suited for temporary use during construction. Grouted or wired tied rock riprap can minimize maintenance requirements.
- Rock outlet protection is usually less expensive and easier to install than concrete aprons or energy dissipaters. It also serves to trap sediment and reduce flow velocities.
- Carefully place riprap to avoid damaging the filter fabric.
  - Stone 4 in. to 6 in. may be carefully dumped onto filter fabric from a height not to exceed 12 in.
  - Stone 8 in. to 12 in. must be hand placed onto filter fabric, or the filter fabric may be covered with 4 in. of gravel and the 8 in. to 12 in. rock may be dumped from a height not to exceed 16 in.

- Stone greater than 12 in. shall only be dumped onto filter fabric protected with a layer of gravel with a thickness equal to one half the  $D_{50}$  rock size, and the dump height limited to twice the depth of the gravel protection layer thickness.
- For proper operation of apron: Align apron with receiving stream and keep straight throughout its length. If a curve is needed to fit site conditions, place it in upper section of apron.
- Outlets on slopes steeper than 10 percent should have additional protection.

#### Costs

Costs are low if material is readily available. If material is imported, costs will be higher. Average installed cost is \$150 per device.

#### **Inspection and Maintenance**

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Inspect BMPs subjected to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspect apron for displacement of the riprap and damage to the underlying fabric. Repair fabric and replace riprap that has washed away. If riprap continues to wash away, consider using larger material.
- Inspect for scour beneath the riprap and around the outlet. Repair damage to slopes or underlying filter fabric immediately.
- Temporary devices should be completely removed as soon as the surrounding drainage area has been stabilized or at the completion of construction.

## References

County of Sacramento Improvement Standards, Sacramento County, May 1989.

Erosion and Sediment Control Handbook, S.J. Goldman, K. Jackson, T.A. Bursztynsky, P.E., McGraw Hill Book Company, 1986.

Handbook of Steel Drainage & Highway Construction, American Iron and Steel Institute, 1983.

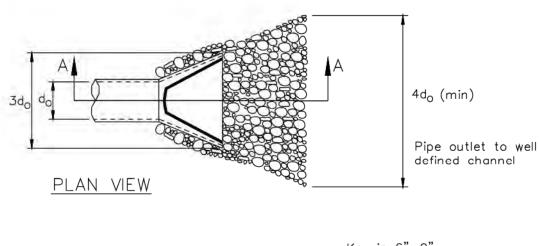
Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

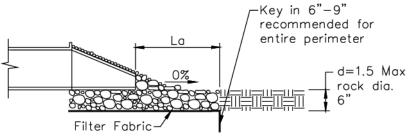
Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, state of California Department of Transportation (Caltrans), November 2000.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

## **Velocity Dissipation Devices**



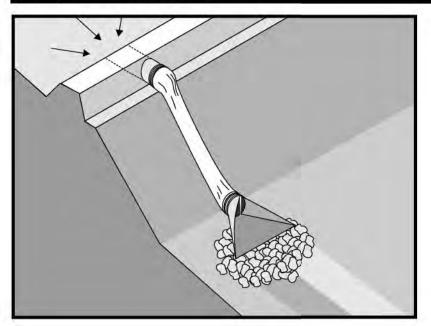


SECTION A-A

Pipe Diameter inches	Discharge ft <sup>3</sup> /s	Apron Length, La ft	Rip Rap D <sub>50</sub> Diameter Min inches
10	5	10	4
12	10	13	6
	10	10	6
19	20	16	8
18	30	23	12
	40	26	16
	30	16	8
24	40	26	8
24	50	26	12
	60	30	16

For larger or higher flows consult a Registered Civil Engineer Source: USDA - SCS

## **Slope Drains**



## **Description and Purpose**

A slope drain is a pipe used to intercept and direct surface runoff or groundwater into a stabilized watercourse, trapping device, or stabilized area. Slope drains are used with earth dikes and drainage ditches to intercept and direct surface flow away from slope areas to protect cut or fill slopes.

## Suitable Applications

- Where concentrated flow of surface runoff must be conveyed down a slope in order to prevent erosion.
- Drainage for top of slope diversion dikes or swales.
- Drainage for top of cut and fill slopes where water can accumulate.
- Emergency spillway for a sediment basin.

#### Limitations

Installation is critical for effective use of the pipe slope drain to minimize potential gully erosion.

- Maximum drainage area per slope drain is 10 acres. (For large areas use a paved chute, rock lined channel, or additional pipes.)
- Severe erosion may result when slope drains fail by overtopping, piping, or pipe separation.

Objectives	
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		_
EC	Erosion Control	$\checkmark$
SE	Sediment Control	
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	
Lege	end:	1
	Primary Objective	
1.000		

EC-11

Secondary Objective

## **Targeted Constituents**

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

#### Potential Alternatives

EC-9 Earth Dike, Drainage Swales



- During large storms, pipe slope drains may become clogged or over charged, forcing water around the pipe and causing extreme slope erosion.
- If the sectional downdrain is not sized correctly, the runoff can spill over the drain sides causing gully erosion and potential failure of the structure.
- Dissipation of high flow velocities at the pipe outlet is required to avoid downstream erosion.

## Implementation

## General

The slope drain is applicable for any construction site where concentrated surface runoff can accumulate and must be conveyed down the slope in order to prevent erosion. The slope drain is effective because it prevents the stormwater from flowing directly down the slope by confining all the runoff into an enclosed pipe or channel. Due to the time lag between grading slopes and installation of permanent stormwater collection systems and slope stabilization measures, temporary provisions to intercept runoff are sometimes necessary. Particularly in steep terrain, slope drains can protect unstabilized areas from erosion.

## Installation

The slope drain may be a rigid pipe, such as corrugated metal, a flexible conduit, or a lined terrace drain with the inlet placed on the top of a slope and the outlet at the bottom of the slope. This BMP typically is used in combination with a diversion control, such as an earth dike or drainage swale at the top of the slope.

The following criteria must be considered when siting slope drains.

- Permanent structures included in the project plans can often serve as construction BMPs if implemented early. However, the permanent structure must meet or exceed the criteria for the temporary structure.
- Inlet structures must be securely entrenched and compacted to avoid severe gully erosion.
- Slope drains must be securely anchored to the slope and must be adequately sized to carry the capacity of the design storm and associated forces.
- Outlets must be stabilized with riprap, concrete or other type of energy dissipator, or directed into a stable sediment trap or basin. See EC-10, Velocity Dissipation Devices.
- Debris racks are recommended at the inlet. Debris racks located several feet upstream of the inlet can usually be larger than racks at the inlet, and thus provide enhanced debris protection and less plugging.
- Safety racks are also recommended at the inlet and outlet of pipes where children or animals could become entrapped.
- Secure inlet and surround with dikes to prevent gully erosion and anchor pipe to slope.
- When using slope drains, limit drainage area to 10 acres per pipe. For larger areas, use a
  rock lined channel or a series of pipes.

- Size to convey at least the peak flow of a 10-year storm. The design storm is conservative due to the potential impact of system failures.
- Maximum slope generally limited to 2:1 (H:V) as energy dissipation below steeper slopes is difficult.
- Direct surface runoff to slope drains with interceptor dikes. See BMP EC-9, Earth Dikes and Drainage Swales. Top of interceptor dikes should be 12 in. higher than the top of the slope drain.
- Slope drains can be placed on or buried underneath the slope surface.
- Recommended materials include both metal and plastic pipe, either corrugated or smooth wall. Concrete pipe can also be used.
- When installing slope drains:
  - Install slope drains perpendicular to slope contours.
  - Compact soil around and under entrance, outlet, and along length of pipe.
  - Securely anchor and stabilize pipe and appurtenances into soil.
  - Check to ensure that pipe connections are watertight.
  - Protect area around inlet with filter cloth. Protect outlet with riprap or other energy dissipation device. For high energy discharges, reinforce riprap with concrete or use reinforced concrete device.
  - Protect outlet of slope drains using a flared end section when outlet discharges to a flexible energy dissipation device.
  - A flared end section installed at the inlet will improve flow into the slope drain and prevent erosion at the pipe entrance. Use a flared end section with a 6 in. minimum toe plate to help prevent undercutting. The flared section should slope towards the pipe inlet.

## Design and Layout

The capacity for temporary drains should be sufficient to convey at least the peak runoff from a 10-year rainfall event. The pipe size may be computed using the Rational Method or a method established by the local municipality. Higher flows must be safely stored or routed to prevent any offsite concentration of flow and any erosion of the slope. The design storm is purposely conservative due to the potential impacts associated with system failures.

As a guide, temporary pipe slope drains should not be sized smaller than shown in the following table:

Minimum Pipe Diameter (Inches)	Maximum Drainage Area (Acres)
12	1.0
18	3.0
21	5.0
24	7.0
30	10.0

Larger drainage areas can be treated if the area can be subdivided into areas of 10 acres or less and each area is treated as a separate drainage. Drainage areas exceeding 10 acres must be designed by a Registered Civil Engineer and approved by the agency that issued the grading permit.

#### Materials:

Soil type, rainfall patterns, construction schedule, local requirements, and available supply are some of the factors to be considered when selecting materials. The following types of slope drains are commonly used:

- Rigid Pipe: This type of slope drain is also known as a pipe drop. The pipe usually consists of corrugated metal pipe or rigid plastic pipe. The pipe is placed on undisturbed or compacted soil and secured onto the slope surface or buried in a trench. Concrete thrust blocks must be used when warranted by the calculated thrust forces. Collars should be properly installed and secured with metal strappings or watertight collars.
- Flexible Pipe: The flexible pipe slope drain consists of a flexible tube of heavy-duty plastic, rubber, or composite material. The tube material is securely anchored onto the slope surface. The tube should be securely fastened to the metal inlet and outlet conduit sections with metal strappings or watertight collars.
- Section Downdrains: The section downdrain consists of pre-fabricated, section conduit of half round or third round material. The sectional downdrain performs similar to a flume or chute. The pipe must be placed on undisturbed or compacted soil and secured into the slope.
- **Concrete-lined Terrace Drain:** This is a concrete channel for draining water from a terrace on a slope to the next level. These drains are typically specified as permanent structures and, if installed early, can serve as slope drains during construction, which should be designed according to local drainage design criteria.

#### Costs

• Cost varies based on pipe selection and selected outlet protection.

Corrugated Steel Pipes, Per Foot		
Size	Supplied and Installed Cost (No Trenching Included)	
12"	\$19.60 per LF	
15"	\$22.00	
18"	\$26.00	
24"	\$32.00	
30"	\$50.00	
	PVC Pipes, Per Foot	
Size	Supplied and Installed Cost (No Trenching Included)	
12"	\$24.50	
14"	\$49.00	
16"	\$51.00	
18"	\$54.00	
20"	\$66.00	
24"	\$93.00	
30"	\$130.00	

## **Inspection and Maintenance**

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Inspect BMPs subjected to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspect outlet for erosion and downstream scour. If eroded, repair damage and install
  additional energy dissipation measures. If downstream scour is occurring, it may be
  necessary to reduce flows being discharged into the channel unless other preventative
  measures are implemented.
- Insert inlet for clogging or undercutting. Remove debris from inlet to maintain flows. Repair undercutting at inlet and if needed, install flared section or rip rap around the inlet to prevent further undercutting.
- Inspect pipes for leakage. Repair leaks and restore damaged slopes.
- Inspect slope drainage for accumulations of debris and sediment.
- Remove built up sediment from entrances and outlets as required. Flush drains if necessary; capture and settle out sediment from discharge.

- Make sure water is not ponding onto inappropriate areas (e.g., active traffic lanes, material storage areas, etc.).
- Pipe anchors must be checked to ensure that the pipe remains anchored to the slope. Install
  additional anchors if pipe movement is detected.

#### References

Draft – Sedimentation and Erosion Control, An Inventory of Current Practices, U.S.E.P.A., April 1990.

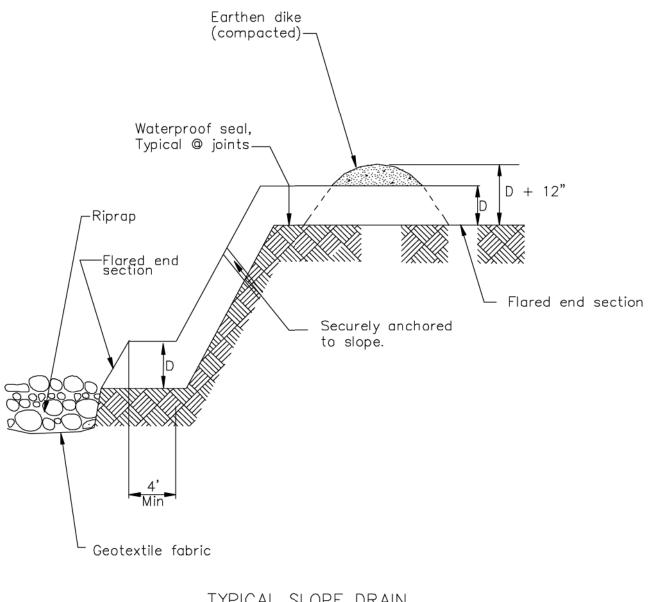
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National Management Measures to Control Nonpoint Source Pollution from Urban Areas, United States Environmental Protection Agency, 2002.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

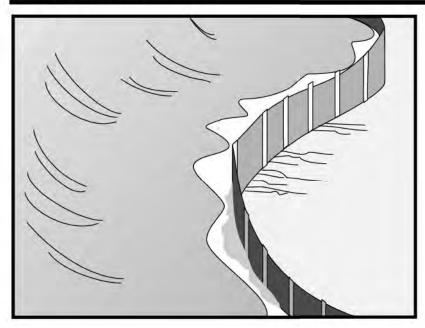
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## Silt Fence



## **Description and Purpose**

A silt fence is made of a filter fabric that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence.

## Suitable Applications

Silt fences are suitable for perimeter control, placed below areas where sheet flows discharge from the site. They should also be used as interior controls below disturbed areas where runoff may occur in the form of sheet and rill erosion. Silt fences are generally ineffective in locations where the flow is concentrated and are only applicable for sheet or overland flows. Silt fences are most effective when used in combination with erosion controls. Suitable applications include:

- Along the perimeter of a project.
- Below the toe or down slope of exposed and erodible slopes.
- Along streams and channels.
- Around temporary spoil areas and stockpiles.
- Below other small cleared areas.

#### Limitations

 Do not use in streams, channels, drain inlets, or anywhere flow is concentrated.

#### Objectives

EC	Erosion Control	
SE	Sediment Control	
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	
Lege	end:	
	Primary Objective	
×	Secondary Objective	

## **Targeted Constituents**

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

#### Potential Alternatives

SE-5 Fiber Rolls SE-6 Gravel Bag Berm SE-8 Sandbag Barrier SE-9 Straw Bale Barrier



- Do not use in locations where ponded water may cause flooding.
- Do not place fence on a slope, or across any contour line. If not installed at the same elevation throughout, silt fences will create erosion.
- Filter fences will create a temporary sedimentation pond on the upstream side of the fence and may cause temporary flooding. Fences not constructed on a level contour will be overtopped by concentrated flow resulting in failure of the filter fence.
- Improperly installed fences are subject to failure from undercutting, overlapping, or collapsing.
  - Not effective unless trenched and keyed in.
  - Not intended for use as mid-slope protection on slopes greater than 4:1 (H:V).
  - Do not allow water depth to exceed 1.5 ft at any point.

## Implementation

#### General

SE-1

A silt fence is a temporary sediment barrier consisting of filter fabric stretched across and attached to supporting posts, entrenched, and, depending upon the strength of fabric used, supported with plastic or wire mesh fence. Silt fences trap sediment by intercepting and detaining small amounts of sediment-laden runoff from disturbed areas in order to promote sedimentation behind the fence.

Silt fences are preferable to straw bale barriers in many cases. Laboratory work at the Virginia Highway and Transportation Research Council has shown that silt fences can trap a much higher percentage of suspended sediments than can straw bales. While the failure rate of silt fences is lower than that of straw bale barriers, there are many instances where silt fences have been improperly installed. The following layout and installation guidance can improve performance and should be followed:

- Use principally in areas where sheet flow occurs.
- Don't use in streams, channels, or anywhere flow is concentrated. Don't use silt fences to divert flow.
- Don't use below slopes subject to creep, slumping, or landslides.
- Select filter fabric that retains 85% of soil by weight, based on sieve analysis, but that is not finer than an equivalent opening size of 70.
- Install along a level contour, so water does not pond more than 1.5 ft at any point along the silt fence.
- The maximum length of slope draining to any point along the silt fence should be 200 ft or less.
- The maximum slope perpendicular to the fence line should be 1:1.

- Provide sufficient room for runoff to pond behind the fence and to allow sediment removal equipment to pass between the silt fence and toes of slopes or other obstructions. About 1200 ft<sup>2</sup> of ponding area should be provided for every acre draining to the fence.
- Turn the ends of the filter fence uphill to prevent stormwater from flowing around the fence.
- Leave an undisturbed or stabilized area immediately down slope from the fence where feasible.
- Silt fences should remain in place until the disturbed area is permanently stabilized.

