

EXHIBIT A to Consultant Agreement

1 By _____ Dated: _____

2 Chairman, Board of Supervisors

3

4

5 RECOMMENDED FOR APPROVAL:

6

7 By _____ Dated: _____

8 Hans Kernkamp, General Manager - Chief Engineer
9 Waste Management Department

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13 PD# 71658v2

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SAMPLE

EXHIBIT A to Consultant Agreement

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Attachment F

Waste Discharge Requirements

Order No. 01-18 for Lamb Canyon Landfill
Order No. R8-2007-0044 for Lamb Canyon Landfill
Order No. R8-2002-0085 for Badlands Landfill

EXHIBIT A to Consultant Agreement

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EXHIBIT A to Consultant Agreement
California Regional Water Quality Control Board
Santa Ana Region



W. **Don H. Hickox**
*Secretary for
Environmental
Protection*

Internet Address: <http://www.swrcb.ca.gov/rwqcb8>
3737 Main Street, Suite 500, Riverside, California 92501-3348
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March 7, 2001

01 MAR 12 PM 2:39
COUNTY OF RIVERSIDE
WASTE MANAGEMENT

Mr. Robert Nelson
General Manager - Chief Engineer
Riverside County Waste Management Dept.
1995 Market Street
Riverside, CA 92501-1779

TRANSMITTAL OF ADOPTED ORDER NO. 01-18

Dear Mr. Nelson:

At the regular Board Meeting held on March 2, 2001, the Regional Board adopted Order No. 01-18 amending the existing waste discharge requirements, Orders No. 81-127 and 98-99. A certified copy is enclosed for your records.

Sincerely,

GERARD J. THIBEAULT
Executive Officer

Enclosure: Adopted Order No. 01-18

c. State Water Resources Control Board, Division of Water Quality,
United States Environmental Protection Agency, W-5-1, Permits Section, Terry Oda

/bjl

EXHIBIT A to Consultant Agreement

California Regional Water Quality Control Board
Santa Ana Region

ORDER NO. 01-18

Amending Waste Discharge Requirements for
Lamb Canyon Landfill
Riverside County Waste Management Department

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter Regional Board), finds that:

1. The Riverside County Waste Management Department (hereinafter discharger) owns and operates the Lamb Canyon Landfill, located at 16411 Lamb Canyon Road (Highway 79). This landfill is located in a portion of Sections 21, 28, and 29, T3S, R1W, SBB&M, at latitude 33°52'30" and longitude 117°0'0". The location of the facility is shown on Attachment A, which is hereby made a part of this order. The landfill site currently encompasses 1,088 acres, 178 acres of which are currently being developed as waste management unit.
2. On June 12, 1981, Order No. 81-127 was adopted by the Regional Board for landfill operations at the site. Order No. 81-127 contains discharge requirements, provisions, and monitoring and reporting requirements that require the discharger to design and operate the landfill in accordance with Chapter 15, Division 3, Title 23, California Code of Regulations (Chapter 15). Effective June 18, 1997, Chapter 15 was replaced by Title 27, California Code of Regulations (Title 27), the combined State Water Resources Control Board /California Integrated Waste Management Board AB 1220 regulations for discharges of waste to land.
3. Order No. 81-127 was subsequently amended by Order No. 98-99, a blanket waste discharge requirements (WDR) requiring all municipal solid waste landfills (MSWLFs) to comply with federal Subtitle D regulations and Title 27 requirements.
4. Provision C.2. of Order No. 98-99 stipulates that all MSWLF waste containment systems installed beyond the October 3, 1993 landfill footprint must include a composite liner consisting of an upper synthetic flexible membrane liner (FML) that is at least 60-mils thick (if high density polyethylene is used), and a lower component of soil that is at least two feet thick and that has a hydraulic conductivity of no more than 1×10^{-7} cm/s. Provision C.2. of Order No. 98-99 allows engineered alternatives to the prescriptive composite liner, provided that certain conditions are also met.
5. The discharger is proposing to expand the landfill laterally, in phases, using engineered alternative containment systems. Construction for the upcoming Phase 2, Stage 1 area expansion is scheduled to begin in April 2001.

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Order No. 01-18
Amending WDRs for Lamb Canyon Landfill
RCWMD

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6. On October 18, 1999, the discharger submitted Joint Technical Document (JTD) Addendum No. 2, requesting approval to use an engineered alternative to the prescriptive liner design that had previously been approved by the Board for landfill expansion beyond the existing footprint at a different site. JTD Addendum No. 2 application was considered complete on October 20, 1999.
7. On September 20, 2000, the discharger submitted JTD Addendum No. 3, an amendment to JTD Addendum No. 2, to include additional engineered alternative liner designs for site expansion beyond the existing landfill footprint.
8. The discharger has proposed a total of five engineered alternative designs for the bottom and sideslope liner systems at the landfill site. The profiles of the prescriptive standard design (PSD) and the proposed engineered alternative design (EAD) for the bottom and side slope liner systems are described below, starting from the bottom of the liner systems:

a. Bottom Liner Systems

PSD	EAD-B1	EAD-B2	EAD-B3
Prepared subgrade	Prepared subgrade	Prepared subgrade	Prepared subgrade
24-inch $\leq 1 \times 10^{-7}$ cm/s low permeability layer	24-inch $\leq 1 \times 10^{-7}$ cm/s low permeability layer	40-mil textured HDPE geomembrane and Geosynthetic Clay Liner (GCL) using Bentomat, Bentofix or equivalent	GCL with 40-mil HDPE geomembrane backing
Minimum 60-mil HDPE liner	80-mil double-side textured HDPE liner	80-mil double-side textured HDPE liner	80-mil double-side textured HDPE liner
12-inch $\leq 1 \times 10^{-2}$ cm/s drainage layer	12-inch $\leq 1 \times 10^{-2}$ cm/s drainage layer	12-inch $\leq 1 \times 10^{-2}$ cm/s drainage layer	12-inch $\leq 1 \times 10^{-2}$ cm/s drainage layer
8-oz. geotextile filter fabric	8-oz. geotextile filter fabric	8-oz. geotextile filter fabric	8-oz. geotextile filter fabric
24-inch protective soil cover	24-inch protective soil cover	24-inch protective soil cover	24-inch protective soil cover
Refuse	Refuse	Refuse	Refuse

b. Sideslope Liner Systems

PSD	EAD-S1	EAD-S2
Prepared subgrade	Prepared subgrade	Prepared subgrade
24-inch $\leq 1 \times 10^{-7}$ cm/s low permeability layer	GCL (Bentomat, Bentofix or equivalent)	GCL (Bentomat, Bentofix or equivalent)
Minimum 60-mil HDPE liner	80-mil single-side textured HDPE liner	80-mil single-side textured HDPE liner
12-inch $\leq 1 \times 10^{-2}$ cm/s drainage layer	16-oz. geotextile filter fabric	Geocomposite drainage layer
8-oz. geotextile filter fabric		
24-inch protective soil cover	24-inch protective soil cover	24-inch protective soil cover
Refuse	Refuse	Refuse

EXHIBIT A to Consultant Agreement

9. Engineered alternatives to prescriptive design are proposed:
 - a. To minimize the cost of the containment system by installing engineered alternative containment systems that will provide equivalent or better protection against water quality impairment compared to the prescriptive liner system.
 - b. To provide minimum static and seismic stability on steep sideslopes as required under §21750(f)(5), Title 27. Cut slopes proposed at the Phase 2, Stage 1 expansion area range from 1½:1 to 2:1 to accommodate the removal of unsuitable native materials such as uncontrolled fill and landslide debris on canyon sideslopes.
10. Regional Board staff has reviewed JTD Addendum No. 3, which includes the performance equivalency demonstration report titled "Comparision of Alternarive Liner Systems to Prescriptive Liner System, Lamb Canyon Landfill" dated August 1, 2000 as required under Section 20080(b), Title 27; the slope stability report titled "Geotechnical Investigation for the proposed Phase 2, Stage 1 Expansion at Lamb Canyon Sanitary Landfill" dated January 24, 2001, and the design details and the operation and drainage control plans for the Phase 2, Stage 1 area expansion. Regional Board staff has commented and received responses from the discharger during the JTD review period. On January 4, 2001, the discharger satisfactorily demonstrated compliance with Section 20080(b), Title 27 for the proposed use of EADs, and JTD Addendum No. 3 was considered complete. Regional Board staff believes that the proposed EADs will afford waste containment capability equal to or exceeding that offered by the PSD, provided that the CQA monitoring requirements and the provisions specified in this order are met.
11. The capability of the EAD liner systems to afford water quality protection equivalent to the PSD system depends largely on good construction quality assurance and quality control of the liner materials used, and during the installation of these materials.
12. This order amends the existing waste discharge requirements¹ for Lamb Canyon Landfill to require the discharger to comply with certain provisions and monitoring requirements for evaluating the quality of the EAD liner materials and the liner installation procedures. This order also includes a provision authorizing the Executive Officer of the Regional Board to approve the use of any of the approved EAD liner systems for future expansions at the site without presenting them to the Regional Board for further approval.

¹ Board Orders No. 81-127 and 98-99.

EXHIBIT A to Consultant Agreement

Order No. 01-18
Amending WDRs for Lamb Canyon Landfill
RCWMD

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13. This project involves the amendment of waste discharge requirements for an existing facility for which waste discharge requirements need to be revised, and as such, is exempt from the California Environmental Quality Act (Public Resources Code, Section 21100 et seq.) in accordance with Section 15301, Chapter 3, Title 14, California Code of Regulations.
14. The Regional Board has notified the discharger and interested agencies and persons of the Board's intent to amend the waste discharge requirements previously adopted for the discharger, and has provided them with an opportunity to submit their written views and recommendations.
15. The Regional Board, in a public meeting, heard and considered all comments pertaining to the proposed amendment of the existing waste discharge requirements for Lamb Canyon Landfill.

IT IS HEREBY ORDERED THAT the discharger shall comply with the following:

1. The following waste discharge requirements shall be added as Provision C.2.a and b of Order No. 98-99 as follows:
 - "a. To comply with the requirements for EAD composite liner systems, the discharger shall:
 - i. Prepare and submit for the approval of the Executive Officer a CQA/QC plan in accordance with §20323, Title 27, for each unit expansion. A detailed design and drainage plan and construction specifications shall be included with the CQA/QC plan. The preliminary CQA/QC plan shall be submitted at least 120 days prior to start of construction; the final CQA/QC plan shall be submitted at least 60 days prior to start of construction.
 - ii. Implement the approved plans such that manufacturing and installation defects in the FML are eliminated or minimized. In no case shall the number of manufacturing defects exceed one pinhole per acre, nor shall the number of installation defects² exceed two per acre.
 - iii. Provide good contact between the FML and the underlying compacted soil or GCL through proper implementation of the approved CQA/QC plan.

² The definitions for the manufacturing (2.2 mm² in area) and installation (1 cm² in area) defects provided by USEPA Hydrologic Evaluation of Landfill Performance (HELP) Model, User's Guide for Version 3.0, September 1994, shall be used.

EXHIBIT A to Consultant Agreement

Order No. 01-18
Amending WDRs for Lamb Canyon Landfill
RCWMD

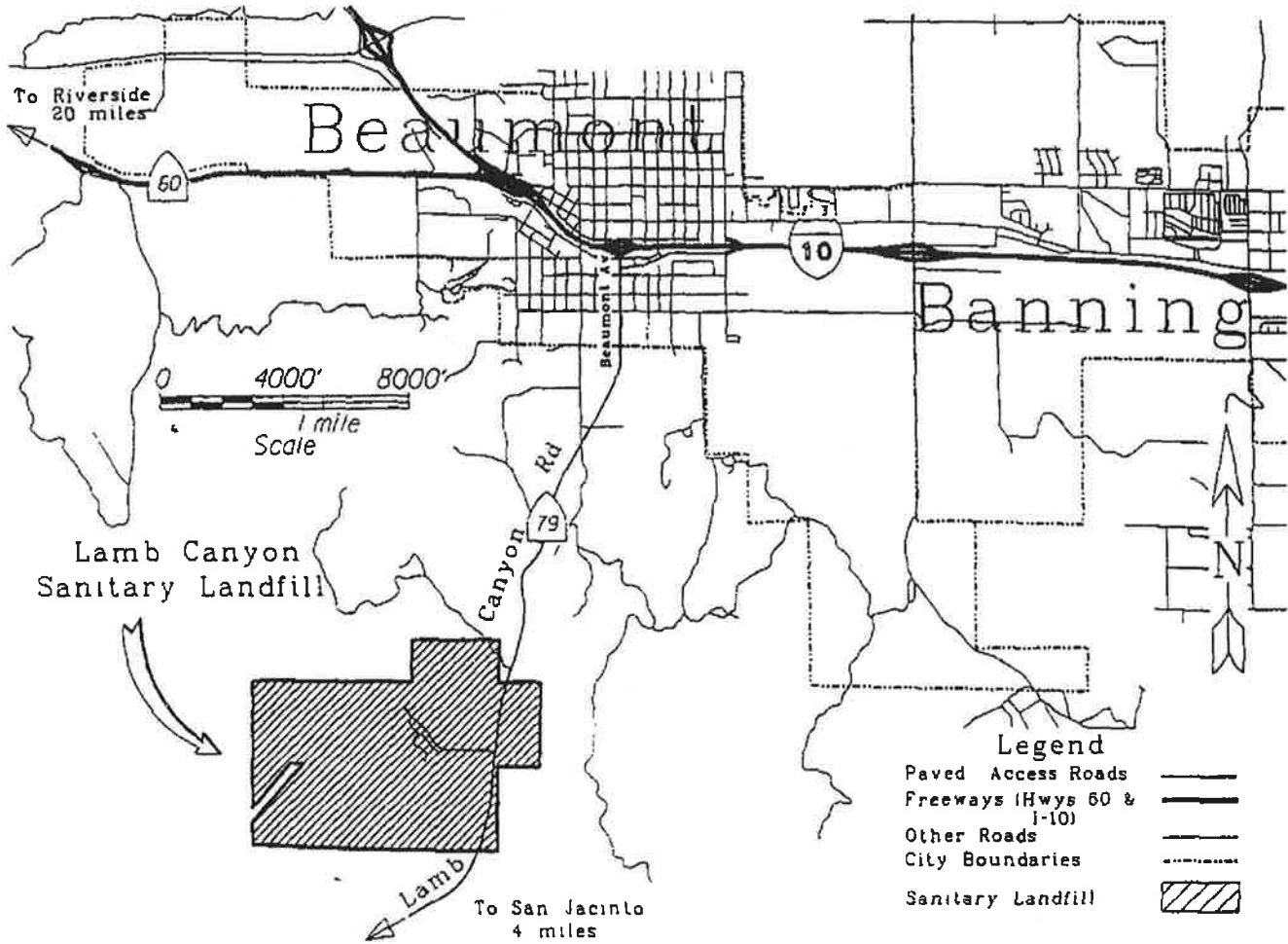
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- "b. The Executive Officer is hereby authorized to approve the use of any of the EAD liner systems included in Finding 8 of this order for future expansions at the site provided that the discharger complies with all other provisions of this order, including the following:
- i. The discharger shall submit the waste management unit design and construction information as required by §20310 through §20370, Title 27 for approval by the Executive Officer. The preliminary information shall be submitted at least 180 days prior to start of construction; the final plans shall be submitted at least 60 days prior to start of construction."
2. All other terms and conditions contained in Orders No. 81-127 and 98-99 shall remain unchanged. Amended or revised provisions contained in this order supersede any conflicting provisions in Orders No. 81-127 and 98-99.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on March 2, 2001.

