

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



**ITEM: 12.2  
(ID # 25594)**

**MEETING DATE:**  
Tuesday, August 27, 2024

**FROM :** DEPARTMENT OF WASTE RESOURCES

**SUBJECT:** DEPARTMENT OF WASTE RESOURCES: Ratify and Approve Contract Change Order No. 2 to Contract Documents for the Construction of P2S1 Liner Expansion Project at Badlands Sanitary Landfill, District 5. [\$2,254,157 Total Cost – Department of Waste Resources Enterprise Funds 100%] (CEQA – Nothing Further Required)

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

1. Find that nothing further is required pursuant to the California Environmental Quality Act (CEQA) since, when the Board of Supervisors awarded the contract to Sukut Construction, LLC. for the Construction of the Phase 2 Stage 1 Liner Expansion Project at the Badlands Sanitary Landfill (Project) on July 11, 2023, all potentially significant effects of the Project were adequately analyzed in Environmental Assessment (EA) No. 2017-03, for the Badlands Landfill Integrated Landfill Project (BLIP), adopted April 12, 2022 (SCH No. 2019049142); and
2. Ratify and Approve Contract Change Order No. 2 in the total amount of \$2,254,157.13 to the Contract with Sukut Construction LLC. for the Construction of the Phase 2 Stage 1 Liner Expansion Project at the Badlands Sanitary Landfill, and authorize the Chair of the Board to execute the change order on behalf of the County.

**ACTION:**Change Order, Policy

  
Andrew Cortez 8/16/2024

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**MINUTES OF THE BOARD OF SUPERVISORS**

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

Ayes: Jeffries, Spiegel, Washington, Perez and Gutierrez  
Nays: None  
Absent: None  
Date: August 27, 2024  
xc: Waste

Kimberly A. Rector  
Clerk of the Board

By:   
Deputy

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<b>FINANCIAL DATA</b>	<b>Current Fiscal Year:</b>	<b>Next Fiscal Year:</b>	<b>Total Cost:</b>	<b>Ongoing Cost</b>
<b>COST</b>	\$ 2,254,157	\$ 0	\$ 2,254,157	\$ 0
<b>NET COUNTY COST</b>	\$ 0	\$ 0	\$ 0	\$ 0
<b>SOURCE OF FUNDS:</b> Department of Waste Resources Enterprise Funds 100%			<b>Budget Adjustment:</b>	No
			<b>For Fiscal Year:</b>	24/25

**C.E.O. RECOMMENDATION:** Approve

**BACKGROUND:**

**Summary**

On July 11, 2023, the Board awarded the contract for the Phase 2 Stage 1 Liner Expansion Project at the Badlands Sanitary Landfill (Project) to Sukut Construction, LLC (Contractor) and granted authorization to the General Manager – Chief Engineer to execute change orders to the contract as approved by County Counsel, in accordance with Article 3.5 of the Public Contract Code, and the limits set forth in Section 20142 therein (M.O. 12.1, #22281).

**Contract Change Order No. 1**

As authorized by the General Manager – Chief Engineer, Contract Change Order No. 1 (CCO1) was previously approved to address changes to project requirements as required to receive Regional Water Quality Control Board – Santa Ana Region (RWQCB) approval for construction of the Project. To address these changes, CCO 1 extended the contract time for completion of the Project by an additional five (5) days, from 414 days to 419 days. Approval of CCO1 did not affect the overall contract amount and is provided for reference as Attachment A.

**Contract Change Order No. 2**

In accordance with the California Code of Regulations, Title 27, refuse disposed at the Badlands Landfill must be covered with a minimum of (6) six inches of compacted earthen material at the end of each operation day; this material is commonly referred to as “daily cover”. To maintain compliance with this regulation, Department-operated heavy equipment is typically utilized to excavate daily cover from the designated borrow sources and haul this material to the active disposal pads. During the earthwork phase of the Project, the Contractor utilized excavated material from the expansion area to provide daily cover, place engineered fill, and to construct stockpiles for future use as ancillary facilities or borrow sources. The existing borrow sources are located within the Project limits. To avoid liability of damaging the Contractor’s on-going construction and to provide operational flexibility, the Department recommends the option of utilizing the Contractor’s forces to continue to provide daily cover material through the remaining duration of the Project. Once Construction has been completed along the haul route, the Department may resume responsibility for the daily cover operations. As part of Contract Change Order No. 2 (CCO2), the not-to-exceed additional cost for providing daily cover through the duration of the Project is \$1,428,000.

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Upon start of construction, additional comments were received from the RWQCB directing the Department to modify the design of the leachate collection and removal system (LCRS) to increase collection capacity. These modifications included increasing the thickness of the LCRS gravel layer and addition of gravel windows to further aid in removing leachate from the lined area. In addition to the LCRS modifications, the Department addressed RWQCB's comments regarding liner and temporary membrane tie-in adjustments. Modifications in response to recent RWQCB's comments resulted in an additional contract cost of \$518,085.28 as included in CCO2.

During the construction of a stockpile, a severe crack was discovered on the stockpile slope prompting the immediate need to safely mitigate the instability of the fill material. As a result, the Department directed the Contractor to cease the placement of fill on the stockpile. At the time, the stockpile was the sole location for placement of excavated material from the expansion area. This forced the Contractor to use a longer haul route to place the excavated material at an alternative stockpile location, resulting in an additional contract cost of \$379,500 as included in CCO2.

During the earthwork phase, clay materials were discovered and determined to be acceptable for incorporating into construction of the bottom-floor portion of the lined area. Use of the on-site clay material eliminated the need to find an alternative source, resulting in a decrease in contract cost of \$71,428.15 as included in CCO2.

The total CCO2 is in the amount of \$2,254,157.13 as itemized in Table 1 below. As detailed in Attachment C, CCO2 increases the total contract amount by 6.76% from \$33,363,759.72 to \$35,617,916.85. In addition, CCO2 extends the contract time for completion of the Project by an additional fourteen (14) days, from 419 days to 433 days.

Table 1 – CCO 2 Contract Cost Adjustments Summary

Item No.	Description	Increase to the Contract
1	Excavation Surcharge	\$379,500.00
3	LPL Material and Processing	- \$71,428.15
6	Liner Tie-In on Bench P	\$1,267.80
7	LCRS Drainage Layer and Windows	\$424,657.80
8	Temporary Membrane Tie-in Adjustment	\$92,159.68
14	Daily Cover Haul	\$1,428,000.00
<b>Total =</b>		<b>\$2,254,157.13</b>

**Prev. Agn. Ref.:** M.O. 12.1 of 04/12/22  
M.O. 12.1 of 07/11/23

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

On April 12, 2022 (M.O. 12.1), the County adopted the Environmental Assessment (EA) No. 2017-03 for the Badlands Landfill Integrated Project (SCH No. 2019049142). Development of the BLIP will occur over approximately the next 40 years within multiple stages (est. 17 stages). Construction of the first phase of the BLIP is the P2S1 Liner Expansion Project. A Mitigation Monitoring Plan (MMP) has been developed to mitigate or avoid significant impacts to the environment from the BLIP. Measures contained in the MMP have been incorporated into the P2S1 Liner Expansion Project Contract Documents and shall be followed during construction.