## Design and Layout

Selection of a filter fabric is based on soil conditions at the construction site (which affect the equivalent opening size (EOS) fabric specification) and characteristics of the support fence (which affect the choice of tensile strength). The designer should specify a filter fabric that retains the soil found on the construction site yet that it has openings large enough to permit drainage and prevent clogging. The following criteria is recommended for selection of the equivalent opening size:

- 1. If 50 percent or less of the soil, by weight, will pass the U.S. Standard Sieve No. 200, select the EOS to retain 85 % of the soil. The EOS should not be finer than EOS 70.
- 2. For all other soil types, the EOS should be no larger than the openings in the U.S. Standard Sieve No. 70 except where direct discharge to a stream, lake, or wetland will occur, then the EOS should be no larger than Standard Sieve No. 100.

To reduce the chance of clogging, it is preferable to specify a fabric with openings as large as allowed by the criteria. No fabric should be specified with an EOS smaller than U.S. Standard Sieve No. 100. If 85% or more of a soil, by weight, passes through the openings in a No. 200 sieve, filter fabric should not be used. Most of the particles in such a soil would not be retained if the EOS was too large and they would clog the fabric quickly if the EOS were small enough to capture the soil.

The fence should be supported by a plastic or wire mesh if the fabric selected does not have sufficient strength and bursting strength characteristics for the planned application (as recommended by the fabric manufacturer). Filter fabric material should contain ultraviolet inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0 °F to 120 °F.

- Layout in accordance with attached figures.
- For slopes steeper than 2:1 (H:V) and that contain a high number of rocks or large dirt clods that tend to dislodge, it may be necessary to install additional protection immediately adjacent to the bottom of the slope, prior to installing silt fence. Additional protection may be a chain link fence or a cable fence.
- For slopes adjacent to sensitive receiving waters or Environmentally Sensitive Areas (ESAs), silt fence should be used in conjunction with erosion control BMPs.

## Materials

- Silt fence fabric should be woven polypropylene with a minimum width of 36 in. and a minimum tensile strength of 100 lb force. The fabric should conform to the requirements in ASTM designation D4632 and should have an integral reinforcement layer. The reinforcement layer should be a polypropylene, or equivalent, net provided by the manufacturer. The permittivity of the fabric should be between 0.1 sec<sup>-1</sup> and 0.15 sec<sup>-1</sup> in conformance with the requirements in ASTM designation D4491.
- Wood stakes should be commercial quality lumber of the size and shape shown on the plans. Each stake should be free from decay, splits or cracks longer than the thickness of the stake or other defects that would weaken the stakes and cause the stakes to be structurally unsuitable.
- Staples used to fasten the fence fabric to the stakes should be not less than 1.75 in. long and should be fabricated from 15 gauge or heavier wire. The wire used to fasten the tops of the stakes together when joining two sections of fence should be 9 gauge or heavier wire. Galvanizing of the fastening wire will not be required.
- There are new products that may use prefabricated plastic holders for the silt fence and use bar reinforcement instead of wood stakes. If bar reinforcement is used in lieu of wood stakes, use number four or greater bar. Provide end protection for any exposed bar reinforcement.

#### Installation Guidelines

Silt fences are to be constructed on a level contour. Sufficient area should exist behind the fence for ponding to occur without flooding or overtopping the fence.

- A trench should be excavated approximately 6 in. wide and 6 in. deep along the line the proposed silt fence.
- Bottom of the silt fence should be keyed-in a minimum of 12 in.
- Posts should be spaced a maximum of 6 ft apart and driven securely into the ground a minimum of 18 in. or 12 in. below the bottom of the trench.
- When standard strength filter fabric is used, a plastic or wire mesh support fence should be fastened securely to the upslope side of posts using heavy-duty wire staples at least 1 in. long. The mesh should extend into the trench. When extra-strength filter fabric and closer post spacing are used, the mesh support fence may be eliminated. Filter fabric should be purchased in a long roll, then cut to the length of the barrier. When joints are necessary, filter cloth should be spliced together only at a support post, with a minimum 6 in. overlap and both ends securely fastened to the post.
- The trench should be backfilled with compacted native material.
- Construct silt fences with a setback of at least 3 ft from the toe of a slope. Where a silt fence
  is determined to be not practicable due to specific site conditions, the silt fence may be
  constructed at the toe of the slope, but should be constructed as far from the toe of the slope
  as practicable. Silt fences close to the toe of the slope will be less effective and difficult to
  maintain.

Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/3 the height of the barrier; in no case should the reach exceed 500 ft.

## Costs

Average annual cost for installation and maintenance (assumes 6 month useful life): \$7 per lineal foot (\$850 per drainage acre). Range of cost is \$3.50 - \$9.10 per lineal foot.

## **Inspection and Maintenance**

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Repair undercut silt fences.
- Repair or replace split, torn, slumping, or weathered fabric. The lifespan of silt fence fabric is generally 5 to 8 months.
- Silt fences that are damaged and become unsuitable for the intended purpose should be removed from the site of work, disposed of, and replaced with new silt fence barriers.
- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.
- Silt fences should be left in place until the upstream area is permanently stabilized. Until
  then, the silt fence must be inspected and maintained.
- Holes, depressions, or other ground disturbance caused by the removal of the silt fences should be backfilled and repaired.

## References

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, United States Environmental Protection Agency, 2002.

Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Work Group-Working Paper, USEPA, April 1992.

Sedimentation and Erosion Control Practices, and Inventory of Current Practices (Draft), UESPA, 1990.

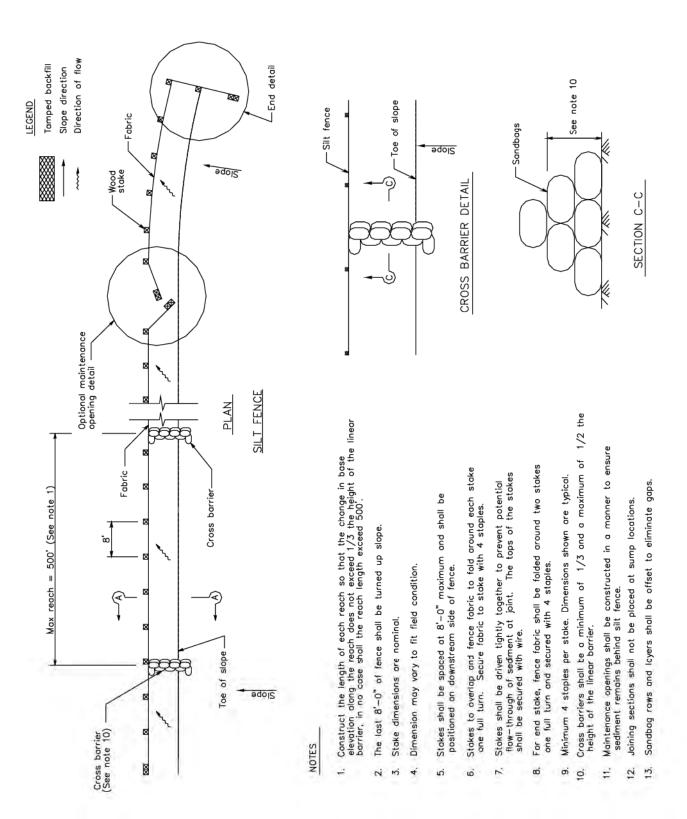
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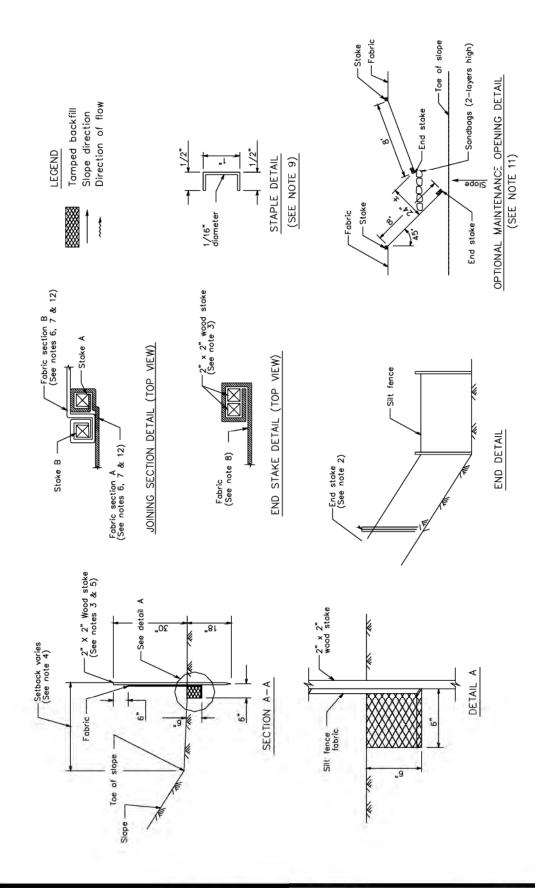
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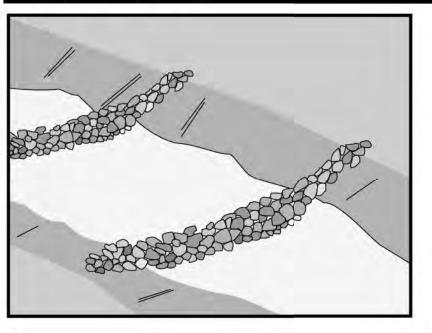
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## **Check Dams**



## **Description and Purpose**

A check dam is a small barrier constructed of rock, gravel bags, sandbags, fiber rolls, or reusable products, placed across a constructed swale or drainage ditch. Check dams reduce the effective slope of the channel, thereby reducing the velocity of flowing water, allowing sediment to settle and reducing erosion.

## Suitable Applications

Check dams may be appropriate in the following situations:

- To promote sedimentation behind the dam.
- To prevent erosion by reducing the velocity of channel flow in small intermittent channels and temporary swales.
- In small open channels that drain 10 acres or less.
- In steep channels where stormwater runoff velocities exceed 5 ft/s.
- During the establishment of grass linings in drainage ditches or channels.
- In temporary ditches where the short length of service does not warrant establishment of erosion-resistant linings.

#### Limitations

 Not to be used in live streams or in channels with extended base flows.

## Objectives

EC	Erosion Control	×
SE	Sediment Control	
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	
Lege	end:	
	Primary Objective	

SE-4

## **Targeted Constituents**

Secondary Objective

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

#### Potential Alternatives

SE-5 Fiber Rolls SE-6 Gravel Bag Berm SE-8 Sandbag Barrier



- Not appropriate in channels that drain areas greater than 10 acres.
- Not appropriate in channels that are already grass-lined unless erosion is expected, as installation may damage vegetation.
- Require extensive maintenance following high velocity flows.
- Promotes sediment trapping which can be re-suspended during subsequent storms or removal of the check dam.

## Implementation

#### General

SE-4

Check dams reduce the effective slope and create small pools in swales and ditches that drain 10 acres or less. Reduced slopes reduce the velocity of stormwater flows, thus reducing erosion of the swale or ditch and promoting sedimentation. Use of check dams for sedimentation will likely result in little net removal of sediment because of the small detention time and probable scour during longer storms. Using a series of check dams will generally increase their effectiveness. A sediment trap (SE-3) may be placed immediately upstream of the check dam to increase sediment removal efficiency.

#### Design and Layout

Check dams work by decreasing the effective slope in ditches and swales. An important consequence of the reduced slope is a reduction in capacity of the ditch or swale. This reduction in capacity must be considered when using this BMP, as reduced capacity can result in overtopping of the ditch or swale and resultant consequences. In some cases, such as a "permanent" ditch or swale being constructed early and used as a "temporary" conveyance for construction flows, the ditch or swale may have sufficient capacity such that the temporary reduction in capacity due to check dams is acceptable. When check dams reduce capacities beyond acceptable limits, there are several options:

- Don't use check dams. Consider alternative BMPs.
- Increase the size of the ditch or swale to restore capacity.

Maximum slope and velocity reduction is achieved when the toe of the upstream dam is at the same elevation as the top of the downstream dam. The center section of the dam should be lower than the edge sections so that the check dam will direct flows to the center of the ditch or swale.

Check dams are usually constructed of rock, gravel bags, sandbags, and fiber rolls. A number of products manufactured specifically for use as check dams are also being used, and some of these products can be removed and reused. Check dams can also be constructed of logs or lumber, and have the advantage of a longer lifespan when compared to gravel bags, sandbags, and fiber rolls. Straw bales can also be used for check dams and can work if correctly installed; but in practice, straw bale check dams have a high failure rate. Check dams should not be constructed from straw bales or silt fences, since concentrated flows quickly wash out these materials.

Rock check dams are usually constructed of 8 to 12 in. rock. The rock is placed either by hand or mechanically, but never just dumped into the channel. The dam must completely span the ditch

or swale to prevent washout. The rock used must be large enough to stay in place given the expected design flow through the channel.

Log check dams are usually constructed of 4 to 6 in. diameter logs. The logs should be embedded into the soil at least 18 in. Logs can be bolted or wired to vertical support logs that have been driven or buried into the soil.

Gravel bag and sandbag check dams are constructed by stacking bags across the ditch or swale, shaped as shown in the drawings at the end of this fact sheet.

Manufactured products should be installed in accordance with the manufacturer's instructions.

If grass is planted to stabilize the ditch or swale, the check dam should be removed when the grass has matured (unless the slope of the swales is greater than 4%).

The following guidance should be followed for the design and layout of check dams:

- Install the first check dam approximately 16 ft from the outfall device and at regular intervals based on slope gradient and soil type.
- Check dams should be placed at a distance and height to allow small pools to form between each check dam.
- Backwater from a downstream check dam should reach the toes of the upstream check dam.
- A sediment trap provided immediately upstream of the check dam will help capture sediment. Due to the potential for this sediment to be resuspended in subsequent storms, the sediment trap must be cleaned following each storm event.
- High flows (typically a 2-year storm or larger) should safely flow over the check dam without an increase in upstream flooding or damage to the check dam.
- Where grass is used to line ditches, check dams should be removed when grass has matured sufficiently to protect the ditch or swale.
- Gravel bags may be used as check dams with the following specifications:

## Materials

Gravel bags used for check dams should conform to the requirements of SE-6, Gravel Bag Berms. Sandbags used for check dams should conform to SE-8, Sandbag Barrier. Fiber rolls used for check dams should conform to SE-5, Fiber Rolls. Straw bales used for check dams should conform to SE-9, Straw Bale Barrier.

## Installation

- Rock should be placed individually by hand or by mechanical methods (no dumping of rock) to achieve complete ditch or swale coverage.
- Tightly abut bags and stack according to detail shown in the figure at the end of this section. Gravel bags and sandbags should not be stacked any higher than 3 ft.
- Fiber rolls and straw bales must be trenched in and firmly staked in place.

## Costs

Cost consists of only installation costs if materials are readily available. If material must be imported, costs may increase. For material costs, see SE-5, SE-6, SE-8 and SE-9.

## **Inspection and Maintenance**

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Replace missing rock, bags, bales, etc. Replace bags or bales that have degraded or have become damaged.
- If the check dam is used as a sediment capture device, sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.
- If the check dam is used as a grade control structure, sediment removal is not required as long as the system continues to control the grade.
- Remove accumulated sediment prior to permanent seeding or soil stabilization.
- Remove check dam and accumulated sediment when check dams are no longer needed.

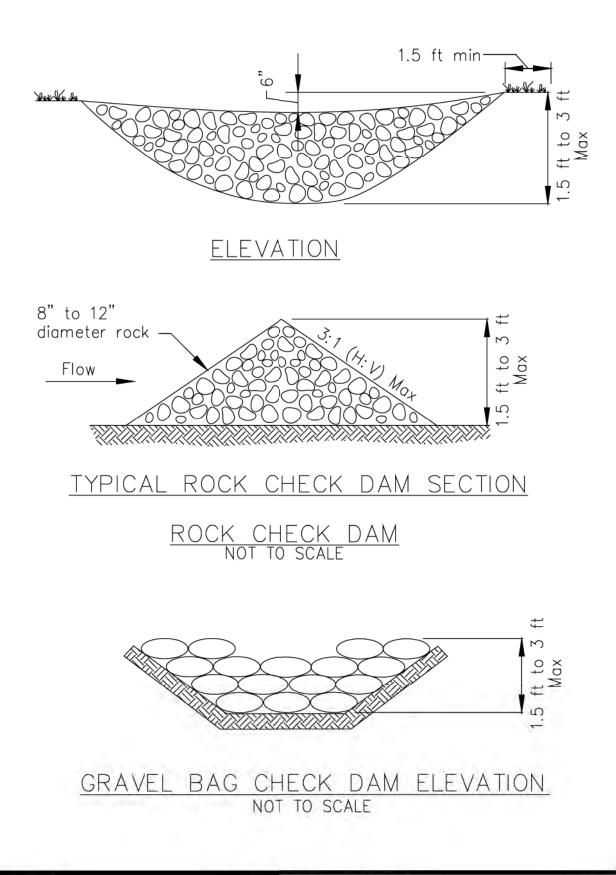
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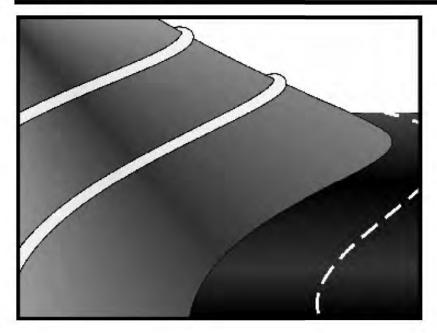
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Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.



