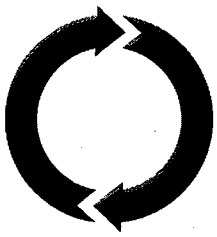

REQUEST FOR BIDS ("RFB")

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA
(RFQ Number 2007E005)

BID DUE DATE
JULY 2, 2007

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, Connecticut 06103-1722

June 8, 2007

REQUEST FOR BIDS

For

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, Connecticut 06103-1722

June 8, 2007

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REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 1

NOTICE TO CONTRACTORS – INVITATION TO BID

CONNECTICUT RESOURCES RECOVERY AUTHORITY

NOTICE TO CONTRACTORS – INVITATION TO BID

The Connecticut Resources Recovery Authority ("CRRA") is seeking bids from qualified contractors to furnish all tools, materials, labor, equipment and incidentals thereto for the closure of a portion of the MSW/Interim Ash Disposal Area at the Hartford Landfill located at 180 Leibert Road, Hartford, Connecticut 06120 ("Hartford Landfill").

The work will include grading, sub-grade preparation, and the installation of a landfill cap consisting of 40 mil LLDPE geomembrane, soil and/or geosynthetic drainage materials, stormwater management structures, vegetative support materials, erosion control materials, and vegetation over an approximately 45 acre area. The work will also include the installation of a new paved access road, a leachate force main, and electric service.

Bid package documents may be obtained during normal working hours at the offices of CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722, beginning **Monday, June 4, 2007.** The documents will also be available beginning on the same date on the world wide web at http://www.crra.org under the "Business Opportunities" page.

There will be a mandatory pre-bid conference and tour of the site for all prospective bidders. **The mandatory pre-bid conference and tour will be held at the Hartford Landfill at 10:00 a.m. on Monday, June 11, 2007**. Any prospective bidder intending to participate in the tour must contact David Bodendorf at (860) 757-7721 at least 24 hours in advance of the pre-bid conference and site tour.

Sealed bids must be received at the offices of CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722 no later than 3:00 p.m., Eastern Time, on Monday, July 2, 2007. Bids received after the time and date set forth above shall be rejected. All bids shall remain open for ninety (90) days after the bid due date.

Each bid must be accompanied by one of the following forms of bid security: a cashier's check; a certified check; or a bid bond. The bid security must be in the amount of 5% of the bid price.

Bids will be opened publicly at 3:05 p.m. Eastern Time, on Monday July 2, 2007 at the offices of CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722. Note that all information submitted by a bidder is subject to the Freedom of Information Act.

All questions regarding this RFB must be submitted **in writing** to David Bodendorf, PE, Senior Environmental Engineer, by e-mail (dbodendorf@crra.org), by fax ((860) 757-7742), or by correspondence (CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103) no later than **3:00 p.m. on Monday, June 18, 2007.** Any firm considering submitting a bid is prohibited from having any ex-parte communications with any CRRA staff member or CRRA Board member except Mr. Bodendorf.

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 2

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

CONTENTS

1. Introduction

The Connecticut Resources Recovery Authority ("CRRA") is a quasi-public entity of the State of Connecticut that is responsible for implementing the State Solid Waste Management Plan and is currently providing solid waste disposal and recycling services to more than 100 municipalities in the state. CRRA has developed, constructed and now operates an integrated system of four (4) resources recovery facilities, two (2) regional recycling centers, one (1) bulky waste landfill and twelve (12) transfer stations. At present, CRRA accepts more than 75% of the municipal solid waste generated in the State. These facilities are operated by entities that are under contract with CRRA.

One of the facilities CRRA has developed and operated is the Hartford Landfill located in Hartford, Connecticut. The Hartford Landfill consists of the MSW/Interim Ash Disposal Area and the Phase I Lined Ash Disposal Area. This RFB concerns the MSW/Interim Ash Disposal Area.

The MSW/Interim Ash Disposal Area is an 80-acre area that was first used by the City of Hartford for MSW disposal. After CRRA leased the Landfill from the City in 1982, CRRA used it for MSW combustor ash residue, non-processible MSW, front-end process residue from the Mid-Connecticut Resource Facility and bulky waste. It is now used only for non-processible MSW, process residue and bulky waste.

CRRA is now prepared to implement final closure of a 45-acre portion of the MSW/Interim Ash Disposal Area.

2. RFB Projected Timeline

The following is the projected timeline for the RFQ process:

ITEM	DATE
RFB Formally Announced	Saturday, June 2, 2007
RFB Documents Available	Monday, June 4, 2007
Pre-Bid Conference and Site Tour	Monday, June 11, 2007
Deadline for Written Questions	Monday, June 18, 2007
Response to Written Questions	No Later Than Friday, June 22, 2007
Bids Due at CRRA	Monday, July 2, 2007
Bid Opening	Monday July 2, 2007
Selection and Notice of Award Issued	Friday, July 27, 2007
Effective Date of Agreement	Within Two Weeks of Award

CRRA reserves the right at its sole and absolute discretion to extend any of the actual or proposed dates in the above Projected Timeline applicable to all proposers, and further reserves the right to reject any and all proposals and republish this RFQ. CRRA also reserves the right at its sole and absolute discretion to terminate this RFQ process at any time prior to the execution of any Agreement.

3. Definitions

As used in this Instructions To Bidders and in other Contract Documents (as defined herein), the following terms shall have the meanings as set forth below:

(a) **Addenda**: Written or graphic documents issued prior to the bid due date that clarify, correct or change any or all of the Contract Documents.

(b) **Contract Documents**:

(1) Hartford Landfill Closure – MSW/Interim Ash Disposal Area Agreement (the "Agreement");
(2) Notice To Contractors – Invitation To Bid;
(3) Instructions To Bidders;
(4) Bid Bond Form;
(5) Bid Form;
(6) Bid Price Form;
(7) References Form
(8) Background And Experience Form;
(9) Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety;
(10) Affidavit Of Third Party Fees;
(11) Bidder's Background Questionnaire;
(12) SEEC Form 11, Notice To Executive Branch State Contractors And Prospective State Contractors Of Campaign Contribution And Solicitation Ban;
(13) Addenda;
(14) Contractor's Bid (including all documentation attached to or accompanying such Bid, all other documentation submitted in connection with such Bid, and all post-bid documentation submitted prior to the Notice Of Award);
(15) Notice Of Award, with Contractor Certification Concerning Gifts attached;
(16) Notice To Proceed; and
(17) Any written amendments to the Agreement issued pursuant to Section 2.7 and Section 8.7 of the Agreement.

(c) **Laws And Regulations**: Any and all applicable laws, rules, regulations, ordinances, codes, orders and permits of any and all federal, state and local governmental and quasi-governmental bodies, agencies, authorities and courts having jurisdiction.

(d) **Notice Of Award**: Written notification from CRRA to the apparent successful bidder that states that CRRA has accepted such bidder's bid and sets forth the remaining conditions that must be fulfilled by such bidder before CRRA executes the Agreement.

(e) **Project**: The provision by the successful bidder the work required for closure of a portion of MSW/Interim Ash Disposal Area of the Hartford Landfill in accordance with the Contract Documents.

(f) **Property**: The certain parcel of real property located at 180 Leibert Road in Hartford, Connecticut 06120, upon which property CRRA operates the Hartford Landfill.

(g) **Site**: Those areas of the Property upon which any of the Work is to be performed, furnished and completed by the successful bidder in accordance with the Contract Documents.

Terms used, but not defined, in this Instructions To Bidders shall have the same respective meanings assigned to such terms in the Agreement.

4. Communications With CRRA Staff and Board Members

Except as otherwise authorized by this Instructions To Bidders, during the period while the RFB process is active (i.e., from the date CRRA issues the RFB until the date the successful bidder accepts the Notice Of Award), firms contemplating or preparing bids are prohibited from contacting CRRA staff or CRRA Board of Director members in an ex parte manner to discuss the RFB submission process. A firm's RFB submission shall be rejected if any of the foregoing ex parte communications take place.

5. Scope Of Work

The Connecticut Resources Recovery Authority (CRRA) is seeking bids from qualified contractors to furnish all tools, materials, labor, equipment, and incidentals thereto for the performance of closure of a portion of the MSW/Interim Ash Disposal Area of the Hartford Landfill (the "Work").

The Work is more particularly described as follows:

(a) Mobilization and demobilization (Phases 1A & 1B);

(b) Grading of ash residue in preparation for cap sub-base (Phases 1A & 1B);

(c) Installation of cap sub-base (Phases 1A & 1B);

(d) Installation of LLDPE membrane (Phases 1A & 1B);

(e) Installation of cap drainage layer (Phases 1A & 1B);

(f) Installation of cap drainage structures (Phases 1A & 1B);

(g) Installation of new bituminous concrete and gravel access roads (Phase 1A);

(h) Installation of a force main system with electrical distribution (Phase 1A);

(i) Installation of vegetative support layer (Phases 1A & 1B);

(j) Installation of temporary and permanent erosion control measures (Phases 1A & 1B), and;

(k) Making all required notifications and obtaining all local, state, and federal permits and approvals necessary for the completion of the Work (Phases 1A & 1B).

The above Work is more particularly shown on certain drawings entitled "Hartford Landfill Closure – MSW/Interim Ash Disposal Area" which drawings are set forth in **Exhibit A** of the Agreement. Specific instructions about how the Work is to be performed are included in **Exhibit B** (Technical Specifications) of the Agreement. The time within which the Work must be performed is specified in **Exhibit C** (Project Schedule) of the Agreement.

6. Bid Package Documents

This bid package consists of the following documents:

1. Notice To Contractors – Invitation To Bid;
2. Instructions To Bidders;
3. Bid Bond Form;
4. Bid Form;
5. Bid Price Form;
6. References Form;
7. Background And Experience Form;
8. Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety;
9. Affidavit Of Third Party Fees;
10. Bidder's Background Questionnaire;
11. SEEC Form 11, Notice To Executive Branch State Contractors And Prospective State Contractors Of Campaign Contribution And Solicitation Ban;
12. Notice Of Award with Contractor Certification Concerning Gifts attached;
13. Notice To Proceed; and
14. Hartford Landfill Phase 1 Ash Area Partial Closure Agreement, including:
    - A. Construction Drawings;
    - B. Technical Specifications;
    - C. Project Schedule;
    - D. Construction Performance Bond;
    - E. Construction Payment Bond;
    - F. Contractor's Wage Certification Form;
    - G. Schedule of Prevailing Wages;
    - H. Contracting Agency Certification Form; and
    - I. SEEC Form 11, Notice To Executive Branch State Contractors And Prospective State Contractors Of Campaign Contribution And Solicitation Ban.

Complete sets of the above documents may be obtained during normal business hours at CRRA's offices 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722, beginning Monday, June 4, 2007.

All of the documents are also available in PDF format beginning on the same date on the world wide web at:

http://www.crra.org under the "Business Opportunities" page.

All of the forms included in the documents are available for downloading in Microsoft Word format at CRRA's web site. CRRA encourages bidders to make use of the downloaded Word forms.

7. Mandatory Pre-Bid Conference And Site Tour

A mandatory pre-bid conference and tour of the Site for all prospective bidders will be conducted by CRRA staff on Monday, June 11, 2007 at 10:00 a.m. Eastern Time. Bids submitted by a bidder who did not attend the mandatory pre-bid conference and site tour shall be rejected. Alternate times for visiting the Site will not be allowed.

Prospective bidders should contact David Bodendorf at (860) 757-7721 at least 24 hours prior to the mandatory pre-bid conference and site tour to make arrangements for participating in the tour and for directions to the Site. Except as otherwise authorized by this Instructions To Bidders, bidders are expressly prohibited from contacting any CRRA personnel regarding this bid solicitation.

8. Addenda And Interpretations

CRRA may issue Addenda to this bid package that shall, upon issuance, become part of this package and binding upon all potential or actual bidders for the Work. Such Addenda may be issued in response to requests for interpretation or clarification received from potential bidders. Any request for interpretation or clarification of any documents included in this bid package must be **submitted in writing to David Bodendorf, PE, Senior Environmental Engineer, by e-mail (dbodendorm@ crra.org), by fax ((860) 757-7742), or by correspondence (CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722). To be given consideration, any such written request must be received by CRRA by 3:00 p.m., on Monday, June 18, 2007.**

Addenda, if any, issued prior to the mandatory pre-bid conference and site tour will be mailed and/or e-mailed to all persons who picked up or requested a printed copy from CRRA of the bid package documents or who otherwise notified CRRA of their interest in the RFB. Such addenda will also be posted on CRRA's web site (http://www.crra.org on the "Business Opportunities" page under the "RFB: Hartford Landfill Closure – MSW/Interim Ash Disposal Area" heading).

Addenda issued after the mandatory pre-bid conference and site tour will be mailed and/or e-mailed to all persons who attended the pre-bid conference and site tour and will be posted on CRRA's web site (http://www.crra.org on the "Business Opportunities" page under the "RFB: Hartford Landfill Closure – MSW/Interim Ash Disposal Area" heading). Such addenda will be mailed/e-mailed and posted on the web site no later than three (3) days before the submittal deadline.

Failure of any bidder to receive any such Addenda shall not relieve such bidder from any conditions stipulated in such Addenda. Only questions answered or issues addressed by formal written Addenda will be binding. **All oral and other written responses, statements, interpretations or clarifications shall be without legal effect and shall not be binding upon CRRA.**

9. Bid Submittal Procedures

Sealed bids shall be submitted no later than 3:00 p.m., Eastern Time, Monday, July 2, 2007 at the offices of CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722, Attn: David Bodendorf, Senior Environmental Engineer. Bids received after the time and date set forth above shall be rejected.

Each bidder must submit one (1) original and two (2) copies of its bid. The original bid shall be stamped or otherwise marked as such.

Each bid (the original and two copies) shall be enclosed in a sealed envelope that shall be clearly marked "Bid For Hartford Landfill Closure – MSW/Interim Ash Disposal Area."

No joint bids shall be accepted, but the use of subcontractors is acceptable.

Bids shall remain open and subject to acceptance for ninety (90) days after the bid due date.

The terms and conditions of the Agreement (Section 14 of this RFB), as attached, are non-negotiable. Any potential bidder that will be unable to execute the Agreement, as attached, should not submit a bid.

Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a bid must be executed) and delivered to the place where bids are to be submitted at any time prior to the bid due date.

10. Bid Security

Each bid shall be accompanied by a Bid Security. Any bid that does not contain a Bid Security or any bid that contains a Bid Security that does not comply with the following requirements shall be rejected as non-responsive.

10.1 Type of Security

The following are the acceptable forms of Bid Security:

(a) A cashier's check;

(b) A certified check; or

(c) A bid bond in the form included in Section 3 of the RFB.

The Bid Security shall be made payable to CRRA and shall be in an amount equal to five percent (5%) of the amount of the bid.

Any bid bond submitted as Bid Security shall be in the form provided for such bid bond in Section 3 of the RFB and such bid bond shall be executed and issued by a surety company acceptable to CRRA.

10.2 Disposition of Bid Security

The Bid Security of the successful bidder will be retained until such bidder has executed the Agreement, furnished the required contract security and satisfied all other conditions of the Notice of Award, including execution and submission of the Contractor Certification Concerning Gifts, whereupon such Bid Security will be returned.

If the successful bidder fails to execute and deliver the Agreement, furnish the required contract security, or satisfy all other conditions of the Notice Of Award within ten (10) days after the issuance of such Notice Of Award, CRRA may annul the Notice Of Award and the Bid Security of that bidder shall be forfeited.

The Bid Security of other bidders whom CRRA believes to have a reasonable chance of receiving the award may be retained by CRRA until the earlier of the seventh (7^{th}) day after the Effective Date of the Agreement or the ninetieth (90^{th}) day after the bid due date, whereupon the Bid Security furnished by such bidders will be returned. Bid Security with bids that are not competitive will be returned within seven (7) days after the opening of such bids.

11. Bid Contents

Bids shall be submitted on forms provided by CRRA as part of this bid package, all of which forms must be completed with the appropriate information required and all blanks on such forms filled in.

A bid must consist of the following and must be in the following order:

(a) Title page;

(b) Cover letter, which includes name of the bidder and the bidder's promise, if any, to set aside a portion of the contract for legitimate minority business enterprises (see Section 13.2 of this Instructions To Bidders);

(c) Table of Contents;

(d) Bid Security (cashier's check, certified check or bid bond) (see Section 10 of this Instructions To Bidders);

(e) The Bid Form, with Addenda, if any, listed in the appropriate place (Page 4-2), the name and address of the contact for Notices listed in the appropriate place (Page 4-6) and the completed agreement page (Page 4-7);

(f) The completed Bid Price Form (Page 5-1);

(g) The completed References Form (Page 6-1 through 6-2);

(h) The completed Background And Experience Form (Page 7-1);

(i) The completed Questions Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety form (Page 7-1), with the Bidder's most recent EEO-1 data attached if the Bidder wishes such data to be considered in the evaluation of its Bid;

(j) The completed Affidavit Of Third Party Fees form (subscribed and sworn before a Notary Public or Commissioner of the Superior Court) (Page 8-1 through 8-2);

(k) The completed Bidder's Background Questionnaire (Page 9-1 through 9-2); and

(l) A copy of the bidder's up-to-date certificate of insurance showing all current insurance coverage.

Bidders should not include in their bids other portions of the Bid Package Documents (e.g., this Instructions To Bidders or the Agreement).