**Impact on Citizens and Businesses**

This project extends the life of the Badlands Sanitary Landfill, allowing the Department to continue to provide disposal service to the Citizens and Businesses of Riverside County and the region.

**Additional Fiscal Information**

Budget for this work will be provided from Fund 40200, Department ID - 4500100000.

**Price Reasonableness**

The Department checked the costs provided by the Contractor for the additional work against Department costs estimates and found that the costs provided by Contractor to be less than 10% of the Department cost estimates for the same work. Therefore, the costs contained within CCO2 are reasonable.

**ATTACHMENTS:**

- Attachment A: Contract Change Order No. 1
- Attachment B: Contract Change Order No. 2
- Attachment C: Contract Change Order Report

  
\_\_\_\_\_  
Jason Farin, Principal Management Analyst      8/20/2024

  
\_\_\_\_\_  
Aaron Gettis, Chief of Deputy County Counsel      8/19/2024

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill

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CONTRACT CHANGE ORDER NO. 2

To: Sukut Construction, LLC., Contractor, you are hereby directed to make the herein described changes from the plans and specifications or to do the following described work not included in the plans and specifications.

NOTE: THIS CHANGE ORDER IS NOT EFFECTIVE UNTIL APPROVED BY THE GENERAL MANAGER-CHIEF ENGINEER OF THE DEPARTMENT OF WASTE RESOURCES AND THE BOARD OF SUPERVISORS OF RIVERSIDE COUNTY.

Description of work to be done, estimate of quantities, and prices to be paid. Unless otherwise stated, rates for rental of equipment cover only such time as equipment is actually used and no allowance will be made for idle time. Change requested by Riverside County:

The Phase 2, Stage 1 (P2S1) Liner Expansion Change Order No. 2 contains both plan clarifications that do not involve contract adjustments and work modifications that will involve contract adjustments. Project drawing clarifications that do not involve contract adjustments shall be considered "Construction Change Directives." Language deleted from Contract Documents shall be denoted by ~~strike through~~. Language added to Contract Documents shall be denoted by *italics*. The County has changed the scope of work of the Badlands Landfill P2S1 Liner Expansion project as follows:

1. On December 11, 2023, a severe crack was discovered on the Reduced Cycle Park Stockpile One (RCPS 1) that indicated potential instability. The County directed Sukut to cease placement of engineered fill on RCPS 1, abandoning an estimated remaining capacity of 403,000 cubic yards. At that time, RCPS 1 was Sukut's location for placement of excavated material from the Phase 2 Stage 1 excavation area. The directive to cease placement of engineered fill in RCPS 1 forced Sukut to use a longer haul path for moving excavated earthen material out of the C-1 and C-8 areas of the P2S1 subgrade area. Up to 150,000 cubic yards of material from C-1 and C-8 were redirected to the Sub-Canyon Stockpile (SCS). An excavation surcharge of \$2.53 per cubic yard covers the cost of the longer haul and was agreed upon between the Contractor and the County for diverting the remaining amount of material from C-1 and C-8 to the Sub-Canyon Stockpile (SCS). The total amount added to the contract due to the excavation surcharge shall not exceed \$379,500 and shall be added to Bid Item No. 9 – Earthwork Excavation and in the Schedule of Values as Bid Item No. 9.09 – Earthwork – C1/C-8 Haul Surcharge.

Cost: Decrease - \$ 0 or Increase \$ 2,254,157.13

By reason of this order the time of completion will be adjusted as follows: 14 Working Days

Submitted by: \_\_\_\_\_

Date: \_\_\_\_\_

Approved by: [Signature]

Date: 8/19/24

General Manager-Chief Engineer  
Department of Waste Resources

[Signature]

Date: 8/27/24

Chairman, Board of Supervisors  
**CHUCK WASHINGTON**

We, the undersigned Contractor, have given careful consideration to the change proposed and hereby agree, if this proposal is approved, that we will provide all equipment, furnish all materials, except as may be otherwise noted above, and perform all services necessary for the work above specified, and will accept as full payment therefore the prices shown above.

Accepted: \_\_\_\_\_ Date: 7/31/24

Contractor: Sukut Construction

By: [Signature]

Title: PM

If the Contractor does not sign acceptance of this order, his attention is directed to the requirements of the specifications as to the proceeding with the ordered work and filing a written protest within the time therein specified.

AUG 27 2024 12.2

ATTEST: KIMBERLY A. RECTOR, Clerk BY: [Signature] DEPUTY CLERK  
FORM APPROVED COUNTY COUNSEL BY: [Signature] LISA SANCHEZ DATE: 8/27/24

**RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES**

**Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill**

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**CONTRACT CHANGE ORDER NO. 2 *Continued***

Construction Drawing Sheets 17 and 18 – Sub-Canyon Stockpile (SCS): The grading plan for the SCS has been redesigned to increase the capacity of the stockpile to accommodate the remaining excavation volume of the P2S1 subgrade excavation at the time RCPS 1 became unstable.

2. A clay deposit was encountered while over-excavating the footing for RCPS 1. Clay from this deposit was tested and found to meet the project’s low permeability layer’s (LPL) hydraulic conductivity requirements. Because a clay source off the landfill property could not be located by the Contractor nor the County that meets project specifications for  $1 \times 10^{-7}$  permeability, the County directed the Contractor to excavate and stockpile the clay materials on site. The Contractor excavated approximately 17,670CY of clay, which is approximately 5,606CY more than what’s required for the project. The clay remaining after this project may be used in a future liner expansion project. County agrees to pay for the additional 5,606CY, since it may be used on future expansion projects. The Contractor and County agreed to a unit cost of \$14.98/CY, based on actual costs incurred by the Contractor, for a total additional payment of \$83,985.34, to be paid for under Bid Item No. 44 – Time and Materials. No increase to the total contract amount.
  
3. The Contract bid items for the Low Permeability Layers, Bid Item No. 13 – Construct 12” Thick  $1 \times 10^{-6}$  Low-Permeability Layer and Bid Item 14 – Construct 24” Thick  $1 \times 10^{-7}$  Low Permeability Layer, includes payment for clay purchase, clay haul, blending with onsite material, and compaction. With the material onsite meeting project specifications without blending, the new unit costs include excavating and stockpiling the material on site, v-doing, screening, hauling from the stockpile to the P2S1 floor, and compaction. The new total cost for Bid Item No. 13 shall be \$198,075.66 and the new total cost for Bid Item No. 14 shall be \$465,145.19. The total revised cost for Bid Item Nos. 13 and 14 is \$663,220.85. The original total cost for Bid Item Nos. 13 and 14 is \$734,649.00, therefore the change in material represents a cost decrease of \$71,428.15 to the contract.

The schedule of values shall be updated as follows:

<b>BID ITEM NO. 13 – CONSTRUCT 12” THICK <math>1 \times 10^{-6}</math> LOW-PERMEABILITY LAYER</b>						
13.01	LPL Material	31 3526.13 - Clay Containment Barriers	CY	\$14.98	3,603	\$53,977.74
13.02	LPL Construction (includes screening, hauling, & compaction)	31 3526.13 - Clay Containment Barriers	CY	\$39.99	3,603	\$144,097.92
<b>BID ITEM NO. 14 – CONSTRUCT 24” THICK <math>1 \times 10^{-7}</math> LOW-PERMEABILITY LAYER</b>						
14.01	LPL Material	31 3526.13 - Clay Containment Barriers	CY	\$14.98	8,461	\$126,757.04
14.02	LPL Construction (includes screening, hauling, & compaction)	31 3526.13 - Clay Containment Barriers	CY	\$39.99	8,461	\$338,388.15

4. Construction Drawing Sheets 4, 5, and 26 – Drainage Channel Demolition Length: Updated Construction Note 4 so that the open trap channel demolition length was both correct and consistent. The updated open trap channel demolition length is 703 feet.
  