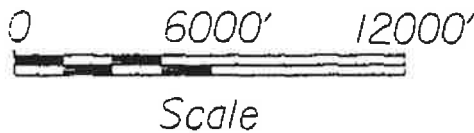

Gerard J. Thibeault
Executive Officer

Lamb Canyon Sanitary Landfill



Legend

- Paved Access Road
- Other Roads
- Sanitary Landfill



Attachment A
Order No. 01-18
Page 6 of 6

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California Regional Water Quality Control Board Santa Ana Region



Linda S. Adams
Secretary for
Environmental Protection

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<http://www.waterboards.ca.gov/santaana>

Arnold Schwarzenegger
Governor

September 7, 2007

Mr. Joseph McCann, Assistant Chief Engineer
Riverside County Waste Management Department
14310 Frederick Street
Moreno Valley, CA 92553

TRANSMITTAL OF ADOPTED ORDER NO. R8-2007-0044, AMENDING WASTE
DISCHARGE REQUIREMENTS FOR THE LAMB CANYON SANITARY LANDFILL
RIVERSIDE COUNTY WASTE MANAGEMENT DEPARTMENT

07 SEP 18 AM 11:40
COUNTY OF RIVERSIDE
WASTE MANAGEMENT DEPARTMENT

At the regular Board Meeting held on September 7, 2007, the Board adopted Order No. R8-2007-0044.

If you have any questions, please contact Mark Adelson at 951-782-3234 or Adam Fischer 951-320-6969 of the Regional Planning Programs section.

Sincerely,


Felipa Carrillo
Executive Assistant

Enclosure: Order No. R8-2007-0044

cc w/enc via email: SWRCB, Division of Water Quality – Valerie Connor
US EPA, Permits Issuance Section (WTR-5) – Doug Eberhardt
Jae Kim, jae.kim@tetrattech-ffx.com

fc/

EXHIBIT A to Consultant Agreement
California Regional Water Quality Control Board
Santa Ana Region

Staff Report

September 7, 2007

ITEM: *11

SUBJECT: Amendments to Waste Discharge Requirements for the Lamb Canyon Sanitary Landfill, Riverside County Waste Management Department, Order No. R8-2007-0044

DISCUSSION:

The Riverside County Waste Management Department (RCWMD, hereinafter discharger), owns and operates the Lamb Canyon Sanitary Landfill (LCSL), a Class III municipal solid waste (MSW) landfill located at 16411 Lamb Canyon Road, Beaumont.

The applicable regulations governing the discharge of non-hazardous MSW to land are contained in Division 2, Title 27, California Code of Regulations (Title 27) and the Code of Federal Regulations Subpart D of Part 258 of Title 40 (Subtitle D). Landfill operations at the LCSL are currently regulated under waste discharge requirements (WDRs) Order No. 81-127, and its amendments, Orders No. 98-99, 01-18, and R8-2006-0054.

The discharger has submitted Joint Technical Document Addendum No. 14, proposing the use of an engineered alternative to the prescribed leachate collection and removal system (LCRS) design.

This order amends the existing WDRs for the LCSL to allow the use of a 9-inch gravel layer, in lieu of the prescribed 12-inch coarse sand layer, for leachate collection and removal as required by 27 CCR, §20340. This will improve the drainage characteristics of the LCRS.

All terms and conditions contained in the existing WDRs for the LCSL that are not amended by this order shall remain in effect and unchanged.

RECOMMENDATION:

Adopt Order No. R8-2007-0044 as presented.

Comments were solicited from the following agencies:

State Water Resources Control Board, Division of Clean Water Program – Joe Mello
State Water Resources Control Board, Office of Chief Counsel – Erik Spiess
California Integrated Waste Management Board, Sacramento – Scott Walker
State Department of Health Services, San Bernardino – Heather Collins
State Department of Toxic Substances Control, Cypress - Karen Baker
Riverside County Waste Management Department – Hans Kernkamp
Riverside County Department of Environmental Health Services, LEA – Laurie Holk/Irene Fellman

EXHIBIT A to Consultant Agreement

California Regional Water Quality Control Board
Santa Ana Region

ORDER NO. R8-2007-0044

Amending Waste Discharge Requirements for
Lamb Canyon Sanitary Landfill
Riverside County Waste Management Department

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter Regional Board), finds that:

1. The Riverside County Waste Management Department (RCWMD, hereinafter discharger) owns and operates the Lamb Canyon Sanitary Landfill (LCSL), located at 16411 Lamb Canyon Road (Highway 79). This landfill is located in a portion of Sections 21, 28, and 29, T3S, R1W, SBB&M, at latitude 33°52'30" and longitude 117°0'0". The location of the facility is shown on Attachment A, which is hereby made a part of this order. The landfill site currently encompasses 1,109 acres, 145 acres of which are currently used or being developed as waste management units (WMUs). Waste management units, the permitted disposal area of the landfill site, are shown on Attachment B, which is hereby made a part of this order.
2. On June 12, 1981, Order No. 81-127 was adopted by the Regional Board for landfill operations at the site. Order No. 81-127 contains discharge requirements, provisions, and monitoring and reporting requirements that require the discharger to design and operate the landfill in accordance with Chapter 15, Division 3, Title 23, California Code of Regulations (Chapter 15). Effective June 18, 1997, Chapter 15 was replaced by Title 27, California Code of Regulations (27 CCR), the combined State Water Resources Control Board /California Integrated Waste Management Board AB 1220 regulations for discharges of wastes to land.
3. Order No. 81-127 was subsequently amended by Order No. 98-99, blanket waste discharge requirements (WDRs) requiring all municipal solid waste landfills (MSWLFs) to comply with federal Subtitle D regulations and Title 27 requirements. In March 2001, Orders No. 81-127 and 98-99 were amended by Order No. 01-18 to allow the use of engineered alternatives to the prescriptive liner designs contained in Title 27, California Code of Regulations (27 CCR). The existing WDRs were subsequently amended by Order No. R8-2006-0054 to allow the acceptance of treated woodwaste and designated waste for disposal at WMUs equipped with a composite liner system and leachate collection and removal system (LCRS).

EXHIBIT A to Consultant Agreement

4. On April 5, 2007, the discharger submitted Joint Technical Document (JTD) Addendum No. 14, requesting the Regional Board's approval to use an engineered alternative to the LCRS design prescribed in the existing WDRs. The discharger has proposed to use a 9-inch-thick gravel LCRS with a permeability of 0.1 cm/s, in lieu of the 12-inch coarse sand layer with a permeability of 0.01 cm/s prescribed in the existing WDRs for the bottom liner system. JTD Addendum No. 14 was considered complete on May 16, 2007.
5. JTD Addendum No. 14 includes technical data and analyses as required by 27 CCR, §20080(b)(1) & (c) to support the use of the proposed engineered alternative LCRS design. Board staff has reviewed the information provided and determined that the 9-inch LCRS design would meet the performance requirements of 27 CCR, §20340 and would provide substantial cost savings to the discharger.
6. The profiles of the prescriptive standard design (PSD) and the revised minimum engineered alternative designs (EAD) for the bottom liner systems are described below, starting from the base of the liner systems:

Bottom Liner Systems

PSD	EAD-B1	EAD-B2
Prepared subgrade	Prepared subgrade	Prepared subgrade (12-inch $\leq 1 \times 10^{-5}$ cm/s permeability layer)
24-inch $\leq 1 \times 10^{-7}$ cm/s low permeability layer	24-inch $\leq 1 \times 10^{-7}$ cm/s low permeability layer	60-mil textured HDPE geomembrane and Geosynthetic Clay Liner (GCL) using Bentomat, Bentofix or equivalent
60-mil HDPE liner	80-mil textured HDPE liner	80-mil textured HDPE liner
12-inch ≥ 0.01 cm/s LCRS drainage layer	12-oz. cushion geotextile and a 9-inch ≥ 0.1 cm/s LCRS gravel drainage layer or 12-inch ≥ 0.01 cm/s LCRS coarse sand drainage layer	12-oz. cushion geotextile and a 9-inch ≥ 0.1 cm/s LCRS gravel drainage layer or 12-inch ≥ 0.01 cm/s LCRS coarse sand drainage layer
8-oz. geotextile filter fabric	8-oz. geotextile filter fabric	8-oz. geotextile filter fabric
24-inch protective soil cover	24-inch protective soil cover	24-inch protective soil cover
Refuse	Refuse	Refuse

7. This order amends Order No. 01-18¹ for LCSL to allow the use of an engineered alternative LCRS design.
8. This project involves the amendment of WDRs for an existing landfill to allow an engineered alternative design for the LCRS system. It does not change the permitted footprint of the landfill. As such, is exempt from the California Environmental Quality Act (Public Resources Code, Section 21100 et seq.) in accordance with Section 15301, Chapter 3, Title 14, California Code of Regulations.

¹ Board Orders No. 81-127 and 98-99 were amended by Order No. 01-18 to allow the use of engineered alternatives to the prescriptive liner designs required under 27 CCR.

EXHIBIT A to Consultant Agreement

Order No. R8-2007-0044
 Amending WDRs for Lamb Canyon Landfill
 RCWMD

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9. The Regional Board has notified the discharger and interested agencies and persons of the Board's intent to amend the waste discharge requirements previously adopted for the discharger, and has provided them with an opportunity to submit their written views and recommendations.
10. The Regional Board, in a public meeting, heard and considered all comments pertaining to the proposed amendment of the existing waste discharge requirements for Lamb Canyon Landfill.

IT IS HEREBY ORDERED THAT the discharger shall comply with the following:

1. The following shall replace Item 1 of Order No. 01-18 for LCSL:
 - a. The engineered alternative design (EAD) composite liner systems for the waste management units (WMUs) at LCSL shall consist of either EAD-B1 or EAD-B2 for bottom liner systems and EAD-S1 or EAD-S2 for sideslope liner systems, as indicated below starting from the base of the liner systems:

Bottom Liner Systems

PSD	EAD-B1	EAD-B2
Prepared subgrade	Prepared subgrade	Prepared subgrade (12-inch $\leq 1 \times 10^{-5}$ cm/s permeability layer)
24-inch $\leq 1 \times 10^{-7}$ cm/s low permeability layer	24-inch $\leq 1 \times 10^{-7}$ cm/s low permeability layer	60-mil textured HDPE geomembrane <u>and</u> Geosynthetic Clay Liner (GCL) using Bentomat, Bentofix or equivalent
60-mil HDPE liner	80-mil textured HDPE liner	80-mil textured HDPE liner
12-inch ≥ 0.01 cm/s LCRS drainage layer	12-oz. cushion geotextile and a 9-inch ≥ 0.1 cm/s LCRS gravel drainage layer <u>or</u> 12-inch ≥ 0.01 cm/s LCRS coarse sand drainage layer	12-oz. cushion geotextile and a 9-inch ≥ 0.1 cm/s LCRS gravel drainage layer <u>or</u> 12-inch ≥ 0.01 cm/s LCRS coarse sand drainage layer
8-oz. geotextile filter fabric	8-oz. geotextile filter fabric	8-oz. geotextile filter fabric
24-inch protective soil cover	24-inch protective soil cover	24-inch protective soil cover
Refuse	Refuse	Refuse

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Amending WDRs for Lamb Canyon Landfill
RCWMD

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Sideslope Liner Systems

PSD	EAD-S1	EAD-S2
Prepared subgrade	Prepared subgrade	Prepared subgrade
24-inch $\leq 1 \times 10^{-7}$ cm/s low permeability layer	GCL (Bentomat, Bentofix or equivalent)	GCL (Bentomat, Bentofix or equivalent)
Minimum 60-mil HDPE liner	80-mil textured HDPE liner	80-mil textured HDPE liner
12-inch $\leq 1 \times 10^{-2}$ cm/s drainage layer 8-oz. geotextile filter fabric	16-oz. geotextile filter fabric	Geocomposite drainage layer
24-inch protective soil cover	24-inch protective soil cover	24-inch protective soil cover
Refuse	Refuse	Refuse

- b. To comply with the requirements for the EAD composite liner systems described in Item a, above, the discharger shall:
- i. Prepare and submit for the approval of the Executive Officer a CQA/QC plan in accordance with §20323, Title 27, for each unit expansion. A detailed design and drainage plan and construction specifications shall be included with the CQA/QC plan. The preliminary CQA/QC plan shall be submitted at least 120 days prior to start of construction; the final CQA/QC plan shall be submitted at least 60 days prior to start of construction.
 - ii. Implement the approved plans such that manufacturing and installation defects in the FML are eliminated or minimized. In no case shall the number of manufacturing defects exceed one pinhole per acre, nor shall the number of installation defects² exceed two per acre.
 - iii. Provide good contact between the FML and the underlying compacted soil or GCL through proper implementation of the approved CQA/QC plan.
- c. The Executive Officer is hereby authorized to approve the use of any of the EAD liner systems described in Item a, above, for future expansions at the site provided that the discharger complies with all other provisions of this order, including the following:
- i. The discharger shall submit the waste management unit design and construction information as required by §20310 through §20370, Title 27 for approval by the Executive Officer. The preliminary information shall be submitted at least 180 days prior to start of construction; the final plans shall be submitted at least 60 days prior to start of construction."