A bidder may include additional information as an addendum/appendix to its bid if the bidder thinks that it will assist CRRA in evaluating the bidder's bid. A bidder should not include information that is not directly related to the subject matter of this solicitation.

12. Bid Opening

Bids will be opened publicly at 3:05 p.m. Eastern Time, on Monday, July 2, 2007 at the offices of CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722. **CRRA reserves the right to reject any or all of the bids, or any part(s) thereof, and/or to waive any informality or informalities in any bid or the RFB process for this Project.**

13. Bid Evaluation

The award of the contract for the Work will be made, if at all, to the bidder whose evaluation by CRRA results in CRRA determining that such award to such bidder is in the best interests of CRRA. **However, the selection of a bidder and the award of such contract, while anticipated, are not guaranteed.**

CRRA is an Equal Opportunity and Affirmative Action employer and does not discriminate in its hiring, employment, contracting, or business practices. CRRA is committed to

complying with the Americans with Disability Act of 1990 (ADA) and does not discriminate on the basis of disability in admission to, access to, or operation of its programs, services, or activities.

13.1 Evaluation Criteria

CRRA will base its evaluation of the bids on price, qualifications, demonstrated skill, ability and integrity of each bidder to perform the Work required by the Contract Documents and any other factor or criterion that CRRA, in its sole discretion, deems or may deem relevant or pertinent for such evaluation.

13.2 Affirmative Action Evaluation Criteria

Bids will also be rated on the bidder's demonstrated commitment to affirmative action. Sections 46a-68-1 to 46a-68-17 of the *Regulations of Connecticut State Agencies* require CRRA to consider the following factors when awarding a contract that is subject to contract compliance requirements:

(a) The bidder's success in implementing an affirmative action plan (See Question 4 of the Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety (Section 6 of this Project Manual));

(b) The bidder's success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the *Regulations of Connecticut State Agencies*, inclusive (See Question 5 of the Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety (Section 6 of this Project Manual));

(c) The bidder's promise to develop and implement a successful affirmative action plan (See Question 4B of the Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety (Section 6 of this Project Manual));

(d) The bidder's submission of EEO-1 data indicating that the composition of its work force is at or near parity when compared to the racial and sexual composition of the work force in the relevant labor market area (See Section 9(g) of this Instructions To Bidders); and

(e) The bidder's promise to set aside a portion of the contract for legitimate minority business enterprises (See Section 9(b) of this Instructions To Bidders).

14. Contract Award

If the contract is to be awarded, CRRA will issue to the successful bidder a Notice Of Award within ninety (90) days after the bid due date.

CRRA reserves the right to correct inaccurate awards resulting form CRRA's clerical errors. This may include, in extreme circumstances, revoking a Notice Of Award already made to a proposer and subsequently awarding the Notice of Award to another proposer. Such action by CRRA shall not constitute a breach of this RFQ by CRRA since the Notice Of Award to the initial proposer is deemed to be void ab initio and of no effect as if no Agreement ever existed between CRRA and the initial proposer.

15. Contractor's Certification Concerning Gifts

Pursuant to *Connecticut General Statutes* Section 4-252, the apparently successful Bidder must submit a document certifying that it has not given any gifts to certain individuals between the date CRRA started planning the RFB and the date the Agreement is executed. If the apparently successful Bidder does not execute the Certification, it will be disqualified for the Agreement. The dates between which the Bidder may not give gifts and the identities of those to whom it may not give gifts are specified in the attachment to the Notice of Award included in this RFB (see Section 12 of the RFB).

16. Bidder's Qualifications

CRRA may make any investigation deemed necessary to determine the ability of any bidder to perform the Work required. Each bidder shall furnish CRRA with all such information as may be required for this purpose.

17. Bid Preparation And Other Costs

Each bidder shall be solely responsible for all costs and expenses associated with the preparation and/or submission of its bid, or incurred in connection with any interviews and negotiations with CRRA, and CRRA shall have no responsibility or liability whatsoever for any such costs and expenses.

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 3

BID BOND FORM

BID/PROPOSAL BOND

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable. The below addresses are to be used for giving required notice.

BIDDER/PROPOSER (Name and Address):	**SURETY** (Name and Address of Principal Place of Business):

OWNER (Name and Address):

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103-1722

BID/PROPOSAL

DUE DATE:	
AMOUNT:	
PROJECT DESCRIPTION (Including Name and Location):	Hartford Landfill Closure – MSW/Interim Ash Disposal Area Hartford Landfill 180 Leibert Road Hartford, Connecticut 06120

BOND

BOND NUMBER:	
DATE (Not later than Bid/Proposal Due Date):	
PENAL SUM:	DOLLARS ($)

IN WITNESS WHEREOF, Surety and Bidder/Proposer, intending to be legally bound hereby, subject to the terms printed on Page 2 hereof, do each cause this Bid/Proposal Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER/PROPOSER		**SURETY**	
	(SEAL)		(SEAL)
Bidder's Name and Corporate Seal		Surety's Name and Corporate Seal	
SIGNATURE:		**SIGNATURE:**	
NAME AND TITLE:		**NAME AND TITLE:**	

TERMS AND CONDITIONS TO BID/PROPOSAL BOND

1. Bidder/Proposer and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder/Proposer any difference between the total amount of Bidder's/Proposer's bid/proposal and the total amount of the bid/proposal of the next lowest, responsible and responsive bidder/proposer as determined by Owner for the Work/Service required by the Contract Documents, provided that:
   1.1 If there is no such next lowest, responsible and responsive bidder/proposer, and Owner does not abandon the Project, then Bidder/Proposer and Surety shall pay to Owner the penal sum set forth on the face of this Bond, and
   1.2 In no event shall Bidder's/Proposer's and Surety's obligation hereunder exceed the penal sum set forth on the face of this Bond.
2. Default of Bidder/Proposer shall occur upon the failure of Bidder/Proposer to deliver within the time required by the Bid/Proposal Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement and related documents required by the Bid/Proposal Documents and any performance and payment bonds required by the Bid/Proposal Documents and Contract Documents.
3. This obligation shall be null and void if:
   3.1 Owner accepts Bidder's/Proposer's bid/proposal and bidder/proposer delivers within the time required by the Bid/Proposal Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement and related documents required by the Bid/Proposal Documents and any performance and payments bonds required by the Bid/Proposal Documents and Contract Documents, or
   3.2 All bids/proposals are rejected by Owner, or
   3.3 Owner fails to issue a notice of award to Bidder/ Proposer within the time specified in the Bid/Proposal Documents (or any extension thereof agreed to in writing by Bidder/Proposer and, if applicable, consented to by Surety when required by paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder/Proposer and within 30 calendar days after receipt by Bidder/Proposer and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue notice of award agreed to in writing by Owner and Bidder/Proposer, provided that the total time for issuing notice of award including extensions shall not in the aggregate exceed 120 days from Bid/Proposal Due Date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder/Proposer and Surety and in no case later than one year after Bid/Proposal Due Date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder/Proposer and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 4

BID FORM

BID FORM

PROJECT: Mid-Connecticut

CONTRACT NUMBER: _____ *(To be filled in later by CRRA)*

CONTRACT FOR: Hartford Landfill Closure – MSW/Interim Ash Disposal Area

BIDS SUBMITTED TO: Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, Connecticut 06103-1722

1. DEFINITIONS

Unless otherwise defined herein, all terms that are not defined and used in this Bid Form (a "Bid") shall have the same respective meanings assigned to such terms in the Contract Documents.

2. TERMS AND CONDITIONS

The undersigned (the "Bidder") accepts and agrees to all terms and conditions of the Request For Bids, Instructions To Bidders, the Agreement and any Addenda to any such documents. This Bid shall remain open and subject to acceptance for ninety (90) days after the Bid due date.

If CRRA issues a Notice Of Award to Bidder, Bidder shall within ten (10) days after the date thereof:

(a) Execute the required number of counterparts of the non-negotiable Agreement;

(b) Deliver to CRRA such executed counterparts and all other Contract Documents attached to the Notice Of Award along with any other documents required by the Contract Documents; and

(c) Satisfy all other conditions of the Notice Of Award.

3. BIDDER'S OBLIGATIONS

Bidder proposes and agrees, if this Bid is accepted by CRRA and CRRA issues a Notice Of Award to Bidder, to the following:

(a) To perform, furnish and complete all the Work as specified or indicated in the Contract Documents and Agreement for the applicable prices, rates and/or costs set forth in this Bid and in accordance with the terms and conditions of the Contract Documents and Agreement; and

(b) At the request of CRRA and if the successful Bidder qualifies, to apply with the State of Connecticut Department of Economic and Community Development, and do all that is necessary to make itself qualify, as a Small Contractor and/or Minority/Women/Disabled Person Business Enterprise in accordance with Section 4a-60g of the *Connecticut General Statutes*.

4. BIDDER'S REPRESENTATIONS CONCERNING NON-NEGOTIABILITY OF THE AGREEMENT

In submitting this Bid, Bidder acknowledges and agrees that the terms and conditions of the Agreement (including all Exhibits thereto), as included in the RFB, are non-negotiable, and Bidder is willing to and shall, if CRRA accepts its Bid for the Work and issues a Notice Of Award to Bidder, execute such Agreement. However, CRRA reserves the right to negotiate with Bidder over Bidder's price and rates for the Work submitted on its Bid Price Form.

5. BIDDER'S REPRESENTATIONS CONCERNING EXAMINATION OF CONTRACT DOCUMENTS

In submitting this Bid, Bidder represents that:

(a) Proposer has thoroughly examined and carefully studied the RFB package documents and the following Addenda, receipt of which is hereby acknowledged (list Addenda by Addendum number and date):

Addendum Number	Date Issued

(b) Without exception the Bid is premised upon performing, furnishing and completing the Work required by the Contract Documents and applying the specific means, methods, techniques, sequences or procedures (if any) that may be shown, indicated or expressly required by the Contract Documents;

(c) Bidder is fully informed and is satisfied as to all Laws and Regulations that may affect cost, progress, performance, furnishing and/or completion of the Work;

(d) Bidder has studied and carefully correlated Bidder's knowledge and observations with the Contract Documents and such other related data;

(e) Bidder has given CRRA written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof by CRRA are acceptable to Bidder;

(f) If Bidder has failed to promptly notify CRRA of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Contract Documents, such failure shall be deemed by both Bidder and CRRA to be a waiver to assert these issues and claims in the future;

(g) Bidder is aware of the general nature of work to be performed by CRRA and others that relates to the Work for which this Bid is submitted;

(h) The Contract Documents are generally sufficient to indicate and convey understanding by Bidder of all terms and conditions for performing, furnishing and completing the Work for which this Bid is submitted.

6. BIDDER'S REPRESENTATIONS CONCERNING SITE CONDITIONS

In submitting this Bid, Bidder acknowledges and agrees that:

(a) All information and data included in this RFB package relating to the surface, subsurface and other conditions of the Site are from presently available sources and are being provided only for the information and convenience of the bidders;

(b) CRRA does not assume any responsibility for the accuracy or completeness of such information and data, if any, shown or indicated in the Contract Documents with respect to any surface, subsurface or other conditions of the Site(s);

(c) Bidder is solely responsible for investigating and satisfying itself as to all actual and existing Site conditions, including surface conditions, subsurface conditions and underground facilities; and

(d) Bidder has visited the Site and has become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance, furnishing and completion of the Work.

7. BIDDER'S REPRESENTATIONS CONCERNING INFORMATION MADE AVAILABLE

In submitting this Bid, Bidder acknowledges and agrees that Bidder shall not use any information made available to it or obtained in any examination made by it in connection with this RFB in any manner as a basis or grounds for a claim or demand of any nature against CRRA arising from or by reason of any variance which may exist between information offered or so obtained and the actual materials, conditions, or structures encountered during performance of any of the Work.

8. BIDDER'S REPRESENTATIONS CONCERNING STATE OF CONNECTICUT TAXES

In submitting this Bid, Bidder acknowledges and agrees that CRRA is exempt from all State of Connecticut taxes and assessments, including sales and use taxes. Accordingly, Bidder shall not charge CRRA any State of Connecticut taxes or assessments at any time in connection with Bidder's performance of this Agreement, nor shall Bidder include any State of Connecticut taxes or assessments in any rates, costs, prices or other charges to CRRA hereunder. Bidder represents and warrants that no State of Connecticut taxes or assessments were included in any rates, costs, prices or other charges presented to CRRA in any Bid or other submittal to CRRA in connection with this RFB.

9. BIDDER'S REPRESENTATIONS CONCERNING DISCLOSURE OF INFORMATION

In submitting this Bid, Bidder:

(a) Recognizes and agrees that CRRA is subject to the Freedom of Information provisions of the *Connecticut General Statutes* and, as such, any information contained in or submitted with or in connection with Bidder's Bid is subject to disclosure if required by law or otherwise; and

(b) Expressly waives any claim(s) that Bidder or any of its successors and/or assigns has or may have against CRRA or any of its directors, officers, employees or authorized agents as a result of any such disclosure.

10. BIDDER'S REPRESENTATIONS CONCERNING NON-COLLUSION

By submission of this Bid, the Bidder, together with any affiliates or related persons, the guarantor and any joint ventures, hereby represents that, under risk of termination of the Agreement, if awarded, to the best of its knowledge and belief:

(a) The prices in the Bid have been arrived at as the result of an independent business judgment without collusion, consultation, communication, agreement or otherwise for the purpose of restricting competition, as to any matter relating to such prices and any other person or company;

(b) Unless otherwise required by law, the prices that have been quoted in this Bid have not, directly or indirectly, been knowingly disclosed by the Bidder prior to "opening" to any other person or company;

(c) No attempt has been made or will be made by the Bidder to induce any other person, partnership of corporation to submit, or not to submit, a Bid for the purpose of restricting competition;

(d) Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; and

(e) Bidder has not sought by collusion to obtain for itself any advantage for the Work over any other Bidder for the Work or over CRRA.

11. BIDDER'S REPRESENTATIONS CONCERNING RFB FORMS

By submission of this Bid, the Bidder, together with any affiliates or related business entities or persons, the guarantor and any joint ventures, hereby represents that, under risk of termination of the Agreement, if awarded, all of the forms included in the RFB that are submitted to CRRA as part of its Bid are identical in form and content to the preprinted forms in the RFB except that information requested by the forms has been inserted in the spaces on the forms provided for the insertion of such requested information.

12. BIDDER'S WAIVER OF DAMAGES

Bidder and all its affiliates and subsidiaries understand that by submitting a Bid, Bidder is acting at its and their own risk and Bidder does for itself and all its affiliates, subsidiaries, successors and assigns hereby waive any rights any of them may have to receive any damages for any liability, claim, loss or injury resulting from:

(a) Any action or inaction on the part of CRRA or any of its directors, officers, employees or authorized agents concerning the evaluation, selection, non-selection and/or rejection of any or all Bids by CRRA or any of its directors, officers, employees or authorized agents;

(b) Any agreement entered into for the Work (or any part thereof) described in the Contract Documents; and/or

(c) Any award or non-award of a contract for the Work (or any part thereof) pursuant to the Contract Documents.

13. BIDDER'S REPRESENTATION REGARDING THE CONNECTICUT CAMPAIGN CONTRIBUTION AND SOLICITATION BAN

With regard to a State contract as defined in P.A. 07-1 having a value in a calendar year of $50,000 or more or a combination or series of such agreement or contracts having a value of $100,000 or more, the authorized signatory to this submission in response to CRRA's solicitation expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising prospective state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice. See Section 11 [SEEC Form 11] of the Contract Documents.

14. ATTACHMENTS

The following documents are attached hereto and made a part of this Bid:

(a) A properly executed Bid Security in an amount equal to five percent (5%) of the amount of the bid;

(b) The completed Bid Price Form;

(c) The completed References Form;

(d) The completed Background And Experience Form;

(e) Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health and Safety, which has been completely filled out by the Bidder;

(f) Affidavit Of Third Party Fees, which has been completely filled out by Bidder and signed before a Notary Public or Commissioner of the Superior Court;

(g) Background Questionnaire, which has been completely filled out by the Bidder and signed before a Notary Public or Commissioner of the Superior Court; and

(h) A copy of the Bidder's up-to-date certificate of insurance showing all current insurance coverage.

15. NOTICES

Communications concerning this Bid should be addressed to Bidder at the address set forth below.

Bidder Name:	
Bidder Contact:	
Title:	
Address:	
Telephone Number:	
Fax Number:	
E-Mail Address:	

16. ADDITIONAL REPRESENTATION

Bidder hereby represents that the undersigned is duly authorized to submit this Bid on behalf of Bidder.

AGREED TO AND SUBMITTED ON _____, 200 7

Name of Bidder (Firm):	
Signature of Bidder Representative:	
Name (Typed/Printed):	
Title (Typed/Printed):	

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 5

BID PRICE FORM

BID PRICE FORM

Bidder will complete the Work as specified in the Contract Documents for the following lump sum bid price (please use itemized table below):

BASE BID				
(Show amount in both words and figures. In case of discrepancy, the amount shown in words will govern.) (Also see Section 01205 Payment Items for a description of each payment item.)				
Item No.	**Item and Unit Price in Words**		**Estimated Quantity**	**Total in Figures**
LUMP SUM BID ITEMS				
1	Mobilization/Demobilization and Incidental Construction at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
2	Field Services at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
3	Temporary Erosion Control at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
4	Temporary Diversions at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____

BASE BID

(Show amount in both words and figures. In case of discrepancy, the amount shown in words will govern.)
(Also see Section 01205 Payment Items for a description of each payment item.)