5. Construction Drawing Sheet 6, 7, and 8 – Temporary Protective Membrane Channel Install: Approximately 158,896 square feet (SF) of temporary protective membrane channel along the intermediate benches and Northern Access Road (NAR) have been added to this project. Added Construction Note 111 calling out installation of temporary protective membrane channels. Updated the legend to include temporary protective membrane channels. Added temporary protective membrane patterning to drawing’s plan view.

Construction Drawing Sheet 50 - Detail 23A includes temporary protective membrane drainage

**CONTRACT CHANGE ORDER NO. 2** *Continued*

channel information for each intermediate bench.

Construction Drawing Sheet 52 – Updated Details 25A, 25B, 25C and 25D to include temporary protective membrane channel along Northern Access Road (NAR). Added Detail 25E and 25F to provide additional information regarding the temporary protective membrane channel along the North Access Road.

The County and Contractor have agreed to a unit price of \$1.11/SF, for an approximate total price of \$176,819.64. Temporary Protective Membrane Channels shall be paid out of Bid Item No. 44 – Authorized Time and Materials. This will not increase the Contract amount. An additional four (4) contract days have been added to account for this work.

6. Construction Drawing Sheet 21 – Updated Bench P Liner Termination Call Out: Added Construction Note 112 calling out the installation of a Bench P Liner Termination. Construction Note 112 corresponds to new Detail 15C, titled “Bench P Liner Termination,” found on sheet 42.

Construction Drawing Sheet 42 – Bench P Liner Termination: Added a cross section callout, Detail 15C, for the Bench P Liner Termination.

In place 16 oz/sy geotextile, 60-mil flexible membrane liner (single textured), and coated geocomposite clay liner quantities each increased by 354 square feet. Protective cover soil quantities increased by 7.5 cubic yards. Total cost increase to the Contract due to this change is \$1,267.80, spread out over Bid Item Nos. 17 – Furnish and Install 16oz/sy Geotextile, 20 – Furnish and Install 60-mil HDPE Liner (single sided), 16 – Furnish and Install Coated GCL Along the Side Liner System, and 32 – Construct 1” Minus PCS Layer.

7. Construction Drawing Sheet 22 – LCRS Drainage Gravel Windows and Drainage Gravel Thickness Increase: Updated Construction Note 50 to call out 12-inch (12”) thick gravel layer instead of a nine inch (9”) thick gravel layer. Added Construction Note 110 which states, “Install Gravel windows through 3” and 6” PCS Operations layers to 12” LCRS gravel drainage layer.” Updated the legend to include gravel window patterns.

Construction Drawing Sheets 40, 41 and 42 – LCRS Drainage Gravel Windows and Drainage Gravel Thickness Increase: Drainage gravel thickness has been increased from nine inches (9”) to 12-inches (12”). Drainage gravel windows have been added. The 8-oz geotextile placed over the eastern side of the gravel window over the LCRS header pipe shall be heat bonded to the 16 oz/sy geotextile along the side slope, approximately 827 linear feet.

The increase in drainage layer depth from nine inches (9”) to twelve inches (12”) increased Bid Item Nos. 22 – Furnish and Install 9” Thick Drainage Layer and 9 – Earthwork Excavation by 1,958CY each. This increases the total cost of the Contract by \$144,206.70.

The Contractor and County agreed to a unit cost of 155.81/LF for the gravel windows. There is approximately 1,800LF of gravel windows. The total approximate cost for the gravel windows is \$280,451.10 and shall be paid for under Bid Item No. 22.01 – Gravel Windows. ~~There is no increase to the Contract for gravel windows.~~

An additional ten (10) contract days have been added to the project to account for the additional work.

8. Construction Drawing Sheet 50 – Updated Detail 23A, Typical Intermediate Bench Liner System, added temporary protective membrane and sandbag anchoring along the toe of the intermediate benches, which increased the temporary protective membrane quantity by approximately 42,023SF.

Construction Drawing Sheet 52 – Updated Detail 25D to include side slope temporary protective

**RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES**

**Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill**

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**CONTRACT CHANGE ORDER NO. 2 *Continued***

membrane and sandbag anchorage, which increased the temporary protective membrane quantity by 4,876 square feet.

The total quantity increase of Bid Item No. 23 – Furnish and Install 8-mil Temporary Protective Membrane is 46,899SF, with a total cost increase of \$32,829.30. The addition of a temporary protective membrane anchor that is placed under the PCS creates a requirement for temporary anchorage of the temporary protective membrane and the sandbags and changes the sequence of construction for placement of one inch (1”) minus protective cover soil over the intermediate benches. The new requirement for anchorage and the change of construction sequence increases the cost of Bid Item No. 23 – Furnish and install 8-mil Temporary Protective Membrane by \$59,330.38. Therefore, the total Contract cost increase for Bid Item No. 23 – Furnish and Install 8-mil Temporary Protective Membrane will be \$92,159.68.

9. Construction Drawing Sheet 51 – Updated Detail 24A, Bench P – A.C. Road Improvement, by replacing the 6” tall, 4” thick AC drainage diversion dike with the 6” high A.C. curb from Detail 24D. Side Slope on Detail 24A and 24B changed to 2:1 slope. Updated Detail 24E, Bench P Tie-in with No Road, to include updated temporary protective membrane and sandbag anchoring information. The Contractor and County agreed to a cost difference of \$4,875, which shall be paid under Bid Item No. 44 – Authorized Time and Materials and does not increase the Contract cost.
10. The P2S1 QA/QC Plan’s Earthwork section has been updated to include alternative testing frequencies for soil stockpiles. The Badlands P2S1 Liner Expansion QA/QC Plan is modified as follows:

Page 16 Section 2.1.2, Earthwork – Testing & Observation; a portion is revised as follows:

<b>TEST</b>	<b>TEST DESIGNATION</b>	<b>TEST FREQUENCY</b>	<b>Project Minimum Value</b>
<b>Field Testing</b>			
In-place moisture/ density (nuclear)	ASTM D6938 or ASTM D2937	Every 1,000 cubic yards; a minimum of two per day or 5 per acre per lift; whichever comes first	90% or 93% of Maximum Dry Density; -2% OMC to +2% of OMC
In-place moisture/ density (nuclear)	ASTM D6938	Every 100 CY of base material	90% or 93% per project requirement of Maximum Dry Density and from 0% to 2% above OMC
<i>General engineered fill, in-place density and moisture content (sand cone)</i>	ASTM D1556 and ASTM D4643	One per every 5,000 cubic yards; or every 5 <sup>th</sup> nuclear test	90% or 93% of Maximum Dry Density; - 2% OMC to +2% of OMC
<i>Soil stockpile engineered fill, in-place density and moisture content (sand cone)</i>	<i>ASTM D1556 and ASTM D4643</i>	<i>One per every 10,000 cubic yards; or every 10<sup>th</sup> nuclear test</i>	<i>90% or 93% of Maximum Dry Density; - 2% OMC to +2% of OMC</i>



RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

CONTRACT CHANGE ORDER NO. 2 *Continued*

Visual Soil Classification	ASTM D2488	Continuous	---
<b>Laboratory Testing</b>			
<i>General engineered fill, Particle Size Analysis</i>	ASTM D6913 and/or ASTM 7928	Every 15,000 CY	---
<i>Soil stockpile engineered fill, Particle Size Analysis</i>	<i>ASTM D6913 and/or ASTM 7928</i>	<i>A maximum of 4 tests per soil stockpile</i>	---
<i>General engineered fill, Moisture Density Relationship</i>	ASTM D1557	One per every 15,000 cubic yards; or change of Material	---
<i>Soil stockpile engineered fill, Moisture Density Relationship</i>	<i>ASTM D1557</i>	<i>A maximum of 4 tests per soil stockpile</i>	---

11. The P2S1 QA/QC Plan’s Leachate Collection and Removal System & Drainage Layer section has been updated to include an alternative requirement to ASTM D3042 – Standard Test Methods for Insoluble Residue in Carbonate Aggregates. The Badlands P2S1 Liner Expansion QA/QC Plan is modified as follows:

a. Page 49 Section 7.3.2, Materials Properties Testing; is revised as follows:

The suppliers of LCRS drainage materials shall provide laboratory test results showing compliance with material Specifications provided in the Contract Documents. In addition, minimum testing by the QA/QC Manager shall consist of at least one (1) particle-size analysis (ASTM D422) per material source prior to placement of material and at least one (1) test per 1,000 cubic yards during placement. In addition, at least one (1) permeability test by ASTM D2434 and ASTM 3042 shall be performed on each drainage material sources. *A material quality certification accompanying ASTM 2434 test results would suffice in lieu of ASTM 3042 test results if carbonate aggregates are not present in the drainage gravel.*

12. The P2S1 geomembrane interface shear and electronic leak location testing has been removed from the Contractor’s scope of work. The Contractor and County agreed to a credit of \$34,660, to be applied to Bid Item No. 44 – Authorized Time and Materials. The Contractor is required to facilitate the interface shear and electronic leak location testing for the QAQC consultant who will be performing the testing. The Badlands Landfill P2S1 Liner Expansion Detailed Provision 31 3526.16 – Geomembrane Waste Containment is modified as follows:

a. Page 10 Section 2.03.B.1, Interface Shear Strength; a portion of this section is revised as follows:

~~The Contractor~~ *QA/QC Consultant* shall submit proof of a successful direct shear testing program for acceptance by the County prior to shipment of any material (FML, GCL, and geotextile) to the job site. All testing shall be performed in accordance with procedures provided below and during the early stage of the earthwork. The testing shall be performed by a laboratory approved *by the QA/QC consultant* for conformance interface direct shear testing. A test report shall be submitted with complete testing results from the laboratory.

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CONTRACT CHANGE ORDER NO. 2 *Continued*

- b. Page 10 Section 2.03.B.2, Interface Shear Strength; a portion of this section is revised as follows:

The cost of this shear strength interface testing *shall be borne by the County.* ~~and The shipment cost of the material to the testing laboratory shall be borne by the Contractor.~~

- c. Page 19 Section 3.06.A.6, Field Quality Control; a portion of this section is revised as follows:

An appropriate ELL survey method should be proposed by the ~~Contractor~~ *QA/QC Consultant* and approved by the County for performing ELL surveys on composite-lined benches and the geomembrane layers of the leachate collection and removal system. The proposed ELL method shall be equivalent to a dipole method ASTM D7007 or ASTM D8265 for covered geomembrane.

A certified third-party ELL contractor shall be hired by the ~~Contractor~~ *Consultant*. The ELL contractor's work should be aided ~~and supervised~~ by the Contractor *and supervised by the QA/QC Consultant*. ~~The QA/QC Consultant shall document and his work products should be documented in a peer reviewed report~~ the ELL Survey. ~~The QA/QC Consultant shall submit the ELL survey or testing plan and surveyed completion report shall be submitted to the County and QA/QC Manager for review and acceptance.~~

- d. Page 20 Section 3.06.A.6.b.1, Electronic Leak Location Execution; a portion of this section is revised as follows:

The ELL Contractor shall provide installation instruction for any permanent ground wire (supplied by the ~~Contractor~~ *ELL Contractor or QA/QC Consultant*) used for the leak detection surveys.

13. The gravel drainage layer permeability has been increased from 0.1 cm/s to 1.0 cm/s. The Badlands Landfill P2S1 Liner Expansion Detailed Provision 33 4623.16 – Gravel Drainage Layer is modified as follows:

- a. Page 1 Section 1.01.A.1 Work; this section is revised as follows:

The Contractor shall furnish all labor, materials, tools supervision, transportation, and installation equipment necessary for the construction of the *leachate collection and removal system's* gravel drainage layer as specified herein, as shown on the Drawings, and in accordance with the Construction Quality Assurance / Quality Control (QA/QC) Plan.

- b. Page 1 Section 1.02.B.1 Reference Standards; this section is revised as follows:

- a) ASTM C136/D 422 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- b) ASTM D2434-22 – Standard Test Method for *Measurement of Hydraulic Conductivity of Coarse-Grained Soils* ~~Sieve Analysis of Fine and Coarse Aggregates~~

- c. Page 2 Section 1.03.A Definitions; this section is revised as follows:

Gravel Drainage Layer: This term is defined as a layer of gravel material with a hydraulic conductivity equal to or greater than ~~0.1~~ *1.0* cm/sec.

**CONTRACT CHANGE ORDER NO. 2** *Continued*

- d. Page 2 Section 1.04.1 Submittals; parts of this section are revised as follows:
  - b) The results of a particle-size analysis on the proposed material, conducted in accordance with ASTM C136/D 422.
  - c) The results of a permeability test, conducted on the proposed material in accordance with ASTM D2434-22.
- e. Page 3 Section 2.01 Material for Gravel Drainage Layer; this section is revised as follows:
  - A. The ~~gravel~~ material shall ~~be~~ consist of washed gravel with a 1/2-in maximum particle size, free of any metals, roots, trees, stumps, concrete, construction debris, or any other organic matter or deleterious material.
  - B. The gravel shall consist of clean, rounded, well-graded, hard, durable particles with a hydraulic conductivity of 1 cm/sec or greater as verified by ASTM D2434 test method.
  - C. The gravel shall be classified as GW or GP in accordance with the Unified Soil Classification System.
  - D. The gravel drainage layer shall meet the following gradation requirements as required by sieve analysis (ASTM C136/ D 422):

U.S. Standard Sieve	PERCENT PASSING BY WEIGHT
1/2 inch	100
3/8 inch	85-100
No. 4	0-30
No. 8	0-10
No. 200	0-1

Permeability 01.40 cm/sec or greater

- E. The gravel shall have less than 10 percent weight loss, when tested according to ASTM D 3042-17 (using a solution pH = 4). *A material quality certification accompanying ASTM 2434-22 test results would suffice in lieu of ASTM 3042-17 test results.*
- f. Page 3 Section 3.01.D Material for Gravel Drainage Layer; this section is revised as follows:
 

Any damage or excessive wrinkles/folds in the geotextile *and geomembrane* in the opinion of the County and QA/QC Consultant, caused during placement of drainage material shall be repaired at the Contractor's expense before proceeding with further placement. Any material displaced by any action of the Contractor shall be replaced at the Contractor's expense to the lines and grades shown on the Project Drawings. No vehicles shall drive on uncovered geotextile.