² The definitions for the manufacturing (2.2 mm² in area) and installation (1 cm² in area) defects provided by USEPA Hydrologic Evaluation of Landfill Performance (HELP) Model, User's Guide for Version 3.0, September 1994, shall be used.

EXHIBIT A to Consultant Agreement

Order No. R8-2007-0044
Amending WDRs for Lamb Canyon Landfill
RCWMD

Page 5 of 7

2. All terms and conditions contained in the existing WDRs for the LCSL that are not amended by this order shall remain unchanged. Amended or revised provisions contained in this order supersede any conflicting provisions in the existing WDRs.

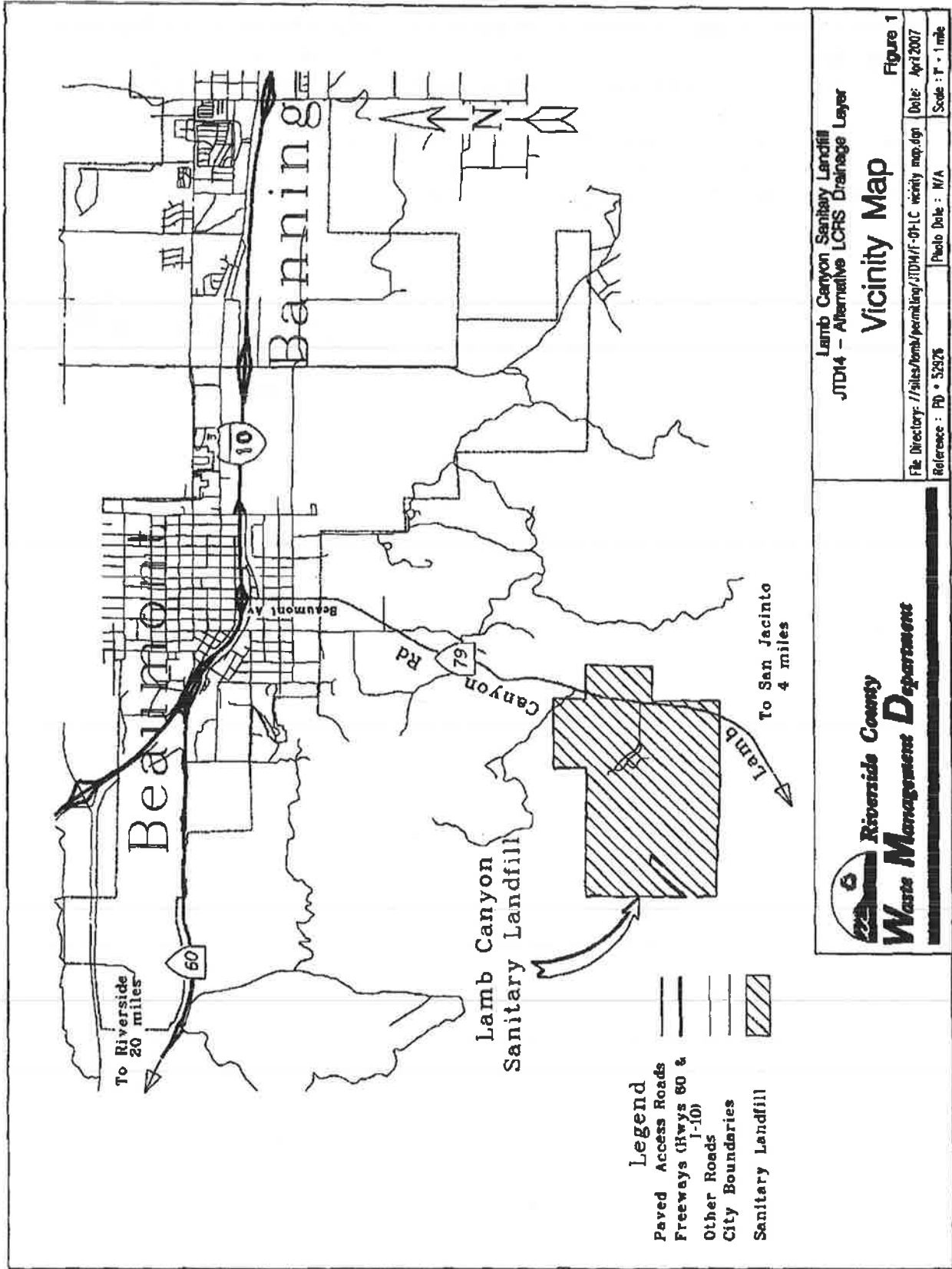
I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on September 7, 2007.

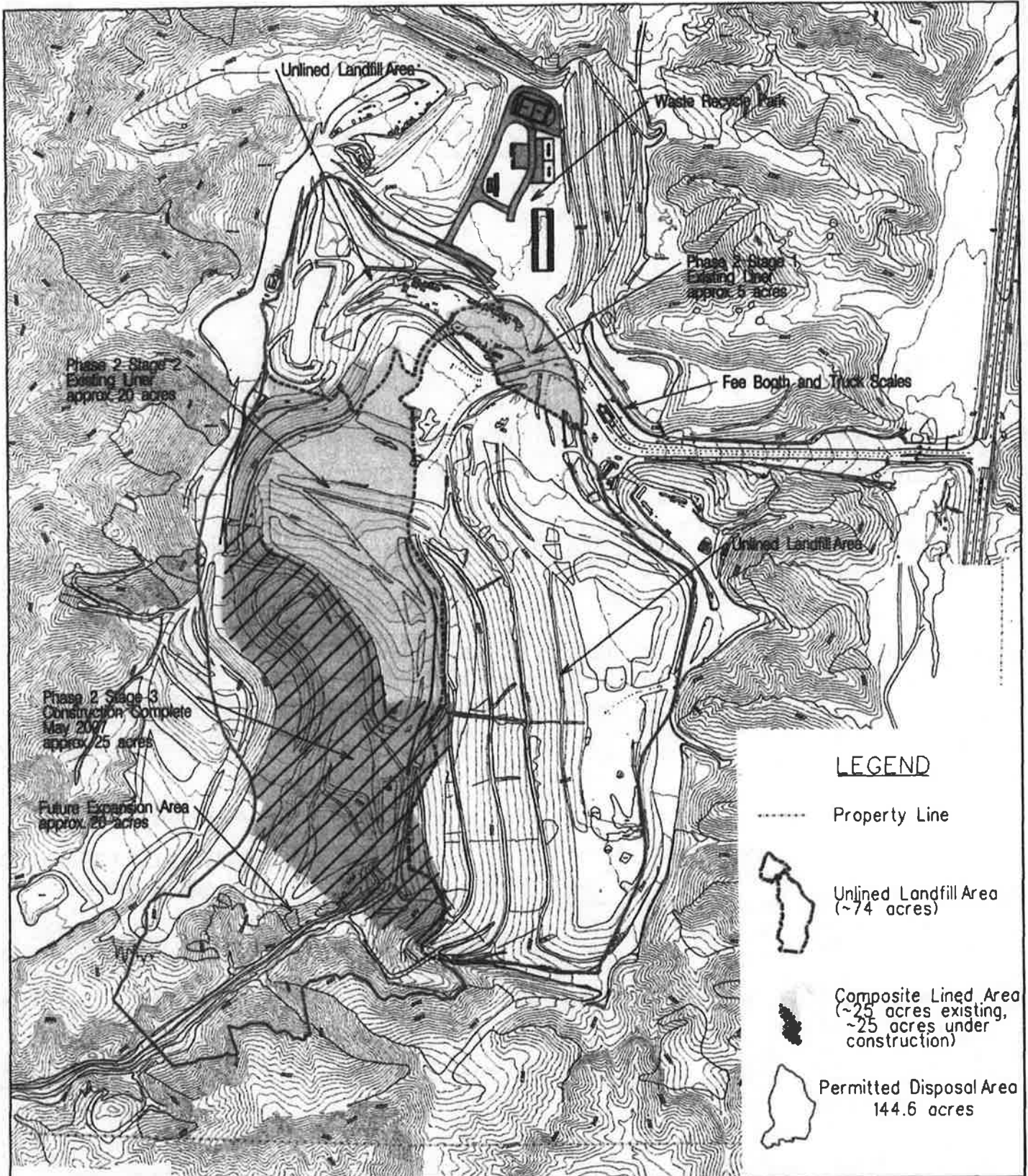


Gerard J. Thibeault
Executive Officer

EXHIBIT A to Consultant Agreement

Attachment A
 Order No. R8-2007-0044
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Lamb Canyon Sanitary Landfill
 JTD14 - Alternative LCRS Drainage Layer
Disposal Area

Figure 2

File Directory: /lamb/permitting/JTD14/F-02-Disposal Area.dgn	Date: April 2007
Reference: PD 52926	Photo Date: July 2005
	Scale: 1" = 600'

EXHIBIT A to Consultant Agreement

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SANTA ANA REGION

ORDER NO. R8-2002-0085

AMENDING WASTE DISCHARGE REQUIREMENTS FOR BADLANDS SANITARY LANDFILL RIVERSIDE COUNTY WASTE MANAGEMENT DEPARTMENT

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter Regional Board), finds that:

1. The County of Riverside Waste Management Department (hereinafter discharger) has operated the Badlands Sanitary Landfill (BSL) since 1965. The site is located in the San Timoteo Badlands, Section 32, T2S, R2W, and portions of Sections 4 and 5, T3S, R2W, SBB&M. The site consists of 1093.2 acres and is designated as a Class III landfill. One-hundred-and-fifty (150) acres are currently permitted to accept only non-hazardous municipal solid waste (MSW).
2. Prior to 1981, the discharger operated the BSL under the waste discharge requirements (WDRs) contained in Resolution No. 65-13. To reflect changes in the policies for the operations of sanitary landfills, Order No. 81-124 was adopted to revise and update Resolution No. 65-13. Order No. 81-124 was adopted by the Regional Board for landfill operations at the BSL on June 12, 1981.
3. On July 19, 1991, Order No. 91-105 was adopted by the Regional Board for landfill operations at the BSL. Order No. 91-105 revised the WDRs contained in Order No. 81-124 to include changes to the Water Quality Control Plan and to conform to Title 23 of the California Code of Regulations (CCRs), Division 3, Chapter 15. Order No. 91-105 was subsequently amended by Orders No. 93-57 and 94-17, adopted by the Regional Board on September 10, 1993 and March 11, 1994, respectively, to incorporate new federal regulations (Title 40, Code of Federal Regulations [40CFR], Part 258, known as Subtitle D), and to prescribe uniform drainage and erosion control system requirements for MSW landfills.
4. Effective July 18, 1997, the provisions for MSW landfills in Chapter 15 were replaced by Title 27 of the CCRs (Title 27), the combined State Water Resources Control Board / California Integrated Waste Management Board AB 1220 regulations for discharges of waste to land.
5. On November 20, 1998, Orders No. 93-57 and 94-17 were rescinded and replaced by Order No. 98-99. Order No. 98-99 is a blanket WDR requiring all municipal solid waste landfills (MSWLFs) to comply with federal Subtitle D regulations and Title 27 requirements.

EXHIBIT A to Consultant Agreement

6. Provision C.2 of Order No. 98-99 stipulates that all MSWLF waste containment systems installed beyond the October 9, 1993 landfill footprint must include a composite liner consisting of an upper synthetic flexible membrane liner (FML) that is at least 60-mils thick (if high density polyethylene is used), and a lower component of soil that is at least 2-feet thick and that has a hydraulic conductivity of no more than 1×10^{-7} cm/s. Provision C.2 of Order No. 98-99 allows engineered alternatives to the prescriptive composite liner, provided that certain conditions are met.