## **Fiber Rolls**



## **Description and Purpose**

A fiber roll consists of straw, flax, or other similar materials bound into a tight tubular roll. When fiber rolls are placed at the toe and on the face of slopes, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff. By interrupting the length of a slope, fiber rolls can also reduce erosion.

## **Suitable Applications**

Fiber rolls may be suitable:

- Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow
- At the end of a downward slope where it transitions to a steeper slope
- Along the perimeter of a project
- As check dams in unlined ditches
- Down-slope of exposed soil areas
- Around temporary stockpiles

#### Limitations

Fiber rolls are not effective unless trenched

#### Objectives

EC	Erosion Control	×	
SE	Sediment Control		
TR	Tracking Control		
WE	Wind Erosion Control		
NS	Non-Stormwater Management Control		
WM	Waste Management and Materials Pollution Control		
Legend:			
Primary Objective			

Secondary Objective

#### **Targeted Constituents**

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

## **Potential Alternatives**

SE-1 Silt Fence SE-6 Gravel Bag Berm SE-8 Sandbag Barrier SE-9 Straw Bale Barrier



- Fiber rolls at the toe of slopes greater than 5:1 (H:V) should be a minimum of 20 in. diameter or installations achieving the same protection (i.e. stacked smaller diameter fiber rolls, etc.).
- Difficult to move once saturated.
- If not properly staked and trenched in, fiber rolls could be transported by high flows.
- Fiber rolls have a very limited sediment capture zone.
- Fiber rolls should not be used on slopes subject to creep, slumping, or landslide.

## Implementation

## Fiber Roll Materials

• Fiber rolls should be either prefabricated rolls or rolled tubes of erosion control blanket.

## Assembly of Field Rolled Fiber Roll

- Roll length of erosion control blanket into a tube of minimum 8 in. diameter.
- Bind roll at each end and every 4 ft along length of roll with jute-type twine.

#### Installation

- Locate fiber rolls on level contours spaced as follows:
  - Slope inclination of 4:1 (H:V) or flatter: Fiber rolls should be placed at a maximum interval of 20 ft.
  - Slope inclination between 4:1 and 2:1 (H:V): Fiber Rolls should be placed at a maximum interval of 15 ft. (a closer spacing is more effective).
  - Slope inclination 2:1 (H:V) or greater: Fiber Rolls should be placed at a maximum interval of 10 ft. (a closer spacing is more effective).
- Turn the ends of the fiber roll up slope to prevent runoff from going around the roll.
- Stake fiber rolls into a 2 to 4 in. deep trench with a width equal to the diameter of the fiber roll.
  - Drive stakes at the end of each fiber roll and spaced 4 ft maximum on center.
  - Use wood stakes with a nominal classification of 0.75 by 0.75 in. and minimum length of 24 in.
- If more than one fiber roll is placed in a row, the rolls should be overlapped, not abutted.

#### Removal

• Fiber rolls are typically left in place.

 If fiber rolls are removed, collect and dispose of sediment accumulation, and fill and compact holes, trenches, depressions or any other ground disturbance to blend with adjacent ground.

### Costs

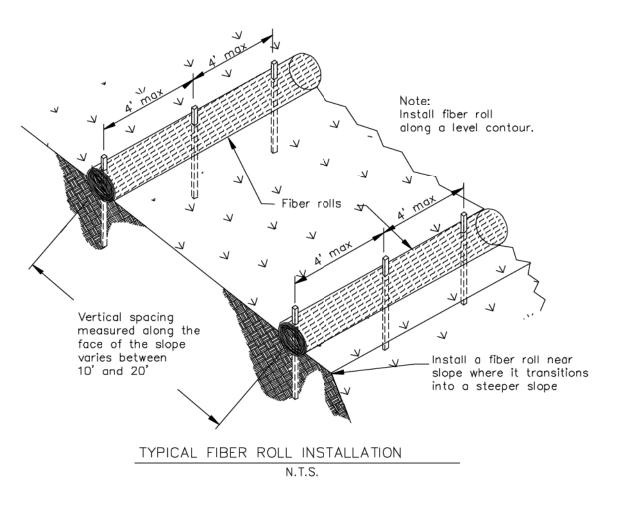
Material costs for fiber rolls range from \$20 - \$30 per 25 ft roll.

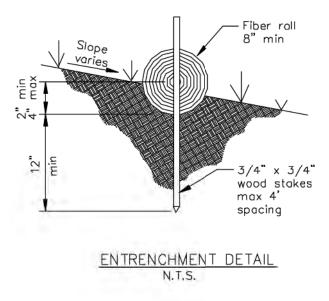
#### Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Repair or replace split, torn, unraveling, or slumping fiber rolls.
- If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when sediment accumulation reaches one-half the designated sediment storage depth, usually one-half the distance between the top of the fiber roll and the adjacent ground surface. Sediment removed during maintenance may be incorporated into earthwork on the site of disposed at an appropriate location.
- If fiber rolls are used for erosion control, such as in a mini check dam, sediment removal should not be required as long as the system continues to control the grade. Sediment control BMPs will likely be required in conjunction with this type of application.

#### References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.





# **Street Sweeping and Vacuuming**



### **Description and Purpose**

Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

#### Suitable Applications

Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved streets and roads, typically at points of egress. Sweeping and vacuuming are also applicable during preparation of paved surfaces for final paving.

#### Limitations

Sweeping and vacuuming may not be effective when sediment is wet or when tracked soil is caked (caked soil may need to be scraped loose).

#### Implementation

- Controlling the number of points where vehicles can leave the site will allow sweeping and vacuuming efforts to be focused, and perhaps save money.
- Inspect potential sediment tracking locations daily.
- Visible sediment tracking should be swept or vacuumed on a daily basis.

#### Objectives

Lege	ena: Primary Objective	
WM	Waste Management and Materials Pollution Control	
NS	Non-Stormwater Management Control	
WE	Wind Erosion Control	
TR	Tracking Control	$\checkmark$
SE	Sediment Control	×
EC	Erosion Control	1

Secondary Objective

## **Targeted Constituents**

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	$\checkmark$
Organics	

#### **Potential Alternatives**

None



- Do not use kick brooms or sweeper attachments. These tend to spread the dirt rather than remove it.
- If not mixed with debris or trash, consider incorporating the removed sediment back into the project

#### Costs

**SE-7** 

Rental rates for self-propelled sweepers vary depending on hopper size and duration of rental. Expect rental rates from \$58/hour (3 yd<sup>3</sup> hopper) to \$88/hour (9 yd<sup>3</sup> hopper), plus operator costs. Hourly production rates vary with the amount of area to be swept and amount of sediment. Match the hopper size to the area and expect sediment load to minimize time spent dumping.

#### **Inspection and Maintenance**

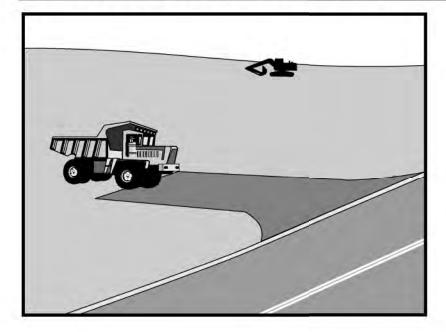
- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- When actively in use, points of ingress and egress must be inspected daily.
- When tracked or spilled sediment is observed outside the construction limits, it must be removed at least daily. More frequent removal, even continuous removal, may be required in some jurisdictions.
- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous.
- Adjust brooms frequently; maximize efficiency of sweeping operations.
- After sweeping is finished, properly dispose of sweeper wastes at an approved dumpsite.

#### References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Labor Surcharge and Equipment Rental Rates, State of California Department of Transportation (Caltrans), April 1, 2002 – March 31, 2003.

# Stabilized Construction Entrance/Exit TC-1



#### **Description and Purpose**

A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

#### Suitable Applications

Use at construction sites:

- Where dirt or mud can be tracked onto public roads.
- Adjacent to water bodies.
- Where poor soils are encountered.
- Where dust is a problem during dry weather conditions.

#### Limitations

- Entrances and exits require periodic top dressing with additional stones.
- This BMP should be used in conjunction with street sweeping on adjacent public right of way.
- Entrances and exits should be constructed on level ground only.
- Stabilized construction entrances are rather expensive to construct and when a wash rack is included, a sediment trap of some kind must also be provided to collect wash water runoff.

#### Objectives

- **Erosion Control** × EC × SE Sediment Control  $\checkmark$ TC **Tracking Control** WE Wind Erosion Control Non-Stormwater NS Management Control Waste Management and WM Materials Pollution Control Legend: Primary Objective
- Secondary Objective

#### **Targeted Constituents**

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

#### Potential Alternatives

None



## Implementation

### General

A stabilized construction entrance is a pad of aggregate underlain with filter cloth located at any point where traffic will be entering or leaving a construction site to or from a public right of way, street, alley, sidewalk, or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights of way or streets. Reducing tracking of sediments and other pollutants onto paved roads helps prevent deposition of sediments into local storm drains and production of airborne dust.

Where traffic will be entering or leaving the construction site, a stabilized construction entrance should be used. NPDES permits require that appropriate measures be implemented to prevent tracking of sediments onto paved roadways, where a significant source of sediments is derived from mud and dirt carried out from unpaved roads and construction sites.

Stabilized construction entrances are moderately effective in removing sediment from equipment leaving a construction site. The entrance should be built on level ground. Advantages of the Stabilized Construction Entrance/Exit is that it does remove some sediment from equipment and serves to channel construction traffic in and out of the site at specified locations. Efficiency is greatly increased when a washing rack is included as part of a stabilized construction entrance/exit.

#### Design and Layout

- Construct on level ground where possible.
- Select 3 to 6 in. diameter stones.
- Use minimum depth of stones of 12 in. or as recommended by soils engineer.
- Construct length of 50 ft minimum, and 30 ft minimum width.
- Rumble racks constructed of steel panels with ridges and installed in the stabilized entrance/exit will help remove additional sediment and to keep adjacent streets clean.
- Provide ample turning radii as part of the entrance.
- Limit the points of entrance/exit to the construction site.
- Limit speed of vehicles to control dust.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment trapping device before discharge.
- Design stabilized entrance/exit to support heaviest vehicles and equipment that will use it.
- Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. Do not use asphalt concrete (AC) grindings for stabilized construction access/roadway.

- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 in. depth, or place aggregate to a depth recommended by a geotechnical engineer. A crushed aggregate greater than 3 in. but smaller than 6 in. should be used.
- Designate combination or single purpose entrances and exits to the construction site.
- Require that all employees, subcontractors, and suppliers utilize the stabilized construction access.
- Implement SE-7, Street Sweeping and Vacuuming, as needed.
- All exit locations intended to be used for more than a two-week period should have stabilized construction entrance/exit BMPs.

#### **Inspection and Maintenance**

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMPs are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect local roads adjacent to the site daily. Sweep or vacuum to remove visible accumulated sediment.
- Remove aggregate, separate and dispose of sediment if construction entrance/exit is clogged with sediment.
- Keep all temporary roadway ditches clear.
- Check for damage and repair as needed.
- Replace gravel material when surface voids are visible.
- Remove all sediment deposited on paved roadways within 24 hours.
- Remove gravel and filter fabric at completion of construction

#### Costs

Average annual cost for installation and maintenance may vary from \$1,200 to \$4,800 each, averaging \$2,400 per entrance. Costs will increase with addition of washing rack, and sediment trap. With wash rack, costs range from \$1,200 - \$6,000 each, averaging \$3,600 per entrance.

#### References

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, USEPA Agency, 2002.

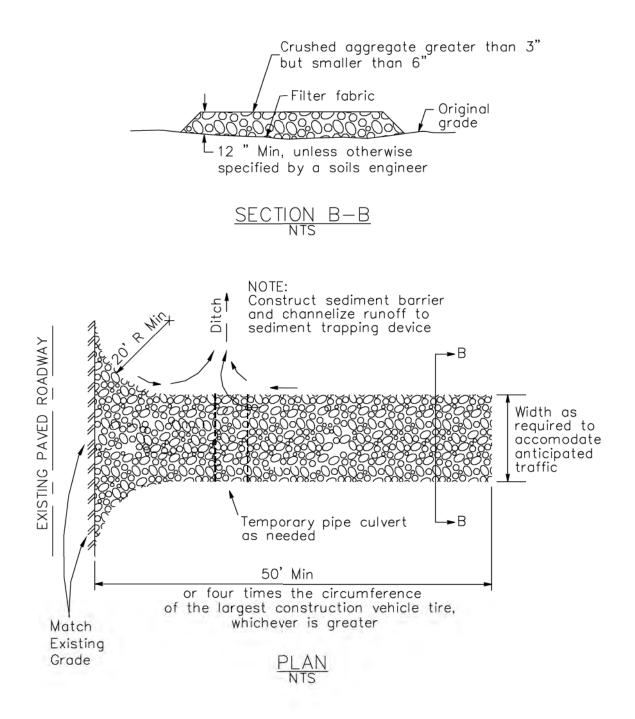
Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Work Group Working Paper, USEPA, April 1992. Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

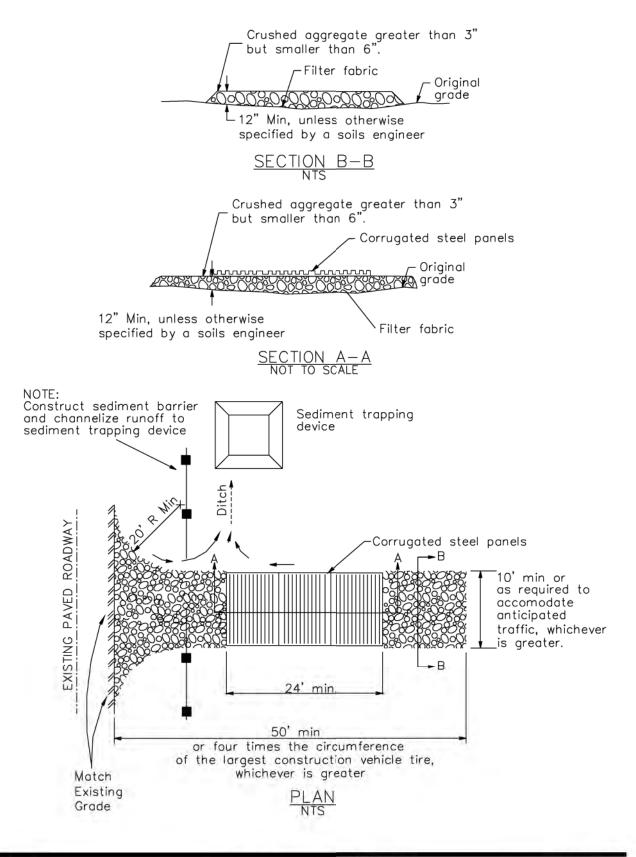
Virginia Erosion and Sedimentation Control Handbook, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, 1991.

Guidance Specifying Management Measures for Nonpoint Pollution in Coastal Waters, EPA 840-B-9-002, USEPA, Office of Water, Washington, DC, 1993.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.