Item No.	Item and Unit Price in Words		Estimated Quantity	Total in Figures
	LUMP SUM BID ITEMS			
5	Site Preparation at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
6	Relocate Leachate Force Main at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
7	Underground Electrical Distribution at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
8	Subgrade Preparation at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
9	6" Cap Base Material at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
10	40 Mil LLDPE Geomembrane Liner at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____

BASE BID				
(Show amount in both words and figures. In case of discrepancy, the amount shown in words will govern.) (Also see Section 01205 Payment Items for a description of each payment item.)				
Item No.	**Item and Unit Price in Words**		**Estimated Quantity**	**Total in Figures**
LUMP SUM BID ITEMS				
11	Penetration Sealing and Booting at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
12	Cap Drainage Layer at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
13	Non-Woven Geotextile at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
14	Vegetative Support Material at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
15	Establish and Maintain Vegetation at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
16	Erosion Control Blanket at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____

BASE BID				
(Show amount in both words and figures. In case of discrepancy, the amount shown in words will govern.) (Also see Section 01205 Payment Items for a description of each payment item.)				
Item No.	**Item and Unit Price in Words**		**Estimated Quantity**	**Total in Figures**
LUMP SUM BID ITEMS				
17	Erosion Control Matting at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
18	Type "A" Cap Anchor at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
19	Type "B" Cap Anchor at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
20	Type "C" Cap Anchor at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
21	Type "D" Cap Anchor at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
22	Phase 1A/1B Connection at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____

BASE BID				
(Show amount in both words and figures. In case of discrepancy, the amount shown in words will govern.) (Also see Section 01205 Payment Items for a description of each payment item.)				
Item No.	**Item and Unit Price in Words**		**Estimated Quantity**	**Total in Figures**
LUMP SUM BID ITEMS				
23	Connection to Existing Ash Liner at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
24	Half Pipe Diversion Swales at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
25	Grouted Riprap Downchute at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
26	Impact Basins at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
27	Riprap-Lined Ditch at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
28	Landfill Markers at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____

BASE BID				
(Show amount in both words and figures. In case of discrepancy, the amount shown in words will govern.) (Also see Section 01205 Payment Items for a description of each payment item.)				
Item No.	**Item and Unit Price in Words**		**Estimated Quantity**	**Total in Figures**
LUMP SUM BID ITEMS				
29	Bituminous Concrete Access Roads at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
30	Gravel Access Roads at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
31	Traffic Protection at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
32	Off-Cap Drainage Improvements at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____

BASE BID				
(Show amount in both words and figures. In case of discrepancy, the amount shown in words will govern.) (Also see Section 01205 Payment Items for a description of each payment item.)				
Item No.	**Item and Unit Price in Words**		**Estimated Quantity**	**Total in Figures**
UNIT PRICE BID ITEMS				
33	Additional General Fill at the per Cubic Yard Price of _____ Dollars and _____ Cents ($)	CY	5,000	$ _____
34	Additional Fill for Access Road at the per Cubic Yard Price of _____ Dollars and _____ Cents ($)	CY	44,000	$ _____
	BASE BID **(TOTAL ITEMS # 1 THROUGH #34)**			$ _____

TOTAL BID PRICE	
	(Use Words)

ALTERNATES				
(Show amount in both words and figures. In case of discrepancy, the amount shown in words will govern.) (Also see Section 01205 Payment Items for a description of each payment item.)				
Item No.	**Item and Unit Price in Words**		**Estimated Quantity**	**Total in Figures**
7A	Aboveground Electric Distribution at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
12A	Alternate Cap Drainage Layer at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
14A	Owner-Supplied Vegetative Support Material at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____
25A	Articulating Block Downchutes at the Lump Sum Price of _____ Dollars and _____ Cents ($)	LS	1	$ _____

Note: The cost for each alternate is the net total to incorporate all aspects of the alternate into the Work. It replaces not supplements the corresponding Base Bid item. For example, if the owner chooses to use aboveground electrical wiring, the complete cost for Alternate Item No. 7A Aboveground Electrical Distribution will replace the complete cost of Payment Item No. 7 Underground Electrical Distribution.

Bidder affirms that the above lump sum and unit price costs represent the entire cost to complete the Work in accordance with the Contract Documents, and that no claim will be made on account of any increase in wage scales, material prices, delivery delays, taxes, insurance, cost indexes or any other rates affecting the construction industry or this Project, and that each and every such claim is hereby expressly waived by Bidder.

Name of Bidder (Firm):	
Signature of Bidder Representative:	
Name (Type/Print):	
Title:	
Date:	

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 6

REFERENCES FORM

REFERENCES FORM

In space below, provide the names of three (3) references who can attest to the quality of work performed/services provided by Bidder/Proposer. Include job title, affiliation, address, phone number and a brief description of the work performed/services provided for each reference.

REFERENCE 1

Name of Person:	
Title:	
Name of Firm:	
Address:	
Telephone Number:	
Description Of Work Performed:	

REFERENCE 2

Name of Person:	
Title:	
Name of Firm:	
Address:	
Telephone Number:	
Description Of Work Performed:	

REFERENCE 3

Name of Person:	
Title:	
Name of Firm:	
Address:	
Telephone Number:	
Description Of Work Performed:	

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 7

BACKGROUND AND EXPERIENCE FORM

BACKGROUND AND EXPERIENCE FORM

In the space below, summarize work of a similar nature to that specified in the Contract Documents which has been performed by the bidder and which will enable CRRA to evaluate the experience and professional capabilities of the bidder.

[Attach Additional Pages If Necessary]

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 8

QUESTIONNAIRE CONCERNING AFFIRMATIVE ACTION, SMALL BUSINESS CONTRACTORS AND OCCUPATIONAL HEALTH AND SAFETY

CONNECTICUT RESOURCES RECOVERY AUTHORITY

QUESTIONNAIRE CONCERNING AFFIRMATIVE ACTION, SMALL BUSINESS CONTRACTORS AND OCCUPATIONAL HEALTH AND SAFETY

Because CRRA is a political subdivision of the State of Connecticut, it is required by various statutes and regulations to obtain background information on prospective contractors prior to entering into a contract. The questions below are designed to assist CRRA in procuring this information. Many of the questions are required to be asked by RCSA 46a-68j-31. For the purposes of this form, "Contractor" means Bidder or Proposer, as appropriate.

	Yes	No
1. Is the Contractor an Individual? *If you answered "Yes" to Question 1, skip to Question 2.* *If you answered "No" to Question 1, proceed to Question 1A and then to Question 2.*	☐	☐
1A. How many employees does the Contractor have? ☐		
2. Is the Contractor a Small Contractor based on the criteria in Schedule A? *If you answered "Yes" to Question 2, proceed to Question 2A and then to Question 3.* *If you answered "No" to Question 2, skip to Question 3.*	☐	☐
2A. Is the Contractor registered with the DAS as a Certified Small Business? *If you answered "Yes" to Question 2A, please provide a copy of your Set-Aside Certificate.*	☐	☐
3. Is the Contractor a MWDP Business Enterprise based on the criteria in Schedule B? *If you answered "Yes" to Question 3, proceed to Question 3A and then to Question 4.* *If you answered "No" to Question 3, skip to Question 4.*	☐	☐
3A. Is the Contractor registered with DAS as a MWDP Small Business?	☐	☐
4. Does the Contractor have an Affirmative Action Plan? *If you answered "Yes" to Question 4, proceed to Question 4A and then to Question 5.* *If you answered "No" to Question 4, skip to Question 4B and then to Question 5.*	☐	☐
4A. Has the Affirmative Action Plan been approved by the CHRO?	☐	☐
4B. Will the Contractor develop and implement an Affirmative Action Plan?	☐	☐
5. Does the Contractor have an apprenticeship program complying with RCSA 46a-68-1 through 46a-68-17?	☐	☐
6. Has the Contractor been cited for three or more willful or serious violations of any occupational safety and health act?	☐	☐
7. Has the Contractor received one or more criminal convictions related to the injury or death of any employee in the three-year period preceding the issuance of this Request For Bids/Proposals/Qualifications?	☐	☐
8. Has the Contractor been the recipient of one or more ethical violations from the State of Connecticut Ethics Commission during the three-year period preceding the issuance of this Request For Bids/Proposals/Qualifications?	☐	☐
9. Will subcontractors be involved? *If you answered "Yes" to Question 9, proceed to Question 9A.* *If you answered "No" to Question 9, you are finished with the questionnaire.*	☐	☐
9A. How many subcontractors will be involved? ☐		

LIST OF ACRONYMS

RCSA – Regulations of Connecticut State Agencies
CHRO – State of Connecticut Commission on Human Rights and Opportunities
DAS – State of Connecticut Department of Administrative Services
MWDP – Minority/Women/Disabled Person

FOOTNOTE

[1] If the Contract is a "public works contract" (as defined in Section 46a-68b of the Connecticut General Statutes), the dollar amount exceeds $50,000.00 in any fiscal year, and the Contractor has 50 or more employees, the Contractor, in accordance with the provisions of Section 46a-68c of the Connecticut General Statutes, shall develop and file an affirmative action plan with the Connecticut Commission on Human Rights and Opportunities.

SCHEDULE A
CRITERIA FOR A SMALL CONTRACTOR

Contractor must meet all of the following criteria to qualify as a Small Contractor:

1. Has been doing business and has maintained its principal place of business in the State for a period of at least one year immediately preceding the issuance of the Request For Bids/ Proposals/Qualifications;
2. Has had gross revenues not exceeding ten million dollars in the most recently completed fiscal year;
3. Is headquartered in Connecticut; and,
4. At least 51% of the ownership of the Contractor is held by a person or persons who are active in the daily affairs of the business and have the power to direct the management and policies of the business.

SCHEDULE B
CRITERIA FOR A MINORITY/WOMAN/DISABLED PERSON BUSINESS ENTERPRISE

Contractor must meet all of the following criteria to qualify as a Minority/Woman/Disabled Person Business Enterprise:

1. Satisfies all of the criteria in Schedule A for a Small Contractor;
2. 51% or more of the business and/or its assets must be owned by a person or persons who are minorities as defined in Connecticut General Statutes Section 32-9n (please see below) or is an individual with a disability;
3. The Minority/Woman/Disabled Person must have the power to change policy and management of the business; and,
4. The Minority/Woman/Disabled Person must be active in the day-to-day affairs of the business.

CONNECTICUT GENERAL STATUTES SECTION 32-9n

Sec. 32-9n. Office of Small Business Affairs. (a) There is established within the Department of Economic and Community Development an Office of Small Business Affairs. Such office shall aid and encourage small business enterprises, particularly those owned and operated by minorities and other socially or economically disadvantaged individuals in Connecticut. As used in this section, minority means: (1) Black Americans, including all persons having origins in any of the Black African racial groups not of Hispanic origin; (2) Hispanic Americans, including all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race; (3) all persons having origins in the Iberian Peninsula, including Portugal, regardless of race; (4) women; (5) Asian Pacific Americans and Pacific islanders; or (6) American Indians and persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 9

AFFIDAVIT OF THIRD PARTY FEES

CONNECTICUT RESOURCES RECOVERY AUTHORITY

AFFIDAVIT OF THIRD PARTY FEES
(Form A2)

All Bidders/Proposers must complete and properly execute this Affidavit of Third Party Fees. The purpose of this Affidavit is to ascertain if the Bidder/Proposer has made or promised any payment to a third party attributable to this Agreement. If no such payment has been made or promised, Bidder/Proposer should write "None" in the first box in the table and execute this Affidavit. For purposes of the Affidavit, Bidder's/Proposer's subcontractors, if any, are not considered third parties.

I, _____, a duly authorized officer and/or representative of _____ (firm name), being duly sworn, hereby depose and say that:

1. I am over eighteen (18) years of age and believe in the obligations of an oath;
2. _____ (firm name) seeks to enter into the Hartford Landfill Closure – MSW/Interim Ash Disposal Area Agreement (the "Agreement") with the Connecticut Resources Recovery Authority; and
3. All third party fees and agreements to pay third party fees attributable to the "Agreement" are as follows:

Name Of Payee	Dollar Amount Paid Or Value Of Non-Cash Compensation AND Date	Fee Arrangement	Specific Services Performed Or To Be Performed By Payee[1]

(Attach additional copies of this page as necessary.)

NOTE: *For each third party fee arrangement described above (if any), complete the attached Form A2a.*

4. The information set forth herein is true, complete and accurate to the best of my knowledge and belief under penalty of perjury.

Signed: _____

Name (Print): _____

Title: _____

Sworn to before me this _____ day of _____ 200 ___

_____

Notary Public/Commissioner of the Superior Court

[1] Please attach documents evidencing the terms of the fee arrangement and services.

CONNECTICUT RESOURCES RECOVERY AUTHORITY

ADDENDUM TO AFFIDAVIT OF THIRD PARTY FEES (Form A2a)

For each third party fee arrangement disclosed in the attached Affidavit, please explain whether and how each such payment falls within one or more of the following categories of compensation:

(1) Compensation earned for the rendering of legal services when provided by an attorney while engaged in the ongoing practice of law;

(2) Compensation earned for the rendering of investment services, other than legal services, when provided by an investment professional while engaged in the ongoing business of providing investment services;

(3) Compensation for placement agent, due diligence or comparable tangible marketing services when paid to a person who is an investment professional (i) engaged in the ongoing business of representing providers of investment services, or (ii) in connection with the issuance of bonds, notes or other evidence of indebtedness by a public agency;

(4) Compensation earned by a licensed real estate broker or real estate salesperson while engaging in the real estate business on an ongoing basis; or

(5) Payments for client solicitation activities meeting the requirements of Rule 206(4)-3 under the Investment Advisers Act of 1940.

Attach additional pages as necessary.

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 10

BACKGROUND QUESTIONNAIRE

CONNECTICUT RESOURCES RECOVERY AUTHORITY

BIDDER'S/PROPOSER'S BACKGROUND QUESTIONNAIRE

Please answer the following questions by placing an "X" in the appropriate box.

	Yes	No
1. Has the Bidder/Proposer or any of its principals, owners, officers, partners, directors or stockholders holding more than 50% of the stock of the Bidder/Proposer ever been the subject of a **criminal** investigation? *If you answered "Yes" to Question 1, proceed to Question 1A and, on a separate sheet of paper, state the following: the court in which the investigation is taking or took place; the approximate date the investigation commenced and, if applicable, concluded; the subject matter of the investigation; and the identity of the person or entity involved.* *If you answered "No" to Question 1, proceed to Question 2.*	☐	☐
1A. Has any indictment arisen out of any such investigation? *If you answered "Yes" to Question 1A, proceed to Question 2 and, on a separate sheet of paper, state the following: the name of the person or entity indicted; and the status of any such indictment.* *If you answered "No" to Question 1A, proceed to Question 2.*	☐	☐
2. Has the Bidder/Proposer or any of its principals, owners, officers, partners, directors or stockholders holding more than 50% of the stock of the Bidder/Proposer ever been the subject of a **civil** investigation? *If you answered "Yes" to Question 2, proceed to Question 3 and, on a separate sheet of paper, state the following: the court or other forum in which the investigation took or is taking place; the approximate date the investigation commenced and, if applicable, concluded; the subject matter of the investigation; the identity of the person or entity involved; and the status of the investigation.* *If you answered "No" to Question 2, proceed to Question 3.*	☐	☐
3. Has any entity (e.g., corporation, partnership, etc.) in which a principal, owner, officer, partner, director or stockholder of the Bidder/Proposer has an ownership interest in excess of 50% in such entity ever been the subject of a **criminal** investigation? *If you answered "Yes" to Question 3, proceed to Question 3A and, on a separate sheet of paper, state the following: the court in which the investigation is taking or took place; the approximate date the investigation commenced and, if applicable, concluded; the subject matter of the investigation; and the identity of the person or entity involved.* *If you answered "No" to Question 3, proceed to Question 4.*	☐	☐
3A. Has any indictment arisen out of any such investigation? *If you answered "Yes" to Question 3A, proceed to Question 4 and, on a separate sheet of paper, state the following: the name of the person or entity indicted; and the status of any such indictment.* *If you answered "No" to question 3A, proceed to Question 4.*	☐	☐
4. Has any entity (e.g., corporation, partnership, etc.) in which a principal, owner, officer, partner, director or stockholder of the Bidder/Proposer has an ownership interest in excess of 50% in such entity ever been the subject of a **civil** investigation? *If you answered "Yes" to Question 4, on a separate sheet of paper state the following: the court in which the investigation is taking or took place; the approximate date the investigation commenced and, if applicable, concluded; the subject matter of the investigation; the identity of the person or entity involved; and the status of the investigation.*	☐	☐

	Yes	No
5. Has the Bidder/Proposer or any of its principals, owners, officers, partners, directors or stockholders holding more than 50% of the stock of the Bidder/Proposer ever been debarred from bidding on, or otherwise applying for, any contract with the State of Connecticut or any other governmental authority? *If you answered "Yes" to Question 5, on a separate sheet of paper please explain.*	☐	☐

Signature: _____

Name (print/type): _____

Title: _____

State Of: _____

County Of: _____

_____, being fully sworn, deposes and says that he/she is the _____ (Title) of _____ (Firm Name), the Bidder/Proposer herein, that he/she has provided answers to the foregoing questions on the Bidder's/Proposer's background, and, under the penalty of perjury, certifies that each and every answer is true.