7. On July 29, 2002, the discharger submitted a Joint Technical Document (JTD), Amendment No. 1, requesting the Regional Board's approval for the use of an engineered alternative to the prescriptive liner design. The engineered alternative design (EAD) is proposed for both bottom and sideslope liners of the remaining floor and sideslope areas that will be lined at the BSL. The profiles of the prescriptive standard design (PSD) and the EAD liner systems are described below, starting from the bottom up:

Bottom Liner System

PSD Liner System	EAD Liner System
1. Prepared subgrade	1. Prepared subgrade
2. 24-inch $\leq 1 \times 10^{-7}$ cm/s low permeability layer	2a. 12-inch soil layer consisting of 1-inch minus material with a hydraulic conductivity $\leq 1 \times 10^{-5}$ cm/s
	2b. 40-mil GCL hydration barrier (textured both sides)
	2c. Geosynthetic Clay Liner (GCL)
3. 60-mil HDPE liner	3. 60-mil HDPE liner (textured both sides)
4a. Geotextile fabric	4. 12-inch leachate collection recovery system (LCRS) Drainage Layer with a permeability of no less than 1×10^{-2} cm/s (1-inch minus clean gravel with less than 2 percent fines with no angular or subangular soil for particles greater than 3/8-inch in diameter)
4b. 12-inch $\leq 1 \times 10^{-2}$ cm/s drainage layer	
5. Geotextile filter fabric	5. 8 oz. Geotextile filter fabric
6. 24-inch protective soil layer	6. 24-inch protective soil layer (3-inch minus for the lower 12-inches and 6-inch minus for the upper 12-inches)
7. Refuse placement	7. Refuse placement

EXHIBIT A to Consultant Agreement

Sideslope Liner System

PSD Liner System	EAD Liner System
1. Prepared subgrade	1. Prepared subgrade
2. 24-inch with 1×10^{-7} cm/s low permeability layer	2. Needle punched, non-woven GCL ¹
3. 60-mil HDPE liner	3. 60-mil HDPE liner (single-sided textured geomembrane)
4a. Geotextile fabric	4. 24-inch protective soil layer/leachate drainage layer (1-inch minus material)
4b. 12-inch with 1×10^{-2} cm/s leachate drainage layer	
4c. Geotextile filter fabric	
4d. 24-inch protective soil layer	
5. Refuse placement	5. Refuse placement

8. Regional Board staff have evaluated JTD Addendum No. 1, which includes engineering analyses to demonstrate performance equivalency of the engineered alternative to the prescriptive standard design for the bottom and the sideslope liner systems. Based on the engineering reports provided to us, Regional Board staff have concluded that the engineered alternative liner systems for the bottom and the sideslope will satisfy the performance criteria as required under Provision C.2 of Order No. 98-99. It will also afford waste containment capability equal to or exceeding that provided by the prescriptive standard design, provided that certain provisions and monitoring requirements are met.
9. This order amends the existing waste discharge requirements for BSL to require the discharger to comply with certain provisions and monitoring requirements for construction of the waste containment system using the engineered alternative liner systems. The capability of the alternative liner systems to afford water quality protection equivalent to the prescriptive liner system depends largely on good construction quality assurance and quality control during the installation of these materials, and quality control of the liner materials used.
10. This project involves the amendment of waste discharge requirements for an existing facility for which waste discharge requirements need to be revised, and as such, is exempt from the California Environmental Quality Act (Public Resources Code, Section 21100 et seq.) in accordance with Section 15301, Chapter 3, Title 14, California Code of Regulations.
11. The Regional Board has notified the discharger and interested agencies and persons of the Board's intent to amend the waste discharge requirements previously adopted for the discharger, and has provided all notified parties with an opportunity to submit their written views and recommendations.

¹ Geosynthetic Clay Liners are factory manufactured, hydraulic barriers typically consisting of bentonite clay or other very low permeability clay materials, supported by geotextiles and/or geomembranes which are held together by needling, stitching and/or chemical adhesives.

EXHIBIT A to Consultant Agreement

12. The Regional Board, in a public meeting, heard and considered all comments pertaining to the proposed amendment to the existing waste discharge requirements for BSL.

IT IS HEREBY ORDERED THAT the discharger shall comply with the following:

1. The following requirements are hereby added as Provision C.2.(b) of Order No. 98-99 for the BSL:

Compliance of the EAD composite bottom and sideslope liners with the performance criteria set forth in Provision C.2 of Order No. 98-99 shall be demonstrated when the following requirements are met:

a. For EAD Bottom Liner System

- i. A Construction Quality Assurance/ Quality Control (CQA/ QC) program for the construction of the waste containment system using the EAD bottom liner system has been submitted and approved by Regional Board staff. The CQA/QC consultant is a party independent from the Owner, Contractor, and the product manufacturers;
- ii. The approved CQA/QC program for the EAD bottom liner system has been successfully implemented to eliminate or minimize, to the extent feasible, the manufacturing and installation defects in the synthetic FML. In no case shall the number of manufacturing or installation defects² exceed two per acre; and
- iii. A "good to excellent" contact between the FML and the underlying compacted soil has been achieved as verified by the approved CQA/QC program.

b. For EAD Sideslope Liner System

- i. Detailed CQA/QC plans for the EAD sideslope liner system have been submitted and approved by Regional Board staff;
 - ii. A good contact between the FML and the underlying GCL has been achieved as verified by the approved CQA/QC program; and
 - iii. The submittal of daily reports to Board staff during the construction of the EAD bottom and sideslope liner systems at the site were in compliance with Items 1.a.ii, 1.a.iii, and 1.b.ii, above.
2. All other terms and conditions contained in the existing waste discharge requirements for the BSL that are not amended by this order shall remain in effect

² The definitions of the manufacturing and installation defects are provided by USEPA Hydrologic Evaluation of Landfill Performance (HELP) Model, User's Guide for Version 3.0.

EXHIBIT A to Consultant Agreement

WDRs, Order No. R8-2002-0085

Page 5 of 5

and unchanged. Amended or revised requirements contained in this order supersede any conflicting provisions in the existing waste discharge requirements.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on October 25, 2002.



Gerard J. Thibeault
Executive Officer

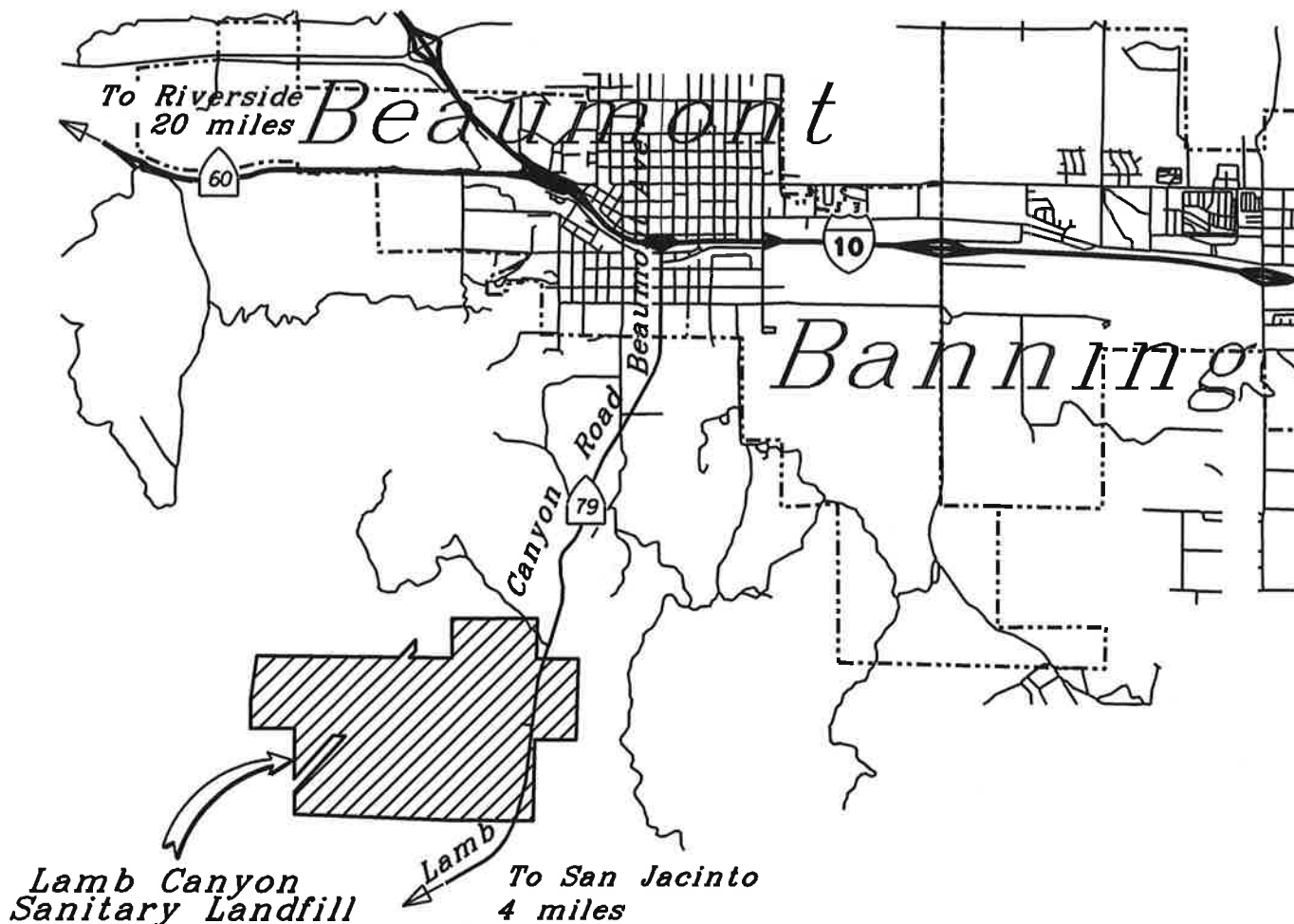
Exhibits

EXHIBIT A to Consultant Agreement


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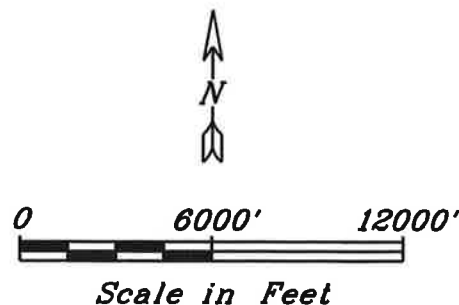
Lamb Canyon Sanitary Landfill Vicinity Map

Por. Secs. 20, 21, 28, 29 & 30 T3S R1W S.B.B.M.



Legend

- Paved Access Roads ———
- Freeways (Hwys 60 & I-10) ———
- Other Roads ———
- City Boundaries - - - - -
- Sanitary Landfill 



Lamb Canyon Sanitary Landfill

Vicinity Map

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Date: February 2010

Photo Date :

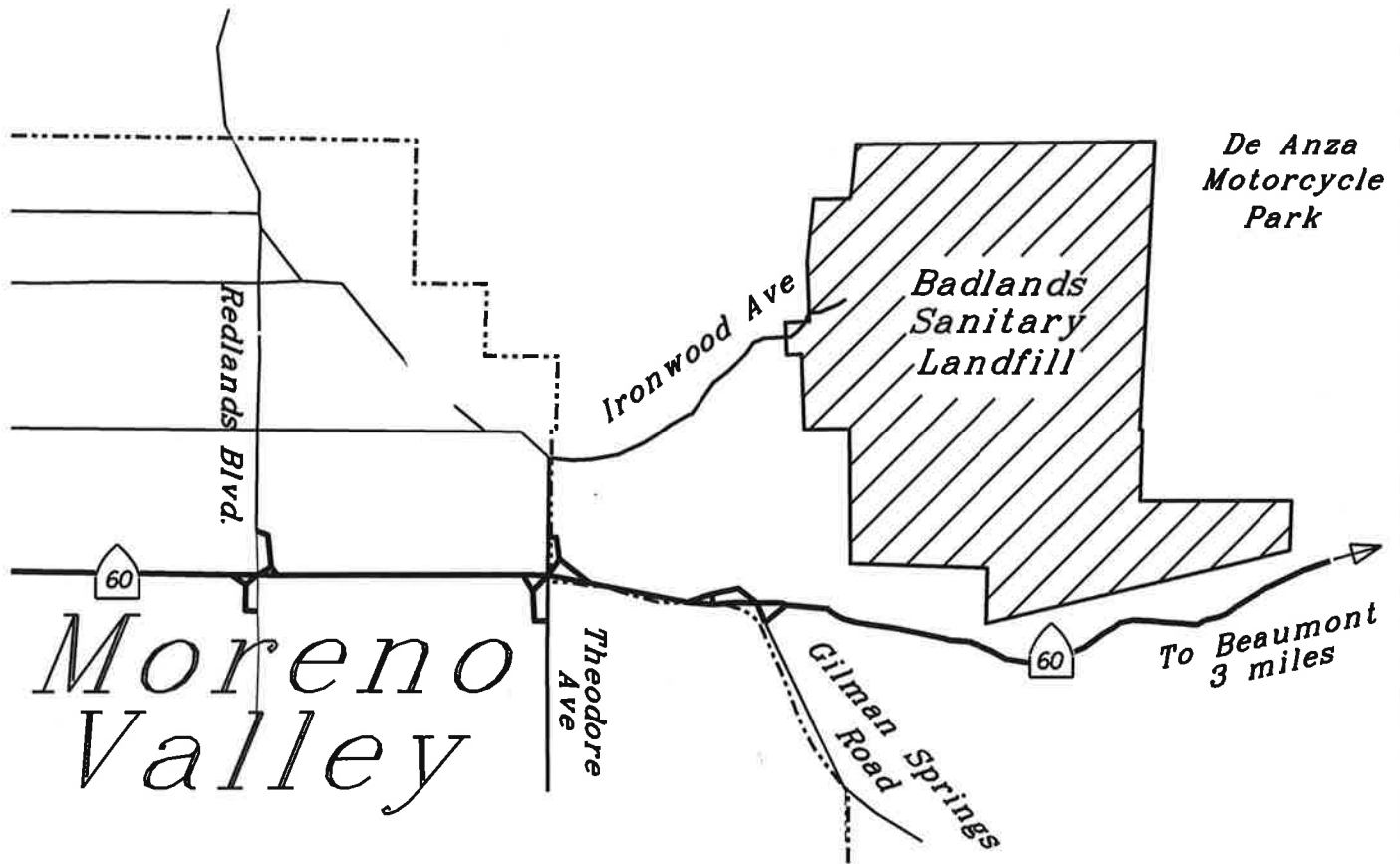
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EXHIBIT A to Consultant Agreement





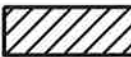
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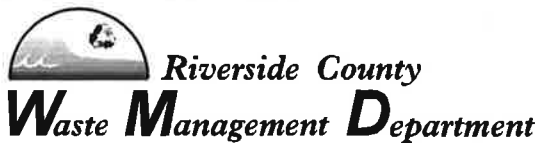
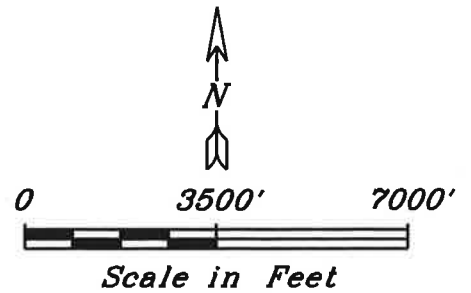
Badlands Sanitary Landfill Vicinity Map

Por. Secs. 4 & 5 T3S R2W &
Sec. 32 T2S R2W S.B.B.M.