14. The Riverside County Department of Waste Resources (RCDWR) uses an average of 1,000 cubic yards of earthen material for cover per day at the Badlands Sanitary Landfill. The access road to

**RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES**

**Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill**

Sheet 8 of 9

**CONTRACT CHANGE ORDER NO. 2 *Continued***

and source of daily cover (“borrow area”) is within the Project Limits that contains construction activity for the remainder of the project. In addition, due to low field staffing at the Badlands Sanitary Landfill and to the additional time to travel through the project area to access the borrow area, the County is directing the Contractor to continue the daily cover haul in accordance with Detailed Provisions 32 2300 Section 3.08, which requires the Contractor to provide daily cover through construction of the project. However, the Contract Bid Item List did not provide a bid item for compensating the Contractor for providing daily cover after the completion of the mass excavation and additional cost must be added to the Contract.

The County requested a unit cost for providing daily cover past the completion of the mass excavation and the Contractor provided a unit cost of \$8.00/CY. The County independently estimated the unit cost of daily cover and found the cost to be approximately \$8.00/CY. Therefore, the County accepts the Contractor’s unit cost of \$8.00/CY.

The Badlands Sanitary Landfill is open an average of 25.5 days per month and uses an average 1,000 cubic yards of earthen material per day for cover. Over the remainder of the project, which is expected to last seven months from the completion of the mass excavation at the end of June 2024, the total estimated requirement of daily cover is expected to not exceed 178,500CY. Therefore, the not-to-exceed amount for the daily cover haul is \$1,428,000.

Should RCDWR be able to run equipment through the project site to access the borrow area *and* have sufficient staff to dedicate operators to hauling daily cover over the extended haul route, then RCDWR shall haul daily cover material instead of having the Contractor haul daily cover.

Badlands Landfill P2S1 Liner Expansion Construction Change Directives to the project drawings are as follows:

1. Construction Drawing Sheet 50 – Anchor Trench Width: On Detail 23A clarified that the anchor trench width is to be three feet (3ft), instead of twelve feet (12ft), to match the detailed provisions.
2. Construction Drawing Sheet 50 – Leachate Tank & Tank Pad: On Detail 23D and 23E called out the engineered fill slopes leading up to the top of the tank pad and the concrete tank pad finished floor elevation.

Change Order No. 2 increases the total Contract by \$2,254,157.13, as summarized in the table below. The total contract amount increases from \$33,363,750.009.72 to ~~\$35,617,907.13~~ \$35,617,916.85. The length of the contract has increased by 14 working days, from 419 working days to 433 working days.

Item No.	Description	Increase to the Contract
1	Excavation Surcharge	\$379,500.00
2	Stockpile Additional Clay Material	\$0.00
3	LPL Material and Processing	- \$71,428.15
4	Correct the Demolition Length	\$0.00
5	Temporary Membrane Channel Install	\$0.00
6	Liner Tie-In on Bench P	\$1,267.80

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Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill

Sheet 9 of 9

**CONTRACT CHANGE ORDER NO. 2** *Continued*

7	LCRS Drainage Layer and Windows	\$424,657.80
8	Temporary Membrane Tie-in Adjustment	\$92,159.68
9	Curb and Engineered Fill for the Road Adjustment	\$0.00
10	CQA/QC Testing Frequencies	\$0.00
11	Drainage Gravel Testing Adjustment	\$0.00
12	Interface Shear and ELL Testing	\$0.00
13	Drainage Gravel Permeability	\$0.00
14	Daily Cover Haul	\$1,428,000.00
<b>Total =</b>		\$2,254,157.13

All other terms and conditions of the Contract Documents shall remain unchanged.

**Attachments:**

Attachment No.1 – Updated Project Drawings

Attachment No.2 – Updated Detailed Provisions

Attachment No.3 – Updated QA/QC Plan

PD#320348v3(word)

PD#333387v1 (pdf)

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill

Sheet 1 of 11

CONTRACT CHANGE ORDER NO. 1

To: Sukut Construction, LLC., Contractor, you are hereby directed to make the herein described changes from the plans and specifications or to do the following described work not included in the plans and specifications.

NOTE: THIS CHANGE ORDER IS NOT EFFECTIVE UNTIL APPROVED BY THE GENERAL MANAGER-CHIEF ENGINEER OF THE DEPARTMENT OF WASTE RESOURCES AND THE BOARD OF SUPERVISORS OF RIVERSIDE COUNTY.

Description of work to be done, estimate of quantities, and prices to be paid. Unless otherwise stated, rates for rental of equipment cover only such time as equipment is actually used and no allowance will be made for idle time. Change requested by Riverside County:

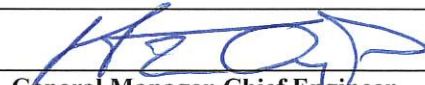
The Phase 2, Stage 1 Liner Expansion Change Order No. 1 contains both detailed provisions and plan clarifications that do not involve contract adjustments and work modifications that will involve contract adjustments. Detailed provisions and project drawing clarifications that do not involve contract adjustments shall be considered "Construction Change Directives." Language deleted from Contract Documents shall be denoted by ~~strike through~~. Language added to Contract Documents shall be denoted by *italics*. The County has changed the scope of work of the Badlands Landfill P2S1 Liner Expansion project as follows:

1. Working hours shall be adjusted from 7AM to 3:30PM to 6AM to 4:30PM, increasing the daily work hours from eight hours (8hrs) to ten hours (10hrs). Any additional costs from CQA/QC and biological, paleontological, and tribal monitoring for the two additional hours shall be credited back to the County. The following contract sections shall be adjusted:
  - o Administrative Provisions, Construction Agreement Section 5 – Contract Time for Completion and Liquidated Damages:

**Contract Time for Completion and Liquidated Damages.** The Contractor shall diligently and continuously prosecute the entire Project to Final Completion before the expiration of 414 Working Days from the date of the Contractor's receipt of the Notice to Proceed, as may be modified by a Change Order or Construction Change Directive. The number of Working Days charged to the Contractor shall be as set forth in Section 4.2 of the Special Provisions.

Cost: Decrease - \$ 0 or Increase \$ \_\_\_\_\_

By reason of this order the time of completion will be adjusted as follows: 5 days

Submitted by: _____	Date: _____
Approved by:  _____ General Manager-Chief Engineer Department of Waste Resources	Date: <u>11/20/23</u>
_____ Chairman, Board of Supervisors	Date: _____

We, the undersigned Contractor, have given careful consideration to the change proposed and hereby agree, if this proposal is approved, that we will provide all equipment, furnish all materials, except as may be otherwise noted above, and perform all services necessary for the work above specified, and will accept as full payment therefore the prices shown above.