Sworn to before me this _____ day of _____ 200___

_____

Notary Public/Commissioner of the Superior Court

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 11

SEEC FORM 11
NOTICE TO EXECUTIVE BRANCH STATE CONTRACTORS AND PROSPECTIVE STATE CONTRACTORS OF CAMPAIGN CONTRIBUTION AND SOLICITATION BAN

SEEC FORM 11

NOTICE TO EXECUTIVE BRANCH STATE CONTRACTORS AND PROSPECTIVE STATE CONTRACTORS OF CAMPAIGN CONTRIBUTION AND SOLICITATION BAN

This notice is provided under the authority of Connecticut General Statutes 9-612(g)(2), as amended by P.A. 07-1, and is for the purpose of informing state contractors and prospective state contractors of the following law (italicized words are defined below):

Campaign Contribution and Solicitation Ban

No *state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract* or *state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall make a contribution to, or *solicit* contributions on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee;

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to, or solicit contributions on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

Duty to Inform

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

Penalties for Violations

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

Civil penalties--$2000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of $2000 or twice the amount of the prohibited contributions made by their principals.

Criminal penalties—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or $5000 in fines, or both.

Contract Consequences

Contributions made or solicited in violation of the above prohibitions may result, in the case of a state contractor, in the contract being voided.

Contributions made or solicited in violation of the above prohibitions, in the case of a prospective state contractor, shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State will not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information and the entire text of P.A 07-1 may be found on the website of the State Elections Enforcement Commission, www.ct.gov/seec. Click on the link to "State Contractor Contribution Ban."

Definitions:
"State contractor" means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. "State contractor" does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

"Prospective state contractor" means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. "Prospective state contractor" does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

"Principal of a state contractor or prospective state contractor" means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract,* (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

"State contract" means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. "State contract" does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan or a loan to an individual for other than commercial purposes.

"State contract solicitation" means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

"Managerial or discretionary responsibilities with respect to a state contract" means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

"Dependent child" means a child residing in an individual's household who may legally be claimed as a dependent on the federal income tax of such individual.

"Solicit" means (A) requesting that a contribution be made, (B) participating in any fund-raising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact

information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 12

NOTICE OF AWARD

NOTICE OF AWARD

TO: [Name of successful bidder]

PROJECT: Mid-Connecticut

CONTRACT NUMBER: [To be entered later by CRRA]

CONTRACT FOR: Hartford Landfill Closure – MSW/Interim Ash Disposal Area

The Connecticut Resources Recovery Authority ("CRRA") has considered the Bid submitted by you dated [Date] in response to CRRA's Notice To Firms – Invitation To Bid for the above-referenced Work, which Work is more particularly described in the Hartford Landfill Closure – MSW/Interim Ash Disposal Area Agreement (the "Work").

You are hereby notified that your Bid has been accepted for the Work. The amount of the award for the Work is $[Contract Price].

Within ten (10) days from the date of this Notice of Award you are required to:

(a) Execute the required number of the attached counterparts of the non-negotiable Agreement and deliver such executed counterparts to CRRA;

(b) Execute the attached Contractor's Certification Concerning Gifts and deliver such executed Certification to CRRA;

(c) Deliver to CRRA the requisite certificates of insurance;

(d) Deliver to CRRA all other Contract Documents attached to the Notice Of Award; and

(e) Satisfy all other conditions set forth herein.

As you have agreed, the terms and conditions of the Agreement, as attached, are non-negotiable.

If you fail within ten (10) days from the date of this Notice Of Award to perform and complete any of your obligations set forth in items (a) through (c) above, CRRA will be entitled to consider all your rights arising out of CRRA's acceptance of your Bid as abandoned and terminated. CRRA will also be entitled to such other rights and remedies as may be granted at law or in equity.

You are required to acknowledge your receipt of this Notice Of Award by signing below and returning the same to CRRA.

Dated this _____ day of _____, 200_.

Connecticut Resources Recovery Authority

By: _____
Peter W. Egan
Title: Director of Environmental Affairs & Development

ACCEPTANCE OF NOTICE

Receipt of this NOTICE OF AWARD is hereby acknowledged this _____ day of _____, 200_.

By:

Signature: _____

Name (print/type): _____

Title: _____

CONNECTICUT RESOURCES RECOVERY AUTHORITY

CONTRACTOR'S CERTIFICATION CONCERNING GIFTS

HARTFORD LANDFILL CLOSURE – MSW/INTERIM ASH DISPOSAL AREA

(This CERTIFICATION is to be signed by an authorized officer of the Contractor or the Contractor's managing general partner.)

Section 4-252 of the *Connecticut General Statutes* requires that a Contractor (i.e., the successful bidder/proposer for an Agreement) complete and properly execute this Certification Concerning Gifts at the same time that the Contractor executes the Agreement. If the Contractor fails to make the required certifications, the Contractor shall be disqualified for the Agreement.

I, _____, a duly authorized officer and/or representative of _____ (firm name) (the "Contractor"), being duly sworn, hereby depose and say that:

1. I am over eighteen (18) years of age and believe in the obligations of an oath; and

2. The Contractor has submitted a bid for the Hartford Landfill Closure – MSW/Interim Ash Disposal Area Agreement (the "Agreement") to the Connecticut Resources Recovery Authority ("CRRA"), has been selected by CRRA as the successful bidder for the Agreement and is prepared to enter into the Agreement with CRRA; and

3. No gifts were made between _____ and the date of execution of the Agreement, by

   (a) The Contractor,

   (b) Any principals and key personnel of the Contractor who participated substantially in preparing the Contractor's bid/proposal for or the negotiation of the Agreement, or

   (c) Any agent of the Contractor or principals and key personnel who participated substantially in preparing the Contractor's bid/proposal for or the negotiation of the Agreement

   to

   (1) Any public official or employee of CRRA who participated substantially in the preparation of the bid/proposal solicitation for or the negotiation or award of the Agreement (such CRRA employees are listed in Table 2 below), or

   (2) Any public official or state employee of any state agency who has supervisory or appointing authority over CRRA (such public officials and state employees are listed in Table 3 below); and

4. No such principals and key personnel of the Contractor or agent of the Contractor or principals and key personnel knows of any action by Contractor to circumvent the prohibition on gifts by providing for any other principals and key personnel, official, employee or agent of the Contractor to provide a gift to any such public official or state employee; and

5. The Contractor made the bid/proposal for the Agreement without fraud or collusion with any person;

6. The information set forth herein is true, to the best of my knowledge and belief, subject to the penalties of false statement.

TABLE 2: CRRA Substantial Participants in the Preparation of the Request for Bids/Proposals for the Agreement

David M. Bodendorf, P.E., Senior Environmental Engineer

TABLE 3: Public Officials and State Employees of State Agencies Who Have Supervisory or Appointing Authority over CRRA

Governor M. Jodi Rell
Senator Donald E. Williams, Jr., President Pro Tempore of the Senate
Senator Louis C. DeLuca, Minority Leader of the Senate
Representative James A. Amann, Speaker of the House of Representatives
Representative Lawrence F. Cafero, Jr., Minority Leader of the House of Representatives

Signature: _____

Name (type/print): _____

Title: _____

State Of: _____

County Of: _____

_____, being fully sworn, deposes and says that he/she is the _____ (Title) of _____ (Firm Name), the Contractor herein, that he/she has read the foregoing statement concerning gifts, and, under the penalty of perjury, certifies that each and every part of said statement is true to his/her best knowledge and belief.

Sworn to before me this _____ day of _____ 200__

_____

Notary Public/Commissioner of the Superior Court

For the purposes of this Certification Concerning Gifts, the following terms are defined as follows:

"Gift" means anything of value, which is directly and personally received, unless consideration of equal or greater value is given in return. "Gift" shall **not** include:

(1) A political contribution otherwise reported as required by law or a donation or payment as described in subdivision (9) or (10) of subsection (b) of section 9-333b of the *Connecticut General Statutes*;

(2) Services provided by persons volunteering their time, if provided to aid or promote the success or defeat of any political party, any candidate or candidates for public office or the position of convention delegate or town committee member or any referendum question;

(3) A commercially reasonable loan made on terms not more favorable than loans made in the ordinary course of business;

(4) A gift received from (A) an individual's spouse, fiance or fiancee, (B) the parent, brother or sister of such spouse or such individual, or (C) the child of such individual or the spouse of such child;

(5) Goods or services (A) which are provided to the state (i) for use on state property, or (ii) to support an event or the participation by a public official or state employee at an event, and (B) which facilitate state action or functions. As used in this Affidavit Concerning Gifts, "state property" means (i) property owned by the state, or (ii) property leased to an agency in the Executive or Judicial Department of the state;

(6) A certificate, plaque or other ceremonial award costing less than one hundred dollars;

(7) A rebate, discount or promotional item available to the general public;

(8) Printed or recorded informational material germane to state action or functions;

(9) Food or beverage or both, costing less than fifty dollars in the aggregate per recipient in a calendar year, and consumed on an occasion or occasions at which the person paying, directly or indirectly, for the food or beverage, or his representative, is in attendance;

(10) Food or beverage or both, costing less than fifty dollars per person and consumed at a publicly noticed legislative reception to which all members of the General Assembly are invited and which is hosted not more than once in any calendar year by a lobbyist or business organization. For the purposes of such limit, (A) a reception hosted by a lobbyist who is an individual shall be deemed to have also been hosted by the business organization which he owns or is employed by, and (B) a reception hosted by a business organization shall be deemed to have also been hosted by all owners and employees of the business organization who are lobbyists. In making the calculation for the purposes of such fifty-dollar limit, the donor shall divide the amount spent on food and beverage by the number of persons whom the donor reasonably expects to attend the reception;

(11) Food or beverage or both, costing less than fifty dollars per person and consumed at a publicly noticed reception to which all members of the General Assembly from a region of the state are invited and which is hosted not more than once in any calendar year by a lobbyist or business organization. For the purposes of such limit, (A) a reception hosted by a lobbyist who is an individual shall be deemed to have also been hosted by the business organization which he owns or is employed by, and (B) a reception hosted by a business organization shall be deemed to have also been hosted by all owners and employees of the business organization who are lobbyists. In making the calculation for the purposes of such fifty-dollar limit, the donor shall divide the amount spent on food and beverage by the number of persons whom the donor reasonably expects to attend the reception. As used in this subdivision, "region of the state" means the established geographic service area of the organization hosting the reception;

(12) Gifts costing less than one hundred dollars in the aggregate or food or beverage provided at a hospitality suite at a meeting or conference of an interstate legislative association, by a person who is not a registrant or is not doing business with the state of Connecticut;

(13) Admission to a charitable or civic event, including food and beverage provided at such event, but excluding lodging or travel expenses, at which a public official or state employee participates in his official capacity, provided such admission is provided by the primary sponsoring entity;

(14) Anything of value provided by an employer of (A) a public official, (B) a state employee, or (C) a spouse of a public official or state employee, to such official, employee or spouse, provided such benefits are customarily and ordinarily provided to others in similar circumstances; or

(15) Anything having a value of not more than ten dollars, provided the aggregate value of all things provided by a donor to a recipient under this subdivision in any calendar year shall not exceed fifty dollars.

"Participated substantially" means participation that is direct, extensive and substantive, and not peripheral, clerical or ministerial.

"Principals and key personnel" means officers, directors, shareholders, members, partners and managerial employees.

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE
MSW/INTERIM ASH DISPOSAL AREA

SECTION 13

NOTICE TO PROCEED

NOTICE TO PROCEED

TO: [Name of successful bidder]

PROJECT: Mid-Connecticut

CONTRACT NUMBER: [To be entered later by CRRA]

CONTRACT FOR: Hartford Landfill Closure – MSW/Interim Ash Disposal Area

You are hereby notified to commence the Work in accordance with the Agreement, dated [Date of Agreement], and that the Contract Time under the Agreement will commence to run on [Date Contract Time starts]. By this date, you are to start performing the Work required by the Contract Documents. Pursuant to the Agreement, the date for completing all of the Work and having such Work ready for CRRA's acceptance is as follows:

Completion Date: [Completion Date]

You are required to acknowledge your receipt of this Notice To Proceed by signing below and returning such receipted Notice To Proceed to CRRA.

Dated this _____ day of _____, 200_.

Connecticut Resources Recovery Authority

By: _____
Peter W. Egan
Title: Director of Environmental Affairs & Development

ACCEPTANCE OF NOTICE

Receipt of this NOTICE TO PROCEED is hereby acknowledged this _____ day of _____, 200_.

By:

Signature: _____

Name (print/type): _____

Title: _____

REQUEST FOR BIDS

FOR

HARTFORD LANDFILL CLOSURE MSW/INTERIM ASH DISPOSAL AREA

SECTION 14

HARTFORD LANDFILL CLOSURE - MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

HARTFORD LANDFILL CLOSURE – MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

CONTENTS

THIS HARTFORD LANDFILL CLOSURE – MSW/INTERIM ASH DISPOSAL AREA AGREEMENT ("Agreement") is made as of this _____ day of _____, 200_ by and between the **CONNECTICUT RESOURCES RECOVERY AUTHORITY**, a body politic and corporate, constituting a public instrumentality and political subdivision of the State of Connecticut, having its principal offices at 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103 (hereinafter "CRRA" or "Owner") and _____, a _____, having its principal offices at _____, _____, _____ (hereinafter "Contractor").

PRELIMINARY STATEMENT

WHEREAS CRRA leases a certain parcel of real property located at 180 Leibert Road in Hartford, Connecticut (the "Property"), upon which property CRRA operates the Hartford Landfill (the "Hartford Landfill").

WHEREAS CRRA now desires to enter into this Agreement with Contractor in order for Contractor to construct a landfill cap over a portion of the MSW/Interim Ash Disposal Area of the Hartford Landfill within the boundaries of the Property, and other related work, in accordance with the Contract Documents (the "Project").

NOW, THEREFORE, in consideration of the mutual covenants, promises, and representations contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows.

1. DEFINITIONS, CONSTRUCTION AND INTERPRETATION

1.1 Definitions

As used in this Agreement and in other Contract Documents (as defined herein) the following terms shall have the meanings as set forth below:

(a) **"Addenda"** means written or graphic documents issued prior to the bid due date, which clarify, correct or change any or all of the Contract Documents.

(b) **"Acceptance Date"** means the date on which CRRA determines that the Work (as defined herein) has been completed by Contractor in accordance with the Contract Documents.

(c) **"Contract Documents"** means this Agreement (including all exhibits attached hereto), Notice To Contractors - Invitation To Bid, Instructions To Bidders, Addenda, Contractor's bid (including all documentation accompanying such bid, all other documentation submitted in connection with such bid, and all post-bid documentation submitted prior to the Notice Of Award), Notice Of Award, the Notice To Proceed (as defined herein), the Bonds (as defined herein), the Plans

(as defined herein), any written amendments to any of the Contract Documents and any change order issued pursuant to Section 2.7 hereof.

(d) **"Contract Time"** means the number of days or the date, as set forth in **Exhibit C** of this Agreement, to perform and complete the Work and have such Work ready for CRRA's acceptance.

(e) **"Effective Date"** means the date set forth above in this Agreement.

(f) **"Engineer"** means CRRA or its Consultant, or any successive engineering firm thereto selected by CRRA to act as its representative in various matters concerning the Project.

(g) **"Laws And Regulations"** means any and all applicable current or future laws, rules, regulations, ordinances, codes, orders and permits of any and all federal, state and local governmental and quasi-governmental bodies, agencies, authorities and courts having jurisdiction.

(h) **"Notice Of Award"** means written notification from CRRA to the apparent successful bidder which states that CRRA has accepted such bidder's bid and sets forth the remaining conditions that must be fulfilled by such bidder before CRRA executes the Agreement.

(i) **"Owner"** means CRRA.

(j) **"Owner's Designee"** or **"Owner's Representative"** means Engineer.

(k) **"Site"** means those areas of the Property upon which the Work is to be performed, furnished and completed by Contractor in accordance with the Contract Documents.

1.2 Construction And Interpretation

For purposes of this Agreement:

(a) Capitalized terms used herein shall have the meanings set forth herein;

(b) Whenever nouns or pronouns are used in this Agreement, the singular shall mean the plural, the plural shall mean the singular, and any gender shall mean all genders or any other gender, as the context may require;

(c) Words that have well-known technical or trade meanings are used herein in accordance with such recognized meanings unless otherwise specifically provided;

(d) All accounting terms not otherwise defined herein have the meanings assigned to them in accordance with "generally accepted accounting principles," and the term "generally accepted accounting principles" with respect to any computation

required or permitted hereunder shall mean such accounting principles that are generally accepted as of the Effective Date of this Agreement;

(e) The words "herein", "hereof" and "hereunder" and words of similar import refer to this Agreement as a whole and not to any particular Article, Section or Subsection;

(f) Reference to any particular party shall include that party's employees and the authorized agents of that party;

(g) All references to agreements are references to the agreements as the provisions thereof that may be amended, modified or waived from time to time; and,

(h) The captions contained in this Agreement have been inserted for convenience only and shall not affect or be effective to interpret, change or restrict the terms of provisions of this Agreement.