Legend

- Paved Access Roads 
- Freeway (Highway 60) 
- Other Roads 
- City Boundary 
- Sanitary Landfill 



Badlands Sanitary Landfill

Vicinity Map

File Directory: / wmis2_d / sites / vicinity_maps / bavicinity.dgn

Date: Feb. 2010

Scale: 1"=3500'

EXHIBIT A to Consultant Agreement

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EXHIBIT A to Consultant Agreement

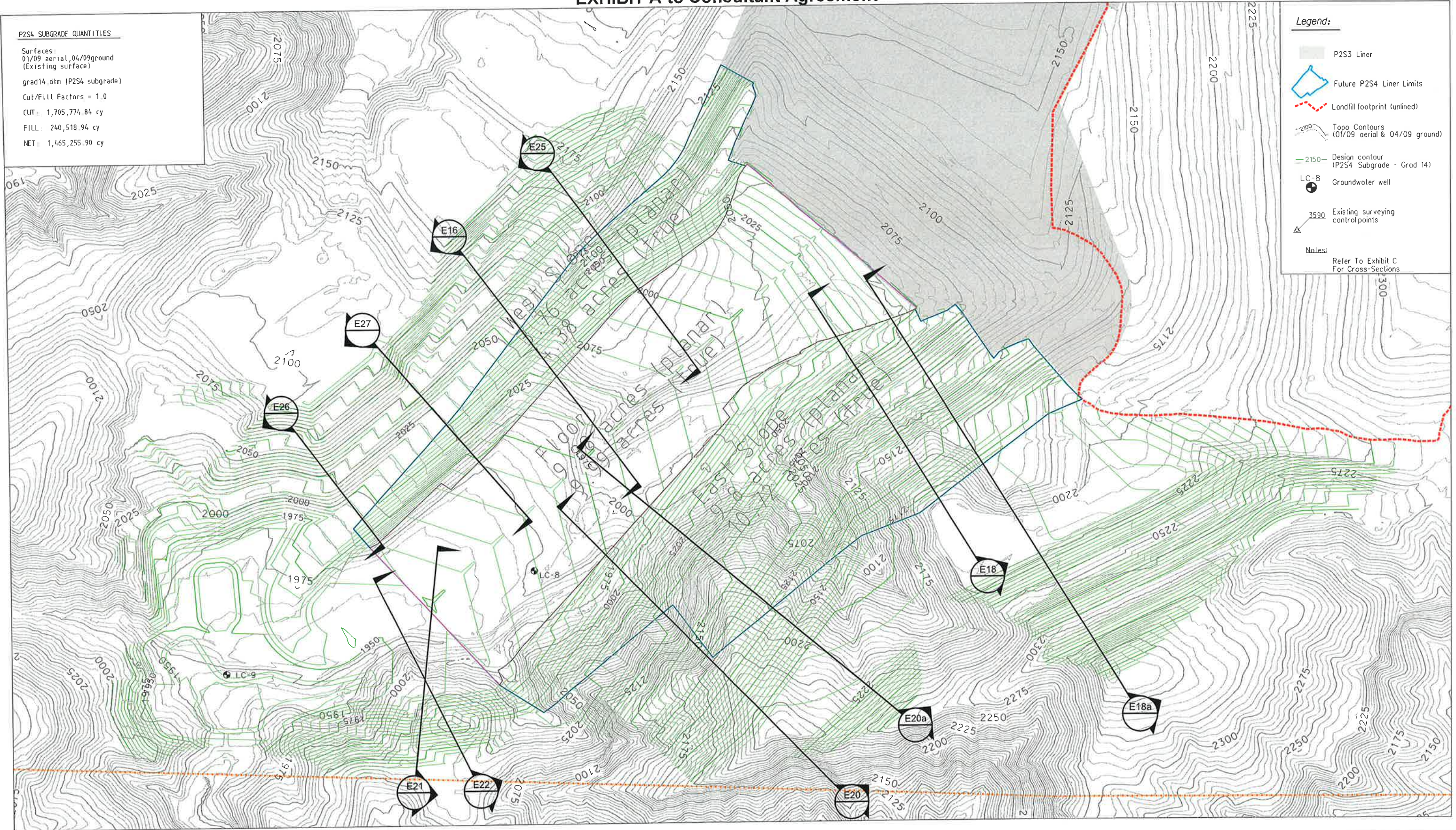
P2S4 SUBGRADE QUANTITIES

Surfaces
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(Existing surface)
grad14.dtm (P2S4 subgrade)
Cut/Fill Factors = 1.0
CUT: 1,705,774.84 cy
FILL: 240,518.94 cy
NET: 1,465,255.90 cy

Legend:

- P2S3 Liner
- Future P2S4 Liner Limits
- Landfill footprint (unlined)
- Topo Contours (01/09 aerial & 04/09 ground)
- 2150 Design contour (P2S4 Subgrade - Grad 14)
- LC-8 Groundwater well
- 3590 Existing surveying control points

Notes:
Refer To Exhibit C
For Cross-Sections



NO.	REVISIONS	BY	APPROVED	DATE

Riverside County
Waste Management Department
Hans Kernkamp, General Manager/Chief Engineer

1"=100' (full), 1"=200' (11" x 17")

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Datum is mean sea level.

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DRAWN BY:	CD
CHECKED BY:	FM/JG
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Lamb Canyon Sanitary Landfill
Phase 2, Stage 4 Expansion
RFP For Geotechnical Services
Spring 2010
Conceptual Subgrade Plan

Exhibit C
Drawing 1 of 2

EXHIBIT A to Consultant Agreement

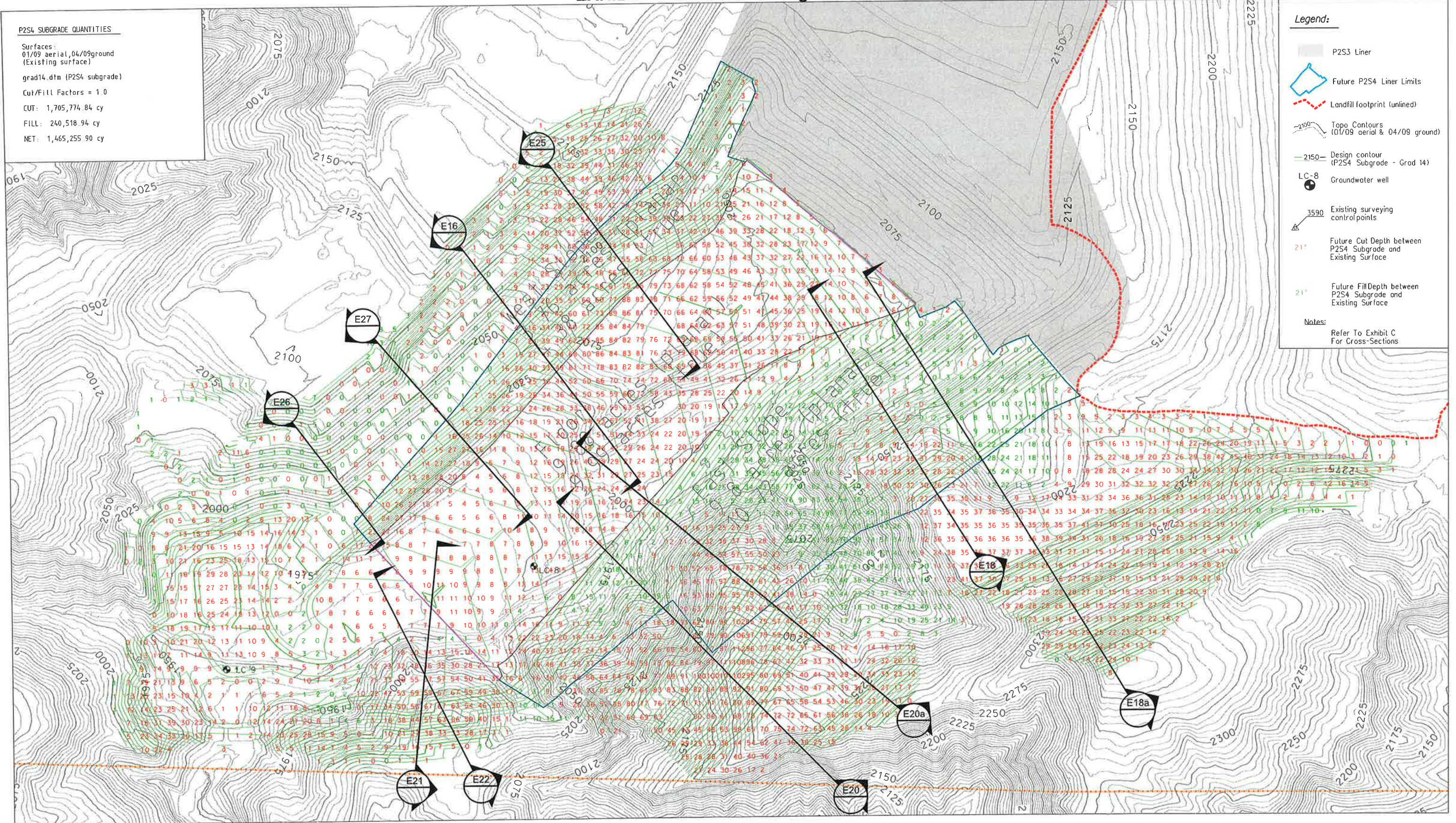
P2S4 SUBGRADE QUANTITIES

Surfaces:
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(Existing surface)
grad14.dtm (P2S4 subgrade)
Cut/Fill Factors = 1.0
CUT: 1,705,774.84 cy
FILL: 240,518.94 cy
NET: 1,465,255.90 cy

Legend:

- P2S3 Liner
- Future P2S4 Liner Limits
- Landfill footprint (unlined)
- Topo Contours (01/09 aerial & 04/09 ground)
- 2150 Design contour (P2S4 Subgrade - Grad 14)
- LC-8 Groundwater well
- 3590 Existing surveying controlpoints
- 21' Future Cut Depth between P2S4 Subgrade and Existing Surface
- 21' Future Fill Depth between P2S4 Subgrade and Existing Surface

Notes:
Refer To Exhibit C For Cross-Sections



NO.	REVISIONS	BY	APPROVED	DATE

Riverside County
Waste Management Department
Hans Kernkamp, General Manager / Chief Engineer

1"=100' (full), 1"=200' (11" x 17")

Datum is mean sea level.

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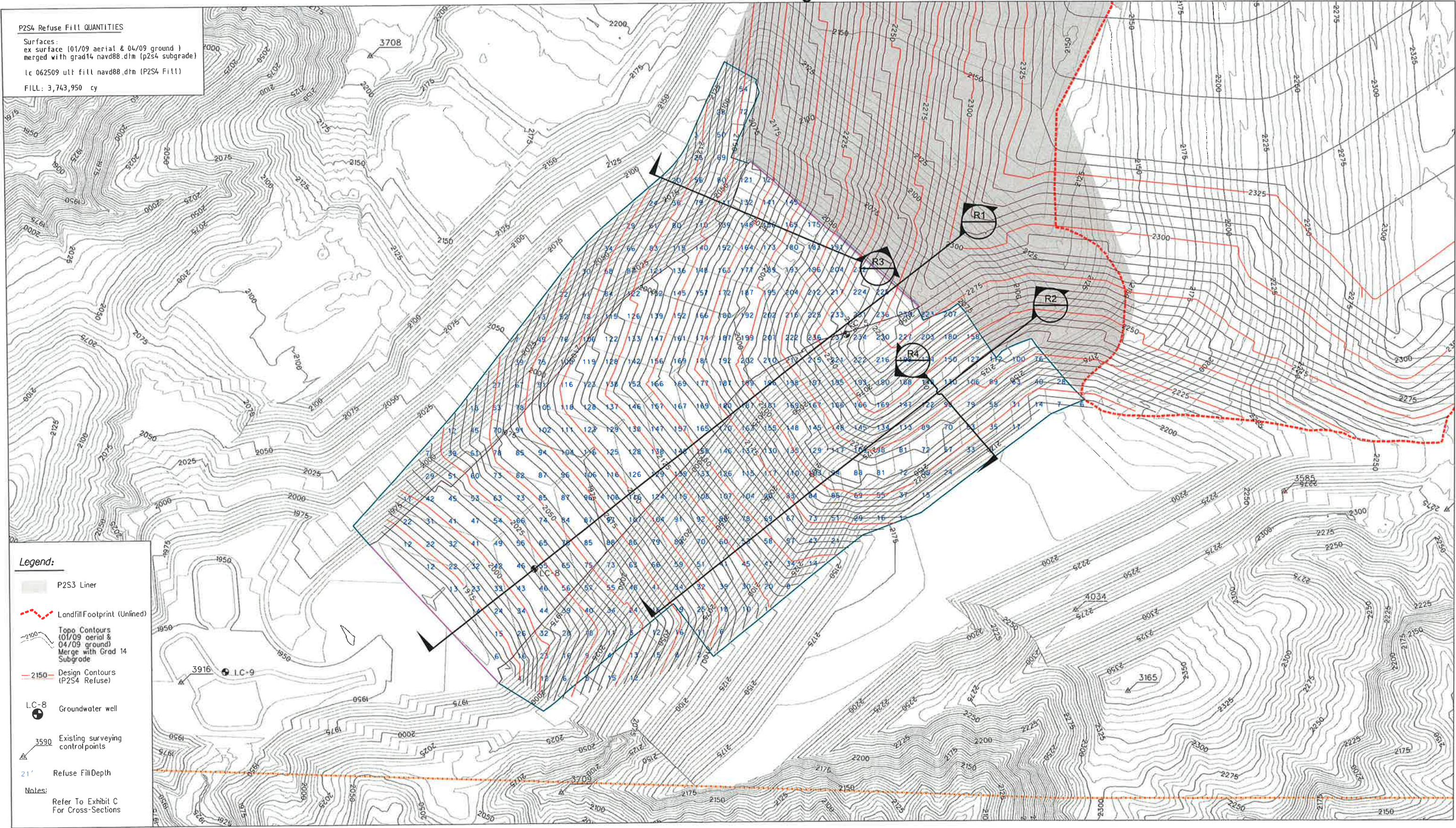
Lamb Canyon Sanitary Landfill
Phase 2, Stage 4 Expansion
**RFP For Geotechnical Services
Spring 2010**
Conceptual Subgrade Plan