Stabilized Construction Entrance/Exit TC-1



# **Construction Drawings for Southeast Channel Remediation Project** at the Corona Landfill July 2017

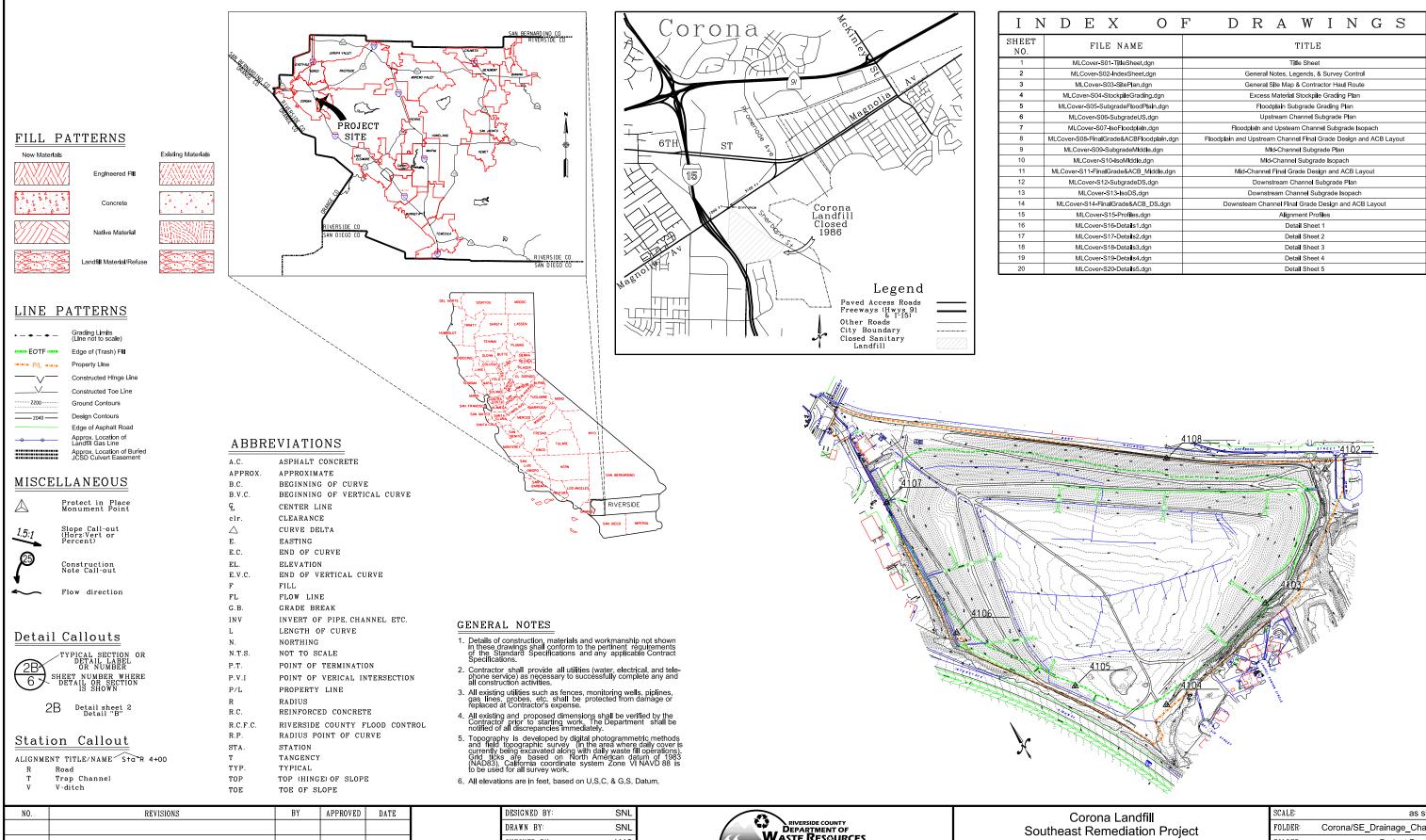
PREPARED DEPARTMENT OF WASTE RESOURCI HANS KERNKAMP, General Manager - Chief Engine 14310 FREDERICK STRE MORENO VALLEY, CALIFORNIA 925 TEL. (951) 486-3200 FAX. (951) 486-32



Hans Kernkamp, General Manager-Chief Engineer

	DEPARTMENT OF WASTE RESOURCES
BY	
ES	APPROVED: Hans Kemkamp, General Manager - Chief Engineer, R.C.E. 45868 Exp. 12/31/2018
eer	
ΕT	RECOMMENDED: Joseph R. McCann, Assistant Chief Engineer, R.C.E. 51694 Exp. 6/30/2018
53	
250	SUBMITTED: Andrew Cortez, Principal Engineer, R.C.E. 62528 Exp. 12/31/2019

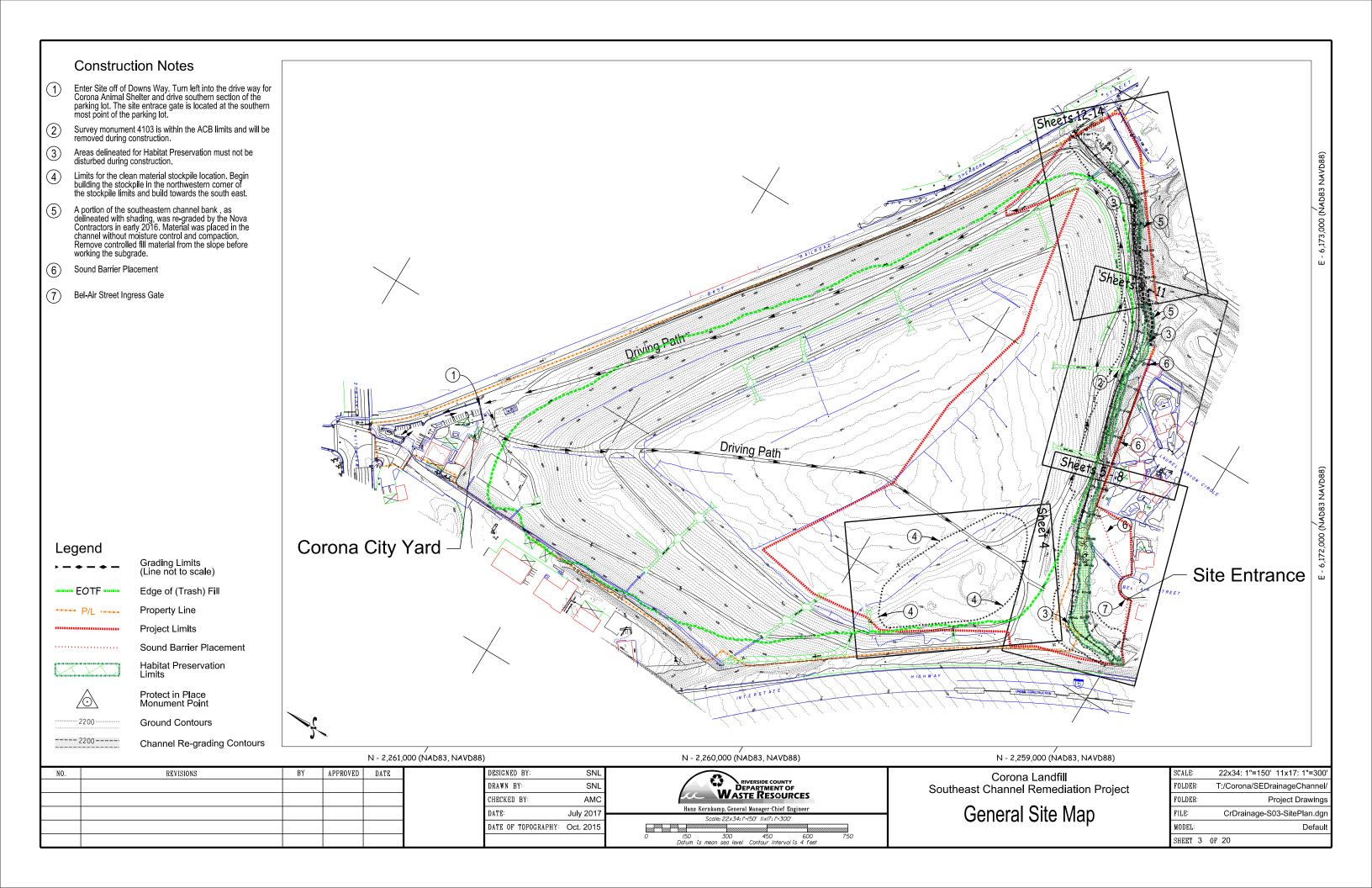
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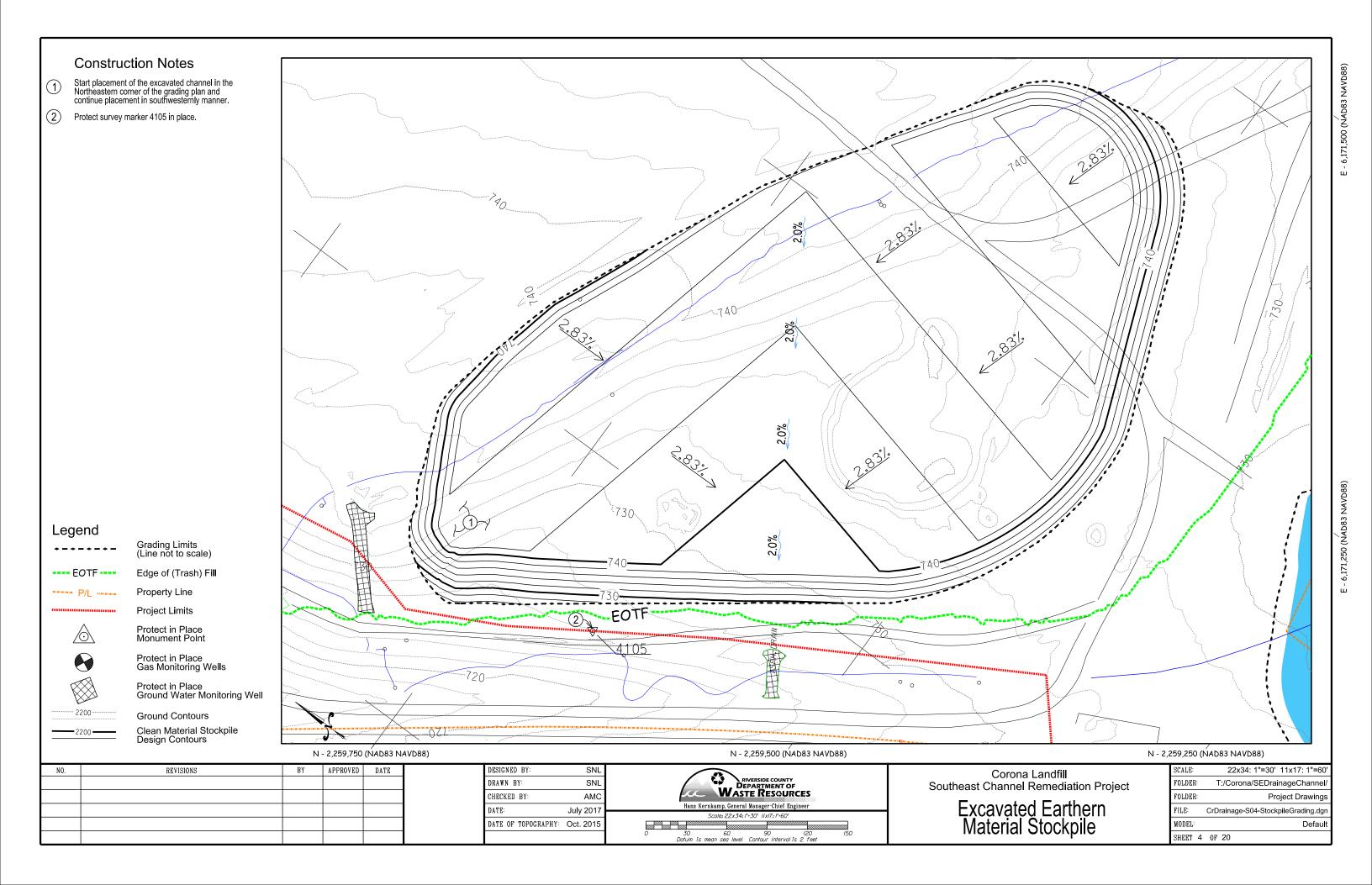


DRAWN BY:	SNL		Southea
CHECKED BY:	AMC	WASTE RESOURCES	
DATE:	July 2017	Hans Kernkamp, General Manager-Chief Engineer	General
DATE OF PHOTOGRAPH	HY: n/a		

EX O	FDRAWINGS			
FILE NAME	TITLE			
Cover-S01-TitleSheet dgn	Title Sheet			
over-S02-IndexSheet.dgn	General Notes, Legends, & Survey Control			
Cover-S03-SitePlan.dgn	General Site Map & Contractor Haul Route			
er-S04-StockpileGrading.dgn	Excess Material Stockpile Grading Plan			
-S05-SubgradeFloodPlain.dgn	Floodplain Subgrade Grading Plan			
over-S06-SubgradeUS.dgn	Upstream Channel Subgrade Plan			
ver-S07-IsoFloodplain.dgn	Floodplain and Upsteam Channel Subgrade Isopach			
8-FinalGrade&ACBFloodplain.dgn	Floodplain and Upstream Channel Final Grade Design and ACB Layout			
er-S09-SubgradeMiddle.dgn	Mid-Channel Subgrade Plan			
Cover-S10-IsoMiddle.dgn	Mid-Channel Subgrade Isopach			
11-FinalGrade&ACB_Middle.dgn	Mid-Channel Final Grade Design and ACB Layout			
over-S12-SubgradeDS.dgn	Downstream Channel Subgrade Plan			
LCover-S13-IsoDS.dgn	Downstream Channel Subgrade Isopach			
S14-FinalGrade&ACB_DS.dgn	Downsteam Channel Final Grade Design and ACB Layout			
Cover-S15-Profiles.dgn	Alignment Profiles			
Cover-S16-Details1.dgn	Detail Sheet 1			
Cover-S17-Details2.dgn	Detail Sheet 2			
Cover-S18-Details3.dgn	Detail Sheet 3			
Cover-S19-Details4.dgn	Detail Sheet 4			
Cover-S20-Details5.dgn	Detail Sheet 5			

Corona Landfill	SCALE: FOLDER:	as shown Corona/SE_Drainage_Channel/
ist Remediation Project	FOLDER:	Project Drawings
Notes & Legends	FILE:	CrDrainage-S02-IndexSheet.dgn
	MODEL:	Index Sheet
	SHEET 2	0F 20





#### 

#### CURVE TABLES

NW Floodplain $\square$					
No.	R	$\triangle$	Т		
1	50.0	10^58'55"	4.81	9.58	
2	30.0	33^11′16"	8.94	17.38	
3	40.0	38^17′01"	13.88	26.73	
4	100.0	18^00'55"	15.85	31.44	

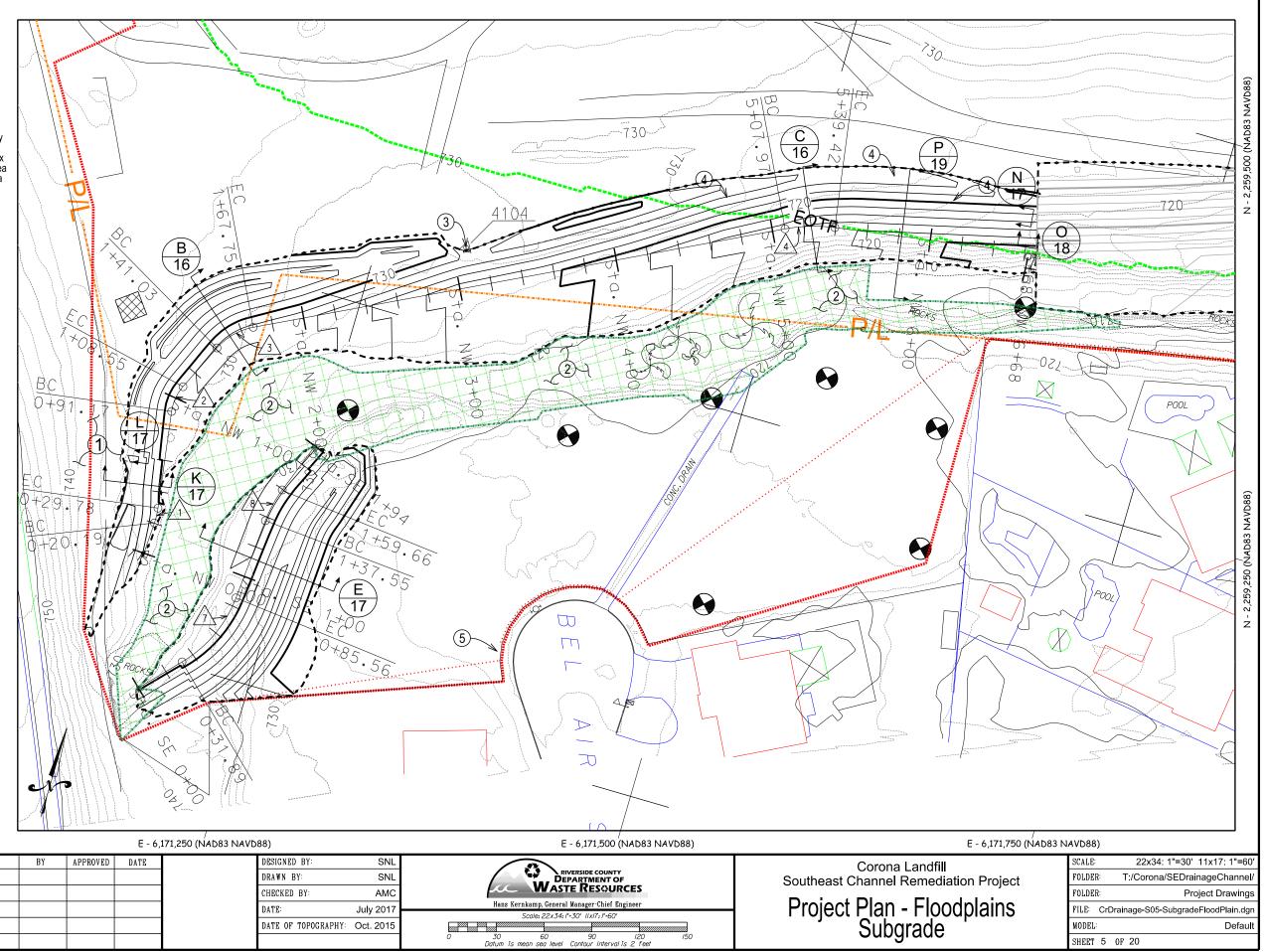
[		S	SE Floodpla	in	¢
	No.	R	$\triangle$	Т	
	$\sqrt{5}$	80.0	38^26′16"	27 <b>.</b> 89	53 <b>.</b> 67
	6	100.0	38^35′44"	35.02	67.36