2. SCOPE OF WORK

2.1 Contractor's Responsibilities

Contractor shall be responsible for:

(a) Mobilization to the site and establishing temporary facilities, preparing the site for construction of the cap by placing sediment and erosion controls and removing temporary cover over the work area, regarding waste to proposed final contours as required, placing and compacting subgrade, construction of the landfill cap system, including the geotextile, geomembrane, and geocomposite drainage layer, placing and compacting cover soil, placing top soil and establishing vegetation and construction of half-pipe drainage swales and downchute, all as shown on the construction drawings;

(b) Performing all other work required for the Project, all of which is in accordance with and as required by the Contract Documents, including but not limited to, the drawings set forth in **Exhibit A** attached hereto and made a part hereof (the "Plans" or "Contract Drawings") and the Technical Specifications set forth in **Exhibit B** attached hereto and made a part hereof (the "Technical Specifications");

(c) Furnishing all labor, materials, supplies, tools, equipment and other facilities and necessary appurtenances or property for or incidental to the Project and the performance and completion of the Work (as hereinafter defined);

(d) Restoring any part of the Property, the improvements thereon, including but not limited to any access roads, or the Work (as hereinafter defined) that require restoration pursuant to the terms and conditions in Section 4.4 hereof; and

(e) Making all required notifications and obtaining all local, state, and federal permits and approvals necessary for the completion of the Work.

Items (a) through (e) above are hereinafter collectively referred to as the "Work."

2.2 Performance and Completion of Work

All Work shall be performed and completed by Contractor in a good workmanlike manner consistent and in accordance with:

(a) Any and all instructions, guidance and directions provided by CRRA or Engineer to Contractor;

(b) The Contract Documents;

(c) Sound construction practices;

(d) The highest industry standards applicable to Contractor and its performance of the Work hereunder;

(e) The schedule for the Work set forth in **Exhibit C** attached hereto and made a part hereof; and

(f) All Laws And Regulations.

Items (a) through (f) above are hereinafter collectively referred to as the "Standards."

Contractor shall obtain any locally required building or other permits required for the Work, and Contractor shall also assist and fully cooperate with CRRA in obtaining any other applicable permits necessary to begin and complete the Work.

2.3 CRRA's Responsibilities

CRRA and/or its Engineer shall be responsible for administering this Agreement, accepting the Work that is performed and completed by Contractor in accordance with the Contract Documents, and receiving and paying invoices for such Work.

2.4 Direction of Work

CRRA and/or its Engineer may, where necessary or desired, provide Contractor with instructions, guidance and directions in connection with Contractor's performance of the Work hereunder. CRRA reserves the right to determine whether Contractor will, upon completion of any phase of the Work, proceed to any or all remaining phases of the Work. If CRRA determines that Contractor shall not proceed with the remaining Work, CRRA shall terminate this Agreement in accordance with Section 4.3 hereof.

2.5 CRRA's Inspection Rights

Contractor's performance of the Work hereunder, as well as Contractor's work products resulting from such performance, are subject to inspection by CRRA. Inspections may be conducted at any time by CRRA. In the event of an inspection, Contractor shall provide to CRRA any documents or other materials that may be necessary in order for CRRA to conduct the inspection. If, after any such inspection, CRRA is unsatisfied with Contractor's performance of the Work hereunder or any of the work products resulting therefrom, Contractor shall, at the direction of CRRA, render such performance or work products satisfactory to CRRA at no additional cost or expense to CRRA and without any extension of or addition to any Contract Time for the remaining Work. For purpose of this Section 2.5, CRRA shall mean CRRA and/or its authorized agents, including but not limited to Engineer.

2.6 Access

CRRA hereby grants to Contractor, during the Hartford Landfill's normal hours of operation, access to only those areas of the Property necessary for Contractor to perform the Work hereunder, provided that:

(a) Contractor shall not interfere with any other operations or activities being conducted on the Property by either CRRA or any other person or entity;

(b) Contractor directly coordinates with CRRA on such access and Contractor's storage of any equipment or materials on the Property; and

(c) Contractor is in compliance with all of the terms and conditions of this Agreement.

CRRA reserves the right to revoke the access granted to Contractor herein if Contractor fails to comply with any of the foregoing conditions of access.

2.7 Change in Scope of Work

In the event that CRRA determines during the term of this Agreement that any revisions, modifications or changes are necessary to the scope of Work as set forth in Section 2.1 hereof, then pursuant to CRRA's request, Contractor shall promptly commence and perform the work required for such revisions, modifications or changes, which work shall be performed in accordance with the Standards unless otherwise specifically agreed to in writing by CRRA and Contractor. If any adjustment(s) to the Contract Price and/or the Contract Time is required as a result of such revisions, modifications or changes, CRRA and Contractor shall mutually agree in writing on the amount of such adjustment(s) provided that the schedule of values (including the unit prices set forth therein) approved by CRRA for the Project, to the extent applicable, shall be used to determine the appropriate increase or decrease in the quantity or cost of the materials or Work necessitated by such revisions, modifications or changes. Contractor shall promptly commence and perform any work required by such revisions, modifications or changes even if CRRA and Contractor cannot agree on the amount of such adjustment(s).

2.8 Site and Subsurface Conditions

All information and data shown or indicated in the Contract Documents with respect to underground facilities, surface conditions, subsurface conditions or other conditions at or contiguous to the Site are furnished for information only and CRRA does not assume any responsibility for the accuracy or completeness of such information and data. Contractor acknowledges and agrees that CRRA does not assume any responsibility for such information and data and that Contractor is solely responsible for investigating and satisfying itself as to all actual and existing Site conditions, including but not limited to surface conditions, subsurface conditions and underground facilities. Contractor has carefully studied all such information and data and Contractor has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (including but not limited to surface conditions, subsurface conditions and underground facilities) at or contiguous to the Site and all other conditions or factors which may affect cost, progress, performance, furnishing or completion of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction or performance of the Work to be employed by Contractor and safety precautions and programs incident thereto. Contractor does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for Contractor to conclusively determine, and Contractor has so determined, that the Work can be performed, furnished and completed in accordance with the Contract Time, the Contract Price and the other terms and conditions of the Contract Documents. In the event that the information or data shown or indicated in the Contract Documents with respect to underground facilities or surface, subsurface or other conditions at or contiguous to the Site differs from conditions encountered by Contractor during performance of the Work, there shall be no increase in the Contract Price and/or no extension of the Contract Time as a result of such differing conditions, unless CRRA, in its sole and absolute discretion, agrees in writing to such increase and/or extension.

2.9 Methane Gases

Contractor acknowledges the presence of methane gases at the Hartford Landfill and that, during the term of this Request For Bids, methane gases will be collected from such Hartford Landfill. Contractor covenants and agrees that it and its employees, agents, subcontractors and materialmen shall take all necessary precautions with respect to the presence of methane gases at all times at such Hartford Landfill, including, but not limited to, prohibiting the presence of any open flames, sparks, smoking or any other activity which might ignite any of the methane gases present at the Hartford Landfill.

2.10 Proprietary Information

Contractor shall not use, publish, distribute, sell or divulge any information obtained from CRRA by virtue of this Agreement for Contractor's own purposes or for the benefit of any person, firm, corporation or other entity (other than CRRA) without the prior written consent of CRRA. Any report or other work product prepared by Contractor in connection with the performance of the Work hereunder shall be owned solely and exclusively by CRRA and

cannot be used by Contractor for any purpose beyond the scope of this Agreement without the prior written consent of CRRA.

2.11 Books and Records

Contractor shall maintain proper books and records containing complete and correct information on all Work performed by Contractor pursuant to this Agreement in accordance with generally accepted accounting principles and practices. CRRA has the right to inspect and review all such books and records during Contractor's business hours.

2.12 Status of Contractor

CRRA and Contractor acknowledge and agree that Contractor is acting as an independent contractor in performing any Work for CRRA hereunder and that Contractor shall perform such Work in its own manner and method subject to the terms of this Agreement. Nothing in this Agreement shall be construed or interpreted as creating a partnership, a joint venture, an agency, a master-servant relationship, an employer-employee relationship or any other relationship between CRRA and Contractor other than that of an owner and an independent contractor. Contractor is expressly forbidden from transacting any business in the name of or on account of CRRA, and Contractor has no power or authority to assume or create any obligation or responsibility for or on behalf of CRRA in any manner whatsoever.

2.13 Subcontractors

Contractor shall consult with CRRA before hiring any subcontractors to perform any Work hereunder. Contractor shall require all of its subcontractors to abide by the terms and conditions of this Agreement. Moreover, Contractor's subcontracts with such subcontractors shall specifically provide that, in the event of a default by Contractor thereunder or under this Agreement, CRRA may directly enforce such subcontracts and make payments thereunder. Contractor shall provide CRRA with all contracts, amendments, books, records, accounts, correspondence and other materials necessary to enforce such subcontracts. Also Contractor's subcontracts with its subcontractors shall specifically include CRRA as a third party beneficiary and shall provide that such subcontractors shall not be excused from any of their obligations under such subcontracts by reason of any claims, setoffs, or other rights whatsoever that they may have with or against Contractor other than through such subcontracts.

2.14 Contractor's Employees

All persons employed by Contractor shall be subject and responsible solely to the direction of Contractor and shall not be deemed to be employees of CRRA.

2.15 Mechanic's Liens

Contractor shall claim no interest in the Property or any equipment, fixtures or improvements located or to be located thereon, including but not limited to the Hartford Landfill or any part thereof. Contractor shall not file any mechanic's liens or other liens or security interests against CRRA or any of its properties, including but not limited to the Property. Contractor

shall defend, indemnify and hold harmless CRRA against all costs associated with the filing of such liens or interests by Contractor or any of its subcontractors or materialmen. Before any subcontractor or materialman of Contractor commences any Work hereunder, Contractor shall deliver to CRRA an original waiver of mechanic's liens properly executed by such subcontractor or materialman. If any mechanic's lien is filed against CRRA or any of its properties in connection with the Work hereunder, Contractor shall cause the same to be canceled and discharged of record within fifteen (15) days after the filing of such lien and, if Contractor fails to do so, CRRA may, at its option but without any obligation to do so, make any payment necessary to obtain such cancellation or discharge and the cost thereof, at CRRA's election, shall be either deducted from any payment due to Contractor hereunder or reimbursed to CRRA promptly upon demand by CRRA to Contractor.

3. COMPENSATION AND PAYMENT

3.1 Compensation

The total amount of compensation to be paid to Contractor by CRRA for the Work hereunder shall not exceed _____ ($_____) Dollars (the "Contract Price"), which Contract Price shall be payable as set forth in Section 3.2 below. Contractor acknowledges and agrees that the Contract Price constitutes the full compensation to Contractor for the Work to be performed by Contractor hereunder and includes all expenses and costs to be incurred by Contractor in performing such Work.

3.2 Payment Procedure

After Contractor completes the Work, Contractor shall submit to CRRA a written request for payment for all the Work completed by Contractor. The written request for payment shall be submitted on AIA Forms G702 and G703 and in accordance with the General Requirements, and such request shall include the name of the Project, the contract number, and all of the other information and documentation required by the General Requirements. If CRRA determines in its sole and absolute discretion that the Work for which Contractor is requesting payment has been properly performed and completed in conformance with the Standards, Contractor is not in default hereunder and CRRA does not dispute the amount of the payment requested, then CRRA shall pay Contractor the amount requested (the "Authorized Sum") within thirty (30) days after CRRA's receipt of such written request. If, however, CRRA determines that any of the Work for which Contractor has requested payment is not in conformance with the Standards, then CRRA may in its sole and absolute discretion withhold all or a portion of the Authorized Sum, and Contractor shall, if requested by CRRA, immediately take, at Contractor's sole cost and expense, all action necessary to render such Work in conformance with the Standards. CRRA shall have no obligation under this Agreement to pay for any Work that CRRA determines has not been performed and/or completed in conformance with the Standards. CRRA shall have no obligation to pay Contractor any amounts due Contractor under this Agreement if Contractor is in default hereunder.

3.3 Accounting Obligations

Contractor shall maintain books and accounts of the costs incurred by Contractor in performing the Work pursuant to this Agreement by contract number and in accordance with generally accepted accounting principles and practices. CRRA, during normal business hours, for the duration of this Agreement, shall have access to such books and accounts to the extent required to verify such costs incurred.

3.4 Withholding Taxes And Other Payments

No FICA (social security) payroll tax, state or federal income tax, federal unemployment tax or insurance payments, state disability tax or insurance payments or state unemployment tax or insurance payments shall be paid or deposited by CRRA with respect to Contractor, nor be withheld from payment to Contractor by CRRA. No workers' compensation insurance has been or will be obtained by CRRA on account of the Work to be performed hereunder by Contractor, or any of Contractor's employees or subcontractors. Contractor shall be responsible for paying or providing for all of the taxes, insurance and other payments described or similar to those described in this Section 3.4 and Contractor hereby agrees to indemnify CRRA and hold CRRA harmless against any and all such taxes, insurance or payments, or similar costs which CRRA may be required to pay in the event that Contractor's status hereunder is determined to be other than that of an independent contractor.

3.5 State of Connecticut Taxes

Contractor agrees that, pursuant to *Connecticut General Statutes* § 22a-270 (as the same may be amended or superceded from time to time) CRRA is exempt from all State of Connecticut taxes and assessments. Without limiting the generality of the preceding sentence, Contractor also agrees that, pursuant to *Connecticut General Statutes* § 12-412(92) (as the same may be amended or superceded from time to time), "[t]he sales and use of any services or tangible personal property to be incorporated into or used or otherwise consumed in the operation of any project of [CRRA] . . .whether such purchases are made directly by [CRRA] or are reimbursed by [CRRA] to the lessee or operator of such project" is not subject to Connecticut Sales and Use Taxes. Accordingly, Contractor shall not charge CRRA any State of Connecticut taxes or assessments at any time in connection with Contractor's performance of this Agreement, nor shall Contractor include any State of Connecticut taxes or assessments in any rates, costs, prices or other charges to CRRA hereunder. The obligations of Contractor contained in the preceding sentence are absolute and shall apply notwithstanding any payment by Contractor of any State of Connecticut taxes or assessments in connection with its performance of this Agreement. Contractor represents and warrants that no State of Connecticut taxes or assessments were included in any rates, costs, prices or other charges presented to CRRA in any RFB or other submittal or proposal to CRRA in connection with this Agreement.

4. TERM OF AGREEMENT

4.1 Term

The term of this Agreement shall commence upon the Effective Date and shall terminate, unless otherwise terminated or extended in accordance with the terms and provisions hereof, on the first anniversary of the Acceptance Date.

4.2 Time is of the Essence

CRRA and Contractor hereby acknowledge and agree that time is of the essence with respect to Contractor's performance of the Work hereunder. Accordingly, upon CRRA's issuance to Contractor of a notice to proceed with the Work (the "Notice To Proceed"), which Notice To Proceed shall be issued after the parties hereto receive all of the local, state and federal permits required for the Work hereunder, Contractor shall immediately commence performance of the Work and continue to perform the same during the term of this Agreement in accordance with the schedule set forth in attached **Exhibit C** in order to complete all of the Work and have such Work ready for CRRA's acceptance by the ninetieth (90^{th}) day following the issuance of such Notice To Proceed (the "Completion Date"). CRRA and Contractor recognize the difficulties involved in proving actual damages and losses suffered by CRRA if the Work is not completed and ready for CRRA's acceptance by the Completion Date. Accordingly, instead of requiring any such proof, CRRA and Contractor agree that as liquidated damages for any such delay in completion or readiness for acceptance (but not as a penalty) Contractor shall pay CRRA five hundred and 00/100 ($500.00) dollars for each calendar day beyond the Completion Date that Contractor fails to complete all of the Work or have the same ready for CRRA's acceptance until all such Work is completed by Contractor and readied by Contractor for acceptance by CRRA.

4.3 Termination

CRRA may terminate this Agreement at any time by providing Contractor with ten (10) days' prior written notice of such termination. Upon receipt of such written notice from CRRA, Contractor shall immediately cease performance of all Work, unless otherwise directed in writing by CRRA. Prior to any termination of this Agreement, Contractor shall remove all of its personnel and equipment from the Property, restore any part of the Property, any of the improvements located or to be located thereon, including but not limited to any access roads, or any of the Work that requires restoration pursuant to the terms and conditions of Section 4.4 hereof. Upon termination of this Agreement pursuant to this Section 4.3,

(a) CRRA shall pay Contractor for all Work performed and completed by Contractor prior to the termination date, provided:

(1) Such Work has been performed and completed by Contractor in conformance with the Standards;

(2) Payment for such Work has not been previously made or is not disputed by CRRA;

(3) Contractor is not in default hereunder; and,

(4) Contractor has performed and completed all its obligations under this Section 4.3 and Section 4.4 hereof to CRRA's satisfaction, and

(b) CRRA shall have no further liability hereunder.

Except for the payment that may be required pursuant to the preceding sentence, CRRA shall not be liable to Contractor in any other manner whatsoever in the event CRRA exercises its right to terminate this Agreement.

4.4 Restoration

Unless otherwise directed in writing by CRRA, Contractor shall:

(a) Restore any part of the Property or any of the improvements located or to be located thereon, other than those areas of the Property or such improvements improved by Contractor pursuant to this Agreement, disturbed or damaged by Contractor or any of its directors, officers, employees, agents, subcontractors or materialmen to the same condition existing immediately prior to such disturbance or damage; and

(b) Restore or repair any completed Work so disturbed or damaged to the condition required by the Contract Documents for acceptance of such Work by CRRA.