Exhibit C
Drawing 2 of 2

EXHIBIT A to Consultant Agreement

P2S4 Refuse Fill QUANTITIES

Surfaces:
 ex surface (01/09 aerial & 04/09 ground)
 merged with grad14 navd88.dtm (p2s4 subgrade)
 lc 062509 ulf fill navd88.dtm (P2S4 Fill)
 FILL: 3,743,950 cy



Legend:

- P2S3 Liner
- Landfill Footprint (Unlined)
- Topo Contours (01/09 aerial & 04/09 ground) Merge with Grad 14 Subgrade
- 2150 Design Contours (P2S4 Refuse)
- L.C-8 Groundwater well
- 3590 Existing surveying control points
- 21' Refuse Fill Depth

Notes:
 Refer To Exhibit C For Cross-Sections

NO.	REVISIONS	BY	APPROVED	DATE

Riverside County
Waste Management Department
 Hans Kernkamp, General Manager/Chief Engineer

1" = 100' (Full), 1" = 200' (11" x 17")

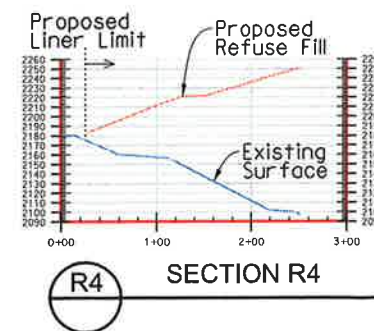
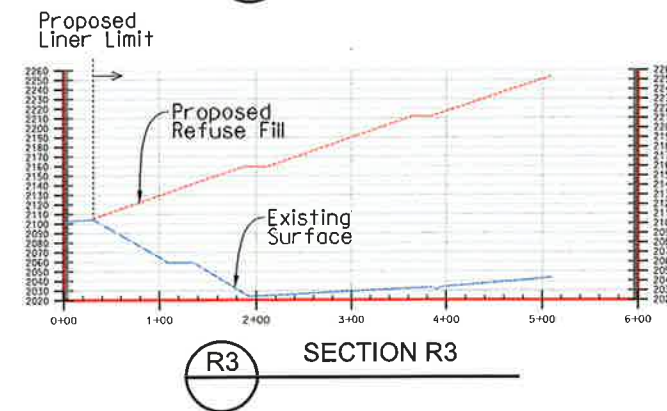
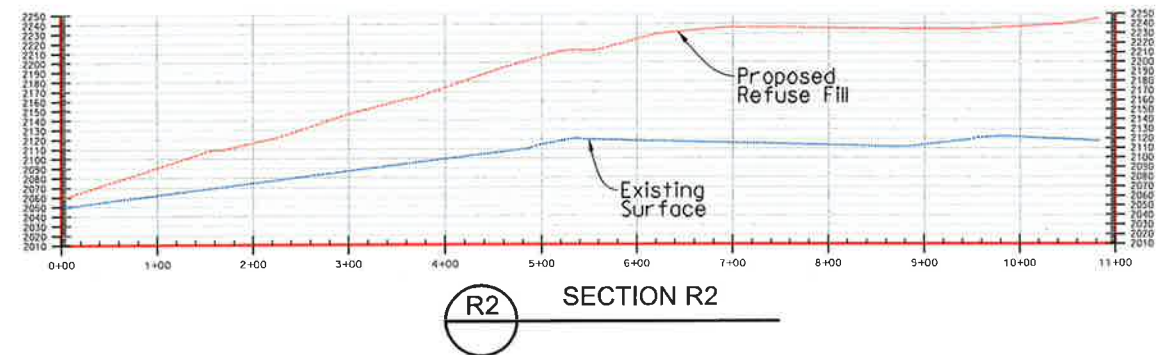
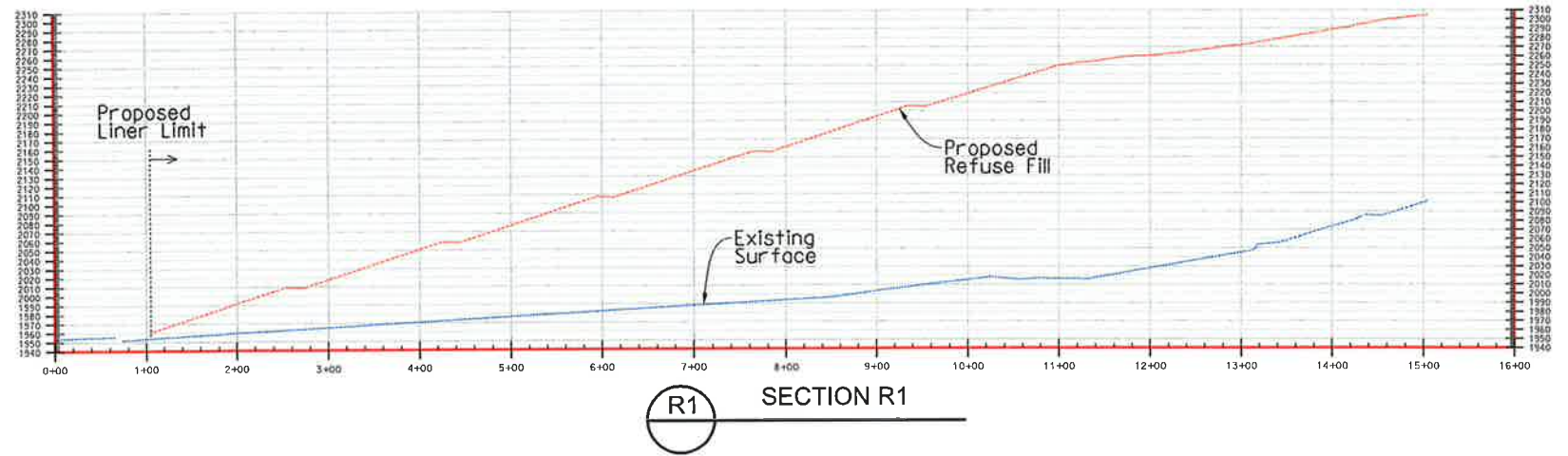
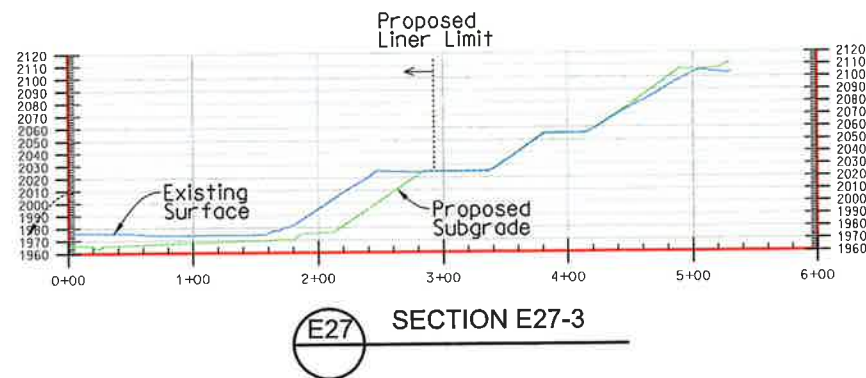
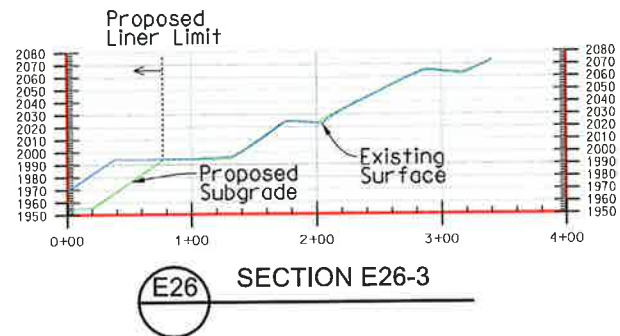
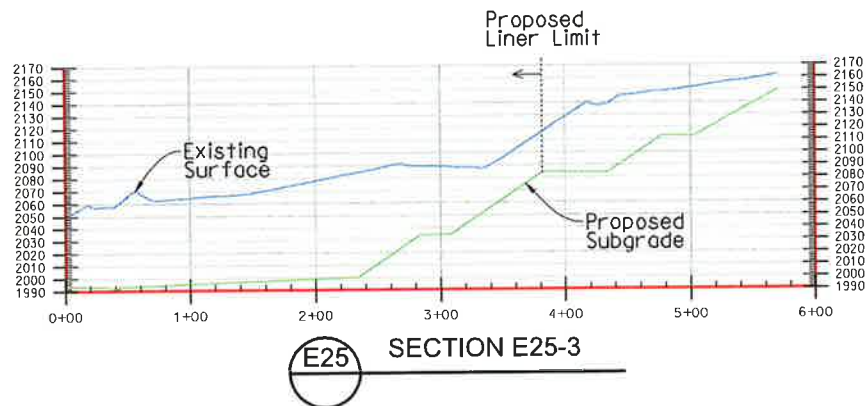
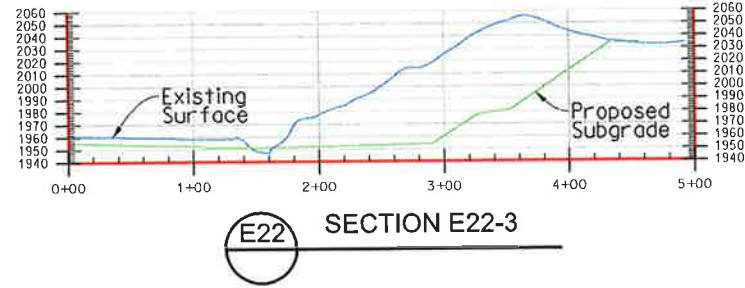
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Lamb Canyon Sanitary Landfill
 Phase 2, Stage 4 Expansion
RFP For Geotechnical Services
Spring 2010
Conceptual Subgrade Plan

Exhibit D
 Drawing 2 of 2

EXHIBIT A to Consultant Agreement



NO.	REVISIONS	BY	APPROVED	DATE

Riverside County
Waste Management Department
 Hans Kernkamp, General Manager/Chief Engineer

1" = 100' (full), 1" = 200' (11" x 17")

Datum is mean sea level.

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Lamb Canyon Sanitary Landfill
 Phase 2, Stage 4 Expansion
**RFP For Geotechnical Services
 Spring 2010
 Cross Sections**

Exhibit E
 Drawing 2 of 2

EXHIBIT A to Consultant Agreement

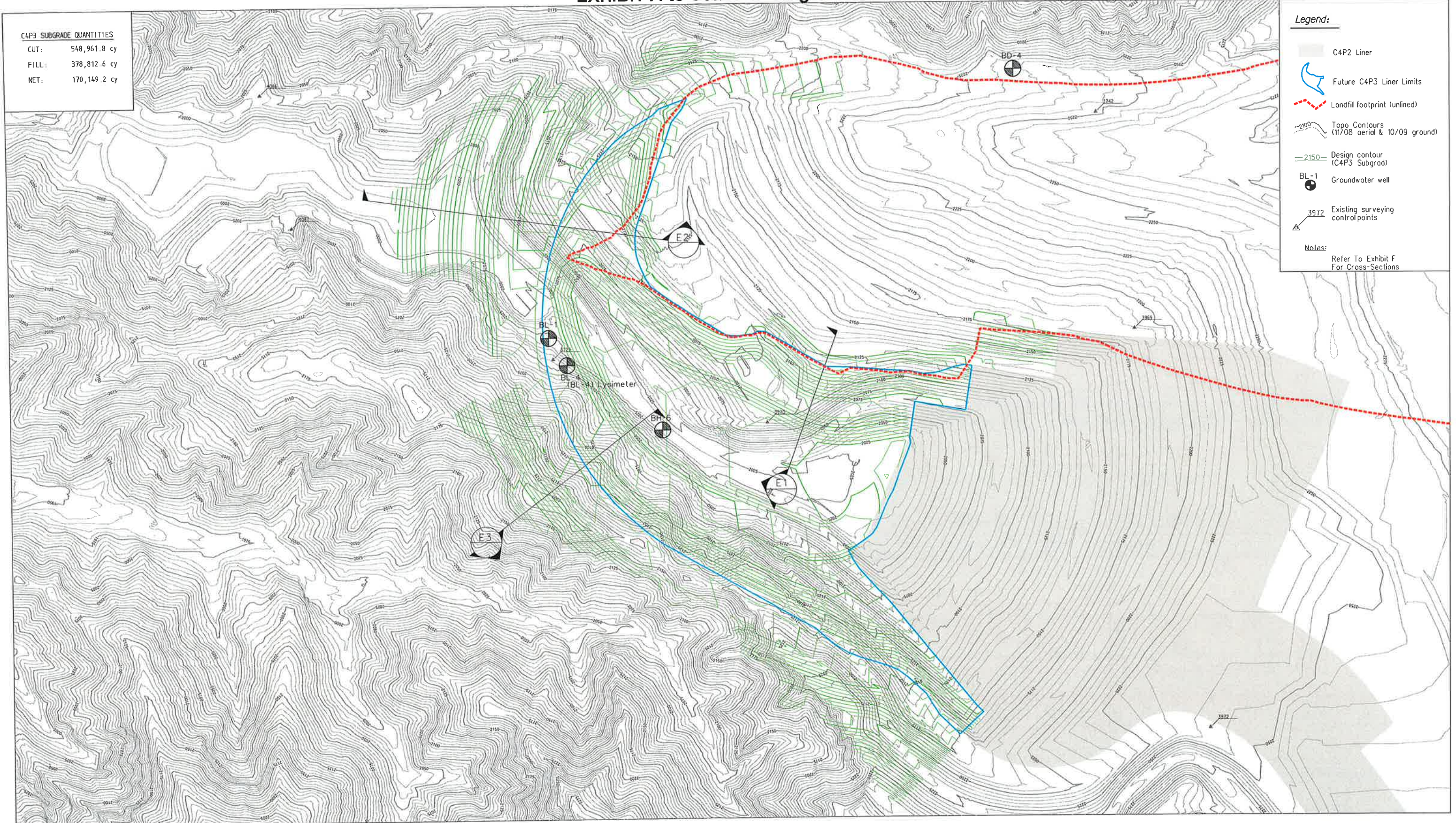
C4P3 SUBGRADE QUANTITIES

CUT: 548,961.8 cy
 FILL: 378,812.6 cy
 NET: 170,149.2 cy

Legend:

- C4P2 Liner
- Future C4P3 Liner Limits
- Landfill footprint (unlined)
- Topo Contours (11/08 aerial & 10/09 ground)
- Design contour (C4P3 Subgrad)
- BL-1 Groundwater well
- 3972 Existing surveying control points

Notes:
 Refer To Exhibit F
 For Cross-Sections



NO.	REVISIONS	BY	APPROVED	DATE

Riverside County
Waste Management Department
 Hans Kernkamp, General Manager/Chief Engineer

1"=100' (full), 1"=200' (11" x 17")

Datum is mean sea level.