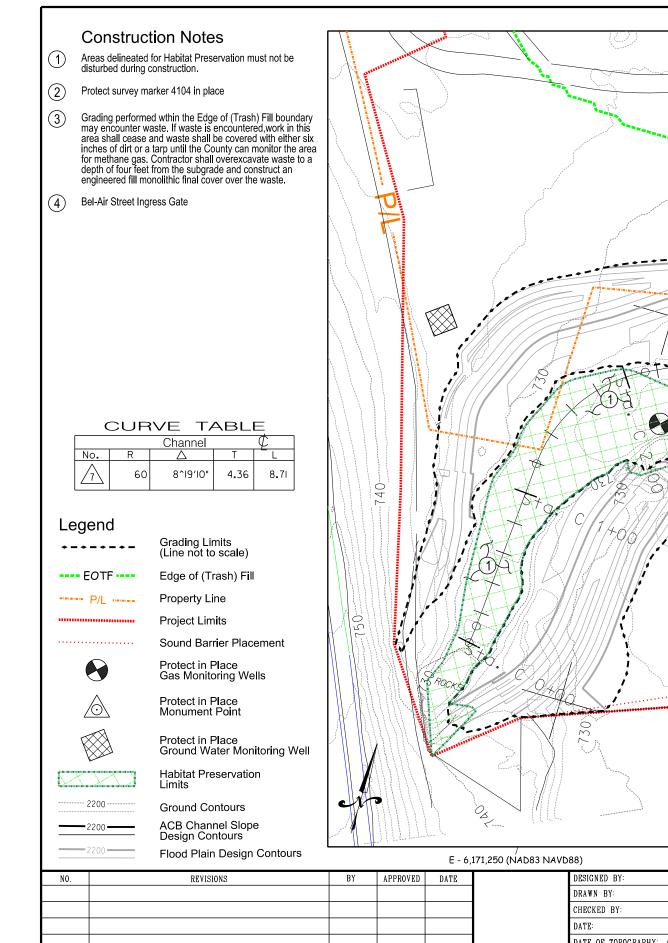
#### Legend

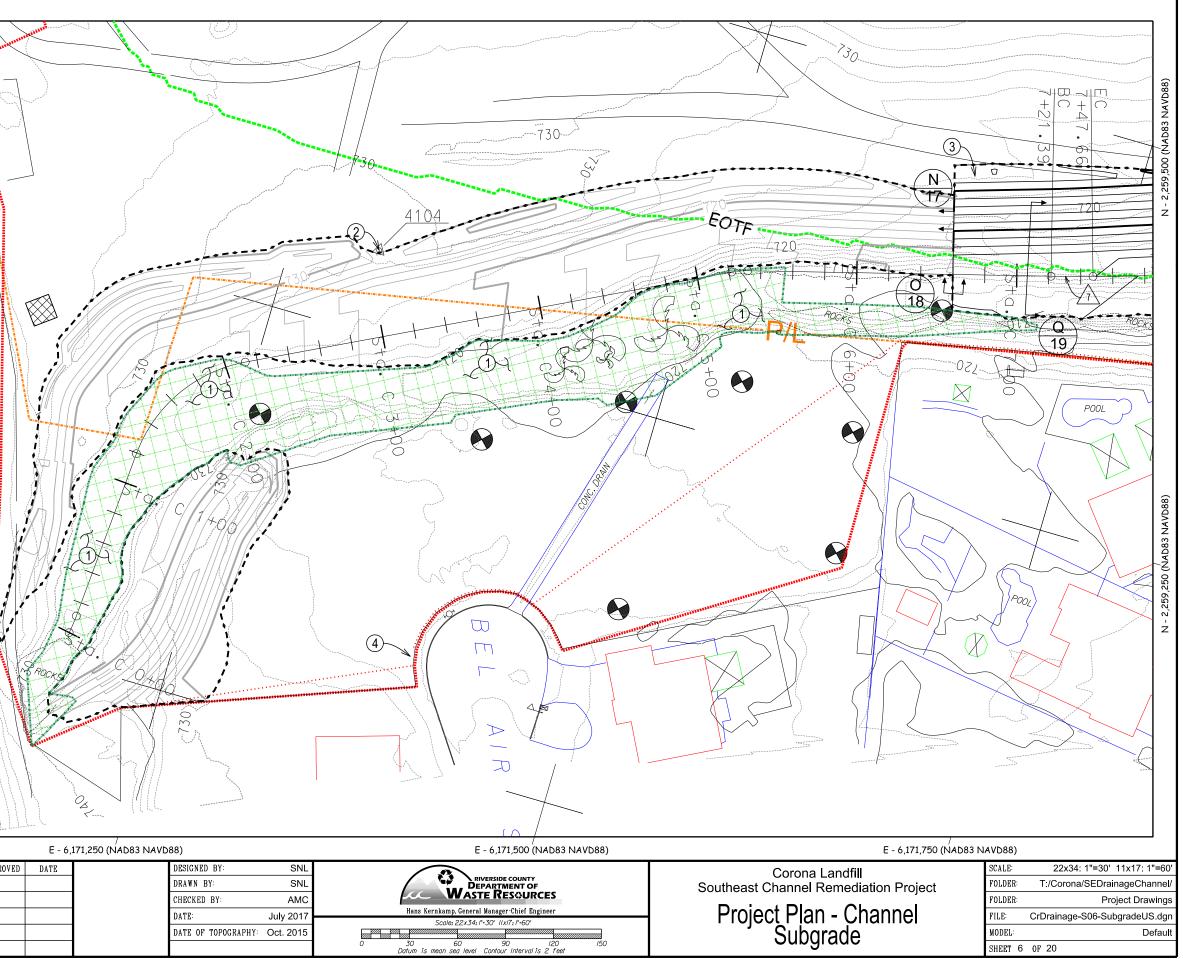
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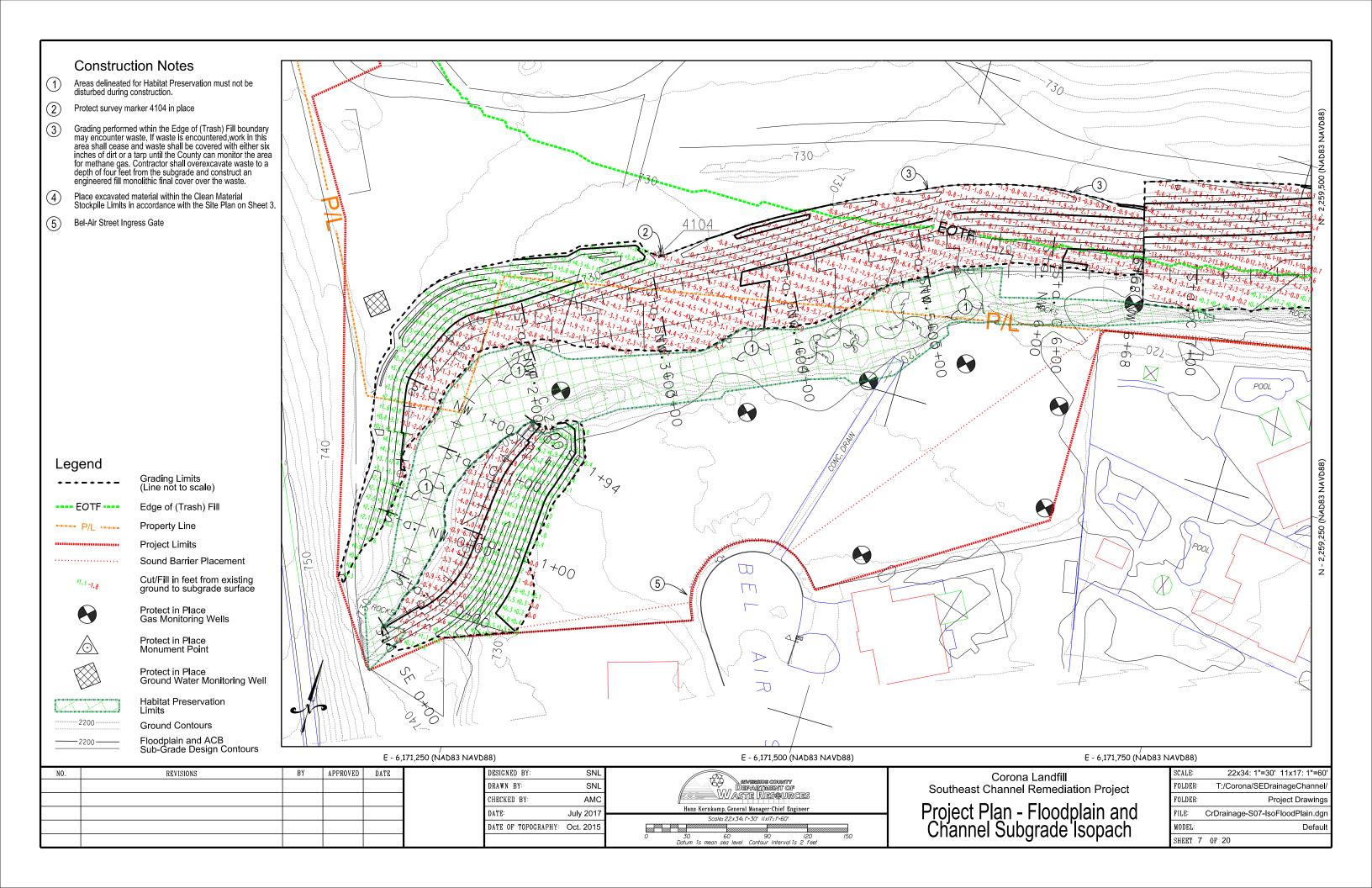
*=*=*=*=	Grading Limits (Line not to scale)
EOTF	Edge of (Trash) Fill
P/L	Property Line
	Project Limits
	Sound Barrier Placement
$\bigcirc$	Protect in Place Monument Point
	Protect in Place Gas Monitoring Wells
	Protect in Place Ground Water Monitoring Well
	Habitat Preservation Limits
2200	Ground Contours
2200	Flood Plain Subgrade Design Contours
2200	ACB Channel Slope Subgrade Contours

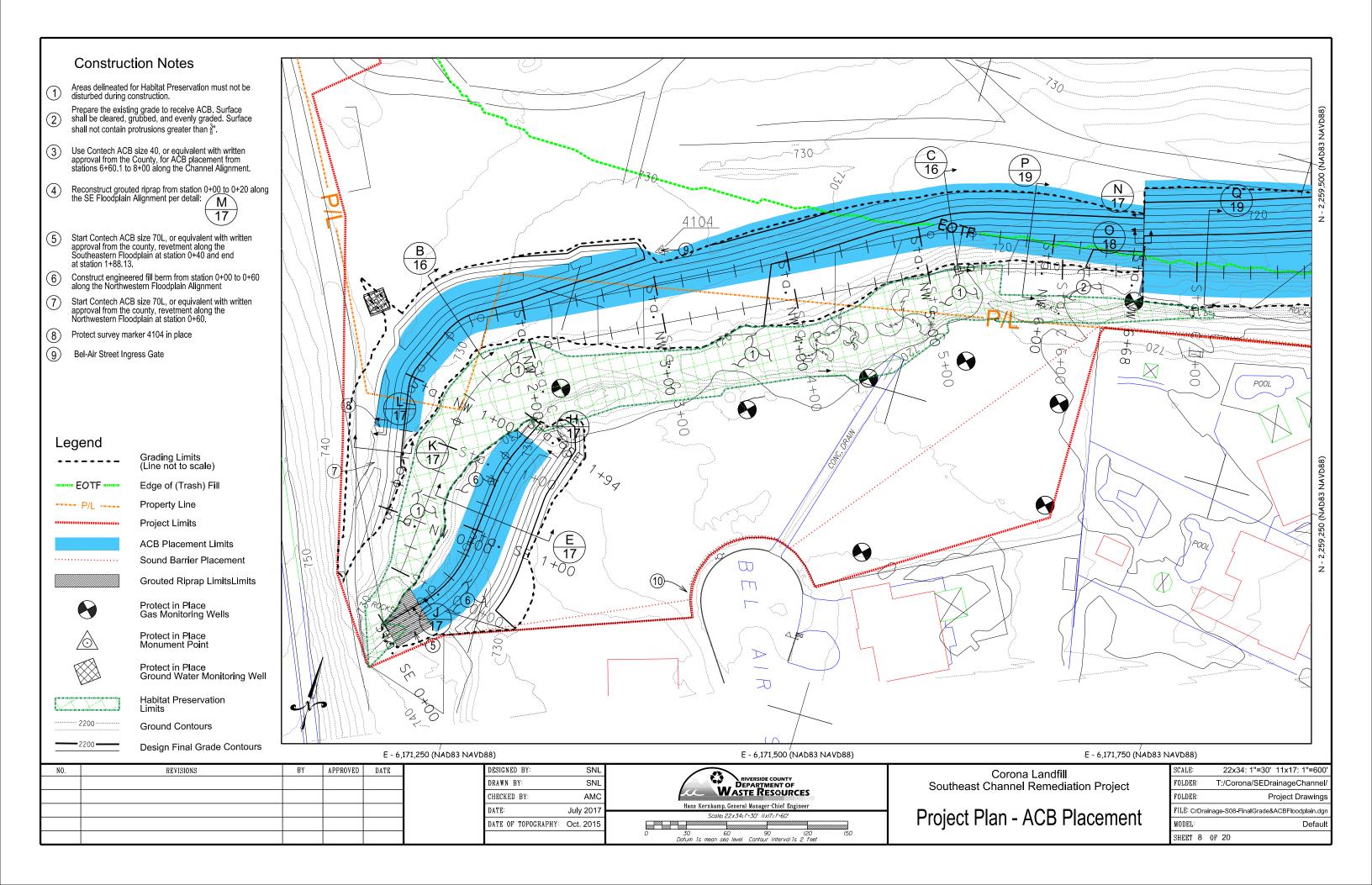
REVISIONS











- Areas delineated for Habitat Preservation must not be disturbed during construction. 1
- 2 Survey monument 4103 shall be removed.
- 3 A portion of the southeastern bank of the channel, as delineated with shading, was re-graded by the Nova Contractors in early 2016.
- Grading performed within the Edge of (Trash) Fill boundary may encounter waste. If waste is encountered, work in this area shall cease and waste shall be covered with either six inches of dirt or a tarp until the County can monitor the area for methane gas. Contractor shall overexcavate waste to a depth of four feet from the subgrade and construct an engineered fill monolithic final cover over the waste. (5)

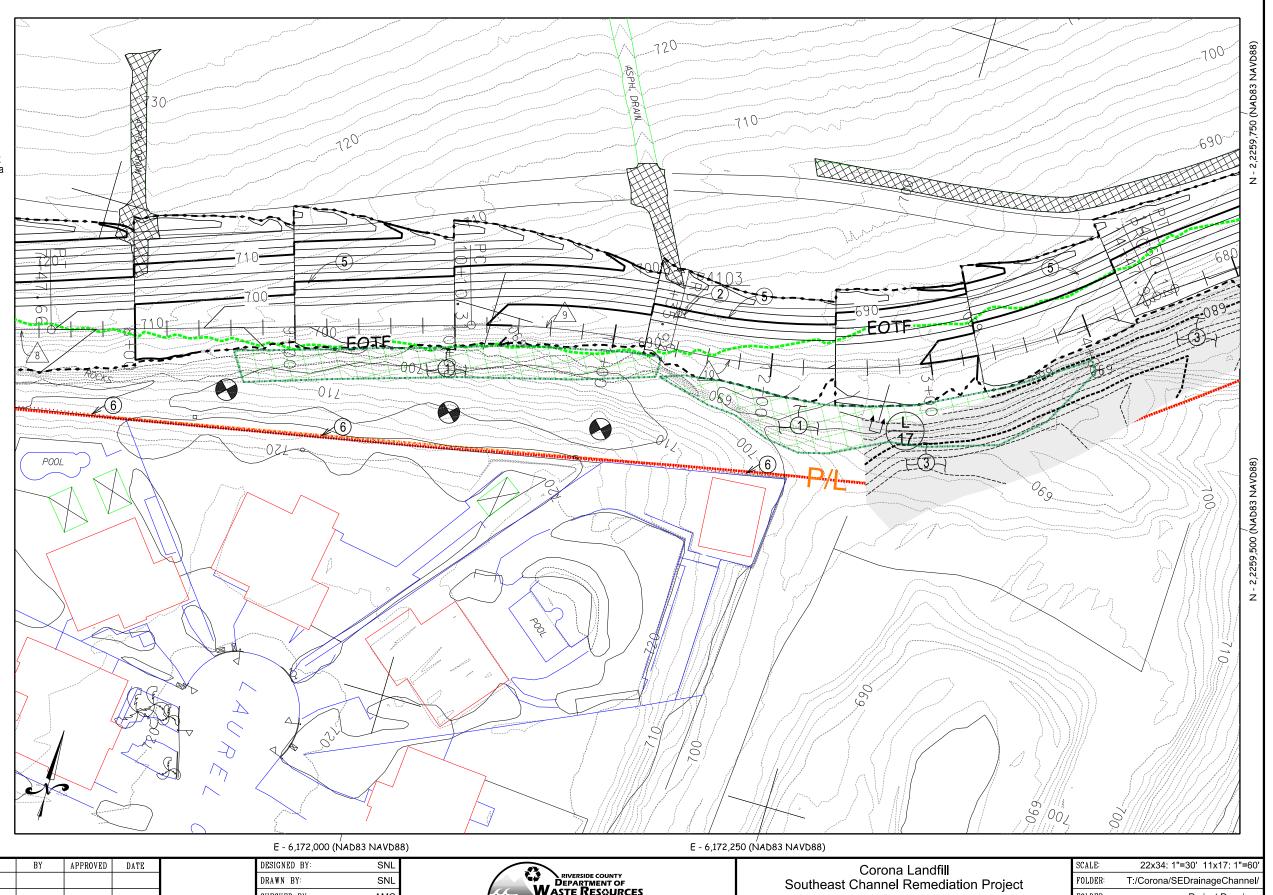
(6) Sound Barrier Placement

CURVE TABLE				
		Channel		¢
No.	R	$\triangle$	Т	L
8	900.0	1^40'2 "	13.14	26.27
$\sqrt{9}$	500 <b>.</b> 0	14^23′44"	63 <b>.</b> I5	125.63
10	450.0	39^43′26"	162.56	311.99