5. INDEMNIFICATION

5.1 Contractor's Indemnity

Contractor shall at all times defend, indemnify and hold harmless CRRA and its board of directors, officers, agents and employees from and against any and all claims, damages, losses, judgments, liability, workers' compensation payments and expenses (including but not limited to attorneys' fees) arising out of injuries to the person (including death), damage to property or any other damages alleged to have been sustained by: (a) CRRA or any of its directors, officers, agents, employees or other contractors, or (b) Contractor or any of its directors, officers, agents, employees, subcontractors or materialmen, or (c) any other person, to the extent any such injuries, damage or damages are caused or alleged to have been caused in whole or in part by the acts, omissions or negligence of Contractor or any of its directors, officers, agents, employees, subcontractors or materialmen. Contractor further undertakes to reimburse CRRA for damage to property of CRRA caused by Contractor or any of its directors, officers, agents, employees, subcontractors or materialmen, or by faulty, defective or unsuitable material or equipment used by it or any of them. The existence of insurance shall in no way limit the scope of this indemnification. Contractor's obligations under this Section 5.1 shall survive the termination or expiration of this Agreement.

5.2 Workmanship and Materials Warranty; Other Warranties and Guarantees

For a period of one (1) year following the Acceptance Date (the "Warranty Period"), Contractor warrants the workmanship, equipment, and materials furnished under this Agreement for the Project against defects. If during or at the end of the Warranty Period, CRRA determines that any of such workmanship, equipment or materials is or has become defective, Contractor shall, at its own cost and expense, promptly repair or replace such defective workmanship, equipment or materials in order to render the same to the same condition as warranted above. Any repairs to or replacements of such workmanship, equipment or materials required under this Section 5.2 must be approved by CRRA before Contractor may commence performance of such repairs or replacements, and all such repairs or replacements shall be performed by Contractor in accordance with all applicable Standards. In connection therewith Contractor shall obtain all warranties and guarantees for all material and equipment furnished hereunder by Contractor that are assignable to CRRA. Contractor shall assign such warranties and guarantees to CRRA upon the Acceptance Date. Contractor's obligations under this Section 5.2 shall survive the termination or expiration of this Agreement.

6. INSURANCE

6.1 Required Insurance

Contractor shall procure and maintain, at its own cost and expense, throughout the term of this Agreement and any extension thereof, the following insurance, including any required endorsements thereto and amendments thereof:

(a) Commercial General Liability insurance alone or in combination with Commercial Umbrella insurance with a limit of not less than five million dollars ($5,000,000.00) each occurrence covering liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury, and liability assumed under an insurance contract (including the tort liability of another assumed in a business contract).

(b) Business Automobile Liability insurance alone or in combination with Commercial Umbrella insurance covering any auto (including owned, hired, and non-owned autos), with a limit of not less than one million dollars ($1,000,000.00) each accident.

(c) Workers' Compensation with statutory limits and Employers' Liability limits of five hundred thousand dollars ($500,000.00) each accident for bodily injury by accident or five hundred thousand dollars ($500,000.00) for each employee for bodily injury by disease.

(d) Pollution Legal Liability with a limit of not less than one million dollars ($1,000,000).

6.2 Certificates

Within five (5) days after CRRA issues the Notice Of Award, Contractor shall submit to CRRA a certificate or certificates for each required insurance referenced in Section 6.1 above certifying that such insurance is in full force and effect and setting forth the information required by Section 6.3 below. Additionally, Contractor shall furnish to CRRA within thirty (30) days before the expiration date of the coverage of each required insurance set forth in Section 6.1 above, a certificate or certificates containing the information required by Section 6.3 below and certifying that such insurance has been renewed and remains in full force and effect.

6.3 Specific Requirements

All policies for each insurance required hereunder shall:

(a) Name CRRA as an additional insured (this requirement shall not apply to workers' compensation insurance/employers' liability insurance);

(b) Include a standard severability of interest clause;

(c) Provide for not less than thirty (30) days' prior written notice to CRRA by registered or certified mail of any cancellation, restrictive amendment, non-renewal or change in coverage;

(d) Contain a waiver of subrogation holding CRRA free and harmless from all subrogation rights of the insurer; and

(e) Provide that such required insurance hereunder is the primary insurance and that any other similar insurance that CRRA may have shall be deemed in excess of such primary insurance.

6.4 Issuing Companies

All policies for each insurance required hereunder shall be issued by insurance companies that are either licensed by the State of Connecticut and have a Best's Key Rating Guide of A-VII or better, or otherwise deemed acceptable by CRRA in its sole discretion.

6.5 Contractor's Subcontractors

Contractor shall either have its subcontractors covered under the insurance required hereunder, or require such subcontractors to procure and maintain the insurance that Contractor is required to procure and maintain under this Agreement.

6.6 No Limitation on Liability

No provision of this Article 6 shall be construed or deemed to limit Contractor's obligations under this Agreement to pay damages or other costs and expenses.

6.7 Other Conditions

CRRA shall not, because of accepting, rejecting, approving, or receiving any certificate of insurance required hereunder, incur any liability for:

(a) The existence, non-existence, form or legal sufficiency of the insurance described on such certificate,

(b) The solvency of any insurer, or

(c) The payment of losses.

7. BONDS

7.1 Required Security

Contractor shall procure and maintain in full force and effect, at its own cost and expense, throughout the term of this Agreement and any extension thereof, a Construction Performance Bond and a Construction Payment Bond (the "Bonds") each in the full amount of the Contract Price. The Bonds shall be in and drawn on the forms set forth in **Exhibit D** and **Exhibit E** attached hereto and made a part hereof

7.2 Submission Of Security

Within ten (10) days after CRRA issues the Notice of Award, Contractor shall furnish CRRA with the Bonds.

7.3 Specific Requirements

If the surety on the Bond furnished by Contractor is declared a bankrupt or becomes insolvent or its right to do business is terminated in the State of Connecticut or it ceases to meet the above requirements or the surety elects not to renew the Bond due to no fault of Contractor, Contractor shall immediately substitute another bond and surety, subject to the requirements set forth in this Article 7.

7.4 Failure To Maintain The Security

Failure to maintain or renew the Bonds under the aforesaid terms shall constitute a default by Contractor of this Agreement.

7.5 Exercise Of Rights And Remedies

In the event Contractor fails to perform any of its obligations under this Agreement, CRRA shall have the right, in addition to all other rights and remedies available to CRRA hereunder or otherwise, to exercise any or all of CRRA's rights and remedies under the Bonds.

7.6 Issuing Companies

The Bonds shall be issued and executed by a surety company or companies acceptable to CRRA.

8. MISCELLANEOUS

8.1 Non-Discrimination

Contractor agrees to the following:

(a) Contractor agrees and warrants that in the performance of the Work for CRRA Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, including civil union status, national origin, ancestry, sex, sexual orientation, mental retardation or physical disability, including, but not limited to, blindness, unless it is shown by Contractor that such disability prevents performance of the Work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut. Contractor further agrees to take affirmative action to insure that applicants with job related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, including civil union status, national origin, ancestry, sex, sexual orientation, mental retardation, or physical disability, including, but not limited to, blindness, unless it is shown by Contractor that such disability prevents performance of the Work involved;

(b) Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Connecticut Commission on Human Rights and Opportunities (The "Commission");

(c) Contractor agrees to provide each labor union or representative of workers with which Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union, workers' representative and vendor of Contractor's commitments under Sections 4a-60 and 4a-60a of the *Connecticut General Statutes* and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(d) Contractor agrees to comply with each applicable provision of Sections 4a-60, 4a-60a, 46a-68e, and 46a-68f, inclusive, of the *Connecticut General Statutes* and with each regulation or relevant order issued by the Commission pursuant to Sections 46a-56, 46a-68e, and 46a-68f of the *Connecticut General Statutes*; and

(e) Contractor agrees to provide the Commission with such information requested by the Commission, and permit access to pertinent books, records and accounts concerning the employment practices and procedures of Contractor as related to the applicable provisions of Sections 4a-60, 4a-60a and 46a-56 of the *Connecticut General Statutes*. If this Agreement is a public works contract, Contractor agrees and warrants that it will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials in such public works project.

8.2 Campaign Contribution And Solicitation Prohibitions

For all State contracts as defined in P.A. 07-1 having a value in a calendar year of $50,000 or more or a combination or series of such agreements or contracts having a value of $100,000 or more, the authorized signatory to this Agreement expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice. See **Exhibit I** [SEEC Form 11].

8.3 Entire Agreement

This Agreement constitutes the entire agreement and understanding between the parties hereto and concerning the subject matter hereof, and supersedes any previous agreements, written or oral, between the parties hereto and concerning the subject matter hereof.

8.4 Governing Law

This Agreement shall be governed by, and construed, interpreted and enforced in accordance with the laws of the State of Connecticut as such laws are applied to contracts between Connecticut residents entered into and to be performed entirely in Connecticut.

8.5 Assignment

This Agreement may not be assigned in whole or in part by either party without the prior written consent of the other party or such assignment shall be void.

8.6 No Waiver

Failure to enforce any provision of this Agreement or to require at any time performance of any provision hereof shall not be construed to be a waiver of such provision, or to affect the validity of this Agreement or the right of any party to enforce each and every provision in accordance with the terms hereof. No waiver of any provision of this Agreement shall affect the right of CRRA or Contractor thereafter to enforce such provision or to exercise any right or remedy available to it in the event of any other default involving such provision or any other provision. Making payment or performing pursuant to this Agreement during the existence of a dispute shall not be deemed to be and shall not constitute a waiver of any claims or defenses of the party so paying or performing.

8.7 Modification

This Agreement may not be amended, modified or supplemented except by a writing signed by the parties hereto that specifically refers to this Agreement. Any oral representations or letters by the parties or accommodations shall not create a pattern or practice or course of dealing contrary to the written terms of this Agreement unless this Agreement is formally amended, modified or supplemented.

8.8 Prevailing Wages

Contractor hereby represents that the Contractor's Wage Certification Form, as executed by Contractor and attached hereto as **Exhibit F** and made a part hereof, has been submitted by Contractor to the State of Connecticut's Department of Labor for Contractor's performance of the Work. Contractor shall pay wages on an hourly basis to any mechanic, laborer or workman employed upon the Work herein and the amount of payment or contribution paid or payable on behalf of each such employee to an employee welfare fund, as defined in *Connecticut General Statutes* § 31-53(h), at rates equal to the rates customary or prevailing for the same work in the same trade or occupation in the town in which the Work is being conducted, which rates are more specifically set forth in **Exhibit G** attached hereto and made a part hereof. If Contractor is not obligated by agreement to make payment or contribution on behalf of such employees to any such employee welfare fund, Contractor shall pay to each employee as part of his or her wages the amount of payment or contribution for his or her classification on each payday. Contractor shall keep, maintain and preserve records relating to the wages and hours worked by each employee and a schedule of the occupation or work classification at which each mechanic, laborer, or workman under this Agreement is employed during each work day and week in such manner and form as the labor commissioner establishes to assure the proper payments due to such employees or employee welfare funds under *Connecticut General Statutes* §§ 31-53 and 31-54. Pursuant to *Connecticut General Statutes*§ 31-53(f), Contractor shall complete and submit to CRRA on a weekly basis during the term of this Agreement and any extension thereof the payroll certification forms set forth in **Exhibit H** attached thereto and made a part hereof. Contractor hereby represents and covenants that it is not now, and has not been for at least three (3) years previous to the date of this Agreement, listed by the labor commissioner as a person who has violated laws and regulations relating to prevailing wages.

8.9 Notices

All notices, requests, demands and other communications hereunder shall be in writing and shall be deemed to have been duly given if mailed via certified first class mail return receipt requested postage prepaid or overnight express mail service to the pertinent address below.

(a) If to CRRA:

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, Connecticut 06103
Attention: Peter Egan

With a copy to:

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, Connecticut 06103
Attention: President

(b) If to Contractor:

_____
_____
_____
Attention: _____

8.10 Benefit and Burden

This Agreement shall inure to the benefit of and be binding upon the heirs, personal representatives, successors and assigns of the parties hereto.

8.11 Severability

CRRA and Contractor hereby understand and agree that if any part, term or provision of this Agreement is held by any court to be invalid, illegal or in conflict with any applicable law, the validity of the remaining portions of this Agreement shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if this Agreement did not contain the particular part, term or provision held to be invalid, illegal or in conflict with any applicable law.

8.12 Counterparts

This Agreement may be executed in any number of counterparts by the parties hereto. Each such counterpart so executed shall be deemed to be an original and all such executed counterparts shall constitute but one and the same instrument.

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[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties hereto have set their hands and seals as of the day and year first written above.

CONNECTICUT RESOURCES RECOVERY AUTHORITY

By: _____
Thomas D. Kirk
Its President
Duly Authorized

CONTRACTOR

By: _____

Its
Duly Authorized

EXHIBIT A

To

HARTFORD LANDFILL CLOSURE - MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

CONSTRUCTION DRAWINGS

EXHIBIT A

CONSTRUCTION DRAWINGS

The following Construction Drawings are hereby incorporated by reference and made a part of this Agreement as if such plan had been attached in its entirety to this Agreement:

- Connecticut Resources Recovery Authority Hartford Landfill Closure – MSW/Interim Ash Disposal Area

EXHIBIT B

To

HARTFORD LANDFILL CLOSURE - MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

TECHNICAL SPECIFICATIONS

EXHIBIT B

TECHNICAL SPECIFICATIONS

The following Technical Specifications are hereby incorporated by reference and made a part of this Agreement as if such plan had been attached in its entirety to this Agreement:

- Connecticut Resources Recovery Authority Hartford Landfill Closure – MSW/Interim Ash Disposal Area

EXHIBIT B
TECHNICAL SPECIFICATIONS
TABLE OF CONTENTS

DIVISION 1
GENERAL REQUIREMENTS

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SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Project consists of construction related to closing of existing landfill in phased construction.

1. Project Location: Hartford, CT.

2. Owner: The property owner is the City of Hartford. However, for the purposes of this contract, the term "Owner" shall mean the Connecticut Resources Recovery Authority (CRRA).

B. Engineer Identification: The Contract Documents, dated May 2007, were prepared for Project by Fuss & O'Neill, Inc. 146 Hartford Road, Manchester, CT 06040.

C. The Work includes: mobilization, temporary and permanent erosion and sedimentation control measures; clearing of vegetation; a geomembrane and soil cap system; landfill drainage system and components; gas vents extensions; earthwork; vegetative support layer; phase limit markers; landfill limit markers; bituminous concrete and gravel access drives; and miscellaneous site work.

D. The Contractor shall follow the requirements of the Quality Assurance Plan (QAP), which is appended to these specifications.

E. The Contractor shall sign the General Permit Registration Form for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, sign the certification statement located in the Stormwater Pollution Control Plan, and shall be required to implement action items identified in the Stormwater Pollution Control Plan, which is appended to these specifications.

1.3 CONTRACT

A. Project will be constructed under a general construction contract.

1.4 USE OF PREMISES

A. General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period.

1. During Phase I construction

a. The Contractor shall have access to the entire landfill but will be required to limit operations within the Phase II area.

b. Owner reserves the right to limit the Contractor's use of the Phase II area

B. Field Office: Locate field offices for Contractor use as shown on the Drawings.

1.5 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.

1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.6 CALL BEFORE YOU DIG

A. The Contractor shall be responsible for complying with all applicable Call Before You Dig Rules.

B. Contact Call Before You Dig at 1-800-922-4455 at least 2 working days prior to the start of construction (excluding weekends and holidays), to mark out the utility locations.

1.7 ACCESS TO SITE

A. Minimize damage to access routes, and restore damaged areas to their original condition or better.

B. Acquire necessary permits, authorizations and approvals for working in, on or from property, rights-of-way or easements owned by others. The Contractor shall secure access rights of his own for such work.

C. Remove and restore to original condition walls, fences, structures, utility lines, poles, guy wires, anchors, and other improvements required to be relocated for construction of the Work. Costs for such activity shall be borne by the Contractor unless otherwise indicated. Notify the Engineer, Owner, and Utility company of intended modification or disruption to their property prior to the start of construction and cooperate with them in the scheduling and performance of operations.

D. If the Contractor, by direct negotiation and bargain with any land owner, lessee or tenant, has secured any right to use more space or greater privileges in the space provided by the Owner for purposes incidental to the performance of the Contract, upon request of the Engineer, furnish to the Engineer proper evidence that such additional rights have been properly secured and assurance that no damage to or claim upon the Owner or Engineer will arise therefrom. Neither the Owner nor the Engineer shall be liable in any way for any expense incurred by the Contractor in securing any such right to use additional property.

E. The Contractor shall be responsible for and reimburse the Owner and others for any and all losses, damage or expense which the Owner or those others may suffer, either directly or indirectly or through any claims of any person or party, for any trespass outside the spaces and rights of way provided by the Owner to the Contractor or any violation or disregard of the terms and conditions established for the use or occupancy of those rights or for negligence in the exercise of those rights. The Owner may retain or deduct from any sum or sums due or to become due to the Contractor such amount or amounts as may be proper to insure the Owner against loss or expense by reason of the failure of the Contractor to observe the limits and conditions of the rights-of-way, rights-of-access, easements, etc., provided by the Owner.

1.8 SCHEDULE OF CONSTRUCTION

A. Submit construction schedule to the Engineer at the earliest possible time but no later than 10 Days prior to beginning the Work.

1. Incorporate erosion control provisions into construction schedule.

1.9 SITE CONDITIONS

A. The Work is to be performed at a municipal solid waste landfill. Landfill gases, including methane, may be present in potentially combustible concentrations. Leachate may be generated by the landfill during the course of the Work.