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 CHECKED BY: AMC
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Badlands Sanitary Landfill
 RFP for Geotechnical Services - Spring 2010
 Canyon 4 Phase 3 Expansion

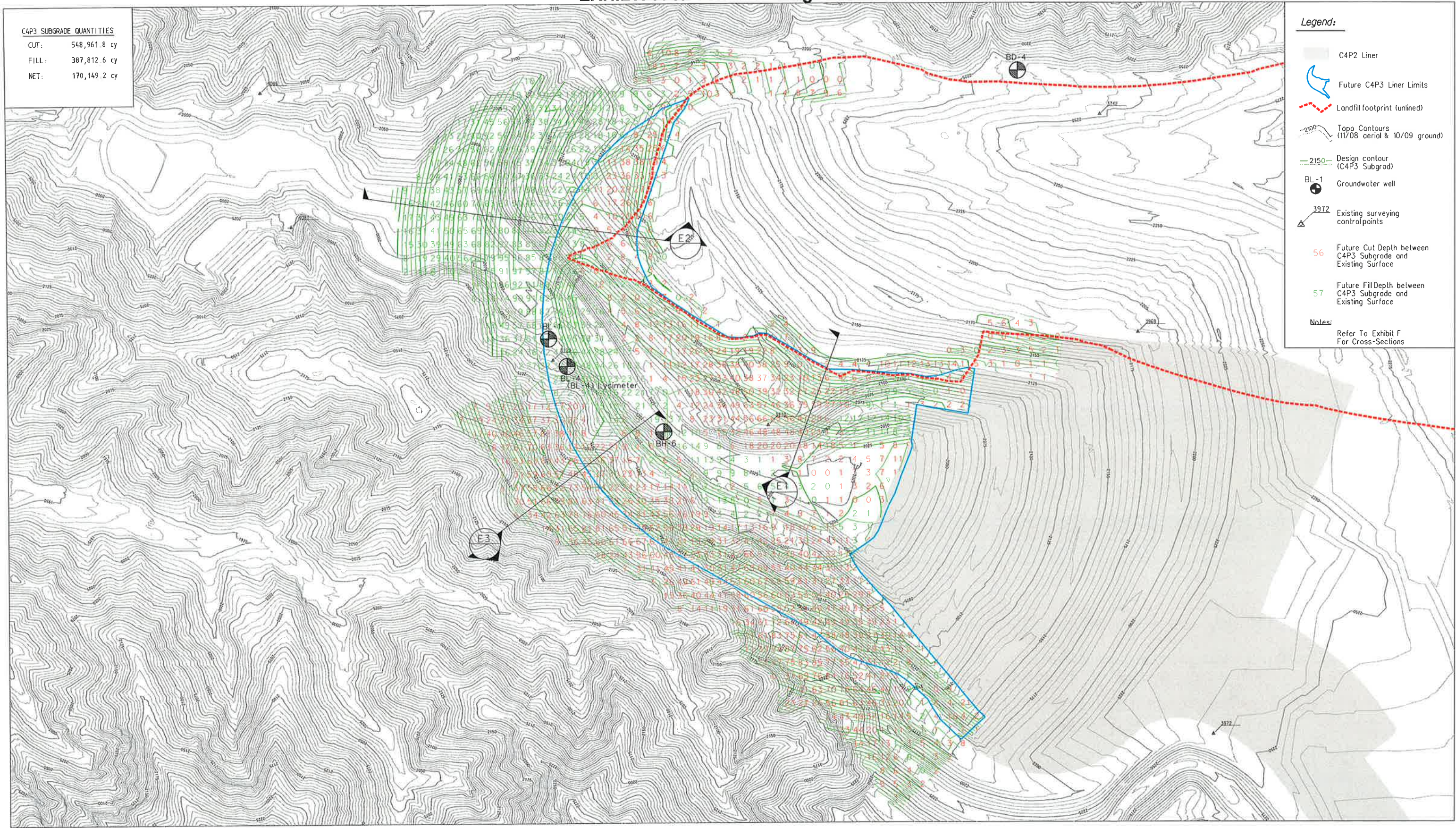
Conceptual Subgrade Plan

Exhibit F
 Drawing 1 OF 2

EXHIBIT A to Consultant Agreement

C4P3 SUBGRADE QUANTITIES

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 NET: 170,149.2 cy



Legend:

- C4P2 Liner
- Future C4P3 Liner Limits
- Landfill footprint (unlined)
- Topo Contours (11/08 aerial & 10/09 ground)
- 2150 Design contour (C4P3 Subgrad)
- BL-1 Groundwater well
- 3912 Existing surveying control points
- 56 Future Cut Depth between C4P3 Subgrade and Existing Surface
- 57 Future Fill Depth between C4P3 Subgrade and Existing Surface

Notes:
 Refer To Exhibit F For Cross-Sections

NO.	REVISIONS	BY	APPROVED	DATE

Riverside County
Waste Management Department
 Hans Kernkamp, General Manager/Chief Engineer

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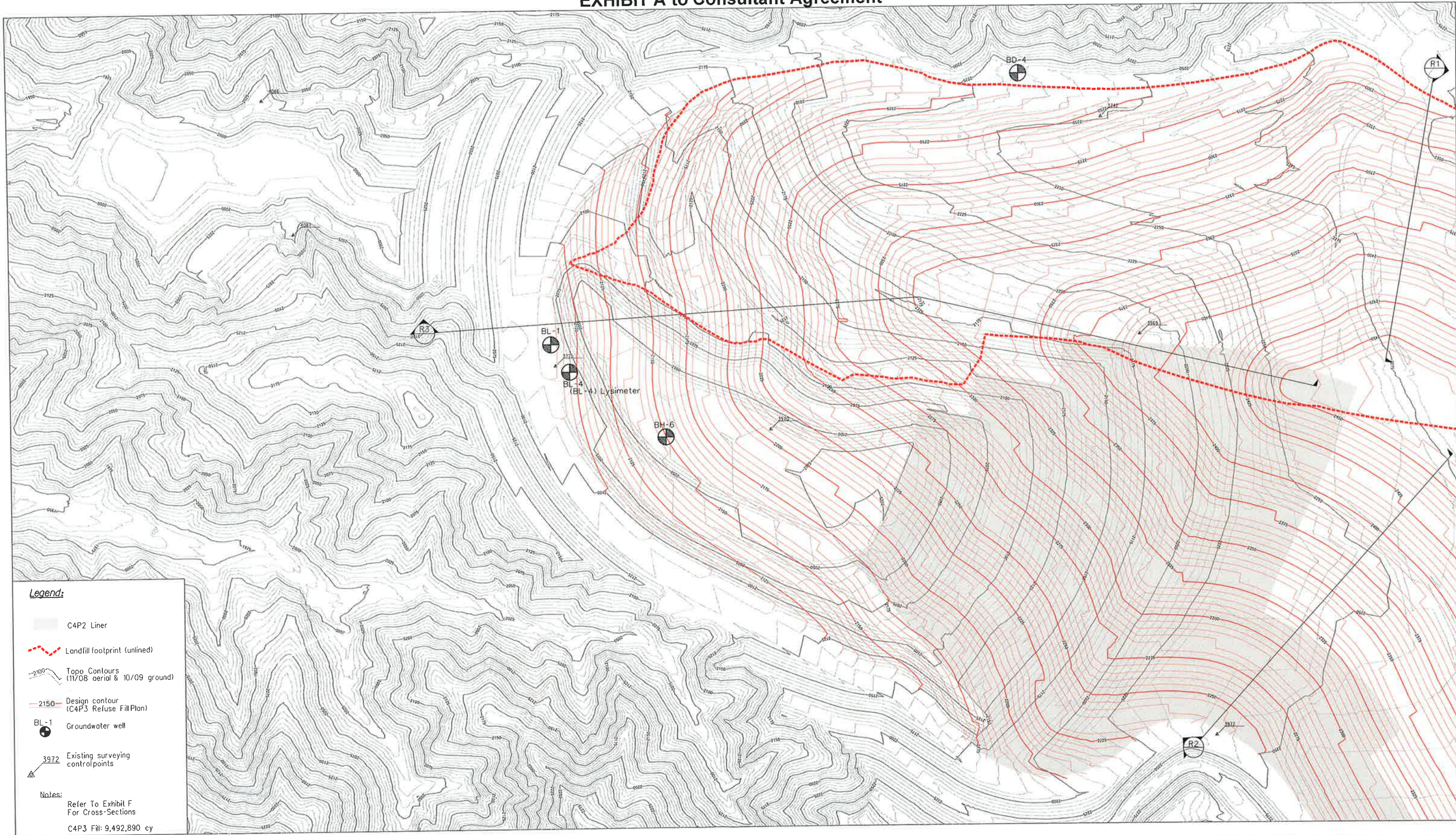
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Badlands Sanitary Landfill
 RFP for Geotechnical Services - Spring 2010
 Canyon 4 Phase 3 Expansion

Conceptual Subgrade Plan - Isopach

Exhibit F
 Drawing 2 OF 2

EXHIBIT A to Consultant Agreement



Legend:

- C4P2 Liner
- Landfill footprint (unlined)
- Topo Contours (11/08 aerial & 10/09 ground)
- 2150 Design contour (C4P3 Refuse Fill Plan)
- BL-1 Groundwater well
- 3972 Existing surveying control points

Notes:
 Refer To Exhibit F For Cross-Sections
 C4P3 Fill: 9,492,890 cy

NO.	REVISIONS	BY	APPROVED	DATE

Riverside County
Waste Management Department
 Hans Kernkamp, General Manager / Chief Engineer

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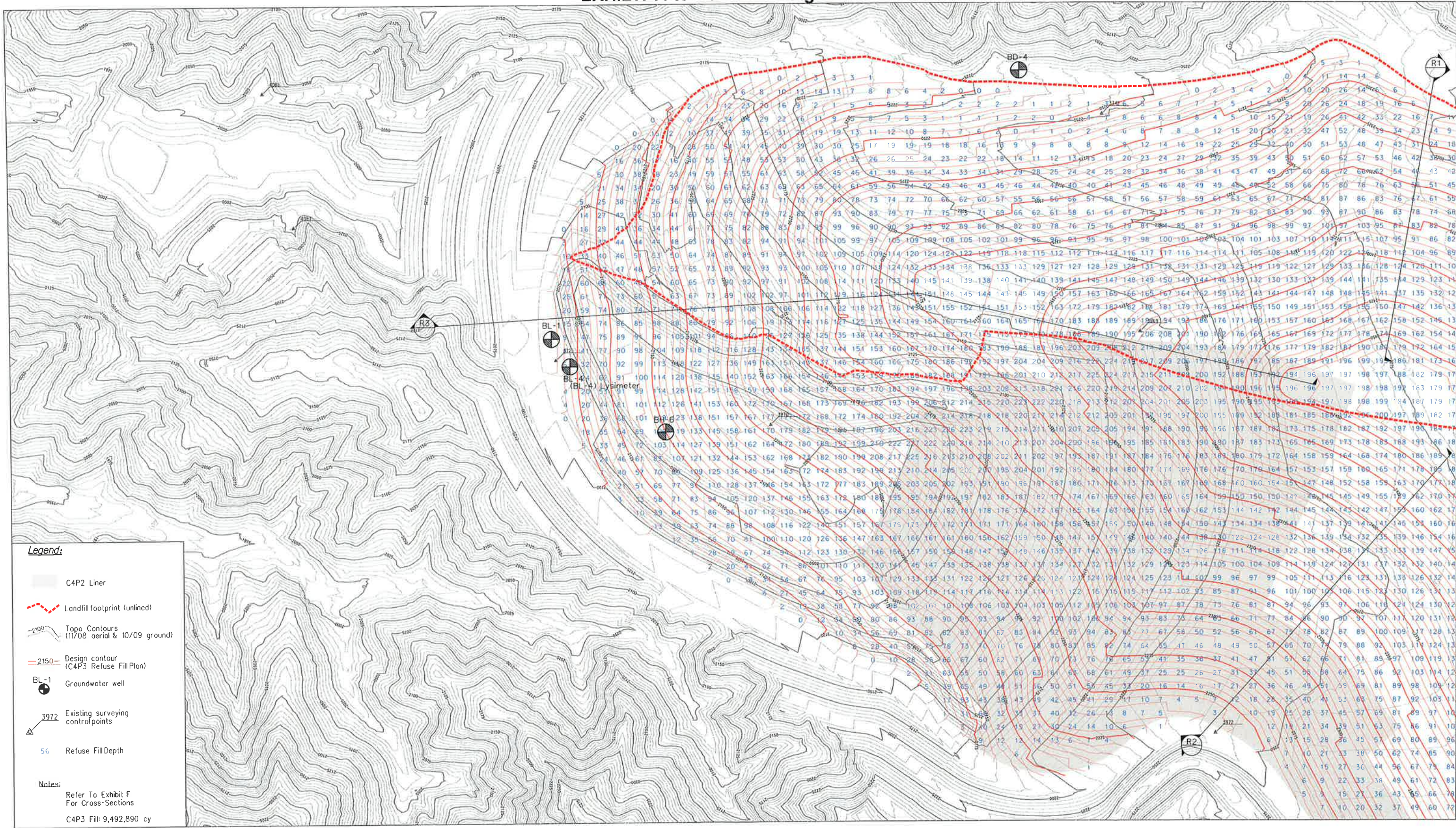
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Badlands Sanitary Landfill
 RFP for Geotechnical Services - Spring 2010
 Canyon 4 Phase 3 Expansion
Conceptual Refuse Fill Plan