#### Legend

► - ◆ - ◆ -	Grading Limits (Line not to scale)
EOTF	Edge of (Trash) Fill
P/L	Property Line
	Project Limits
•••••	Sound Barrier Placement
	Protect in Place Gas Monitoring Wells
$\bigcirc$	Remove Monument Point
	Habitat Preservation Limits
	Protect in Place Asphalt Concrete Channels
2200	Ground Contours
2200	ACB Channel Slope Subgrade Contours
2200	Channel Re-grading Contour

Channel Re-grading Contours



Cor		SNL	DESIGNED BY		DATE	APPROVED	BY	REVISIONS	NO.
Southeast Chan		SNL	DRAWN BY:						
		AMC	CHECKED BY:						
	Hans Kernkamp, General Manager-Chief Engineer	July 2017	DATE:	1					
Project Plan -	Scale: 22x34: I"=30' 11x17: I"=60'	July 2017	DATE	-	'				
FIUJECI FIAIT-		PHY: Oct. 2015	DATE OF TOPOGRA						
	0 30 60 90 120 150 Datum is mean sea level Contour Interval is 2 feet			1					

- Channel Subgrade

FOLDER: Project Drawings FILE: CrDrainage-S09-SubgradeMiddle.dgn MODEL: Default SHEET 9 OF 20

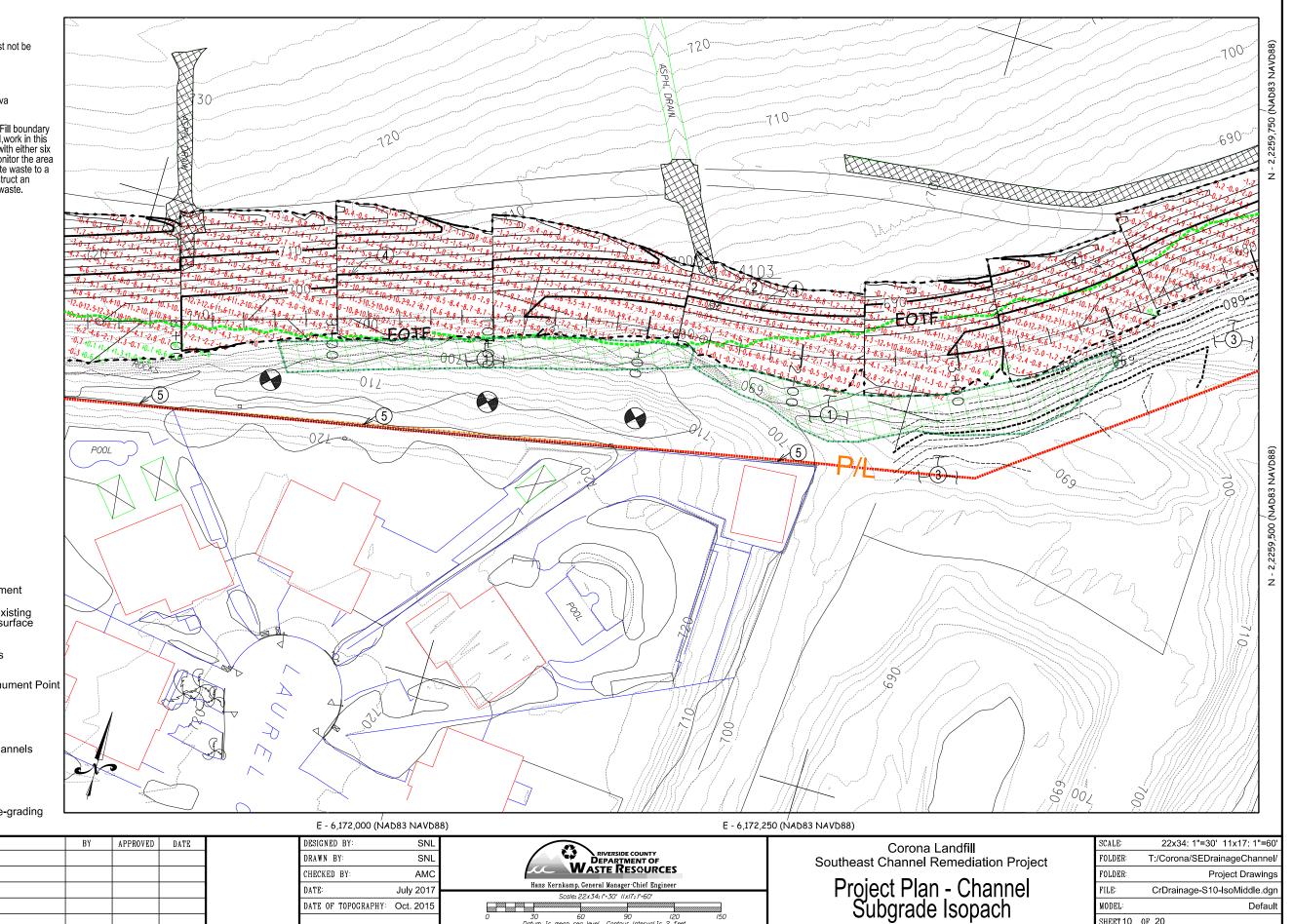
- Areas delineated for Habitat Preservation must not be disturbed during construction. 1
- 2 Survey monument 4103 shall be removed.
- 3 Channel was re-graded in this area by the Nova Contractors in early 2016.
- Grading performed wthin the Edge of (Trash) Fill boundary may encounter waste. If waste is encountered work in this area shall cease and waste shall be covered with either six 4 inches of dirt or a tarp until the County can monitor the area for methane gas. Contractor shall overexcavate waste to a depth of four feet from the subgrade and construct an engineered fill monolithic final cover over the waste.
- (5) Sound Barrier Placement

#### Legend

NO.

Grading Limits (Line not to scale)
Edge of (Trash) Fill
Property Line
Project Limits
Sound Barrier Placem
Cut/Fill in feet from ex ground to subgrade si
Protect in Place Gas Monitoring Wells
Remove Survey Monu
Habitat Preservation Limits
Protect in Place Asphalt Concrete Cha
Ground Contours
ACB Channel Slope Subgrade Contours
Previous Channel Re- Damage Contours

REVISIONS



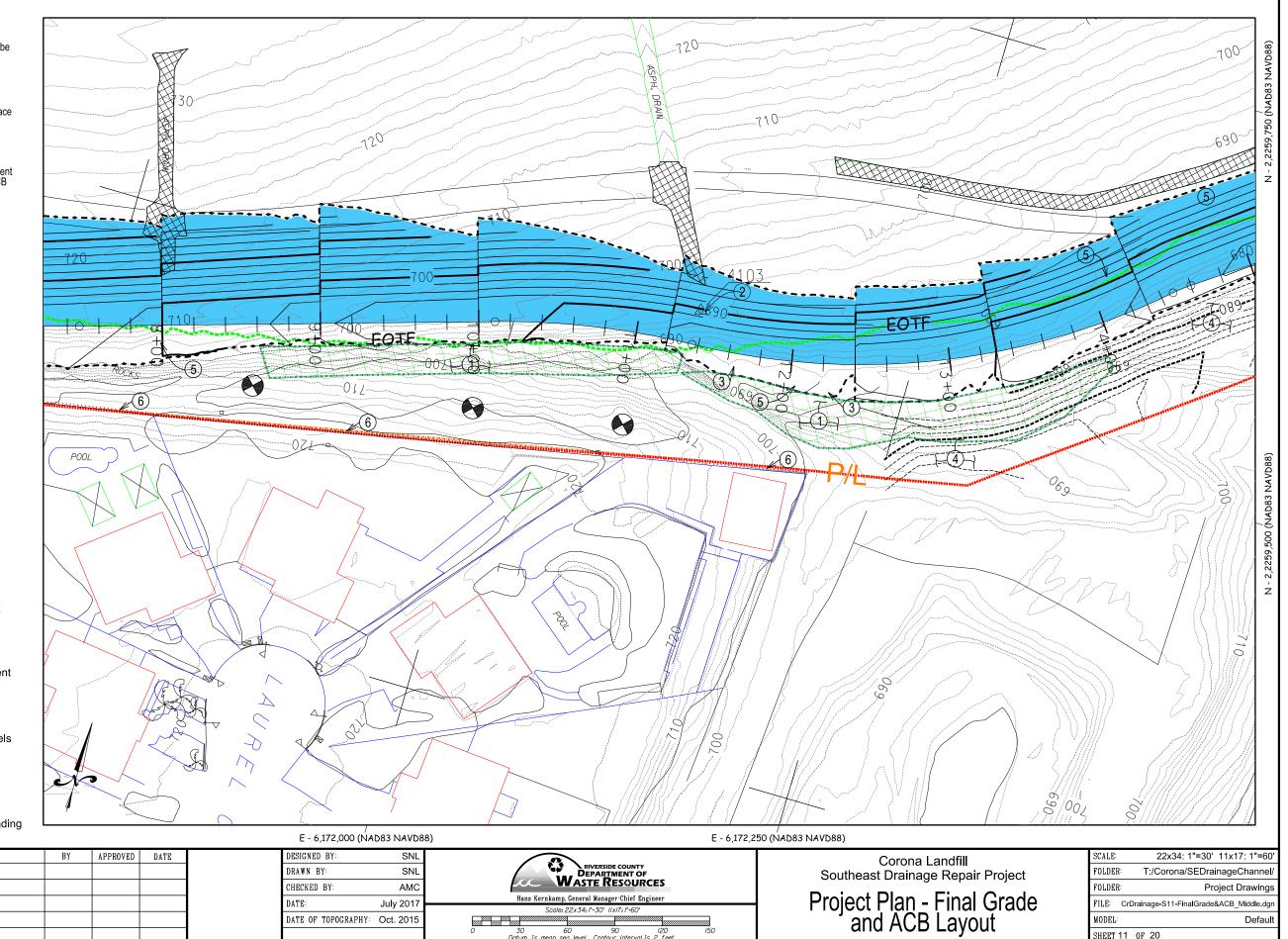
30 60 90 120 Datum is mean sea level Contour Interval is 2 feet

ona Landfill	SCALE:	22x34: 1"=30' 11x17: 1"=60'
nel Remediation Project	FOLDER:	T:/Corona/SEDrainageChannel/
	FOLDER:	Project Drawings
Plan - Channel	FILE:	CrDrainage-S10-IsoMiddle.dgn
ade Isopach	MODEL:	Default
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- Areas delineated for Habitat Preservation must not be disturbed during construction. 1
- Survey monument 4103 shall be removed. 2
- Prepare the existing grade to receive ACB. Surface shall be cleared, grubbed, and evenly graded. Surface shall not contain protrusions greater than  $\frac{2}{8}$ . 3
- Channel was re-graded in this area by the Nova Contractors in early 2016. 4
- Use the Contech sizes listed in the table, or equivalent with written approval from the County, below for ACB placement along the Channel Alignment. (5)
- (6) Sound Barrier Placement

#### Leaend

_ege	ena	
- +	- + -	Grading Limits (Line not to scale)
E	OTF	Edge of (Trash) Fill
	P/L	Property Line
		Project Limits
••••••		Sound Barrier Placement
	9	Protect in Place Gas Monitoring Wells
Z	$\bigcirc$	Remove Survey Monument
		Habitat Preservation Limits
***		Protect in Place Asphalt Concrete Channels
		ACB Placement Limits
2	200	Ground Contours
2	200	ACB Channel Slope Final Grade Contours
2	200	Previous Channel Re-grading Damage Contours
10.		REVISIONS



MODEL:

SHEET 11 OF 20

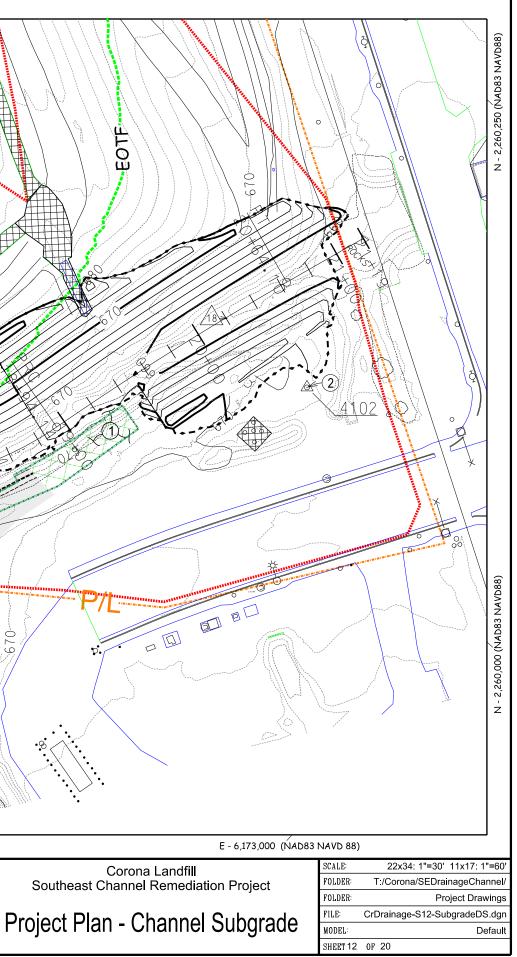
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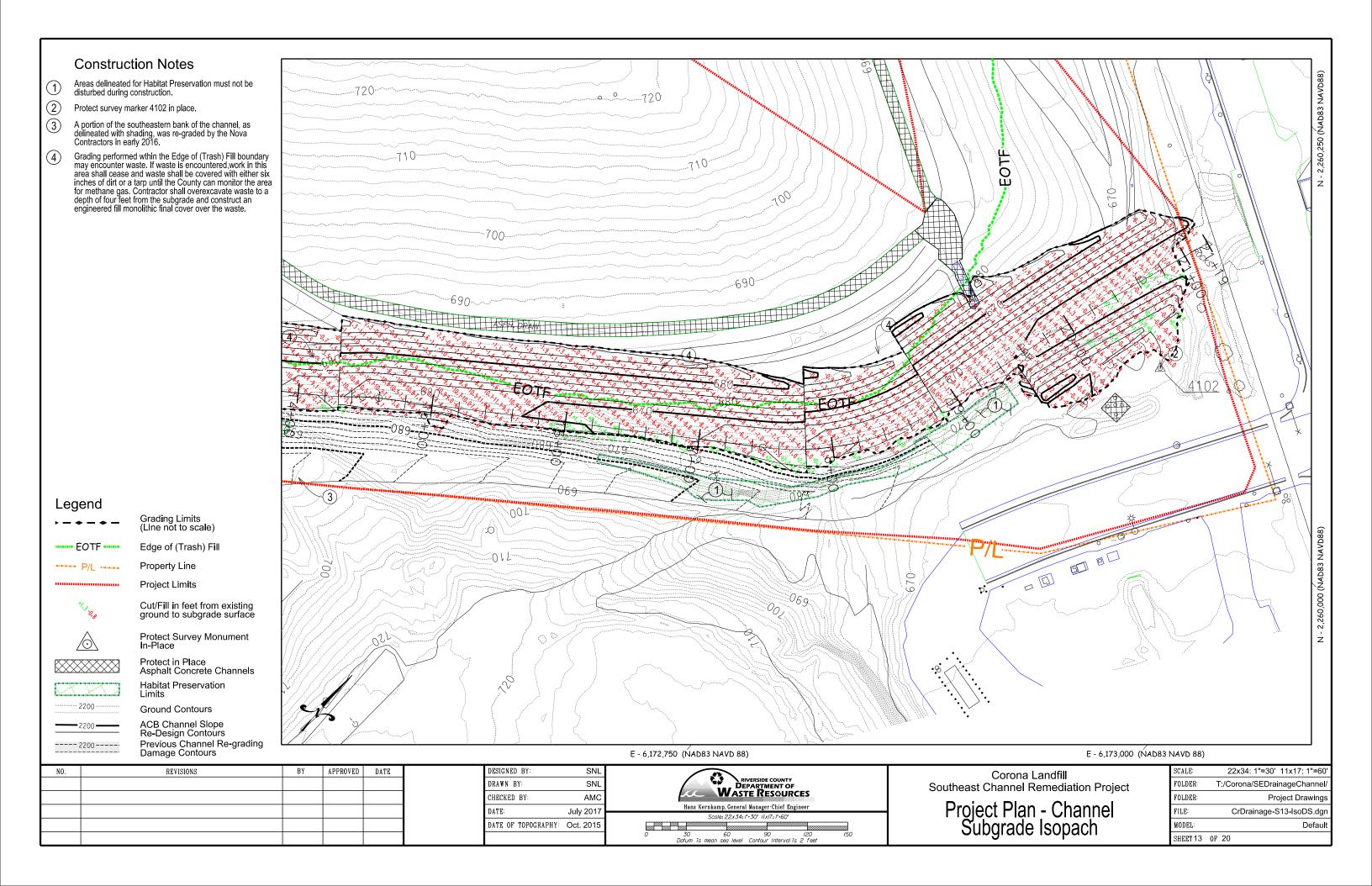
DATE OF TOPOGRAPHY: Oct. 2015