Accepted:	Date: <u>12.5.2023</u>	Contractor: 
By: _____		Title: <u>PM</u>

If the Contractor does not sign acceptance of this order, his attention is directed to the requirements of the specifications as to the proceeding with the ordered work and filing a written protest within the time therein specified.

FORM APPROVED COUNTY COUNSEL  
BY: Lisa Sanchez 11/15/2023  
DATE

**CONTRACT CHANGE ORDER NO. 1** *Continued*

The length of each Working Day shall be from 6:00 AM to 4:30 PM, including *one half* hour for lunch break, unless otherwise approved in writing by the County.

- o General Provisions, Section 6-4.2.3. Prescribed Calculations for Adjustments to the Contract Time:

Contractor may claim an Excusable Delay for a full Working Day only if all Work on a critical path activity is stopped for more than ~~six-seven (67)~~ hours of a normal ~~eight (8)~~ *ten (10)* hour Working Day, and for a half-Working Day only if all Work on a critical path activity is stopped for ~~three-four (34)~~ to ~~six-seven (67)~~ hours of such a normal Working Day. No Excusable Delay may be claimed if all Work on a critical path activity is stopped for less than ~~three-four (34)~~ hours of such a normal Working Day. Similarly, where Deleted Work results in the projected avoidance of the need to perform more than ~~six seven (67)~~, or between ~~three-four (34)~~ to ~~six-seven (67)~~ of all Work on a critical path activity on such a normal Working Day, the Contract Time shall be contracted by a full Working Day or half-Working Day, respectively.

2. Construction Drawing Sheet 41 – B3 to B2 Liner Bottom Transition: The top 60-mil HDPE flexible membrane liner (FML) now extends two feet (2ft) past the bottom liner transition and shall be extrusion welded to the lower 60-mil HDPE FML. The length of the transition is 310 feet.
3. UV resistant sandbags and rope material requirements have been added to Detailed Provision 31 3527 – Temporary Protective Membranes. The UV resistant sandbags and rope material requirements are found on Page 3, Section 2.02.A as follows:

*Sandbags shall be Duraskrim 8BBR ultra violet resistance or approved equal. Ropes used to secure the sandbags shall be rated at 700 lb (ultra violet resistance twisted polypropylene rope or approved equal). Placement and type of anchor for the rope shall be accepted by the County and the QA/QC Consultant prior to use.*

Badlands Landfill P2S1 Liner Expansion Construction Change Directives to the project drawings are as follows:

1. Construction Drawing Sheet 3 – Existing Liner Limits: Removal of redundant “Existing HDPE Liner Limits” from the legend. Update of “Existing Liner Limits” line.
2. Construction Drawing Sheets 4, 5, 6, 7, 9, 10, 12, 13, 15, 16, 20, 21, 22, 23, 24, 25, 26, and 27 – Existing Liner Limits: Changed “Existing HDPE Liner Limits” to “Existing Liner Limits.” Updated the line styling of the Existing Liner Limits.
3. Construction Drawing Sheet 3 – Proposed Liner Limits: Added proposed liner limits callout to the sheet’s legend.
4. Construction Drawing Sheets 6, 7, and 8 – Surface Drainage Flows: Added surface drainage flows directions to each sheet.
5. Construction Drawing Sheet 10 – Bench Labels: Added labels for each bench.
6. Construction Drawing Sheet 15 – Construct Reduced Cycle Park Stockpiles (RCPS) 1 and 2 Key-Ins: Added a construction note for the construction of Key-Ins for RCPS 1 and 2.
7. Construction Drawing Sheet 19 – Lateral Longitudinal Slope: Added construction note 108: “LCRS lateral lines shall have a longitudinal fall of -1%”.
8. Construction Drawing Sheet 19 – 24” Low-Permeability Layer: Corrected detail callout for the 24”

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Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill

Sheet 3 of 11

CONTRACT CHANGE ORDER NO. 1 *Continued*

thick  $1 \times 10^{-7}$  cm/sec Low-Permeability Layer.

9. Construction Drawing Sheet 19 – Liner Transition: Added a detail callout for the B3 to B2 liner bottom section transition.
10. Construction Drawing Sheets 20 and 21 – Match Line: Updated the match line to properly call out the correct sheet.
11. Construction Drawing Sheets 20 and 21 – Sheet Title: Updated the sheet title to include 12oz geotextiles.
12. Construction Drawing Sheet 21 – Roadway Callouts: Updated the roadway cross section callouts to match the roadway details' stationing.
13. Construction Drawing Sheet 21 – Bench Liner Termination: Added detail callouts for bench liner terminations.
14. Construction Drawing Sheet 22 – Liner Toe Transition: Updated the detail callout for the base liner transition.
15. Construction Drawing Sheet 22 – LCRS Components: Added the LCRS tank, sump pump assembly, valve box, and dual containment line locations.
16. Construction Drawing Sheet 23, 24 and 26 – Road Cross Section Callout: Updated the roadway cross-section callouts to match the roadway detail stationing.
17. Construction Drawing Sheet 27 – Road Cross Section Callouts: Updated construction note 108 and roadway cross section callouts to match the roadway detail stationing.
18. Construction Drawing Sheet 40 and 41 – Temporary Protective Membrane Tie-In: Details 13C, 13D, 14C and 14D reference temporary protective membrane tie-in to protective cover soil detail 13F.
19. Construction Drawing Sheet 42 – Liner Termination PCS: Clarified that the backfill material in detail 15B, behind the termination of the liner, is one inch (1") maximum particle size.
20. Construction Drawing Sheet 43 – Side Slope Geosynthetics Tie-in: Details 16D and 16I now show the edges of the existing and new geosynthetics sewn together.
21. Construction Drawing Sheet 44 – Tie-in into Existing Anchor Trench: Removed detail 17D, renamed detail 17A, and changed the PCS slope on Bench P from 3% to "Slope per Plan". Detail 17A now applies to all existing anchor tie-ins.
22. Construction Drawing Sheet 45 – Side Slope Clean Out Line: The PCS thickness over the side slope cleanout line was increased from two feet (2') to three feet (3') on detail 18B to be consistent with other details.
23. Construction Drawing Sheet 51 – Detail Callouts: The callout for the existing channel on Details 24A and 24B was updated from 1D/24 to 1D/28. The Roadway Width Transition Table for detail 24B was updated. The earthwork sheet references in detail 24F were updated.
24. Construction Drawing Sheet 51 and 52 – Anchor Trench PCS: Details 24E, 25B, and 25D have been updated to include a maximum particle size of 1" for the anchor trench PCS.
25. Construction Drawing Sheet 51 – Bench P Tie-in: In detail 24E, added a callout referencing detail 17A/44 for joining new liner to existing liner system at the anchor trenches.