Exhibit G
 Drawing 1 OF 2

EXHIBIT A to Consultant Agreement



Legend:

- C4P2 Liner
- Landfill footprint (unlined)
- Topo Contours (11/08 aerial & 10/09 ground)
- 2150— Design contour (C4P3 Refuse Fill Plan)
- BL-1 Groundwater well
- 3972 Existing surveying controlpoints
- 56 Refuse Fill Depth

Notes:

Refer To Exhibit F For Cross-Sections

C4P3 Fill: 9,492,890 cy

NO.	REVISIONS	BY	APPROVED	DATE

Riverside County
Waste Management Department
 Hans Kernkamp, General Manager/Chief Engineer

1"=100' (Full), 1"=200' (11" x 17")

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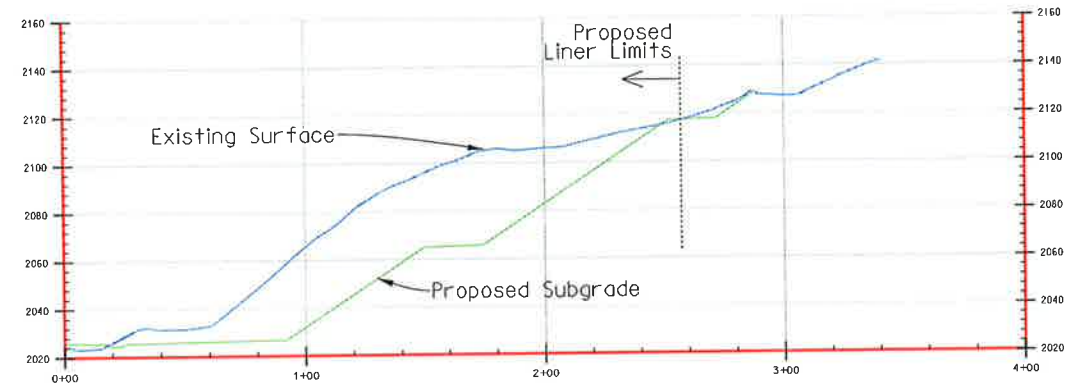
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Badlands Sanitary Landfill
 RFP for Geotechnical Services - Spring 2010
 Canyon 4 Phase 3 Expansion

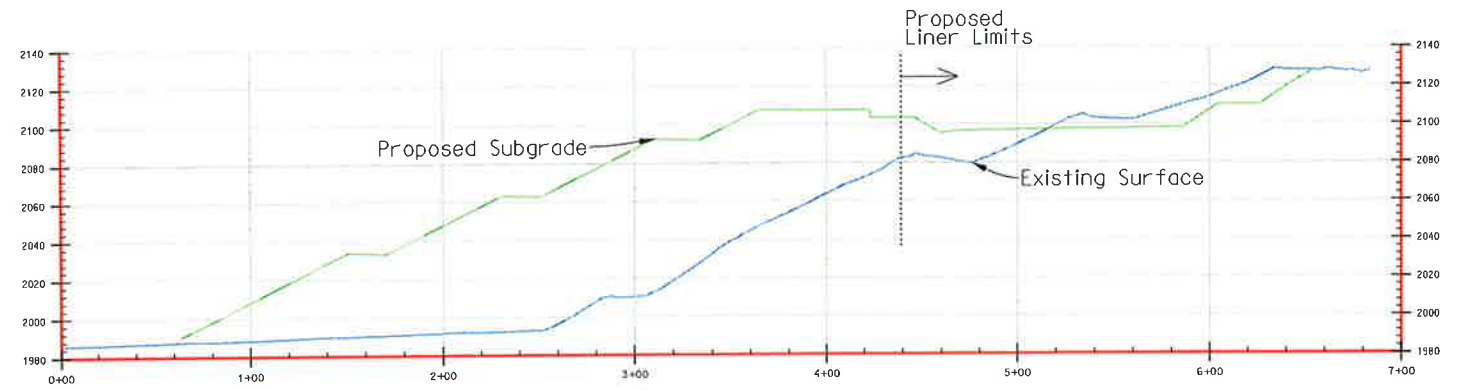
Conceptual Refuse Fill plan - Isopach

Exhibit G
 Drawing 2 OF 2

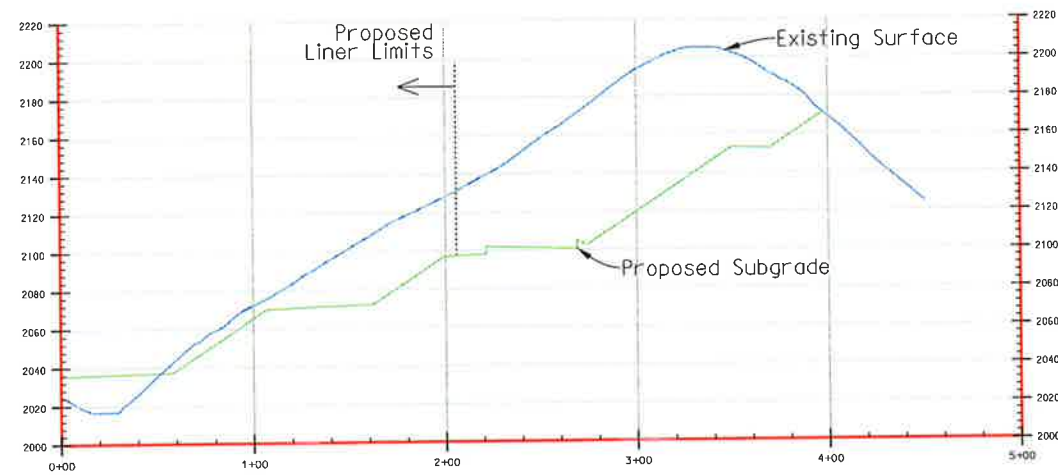
EXHIBIT A to Consultant Agreement



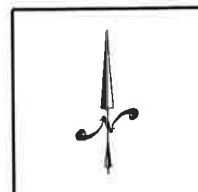
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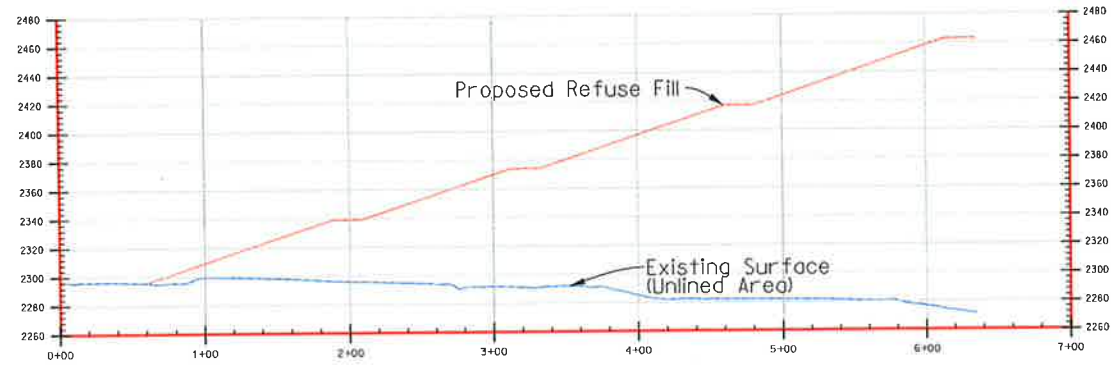
Riverside County
Waste Management Department
Hans Kernkamp, General Manager / Chief Engineer

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PATH: *Projects\Liner Stability RFP Maps*
PATH/FILE: *Exhibit F CAPS Cross Sections.dgn*

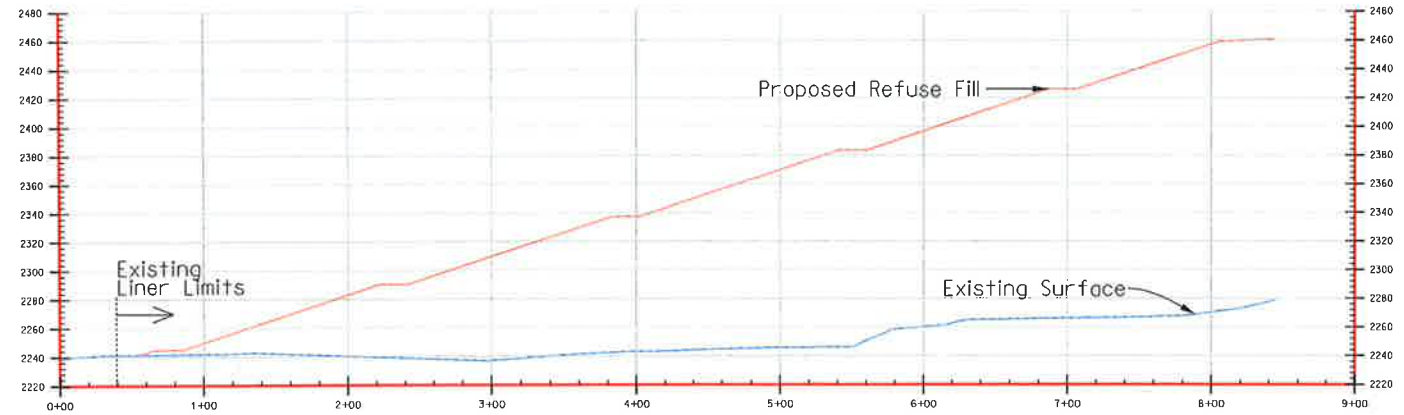
Badlands Sanitary Landfill
RFP for Geotechnical Services - Spring 2010
Canyon 4, Phase 3 Expansion

Cross Sections

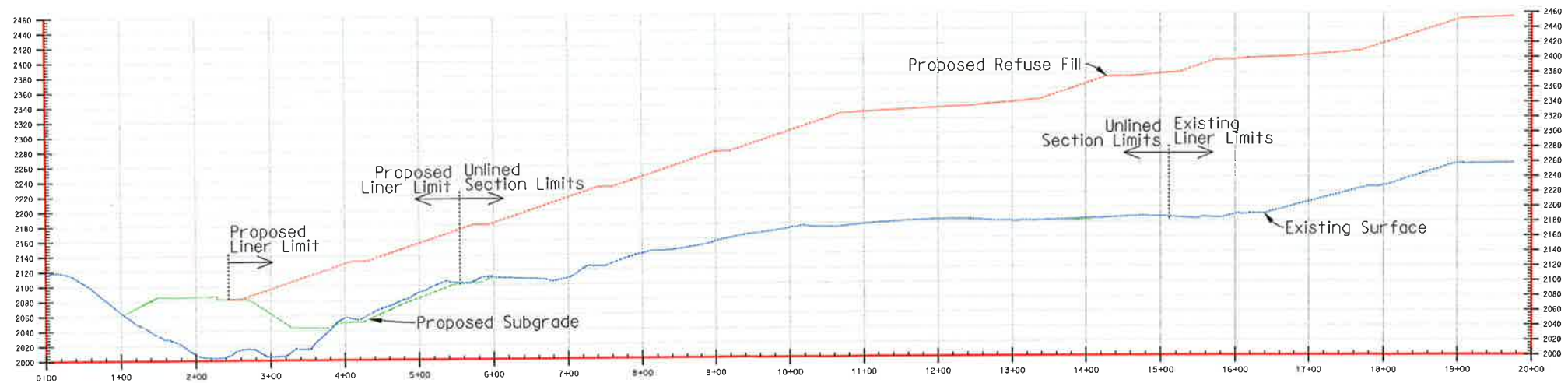
EXHIBIT A to Consultant Agreement



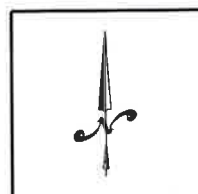
R1 Refuse-Fill Section 1
Scale: 1" = 300' (11x17)



R2 Refuse-Fill Section 2
Scale: 1" = 300' (11x17)



R3 Refuse-Fill Section 3
Scale: 1" = 200' (11x17)



NO.	REVISIONS	BY	APPROVED	DATE

Riverside County
Waste Management Department
Hans Kernkamp, General Manager / Chief Engineer

DESIGNED BY: SW/MWM
DRAWN BY: SW
CHECKED BY: AUC
DRAWING DATE: November 16, 2009
TOPO DATE: 11/08 aerial, 10/09 ground
SCALE: None
PATH: \\siles\BadlandsTeam\Sites\Badlands\BADS
PATH: Projects\Utter Stability RFP Maps
PATH/FILE: Exhibit F CHP3 Cross Sections.dgn

Badlands Sanitary Landfill
RFP for Geotechnical Services - Spring 2010
Canyon 4, Phase 3 Expansion

Cross Sections