30 60 90 120 Datum is mean sea level Contour Interval is 2 feet

#### **Construction Notes** Areas delineated for Habitat Preservation must not be disturbed during construction. (1)-720-----720 0 2 Protect survey marker 4102 in place. A portion of the southeastern bank of the channel, as delineated with shading, was re-graded by the Nova Contractors in early 2016. 3 EOTE --710 Grading performed wthin the Edge of (Trash) Fill boundary may encounter waste. If waste is encountered work in this area shall cease and waste shall be covered with either six (4) 710 inches of dirt or a tarp until the County can monitor the area for methane gas. Contractor shall overexcavate waste to a depth of four feet from the subgrade and construct an engineered fill monolithic final cover over the waste. ·700-690 CURVE TABLE EQTE Channel FOT No. 16280 9^27′09" 23.15 46.19 69 $\overline{17}$ 240 45^29'15" 100.61 190.54 18 146.55 2000 4^11′54" 73.31 ~00l Ó Legend Grading Limits (Line not to scale) \* = \* = \* = \* • -012 700 70 ---- EOTF ----Edge of (Trash) Fill Ο. io 069 Property Line ----- P/L ------**Project Limits** Protect Survey Monument In-Place $\langle \Diamond \rangle$ Protect in Place Asphalt Concrete Channels Ľ Habitat Preservation Limits - 2200 -Ground Contours ACB Channel Slope Subgrade Contours -2200-Previous Channel Re-grading ----- 2200------E - 6,172,750 (NAD83 NAVD 88) Damage Contours NO. REVISIONS BY APPROVED DATE DESIGNED BY SNL 3 RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES DRAWN BY: SNL CHECKED BY AMC Hans Kernkamp, General Manager-Chief Engin July 2017 DATE: Scale: 22x34. ["= 30' 11x17. ["=60' DATE OF TOPOGRAPHY: Oct. 2015

30 60 90 120 Datum is mean sea level Contour Interval is 2 feet





- Areas delineated for Habitat Preservation must not be disturbed during construction. (1)
- Channel was re-graded in this area by the Nova Contractors in early 2016. 2

Legend

 $\blacktriangleright - \blacklozenge - \blacklozenge$ 

EOTF

----- P/L -----

 $\triangle$ 

--- 2200 ---

----- 2200 -----

\_\_\_\_\_2200 \_\_\_\_

Use the Contech sizes listed in the table, or equivalent with written approval from the County, below for ACB placement along the Channel Alignment. 3 ACB Sizings

Upstream	Downstream	Size						
14+30	1780	70						
17+80	18+85	50						
18+85	19+00	40						

Grading Limits

Property Line

**Project Limits** 

(Line not to scale)

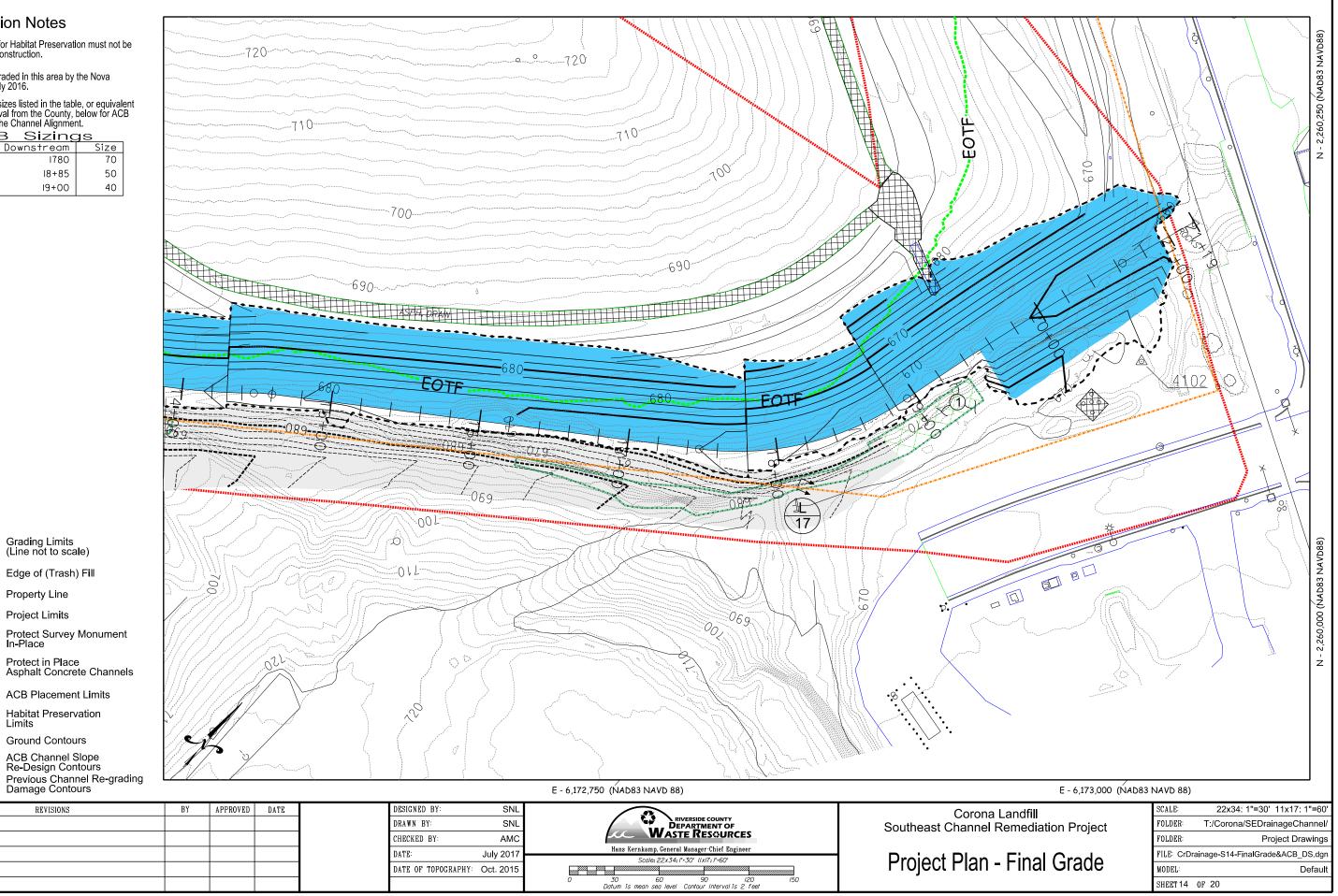
Edge of (Trash) Fill

ACB Placement Limits

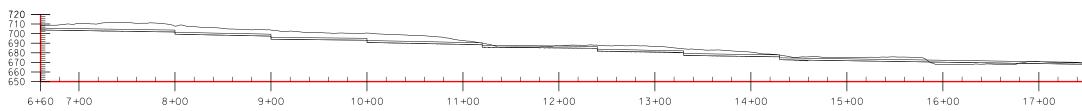
Habitat Preservation

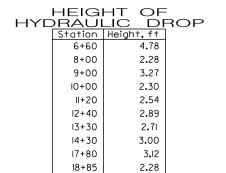
Ground Contours ACB Channel Slope Re-Design Contours

Limits

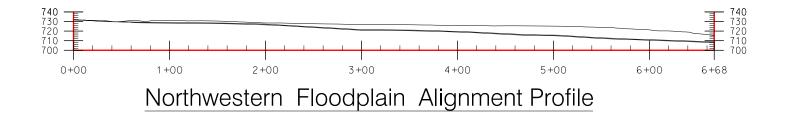


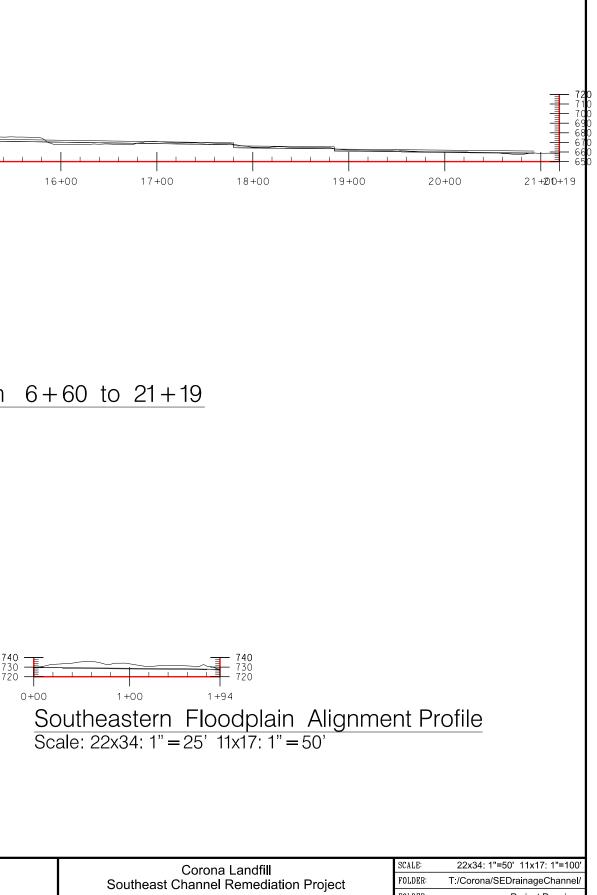
NO.	REVISIONS	BY	APPROVED	DATE	DESIGNED BY	SNL		Coror
					DRAWN BY:	SNL		Southeast Channe
					CHECKED BY:	AMC		
					DATE:	July 2017	Hans Kernkamp, General Manager-Chief Engineer Scale: 22x34: 1"+30'   x/17: 1"+60'	Droject Dier
					DATE OF TOPOGR	APHY: Oct. 2015		Project Plar
							0 30 60 90 120 150 Datum is mean sea level Contour Interval is 2 feet	





## Channel Alignment Profile from 6+60 to 21+19





Coron		SNL	DESIGNED BY	DATE	APPROVED	BY	REVISIONS	REVISIO	NO.
Southeast Channe		SNL	DRAWN BY:						
	WASTE RESOURCES	AMC	CHECKED BY:						
A.II	Hans Kernkamp, General Manager-Chief Engineer	July 2017	DATE:						
I Alianme	Scale: 22x34: I"=50' 11x17: I"=100'			┟─────┦					
		APHY: Oct. 2015	DATE OF TOPOGRAD						
	0 50 100 150 200 250 Datum is mean sea level								