1. Take necessary precautions to protect and ensure the health and safety of employees, agents, subcontractors, suppliers, including employees of the Owner and Engineer during the performance of the Work.
2. Prohibit the use of open flames, sparks, smoking or other activity which may ignite methane gas at the site.

B. The underground utilities and structures at the site have been located primarily from information furnished by others and the locations as depicted on the Drawings are considered approximate as to size and location. There may be additional underground utilities and structures that are not shown on the Drawings. Locate all existing utilities and structures and protect same from damage or harm. Restore utilities interfered with or damaged, at the expense of the Contractor, and to the satisfaction of its Owner.

C. Ensure that construction activities do not impact the activities or properties of the Owner and its agents without prior coordination and consent of these entities.

D. Immediately notify the Engineer upon encountering archaeological material, including "charcoal," "bone," "shell," "cultural objects" (e.g., fire cracked stones/stone flaking material), "middens," or any other artifacts or related items of historical significance.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 GENERAL

A. The following is a general recommended sequence of construction operations. Submit a detailed construction schedule to the Engineer prior to the initiation of Work. Deviation from Contractor's schedule will require the Contractor to submit notification of such change in schedule to the Engineer.

1. Obtain required permits, authorizations and approvals from Federal, State and local authorities, as well as private entities including the Owner, having jurisdiction over the Project. Make required notifications to regulatory authorities. Provide copies of such permits, authorizations, approvals and notifications to the Engineer.
2. Mobilize to project Site.
3. Install erosion controls and other temporary protective measures to ensure the safety of persons on the site and to mitigate injury to environmental receptors.
4. Construct landfill cap system
5. Perform surface restoration in disturbed areas.
6. Demobilize from project Site.

3.2 PROTECTION

A. Assume full responsibility for the protection of public or private buildings, structures and utilities in the streets, gas pipes, water pipes, hydrants, sewers, drains and electric and telephone cables, whether or not they are shown on the Drawings. Carefully support and protect structures and utilities from damage of every description. Repair or otherwise make good such damage, as acceptable to the Engineer, and at no additional cost to the Owner.

B. Open Excavation. Provide temporary barricades, caution signs, lights and other means to prevent accidents to persons and damage to property. Provide bridges and other crossings for accommodating travel by pedestrians and workmen.

1. The length or size of open excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer.

3.3 SAFETY

A. Comply with requirements of the most recent version of the Occupational Safety and Health Act (OSHA.)

B. When any support system is used that requires design by an engineer, copies of the design stamped by an engineer shall be submitted to the OWNER.

C. The Contractor has full responsibility to comply with all provisions of State of Connecticut Public General Statutes, Title 31, Chapter 571 concerning Occupational Safety and Health. Any fines levied against for violations shall be the Contractor's responsibility.

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SECTION 01205 – PAYMENT ITEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes measurement and payment paragraphs for

1. Base Bid payment items (lump sum and unit price).
2. Alternate payment items.

B. Related Sections include the following:

1. Division 1 through 16 Sections for detailed procedural, material, and installation requirements associated with the Work of each payment item.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that is proposed in lieu of the corresponding Base Bid item, if Owner decides to accept the alternate.

1. The cost for each alternate is the net total to incorporate all aspects of the alternate into the Work. It replaces not supplements the corresponding Base Bid item. No other adjustments are made to the Contract Price.

a. Example: If the owner chooses to use aboveground electrical wiring, the complete cost for Alternate Item No. 7A Aboveground Electrical Distribution will replace the complete cost of Payment Item No. 7 Underground Electrical Distribution.

B. Approximate Quantities: Engineer's Opinion of Quantities for Contract Lump Sum payment items provided for Contractor's information only. No guarantees are made as to the quantities of the listed elements.

1. No changes to the Contract Price will be made due to differences between the listed approximate quantities and actual quantities required to complete the Work.

C. Base Bid: The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed

D. Payment Item: The Owner's distribution of the Contract Sum through listed work items.

1. Each item is specified to include a defined scope of services. However, not all materials, labor, equipment, or services of a payment item are guaranteed to be listed or specified.
2. Include costs associated with items of work required to complete the defined scope of services within the appropriately specified payment item.
3. Payment items include all necessary material, plus cost for delivery, installation, applicable taxes, overhead, and profit.
4. Include all necessary material, plus cost for delivery, installation, applicable taxes, overhead, and profit.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF PAYMENT ITEMS

A. Payment Item No. 1 – Mobilization/Demobilization and Incidental Construction:
   1. The Work of this item shall be measured by the Contract lump sum price.
   2. Work associated with this item will be paid for at the Contract Lump Sum price for site mobilization and demobilization, insurance, bonds, administrative and general requirements, and incidentals not covered by other bid items required to complete the work including materials, equipment, tools and labor incidental to the Work.

B. Payment Item No. 2 – Field Services:
   1. The Work of this item shall be measured by the Contract lump sum price.
   2. Work associated with this item will be paid for at the Contract Lump Sum price for field office and field survey and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

C. Payment Item No. 3 – Temporary Erosion Control:
   1. The Work of this item shall be measured by the Contract lump sum price.
   2. Work associated with this item will be paid for at the Contract Lump Sum price for silt fence, haybales, alternative filtration barrier, construction entrance pad, catch basin inserts, temporary sediment traps, polyacrylimide erosion control blocks, dust control, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.
      a. Related Section includes Division 1 Section "Temporary Erosion and Sedimentation Control."
      b. Approximate Quantities
         1) Silt Fence: 8,400 LF

2) Hay Bales: 100 LF

3) Catch Basin Inserts: 20 EA

D. Payment Item No. 4 – Temporary Diversions:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for sand bag/earth fill diversion, silt fence diversion, pipe slope drain with riprap apron, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Section includes Division 1 Section "Temporary Erosion and Sedimentation Control."

E. Payment Item No. 5 – Site Preparation:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for removal of existing diversion berms and downchutes, rough grading of site with on-site material, relocating existing chain link fence, raising catch basin frames and grates, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include Division 2 Section "Landfill Earthwork."

b. Approximate Quantities

1) Rough Grading with On-Site Materials: 5,000 CY

2) Relocate Chain Link Fence: 150 LF

F. Payment Item No. 6 – Relocate Leachate Force Main:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for relocation of existing leachate force main including pavement saw cutting, excavation, piping, backfill, bituminous concrete restoration, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Section includes Division 2 Section "Leachate Drainage."

b. Approximate Quantities

1) Relocate Leachate Force Main: 3,300 LF

G. Payment Item No. 7 - Underground Electrical Distribution:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for construction of a new underground electrical distribution including pavement saw cutting, excavation, conduit, backfill, bituminous concrete restoration, and

incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include Division 16 Sections.

b. Approximate Quantities

1) Underground Electrical Distribution Distance: 4,200 LF.

H. Payment Item No. 8 – Subgrade Preparation:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for subgrade preparation, grading, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include Division 2 Section "Landfill Earthwork."

b. Approximate Quantities

1) Subgrade Preparation: 221,000 SY.

I. Payment Item No. 9 – 6" Cap Base Material:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for 6" Cap Base Material including installation, compaction, material thickness testing, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include Division 2 Section "Landfill Earthwork."

b. Approximate Quantities

1) 6" Cap Base Material: 214,000 SY.

J. Payment Item No. 10 – 40 Mil LLDPE Geomembrane Liner:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for 40 Mil LLDPE Geomembrane Liner including seaming, testing, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include Division 2 Section "LLDPE Geomembrane Liner."

b. Approximate Quantities

1) 40 Mil LLDPE Geomembrane Liner: 1,924,000 SF.

K. Payment Item No. 11 – Penetration Sealing and Booting:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for geomembrane penetration sealing and booting for existing gas wells and markers, including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include Division 2 Section "LLDPE Geomembrane Liner."

   b. Approximate Quantities

      1) Penetration Sealing and Booting: 152 EA.

L. Payment Item No. 12 – Cap Drainage Layer:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Cap Drainage Layer including geonet, sand drainage material, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include Division 2 Section "Landfill Earthwork."

   b. Approximate Quantities for Side Slopes and Top Slope

      1) Geonet: 1,924,000 SF.

      2) Sand Drainage Material: 214,000 SY.

   c. The non-woven geotextile placed between drainage sand and vegetative support material is included under Payment Item No. 13.

M. Payment Item No. 13 – Non-Woven Geotextile:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Non-Woven Geotextile including incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include Division 2 Section "Landfill Earthwork."

   b. Approximate Quantities for Side Slopes and Top Slope

      1) Geotextile: 1,924,000 SF.

N. Payment Item No. 14 – Vegetative Support Material:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Vegetative Support Material obtained off-site including soil amendments, hauling, spreading, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include Division 2 Section "Landfill Vegetative Support Layer."

   b. Approximate Quantities

1) Vegetative Support Material: 208,000 SY.

c. Seeding, maintenance and temporary irrigation system is included under Payment Item No. 15.

O. Payment Item No. 15– Establish and Maintain Vegetation:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Establish and Maintain Vegetation including seeding, maintenance, temporary irrigation system, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include Division 2 Section "Landfill Vegetative Support Layer."

b. Approximate Quantities

1) Seed and Hay: 208,000 SY

P. Payment Item No. 16 – Erosion Control Blanket:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for temporary erosion control blankets and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Section includes Division 1 Section "Temporary Erosion and Sedimentation Control."

b. Approximate Quantities

1) Temporary Erosion Control Blankets: 71,000 SY

Q. Payment Item No. 17 – Erosion Control Matting:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for permanent erosion control matting and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Section includes Division 2 Section "Permanent Erosion and Sedimentation Control."

b. Approximate Quantities

1) Erosion Control Matting: 53,000 SY

R. Payment Item No. 18 – Type "A" Cap Anchor:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Type "A" Cap Anchor which includes modified riprap, gravel base, geonet,

geomembrane, cap base material, anchor trench, welding, testing and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include

1) Division 2 Section "Landfill Earthwork"

2) Division 2 Section "LLDPE Geomembrane Liner"

3) Division 2 Section "Permanent Erosion and Sedimentation Control"

b. Approximate Quantities

1) Type "A" Cap Anchor: 1,800 LF

S. Payment Item No. 19 – Type "B" Cap Anchor:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Type "B" Cap Anchor which includes modified riprap, non-woven geotextile, geonet, anchor trench, welding, testing and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include

1) Division 2 Section "Landfill Earthwork"

2) Division 2 Section "LLDPE Geomembrane Liner"

3) Division 2 Section "Permanent Erosion and Sedimentation Control"

b. Approximate Quantities

1) Type "B" Cap Anchor: 2,000 LF

T. Payment Item No. 20 – Type "C" Cap Anchor:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Type "C" Cap Anchor which includes cap base material, geomembrane, geonet, sand drainage material, anchor trench, welding, testing and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include

1) Division 2 Section "Landfill Earthwork"

2) Division 2 Section "LLDPE Geomembrane Liner"

3) Division 2 Section "Permanent Erosion and Sedimentation Control"

b. Approximate Quantities

1) Type "C" Cap Anchor: 400 LF

U. Payment Item No. 21 – Type "D" Cap Anchor:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Type "D" Cap Anchor which includes geomembrane, geonet, anchor trench, welding, testing and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include

      1) Division 2 Section "Landfill Earthwork"

      2) Division 2 Section "LLDPE Geomembrane Liner"

      3) Division 2 Section "Permanent Erosion and Sedimentation Control"

   b. Approximate Quantities

      1) Type "D" Cap Anchor: 2,850 LF

V. Payment Item No. 22 – Phase 1A/1B Connection:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Phase 1A/1B Connection which includes geomembrane, geonet, anchor trench, welding, testing and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include

      1) Division 2 Section "Landfill Earthwork"

      2) Division 2 Section "LLDPE Geomembrane Liner"

      3) Division 2 Section "Permanent Erosion and Sedimentation Control"

   b. Approximate Quantities

      1) Phase 1A/1B Connection: 1,500 LF

W. Payment Item No. 23 – Connection to Existing Ash Liner:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Connection to Existing Ash Liner which includes geomembrane, geonet, anchor trench, welding, testing and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include

      1) Division 2 Section "Landfill Earthwork"

      2) Division 2 Section "LLDPE Geomembrane Liner"

      3) Division 2 Section "Permanent Erosion and Sedimentation Control"

   b. Approximate Quantities

1) Connection to Existing Ash Liner : 500 LF

X. Payment Item No. 24 – Half Pipe Diversion Swale:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Half Pipe Diversion Swale which includes factory-fabricated steel pipe, joints, elbows, connectors, aluminum flashing, geonet, geomembrane, general fill, Trex anchor board, underdrain, and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include

1) Division 2 Section "Landfill Earthwork"

2) Division 2 Section "Storm Drainage"

b. Approximate Quantities

1) Half Pipe Diversion Swale : 6,400 LF

Y. Payment Item No. 25 – Grouted Riprap Downchute:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Grouted Riprap Downchute which includes modified riprap, grout, and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include

1) Division 2 Section "Permanent Erosion and Sedimentation Control"

b. Approximate Quantities

1) Grouted Riprap Downchute : 1,625 LF

Z. Payment Item No. 26 – Impact Basins:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Impact Basins which includes cast-in-place concrete, reinforcing steel, backfill, and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include

1) Division 3 Section "Cast-in-Place Concrete"

b. Approximate Quantities

1) Impact Basins: 6 EA

AA. Payment Item No. 27 – Riprap Lined Ditch:

1. The Work of this item shall be measured by the Contract lump sum price.
2. Work associated with this item will be paid for at the Contract Lump Sum price for Riprap Lined Ditch which includes modified riprap, gravel base, geonet, geomembrane, and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.
    a. Related Sections include
        1) Division 2 Section "Permanent Erosion and Sedimentation Control"
    b. Approximate Quantities
        1) Riprap Lined Ditch: 860 LF

BB. Payment Item No. 28 – Landfill Markers:

1. The Work of this item shall be measured by the Contract lump sum price.
2. Work associated with this item will be paid for at the Contract Lump Sum price for Landfill Markers which includes landfill limit and phase limit signs, posts, and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.
    a. Related Sections include
        1) Division 2 Section "Landfill Limit Marker"
    b. Approximate Quantities
        1) Landfill Limit Markers: 23 EA
        2) Phase Limit Markers: 27 EA

CC. Payment Item No. 29 – Bituminous Concrete Access Roads:

1. The Work of this item shall be measured by the Contract lump sum price.
2. Work associated with this item will be paid for at the Contract Lump Sum price for Bituminous Concrete Access Roads which includes subbase, processed aggregate, bituminous concrete, and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.
    a. Related Sections include
        1) Division 2 Section "Bituminous Concrete Paving"
    b. Approximate Quantities
        1) Bituminous Concrete Access Roads : 38,200 SF

DD. Payment Item No. 30 – Gravel Access Road:

1. The Work of this item shall be measured by the Contract lump sum price.
2. Work associated with this item will be paid for at the Contract Lump Sum price for Gravel Access Roads which includes Geogrid and traffic bound gravel surface, and

incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include

1) Division 2 Section "Gravel Surfacing"

b. Approximate Quantities

1) Gravel Access Roads : 29,600 SF

EE. Payment Item No. 31 – Traffic Protection:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Traffic Protection which includes relocating guide rail, new posts, precast concrete barriers, site signs, and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include

1) Division 2 Section "Metal Beam Guide Rail"

b. Approximate Quantities

1) Relocating Guiderail: 1,550 LF

2) New Posts: 250 EA

3) Precast Concrete Barriers: 240 LF

FF. Payment Item No. 32 – Off-Cap Drainage Improvements:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Off-Cap Drainage Improvements which includes reinforced concrete pipe, HDPE pipe, precast culvert ends, precast concrete pump chamber, riprap energy dissipator, catch basins, cleaning CT DOT drainage ditch, removing sediment from drainage ditch, and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include

1) Division 2 Section "Storm Drainage System"

b. Approximate Quantities

1) 30" Reinforced Concrete Pipe: 120 LF

2) 48" Reinforced Concrete Pipe: 10 LF

3) 18" HDPE Pipe: 310 LF

4) Cleaning CT DOT Drainage Ditch and relocating sediment: 1,150 LF

GG. Unit Price Payment Item No. 33 – Additional General Fill:

1. The Work of this item shall be measured by the cubic yard complete in place.

2. Work associated with this item will be paid for at the Contract Unit Price per cubic yard for Additional General Fill provided from off-site sources, placed and compacted as required to complete the landfill embankment. Costs associated with this item include general fill, compaction, testing, and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include

      1) Division 2 Section "Landfill Earthwork"

HH. Unit Price Payment Item No. 34 – Additional Fill for Access Road:

1. The Work of this item shall be measured by the cubic yard complete in place.

2. Work associated with this item will be paid for at the Contract Unit Price per cubic yard for Additional Fill for Access Roads provided from off-site sources, placed and compacted as required to complete the roadway embankment. Costs associated with this item include fill, compaction, testing, and incidental items required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include

      1) Division 2 Section "Site Earthwork"

3.2 ALTERNATES

A. Alternates

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

2. Include as part of each alternate, coordination, modification and adjustment of materials, systems, and individual components incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

C. Alternate Item No. 7A – Aboveground Electrical Distribution:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for construction of a new aboveground electrical distribution including incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include applicable Division 16 Sections.

   b. Approximate Quantities

1) Aboveground Electrical Distribution Distance: 4,200 LF.