Construction Change Directives to the detailed provisions are as follows:



RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill

Sheet 4 of 11

CONTRACT CHANGE ORDER NO. 1 *Continued*

Badlands Landfill P2S1 Liner Expansion Construction Change Directives to Detailed Provision 31  
3526.13 – Clay Containment Barriers are as follows:

1. Page 1, Section 1.02.2, Quality Assurance; this section is revised as follows:  
~~QA/QC testing shall be conducted in accordance with the QA/QC plan. County will procure Testing/Inspection Provider services, for quality assurance testing during earthwork operations.~~
2. Page 5, Section 3.05, Spreading and Placement of the LPL; this section is revised as follows:  
~~Placement and construction of the LPL shall begin after the County has accepted the construction procedures for the LPL placement and the County Surveyor has verified the constructed subgrade. Placement of the mixed "clay and regular" material for the construction of the LPL shall begin after the County Surveyor has verified the constructed subgrade.~~ The clay material shall be imported, blended, and then uniformly spread on the prepared and scarified subgrade surface in thin, horizontal lifts (parallel to the bottom of the landfill) lifts with a maximum un-compacted thickness not to exceed eight (8) inches. Each layer shall be thoroughly mixed to obtain a near uniform condition in each layer. In areas of excess lift thickness, re-grading of the surface to the maximum lift thickness will be completed prior to proceeding with compaction in that area. Removal of oversize particles (greater than one inch) shall be performed on the fill by approved rock rakes or other equipment, as accepted by the County and QA/QC Consultant. Any clay clods greater than one inch shall be broken down by suitable equipment.

Badlands Landfill P2S1 Liner Expansion Construction Change Directives to Detailed Provision 33  
4626.13 – Geotextiles for Geomembrane Cushioning are as follows:

1. The Table of Contents title is revised as follows: ~~GEOTEXTILES SUBSURFACE DRAINAGE FILTRATION~~
2. Page 1, the Detailed Provision title has been revised as follows:  
~~GEOTEXTILES FOR GEOMEMBRANE CUSHIONING~~
3. The bottom, right portion of the footer on each page has been revised as follows: ~~GEOTEXTILES FOR GEOMEMBRANE CUSHIONING~~
4. Page 1, Section 1.01.A.1, Summary; this section is revised as follows:  
This section covers the work necessary to furnish and install the geotextile fabrics. The intent of these specifications is to provide protection to Geomembrane and act as a *filter fabric filtration barrier* for the LCRS gravel system.
5. Page 1, Section 1.01.B, Summary; this section is revised as follows:
  1. Division 01 - General Requirements
  2. Section 31 2323.14 Protective Soil Cover Layer
  3. Section 31 3526.16 Geomembrane Waste Containment
  4. Section 31 3527 Protective Membrane
6. Page 1, Section 1.02.A.1, Quality Assurance; this section is revised as follows:
  - a. ASTM D1777-96(2007) – Standard Test Method for Measuring Thickness of Textile Materials
  - b. ASTM D3776-09a - Standard Test Method for Weight (Mass) per Unit area of Fabric
  - c. ASTM D4354-99(2009) - Standard Test Method for Practice for Sampling of Geotextiles for Testing
  - d. ASTM D4355-07 - Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Zenon-Arc Type Apparatus)

**RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES**

**Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill**

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**CONTRACT CHANGE ORDER NO. 1 *Continued***

- e. ASTM D4491-99a(2009) – Standard Test Methods for Water Permeability of Geotextiles by Permittivity
  - f. ASTM D4533-04(2009) - Standard Test Method for Trapezoid Testing Strength of Geotextiles
  - g. ASTM D4632-08 – Standard Test Method for Breaking Load and Elongation of Geotextiles (Grab Method)
  - h. ASTM D4751-04 – Standard Test Method for Determining Apparent Opening Size of a Geotextile
  - i. ASTM D4833-07 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembrane, and Related Products.
  - j. ASTM D4759-02 (2007) - Standard Practice for Determining the Specification Conformance of Geosynthetics
  - k. ASTM D4873-02 (2009) – Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls
  - l. *ASTM D4884 – Standard Test Method for Strength of Sewn or Bonded Seams of Geotextiles*
  - m. ASTM D5261-10 (2018) – Standard Test Method for Measuring Mass per Unit Area of Geotextiles
  - n. ASTM D6241-04 (2009) - Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe
7. Page 3, Section 1.04.C, Submittals; this section is revised as follows:  
The Contractor shall also submit complete details and/or methods for anchoring the geotextile at its perimeter and making field sewn seams *and repairs*.
8. Page 3, Section 1.04, Submittals; this section is revised to include the following:  
*F. The Contractor provided geotextile, thread, and sewn geotextile field samples for QA/QC purposes per section 1.06B.*
9. Page 5, Section 2.01.A.2, Geotextile; The testing frequency column was removed from the geotextile specification table as follows:

Property	Test Method	Value 8 oz.	Value 12 oz.	Value 16 oz.	QA/QC Conformance Testing Y/N
Mass per unit Area, oz/sy	ASTM D5261	8	12	16	Y
Apparent Opening Size, US Std. Sieve	ASTM D4751	70-140	70-140	70-140	Y
Permittivity, sec <sup>-1</sup>	ASTM D4491	0.7-1.3	0.7-0.8	0.6-0.7	Y
Puncture Strength, lbs	ASTM D4833	120	190	240	Y

**RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES**

**Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill**

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**CONTRACT CHANGE ORDER NO. 1 Continued**

Trapezoidal Tear Strength, lbs	ASTM D4533	90	125	150	Y
Grab Tensile/Elongation, lbs/%	ASTM D4632	220/50	320/50	390/50	Y
UV Resistance – 70% Strength Retained, hrs	ASTM D4355	500	500	500	N

10. Page 8, Section 3.02.H, Installation; this section is revised to include the following:  
*In cases where alternative seaming methods and materials are proposed a minimum seam strength or seam efficiency (seam to parent material strength) of 65% per ASTM D4884 (Standard Test Method for Strength of Sewn or Bonded Seams of Geotextiles) is required for acceptance.*

Badlands Landfill P2S1 Liner Expansion Construction Change Directives to the QA/QC Plan are as follows:

1. Page 14, Section 2.1.1.e, General; this section is revised as follows:

Engineered fill shall be placed to achieve final design grades and elevations, and to establish subgrade for geosynthetic liner and aggregate base. Generally, on-site soil obtained from within project grading limits may be used for the construction of the compacted engineered fill. Processing may be needed to bring on-site soils into compliance with the project specifications. QC procedures for these materials will include visual verification that the materials do not include organic matter, oversize particles, or other deleterious or unsuitable materials prior to use. Particle size below the top two (2) feet of engineered fill shall not exceed six (6) inches within the Project Grading Limits. *Additional engineered fill requirements may be found in Detailed Provisions 31 2300 – Earthwork and 2216 – Fine Grading.*

2. Page 16, Section 2.1.2, Testing & Observation; The laboratory and field-testing table is revised as follows:

TEST	TEST DESIGNATION	TEST FREQUENCY	Project Minimum Value
<b>Field Testing</b>			
In-place moisture/density (nuclear)	ASTM D6938 or ASTM D2937	Every 1,000 cubic yards; a minimum of two per day or 5 per acre per lift; whichever comes first	90% or 93% of Maximum Dry Density; -2% OMC to +2% of OMC
<i>In-place moisture/density (nuclear)</i>	<i>ASTM D6938</i>	<i>Every 100 CY of base material</i>	<i>90% or 93% per project requirement of Maximum Dry Density and from 0% to 2% above OMC</i>
	ASTM D1556	One per every \$10,000	90% or 93% of Maximum Dry Density;

**RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES**

**Project: Phase 2 Stage 1 Liner Expansion Project at the Badlands Landfill**

Sheet 7 of 11

**CONTRACT CHANGE ORDER NO. 1 Continued**

In-place density and moisture content (sand cone)	and ASTM D4643	cubic yards; or every 5 <sup>th</sup> 10 <sup>th</sup> nuclear test	- 2% OMC to +2% of OMC
Visual Soil Classification	ASTM D2488	Continuous	---
<b>Laboratory Testing</b>			
Particle Size Analysis	ASTM D6913 and/or ASTM 7928	Every 15,000 CY	---
Moisture Density Relationship	ASTM D1557	One per every 15,000 cubic yards; or change of Material	---

3. Page 18, Section 3.2, Low Permeability Layer Material and Processing; this section is revised as follows:

The blend of material to be used in the LPLs shall be determined after the contractor provides an off-site source of clay. The blended material shall consist of clay from on offsite dirt haul with excavated material from the project limits. *The QA/QC Consultant shall determine which clay and on-site soil blending ratios are adequate for each portion of LPL. There are two different sections of LPL; one section requires a hydraulic conductivity of 1x10<sup>-6</sup> cm/sec and the other 1x10<sup>-7</sup> cm/sec.* The Contractor shall process off-site clay material and onsite excavated material, at the blending ratios determined by the QA/QC consultant, to remove particles and break down clods larger than one inch (1") in greatest dimension and moisture condition the material to within the required moisture range. The QA/QC Monitor shall monitor the processing of this material.

4. Page 19, Section 3.5, rows 5 and 8 of the Low Permeability Layer Material and Processing table are revised as follows:

Laboratory Hydraulic conductivity - (Shelby tube)	ASTMD5084	$\leq 1 \times 10^{-6}$ cm/sec and $\leq 1 \times 10^{-7}$ cm/sec	One test per 2,500 cy or one per change of material type; (4 total)	3
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Field hydraulic conductivity	BAT™ Test	$\leq 1 \times 10^{-6}$ cm/sec and $\leq 1 \times 10^{-7}$ cm/sec	One test per 1,000 cy (7 total)	3
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5. Page 21, Section 3.6.3, Permeability; The last paragraph is revised as follows:

*Depending on the portion of LPL, if the hydraulic conductivity exceeds 1x10<sup>-6</sup> cm/sec or 1x10<sup>-7</sup> cm/sec as defined by ASTM D5084, the area represented by the test will be considered inadequate and will be removed or reprocessed and re-compacted. Acceptance of the re-built area will be based on the results of the retest consistent with permeability requirements.*

CONTRACT CHANGE ORDER NO. 1 *Continued*

6. Page 23, Section 4, the section has been renamed ~~COATED~~ GEOSYNTHETIC CLAY LINER (GCL).

7. Page 23, Section 4.1, General; the first paragraph has been revised as follows:

Prior to shipment of ~~coated~~ GCL (*GCL-coated and non-coated*) materials, the Contractor shall provide the County and/or the QA/QC Consultant with the GCL manufacturer's QA/QC certifications for each shipment of GCL. The certification shall be signed by a responsible party employed by the manufacturer such as the Production Manager or Technical Service Manager.

8. Page 26, Section 4.5.2.e, Placement; this section has been revised as follows:

Observe and document the GCL as it is placed and record all defects; all *placement and* repairs are to be made in accordance with the Specifications.

9. Page 31, Section 5.3.1, Tests; the last paragraph is revised as follows:

At least one (1) interface shear strength conformance test shall be performed in accordance with the project specification for ~~the each~~ bottom liner system *only section* (shear strength of the bottom liner only controls stability). Where optional procedures are noted in the test method, the requirements of the Specifications shall prevail.

10. Page 32, Section 5.3.4, Multilayer Interface Shear Testing; the last two paragraphs are revised as follows:

For the respective ~~side slope~~ liner system *direct interface shear strength testing*, the approved laboratory shall report: (i) interface peak and large-displacement shear strength parameters (friction angle and adhesion); (ii) normal stress applied during testing; (iii) displacement corresponding to the peak and large-displacement shear strength parameters evaluated; and (iv) interface along which sliding occurred.

~~For this project, the interface shear strength parameters shall be established in accordance with the procedures described in Thiel et al. [2001]<sup>1</sup>. Interface shear strength parameters shall be according to the Detailed Provision 31 3526.16 – Geomembranes Waste Containment.~~

11. Page 32, Section 5.3.4, Multilayer Interface Shear Testing; The footnote has been deleted.

12. Page 45, Section 6.5.1, Surface Preparation; has been revised as follows:

Prior to installation of *cushion and filter* geotextiles on the Canyon Floor (over the *FML and* LCRS drainage layer), the Contractor, Geosynthetics Subcontractor, Resident Engineer, and QA/QC Monitors shall verify that:

- a. *All installation of FML seaming and repairs has been completed and documented.*
- b. All lines and grades have been verified by a qualified surveyor.
- c. The supporting surface does not contain any oversize particles or other sharp objects that could damage the geotextile.
- d. All construction stakes and hubs have been removed and the resulting holes have been properly filled.
- e. The Contractor has certified in writing that the surface on which the geotextile shall be installed is acceptable.

CONTRACT CHANGE ORDER NO. 1 *Continued*

13. Page 47, Section 6.5.2.i; this section has been revised as follows:

Verify that the adjacent panels of geotextile are overlapped a minimum of three-inches (3") for *sewn seams and six-inches (6") for heat-bonded seams and properly seamed in accordance with the specifications.*

14. Page 51, Section 8.1.C, General; this section has been revised as follows:

Soil material placed on top of the geosynthetics should be stockpiled and pushed off the stockpile to create a cascading effect of the cover material on top of the geosynthetics; or otherwise, be placed with a front-end loader. *The County's "Procedures for Protective Cover Soil Placement on Lined Side Slopes at the Badlands Sanitary Landfill," updated June 16, 2021 should be followed.*

15. Page 52, Section 8.1.I, General; this section has been added as follows:

*Removal of the existing protective cover soil layer from geosynthetics at liner tie-in shall be performed in accordance with the County's "Procedures for the Removal of Protective Cover Soil (PCS) Material at the Badlands and Lamb Canyon Sanitary Landfills, dated January 2007".*

This Contract Change Order is estimated to cost \$4,555.00 (Refer to Attachments No. 6 for Sukut's Costs) and shall be paid for under Bid Item No. 44 – Authorized Time and Materials. All other terms and conditions of the Contract Documents shall remain unchanged.

**Attachments:**

- Attachment No.1 – Updated Administrative Provisions
- Attachment No.2 – Updated General Provisions
- Attachment No.3 – Updated Project Drawings
- Attachment No.4 – Updated Detailed Provisions
- Attachment No.5 – Updated QA/QC Plan
- Attachment No.6 – Letter from Sukut

PD#317974v4(word)

PD#322494v1 (pdf)

## Attachment C: Change Order Report

NUMBER	AMOUNT	PERCENT	DESCRIPTION
Original Contract	\$33,363,759.72		
CO 1	\$0	0%	Initiated by County; adjustments to the Detailed Provisions and Project Drawings as requested by the Regional Water Quality Control Board – Santa Ana Region.
CO 2	\$2,254,157.13	6.76%	Initiated by County; adjustments to the Detailed Provisions and Project Drawings as requested by the Regional Water Quality Control Board – Santa Ana Region.
	\$35,617,916.85	6.76%	