nent Profiles

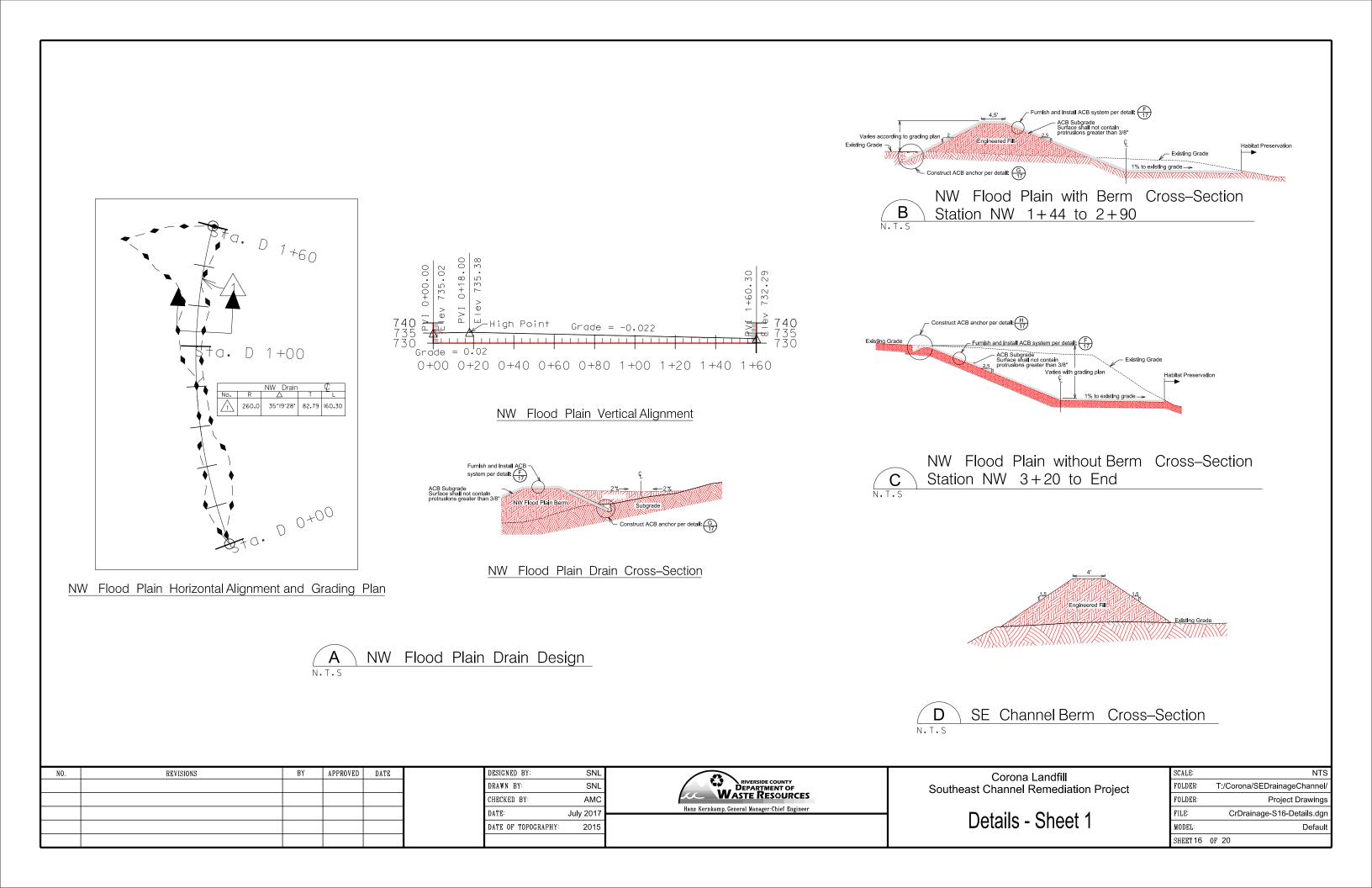
 FOLDER:
 T:/Corona/SEDrainageChannel/

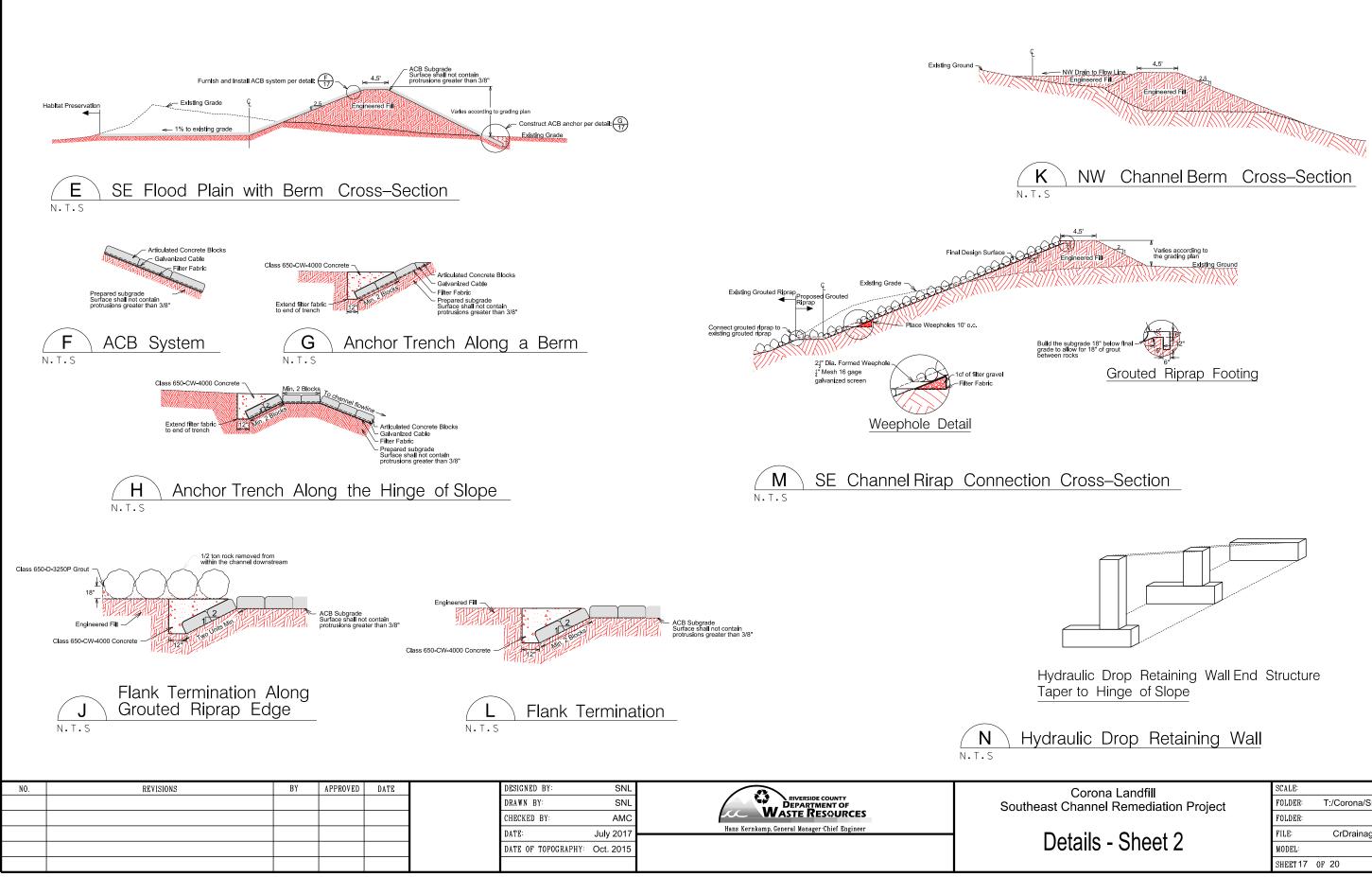
 FOLDER:
 Project Drawings

 FILE:
 CrDrainage-S15-Profiles.dgn

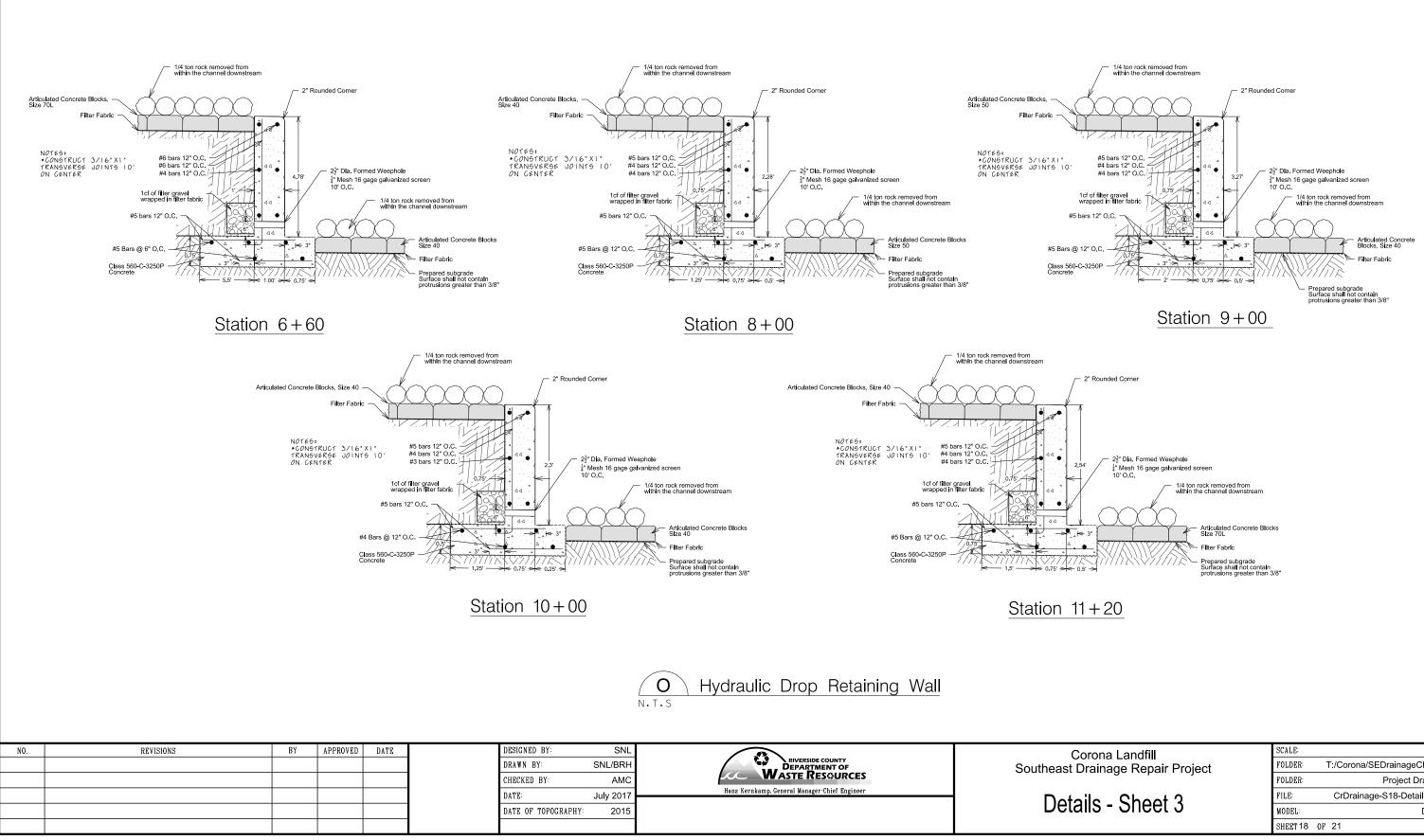
 MODEL:
 Default

 SHEET 15
 OF 20

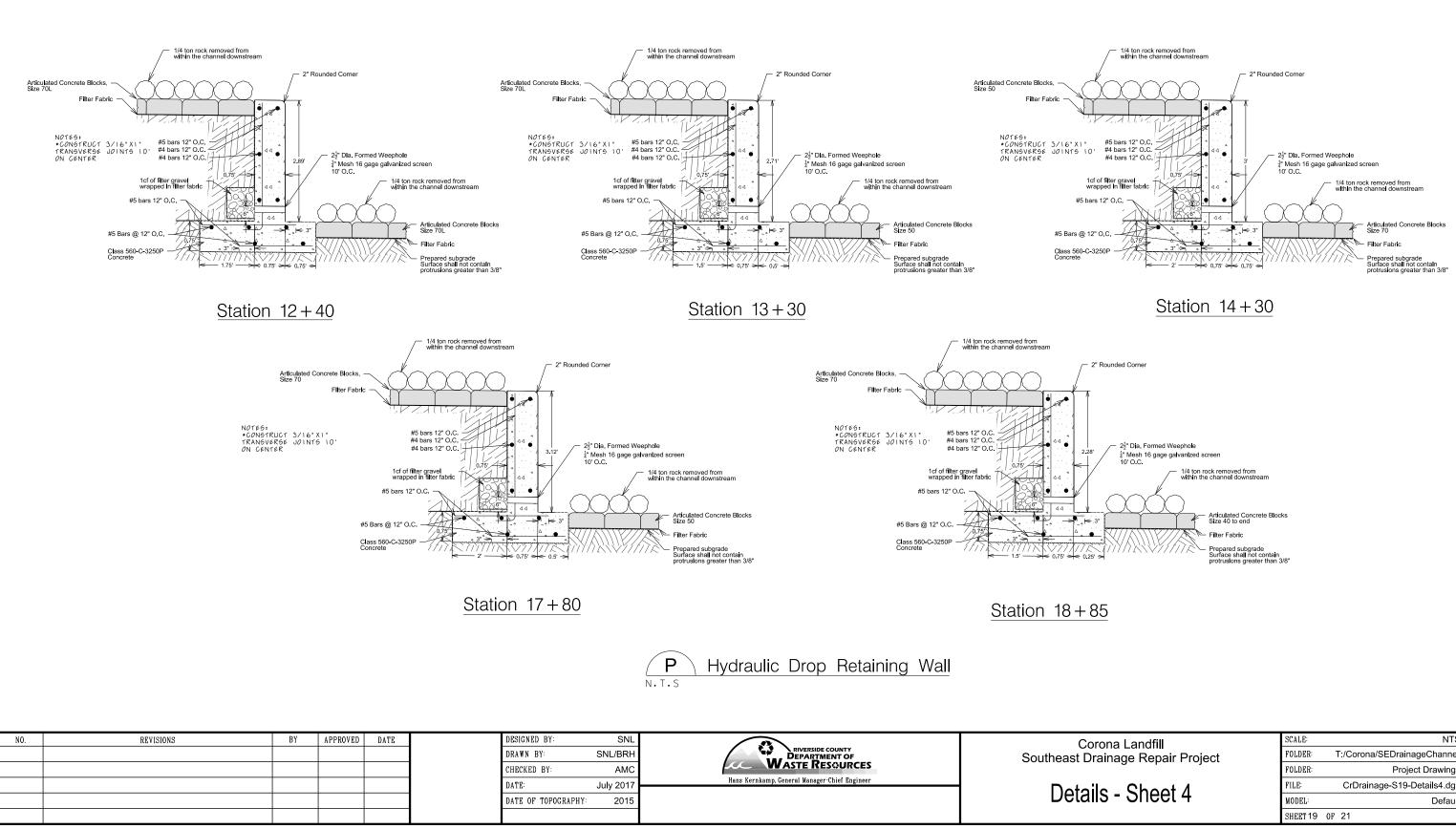




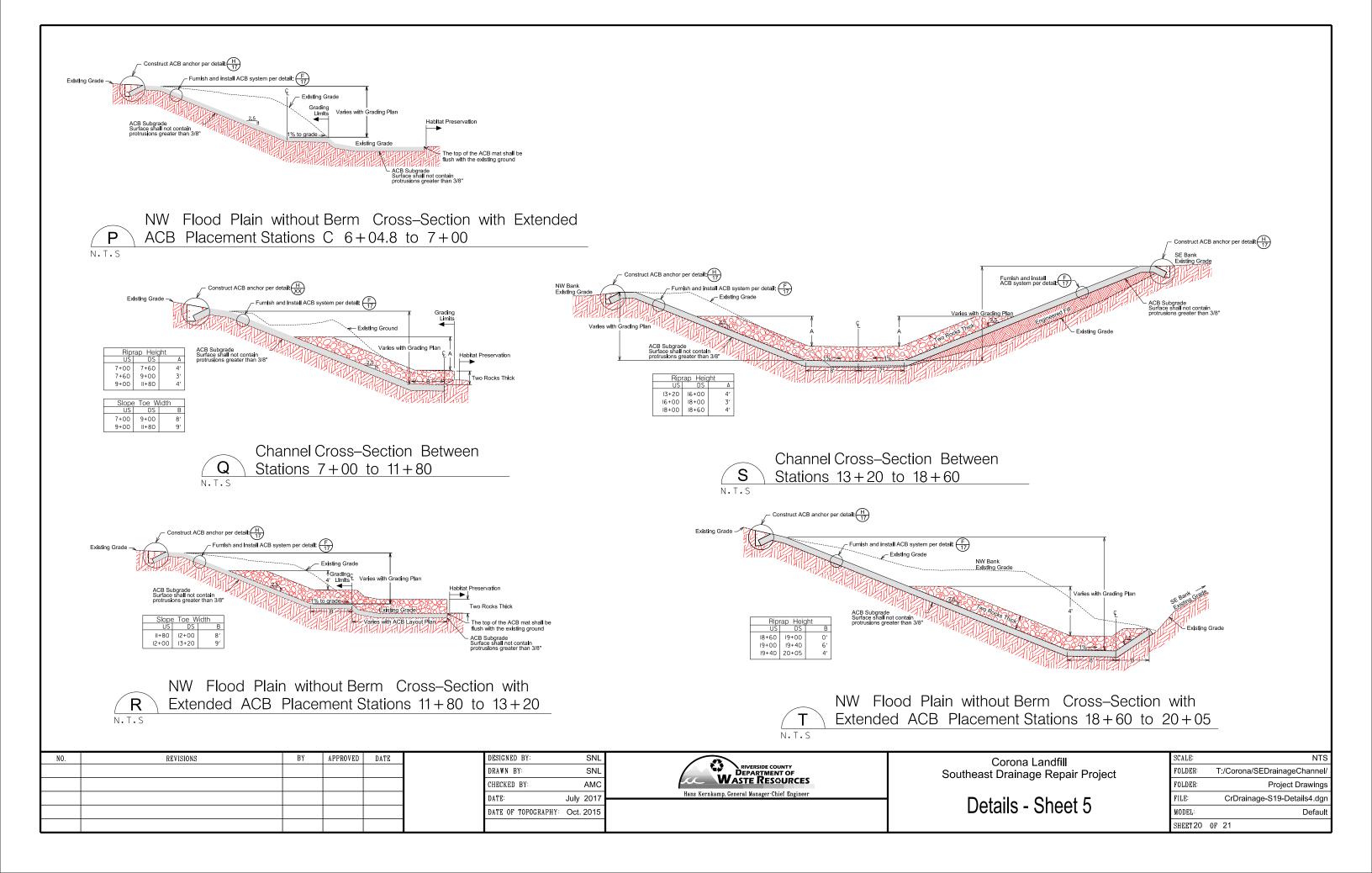
rona Landfill	SCALE	NTS
nnel Remediation Project	FOLDER:	T:/Corona/SEDrainageChannel/
······································	FOLDER:	Project Drawings
ls - Sheet 2	FILE	CrDrainage-S17-Details2.dgn
is - Sheel Z	MODEL:	Default
	SHEET 17	0F 20

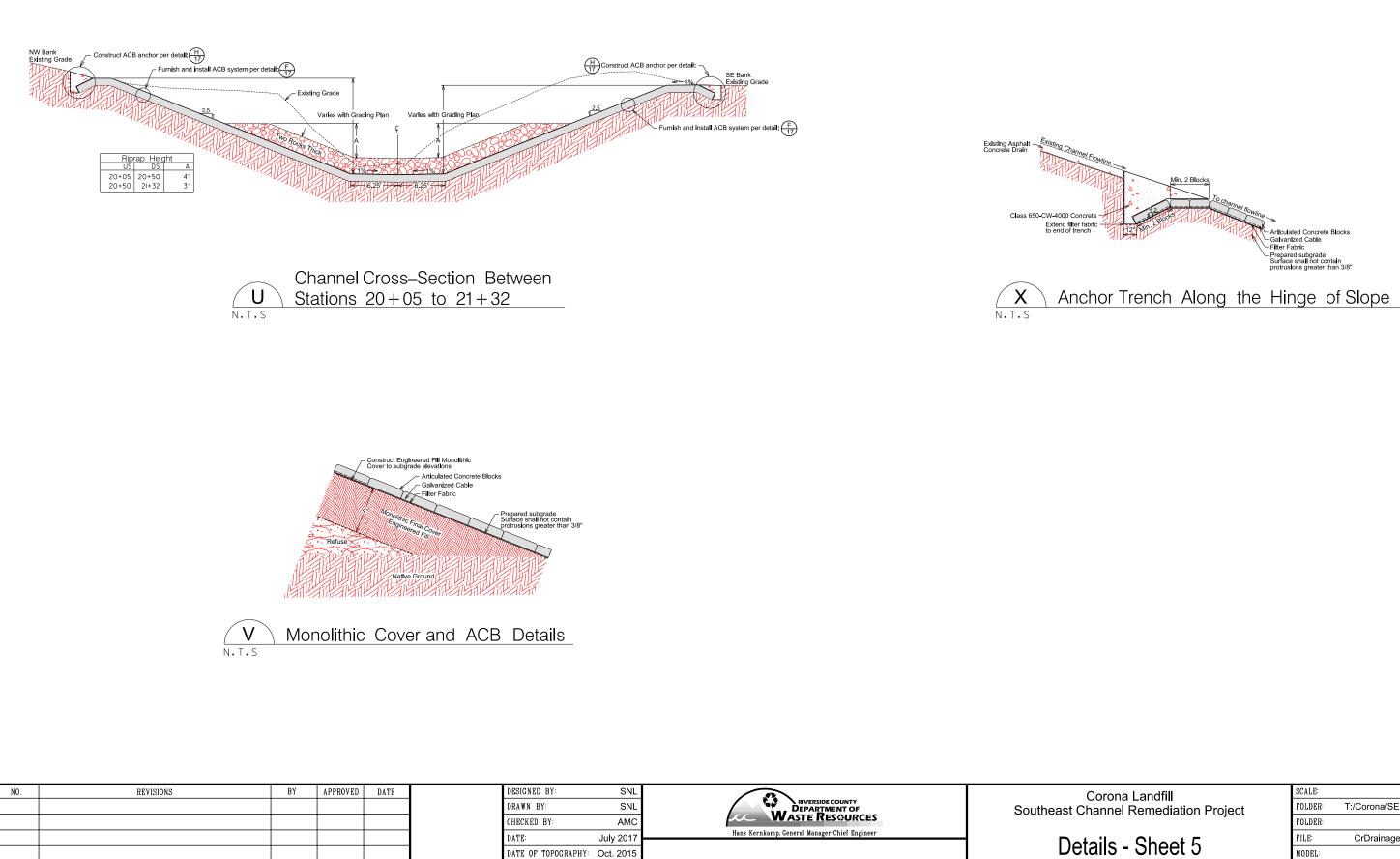


rona Landfill	SCALE	NTS
ainage Repair Project	FOLDER:	T:/Corona/SEDrainageChanne/
	FOLDER:	Project Drawings
la Chaot?	FILE:	CrDrainage-S18-Details3.dgn
ls - Sheet 3	MODEL:	Default
	SHEET 18	0F 21



rona Landfill	SCALE	NTS
rainage Repair Project	FOLDER:	T:/Corona/SEDrainageChanne/
	FOLDER:	Project Drawings
ls - Sheet 4	FILE	CrDrainage-S19-Details4.dgn
IS - SHEEL 4	MODEL:	Default
	SHEET 19	0F 21





rona Landfill	SCALE	NTS
nnel Remediation Project	FOLDER:	T:/Corona/SEDrainageChannel/
······································	FOLDER:	Project Drawings
ls - Sheet 5	FILE	CrDrainage-S20-Details5.dgn
is - Sheel S	MODEL:	Default
	SHEET 21	0F 21