D. Alternate Item No. 12A – Alternate Cap Drainage Layer:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Cap Drainage Layer including geotextile, sand drainage material, underdrain piping, perforated underdrain pipe with sock material, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include Division 2 Section "Landfill Earthwork."

   b. Approximate Quantities

      1) Side Slopes

         a) Geonet: 1,116,000 SF

         b) Sand Drainage Material: 124,000 SY.

      2) Top Slope

         a) Non-woven Geotextile: 810,000 SF.

         b) Sand Drainage Material: 90,000 SY.

         c) 4" Perforated Pipe with Sock: 17,000 LF

         d) 4" Solid Pipe: 2,500 LF

   c. The non-woven geotextile placed between drainage sand and vegetative support material is included under Payment Item No. 13.

E. Alternate Item No. 14A – Owner-Supplied Vegetative Support Material:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Owner-Supplied Vegetative Support Material obtained on-site including soil amendments, hauling, spreading, and incidentals required to complete the work including materials, equipment, tools and labor incidental to the Work.

   a. Related Sections include Division 2 Section "Landfill Vegetative Support Layer."

   b. Approximate Quantities

      1) Vegetative Support Material: 214,000 SY.

   c. Seeding, maintenance and temporary irrigation system is included under Payment Item No. 15.

F. Alternate Item No. 25A – Articulating Block Downchute:

1. The Work of this item shall be measured by the Contract lump sum price.

2. Work associated with this item will be paid for at the Contract Lump Sum price for Articulating Block Downchute including geotextile underlayment and incidentals

required to complete the work including materials, equipment, tools and labor incidental to the Work.

a. Related Sections include Division 2 Section "Permanent Erosion and Sedimentation Control."

b. Approximate Quantities

1) Articulating Block Downchutes: 1,625 LF.

END OF SECTION

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

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

1. General project coordination procedures.
2. Administrative and supervisory personnel.
3. Project meetings.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
2. Division 1 Section "Closeout Procedures" for coordinating Contract closeout.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Project closeout activities.

1.4 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1.5 PROJECT MEETINGS

A. General: Engineer will schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Engineer will inform participants and others involved, and individuals whose presence is required, of date and time of each meeting.
2. Agenda: Engineer will prepare the meeting agenda and distribute the agenda to all invited attendees.
3. Minutes: Engineer will record significant discussions and agreements achieved, and distribute the meeting minutes to everyone concerned, including Owner, within 3 days of the meeting.

B. Preconstruction Conference: Engineer will schedule a preconstruction conference before start of construction, at a time convenient to Owner, Contractor, and Engineer, but no later than 15 days after execution of the Agreement. Conference will be held at Project site or another convenient location. Meeting will be conducted to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Engineer, and their consultants; and Contractor and its superintendent; shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
   a. Tentative construction schedule.
   b. Phasing.

c. Critical work sequencing.

d. Designation of responsible personnel.

e. Procedures for processing field decisions and Change Orders.

f. Procedures for processing Applications for Payment.

g. Submittal procedures.

h. Preparation of Record Documents.

i. Working hours.

j. Other topics of concern.

3. Execution of Owner-Contractor Agreement including executed bonds and insurance certificates may be completed immediately prior to pre-construction conference.

C. Progress Meetings: Engineer will conduct bi-weekly progress meetings, or more frequent meetings if needed, throughout the progress of Work.

1. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

b. Review present and future needs of each entity present, including the following:

1) Interface requirements.

2) Sequence of operations.

3) Status of submittals.

4) Deliveries.

5) Off-site fabrication.

6) Access.

7) Site utilization.

8) Temporary facilities and controls.

9) Work hours.

10) Hazards and risks.

11) Progress cleaning.

12) Quality and work standards.

13) Change Orders.

14) Documentation of information for payment requests.

2. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

   a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

B. Related Sections include the following:

1. Division 1 Section "Payment Procedures" for submitting Applications for Payment.
2. Division 1 Section "Closeout Procedures" for submitting warranties and Project Record Documents.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Engineer's responsive action.

B. Informational Submittals: Written information that does not require Engineer's approval. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Engineer for Contractor's use in preparing submittals.

B. Method of Transmitting Submittals: Electronic transmission of submittals, including a facsimile and e-mail process, will not be allowed.

C. Clarity: Provide neat, clean and legible printed materials that can be easily reproduced by normal photocopying or blueprinting process. Illegible submittals will be returned unreviewed.

D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

   a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

E. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal.

1. Allow 15 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.

F. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.

2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.

3. Include the following information on label for processing and recording action taken:

   a. Project name.

   b. Date.

   c. Name and address of Engineer, Contractor, and subcontractor.

   d. Name and address of supplier including name and telephone number of contact.

   e. Name of manufacturer including name and telephone number of contact.

   f. Unique identifier, including revision number.

   g. Number and title of appropriate Specification Section.

   h. Drawing number and detail references, as appropriate.

   i. Other necessary identification.

G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals. Provide list or narrative of deviations on Submittal Transmittal form.

H. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.

1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Engineer.

I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals, without review, received from sources other than Contractor.

1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.

2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.

3. Transmittal Form: Use sample form at end of Section.

J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

1. Number of Copies: Submit 5 copies of each submittal, unless otherwise indicated. Engineer will return 2 copies. Mark up and retain one returned copy as a Project Record Document.

a. Submit a preliminary single copy of each submittal where selection of options is required. Engineer will return submittal with options selected.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Manufacturer's catalog cuts.
e. Compliance with recognized trade association standards.

f. Compliance with recognized testing agency standards.
g. Application of testing agency labels and seals.
h. Notation of coordination requirements.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Include the following information, as applicable:

a. Dimensions.
b. Identification of products.
c. Fabrication and installation drawings.
d. Roughing-in and setting diagrams.
e. Schedules.
f. Compliance with specified standards.
g. Notation of coordination requirements.
h. Notation of dimensions established by field measurement.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.

D. Samples: Prepare physical units of materials or products, including the following:

1. Comply with requirements in Division 1 Section "Quality Requirements" for mockups.

2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.

b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

E. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product.

F. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.

2. Number and title of related Specification Section(s) covered by subcontract.

3. Drawing number and detail references, as appropriate, covered by subcontract.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Engineer will not return copies.

2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."

B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

C. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

D. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

E. Material or Product Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements. Use attached sample Material Certificate, or provide certificate that includes the following information.

1. Project to which material is consigned.

2. Name of contractor receiving material.

3. Item number and description of material.

4. Quantity of material represented by the certificate.

5. Means of identifying consignment including label, marking, or lot number.

6. Date and method of shipment.
7. Signature of Supplier's authorized agent.
8. Notarization of certificate.

F. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

G. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

H. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

I. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

J. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."

K. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

L. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

M. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents. See attached Submittal Transmittal for sample of statement.

3.2 ENGINEER'S ACTION

A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. Furnish as Submitted: Submittal appears to conform to Contract Documents and Contractor may proceed with ordering and installation.
2. Furnish as Noted: Same as "Furnish as Submitted" except that the Contractor must comply with modifications or notes added to the submittal by the Engineer.
3. Rejected: Submittal must be revised and resubmitted.

C. Informational Submittals: Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.

D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION

SUBMITTAL TRANSMITTAL Date: _____

To: Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040
ATTN:Mr. Craig Lapinski

From:

PROJECT: _____ SUBMITTAL NO.: _____
(List Section No., Article No., Paragraph)

_____
(Revision: 1st, 2nd, 3rd, etc.)

Transmitted herewith for review and comment are the following:

Cop-ies	Dwg.	No.	Description

MANUFACTURER / SUPPLIER

Name: _____

Address: _____

Telephone No.: _____ Facsimile No.: _____

For Additional Information, Contact _____

E-mail Address: _____

I hereby certify that I have carefully examined the enclosed submittal and have determined and verified all field measurements, construction criteria, materials, catalog numbers and similar data, coordinated the submittal with other submissions and the work of other trades and contractors, and that to the best of my knowledge and belief, the enclosed submittal is in full compliance with the Contract Documents, except for the following deviations:

BY:
Signature: _____

Title: _____

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MATERIALS CERTIFICATE

- - SAMPLE - -

(Submit on Manufacturer's letterhead)

Date: _____

WE HEREBY CERTIFY THAT _____

(Description, Kind of Material, Product Name, Model No.)

FURNISHED TO _____

(Name of Contractor) (Prime or Subcontractor)

FOR USE ON _____

(Project Name)

OWNER _____

(Project Owner)

IDENTIFIED BY: _____

(Label, Marking, Seal No., Consignment, or Waybill No.)

SHIPPED VIA: _____

(Method of Shipment, Car No., Truck No.)

SHIPPED ON: _____ DELIVERED ON: _____

MEETS THE REQUIREMENTS OF THE CONTRACT DOCUMENTS FOR THE SUBJECT PROJECT IN ALL RESPECTS. PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH APPLICABLE SPECIFICATIONS, DRAWINGS AND STANDARDS OF ARTICLES FURNISHED. ARTICLES FURNISHED COMPLY WITH THE FOLLOWING SPECIFICATIONS:

_____

_____

_____

_____

All records and documents pertinent to this certificate and not submitted herewith will be maintained available by the undersigned for a period of not less than 3 years from the date of this certificate.

_____

(Name of Manufacturer)

_____

(Authorized Representative's Signature)

_____

(Title)

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EQUIPMENT RECORD SHEET

- - SAMPLE - -

PROJECT: _____

_____

_____

SUBMITTAL NO.: _____
(list Section No., Article No., and Paragraph)

_____
(Revision: 1st, 2nd, 3rd, etc.)

EQUIPMENT MANUFACTURER

_____

_____

_____

_____

SERVICE REPRESENTATIVE

_____

_____

_____

_____

TYPE _____

MODEL NO. _____

SERIAL NO. _____

CAPACITY _____ at _____

Motor Mfr. _____

Motor Size _____

Volts _____ Amps _____

Phase _____ Cycles _____ RPS _____

SPECIAL NOTES AND REMARKS:

_____

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SECTION 01400 – QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. The Project Quality Assurance Plan, reviewed and approved by the Connecticut Department of Environmental Protection, applies to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

1. Cost of testing services shall be borne by the Contractor unless specifically identified as being the responsibility of the Owner. Coordinate schedule and sample taking with testing agencies and inspections required by Owner.

2. Retain the University of Connecticut Soil Testing Laboratory to analyze vegetative support material for lime and fertilizer application rates.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Requirements for Contractor to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. Related Sections include the following:

1. Divisions 2 through 16 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Engineer.

C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.4 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.

1.5 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

C. Schedule of Tests and Inspections: Prepare in tabular form.

D. Reports: Prepare and submit certified written reports.

1. Name and signature of laboratory inspector.

2. Recommendations on retesting and reinspecting.

E. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.

D. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

E. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as required by ASTM E 329, and that specializes in types of tests and inspections to be performed.

1.7 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.

2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

a. Contractor shall not employ the same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies and Engineer at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.

3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

5. Arrange for and conduct inspections required by State or local building, fire protection, safety, health, or environmental officials.

6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.

D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
5. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections, at site or at source of products, including storage and curing of test samples.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field-curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

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SECTION 01572 – TEMPORARY EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes furnishing, placing, and maintaining sedimentation control measures as shown on the Drawings, as directed by the Engineer, and where necessary to reduce sediment content of runoff. Measures include the following:

1. Silt fence.
2. Erosion control bales.
3. Alternative filtration barrier.
4. Construction entrance pad.
5. Catch basin inserts.
6. Sand bag diversion berm.
7. Pipe slope drain with riprap apron.
8. Temporary erosion control blankets.
9. Temporary Sediment Traps
10. Polyacrylimide Erosion Control Blocks.
11. Dust control.
12. Connecticut DOT Drainage Channel cleaning.

B. Related Sections include the following:

1. Division 2 Section "Earthwork."
2. Division 2 Section "Permanent Erosion and Sedimentation Control" for permanent erosion control measures including permanent turf reinforcement matting.

1.3 SUBMITTALS

A. Certificates of Compliance:

1. Silt fence.
2. Erosion control bales.
3. Alternative filtration barrier

4. Riprap.
5. Stone.
6. Catch basin inserts.
7. HDPE pipe.
8. Erosion control blanket.
9. Polyacrylimide Erosion Control Blocks
10. Calcium chloride.

B. Material Test Reports
1. Compost

1.4 QUALITY ASSURANCE

A. Where "Form 816" is referenced, it shall mean "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816," and issued supplements.

B. Connecticut Guidelines for Soil Erosion and Sediment Control by the Connecticut Council on Soil and Water Conservation.

C. Compost Chemical Analysis Reports: Obtain one composite soil sample for each source of material. Analyze for pesticides (EPA Method 8081), chlorinated herbicides (EPA Method 8151), Total Petroleum Hydrocarbons (CTETPH method), Total RCRA 8 Metals (EPA Method 6010 / 7421 / 7470).

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver calcium chloride to site in manufacturers sealed bags.

PART 2 - PRODUCTS

2.1 SILT FENCE

A. Synthetic Filter Fabric: Woven geotextile, 36 inches maximum height, conforming to the following:

Properties	Requirement	Unit
Grab Tensile Strength (ASTM D4632):	124	Lbs
Grab Tensile Elongation (ASTM D4632):	15	Percent
Puncture Strength (ASTM D4833):	65	Lbs
Flow Rate (ASTM D4491):	20	Gal/Min/Sq. Ft.

Properties	Requirement	Unit
UV Resistance(at 500 hours) (Retained strength) (ASTM D4355):	80	Percent

B. Posts

1. Hardwood Stakes: 1-inch by 1-inch by 42-inch minimum.

C. Product and Manufacturer:

1. Harris Silt Fence by Amoco Fabrics and Filters.
2. Mutual MISF 1855 by Mutual Industries, Inc.
3. Or equal.

2.2 HAY BALES

A. Bales: Hay, weighing 40 to 120 pounds per bale.

B. Stakes: Wood, 1-inch by 1-inch by 36-inch minimum.

2.3 ALTERNATIVE FILTRATION BARRIERS

A. Compost: Clean natural material, weed free and derived from a well-decomposed source of organic matter, relatively free of inert or foreign man-made materials (less than 1 percent by dry weight) and reasonably free of refuse, physical contaminants, and material toxic to plant growth.

1. Moisture Content: ASTM D2216 and ASTM D2974, Method A.
   a. Less than 60 percent by total weight.
2. Particle Size: In accordance with TMECC 02.02-B

Square Mesh Sieve	Percent Passing By Weight
2 inch	99
3/8 inch	60

3. PH Content: 5.5 to 8.0 in accordance with TMECC 04.11-A.
4. Non-composted material will not be accepted.

B. Manufacturers:

1. Filtrexx SiltSoxx®
2. Rexius Ecoberm®
3. Approved equal

2.4 CONSTRUCTION ENTRANCE

A. Stone: Article M1.01 of Form 816, size No.3 or as indicated.

2.5 DRAINAGE STRUCTURE PROTECTION

A. Catch Basin Inserts: Woven polypropylene fabric, prefabricated to a cone-shape, with loops for lifting the insert with reinforcing steel during removal, and the following.

Properties	Requirement	Unit
Grab Tensile Strength (ASTM D4632):	300	Lbs
Grab Tensile Elongation (ASTM D4632):	20	Percent
Puncture Strength (ASTM D4833):	120	Lbs
Mullen Burst (ASTM D3786):	800	PSI
Trapezoid Tear (ASTM D4533):	120	Lbs
Flow Rate (ASTM D4491):	40	Gal/Min/Sq. Ft.
Permittivity (ASTM D4491)	0.55	Sec-1
UV Resistance(at 500 hours) (Retained strength) (ASTM D4355):	80	Percent
Apparent Opening Size (ASTM D4751):	#40	US Sieve

1. Manufacturer: ACF Environmental, 1801-A Willis Road, Richmond, VA 23237 (800-844-9223), or equal.
   a. Product: Silt Sack

B. Catch Basin Fabric: Geotextile filter fabric, meeting the requirements above, wrapped around non-standard size catch basin grates.

2.6 SAND BAG DIVERSION

A. Sandbags: Close-knit fabric to prevent transmission of sand fines through the fabric.

B. Sand: Approved, clean material or substitute.

2.7 TEMPORARY SLOPE DRAIN

A. Corrugated HDPE Drainage Tubing and Fittings NPS 4 to NPS 10: AASHTO M 252, Type S, with smooth waterway for coupling joints.

B. Riprap: Broken, irregular size and shape, graded stone conforming to Form 816, Section M.12.02, size as indicated.

2.8 EROSION CONTROL BLANKET

A. Blanket: Minimum width of 6 feet.

1. Mat: Machine-produced of 100 percent coconut fiber with colored line or thread along outer edges to indicate material overlap limits.

a. Weight: 0.50 lb./sq.yd.

b. Overlap: Approximately 2 to 5 inches.

2. Top and Bottom Cover: Heavy-weight polypropylene netting with ultraviolet additives to delay breakdown.

a. Mesh Size: 0.625-inch by 0.625 inch.

b. Weight: 3 lbs/1000 sq. ft.

B. Sew blanket and covers together on 1.5 inch center at 50 stitches per roll width with UV stable polypropylene thread.

C. Blanket: North American Green S150, Bon Terra S2, or approved equal.

D. Spray-Applied Bonded Fiber Mat Alternative: Hydrograss Technologies, Inc. GeoPerm™, or approved equal.

1. Refer to the "Maintenance" section under "Part 3 - Execution" for additional maintenance requirements associated with choosing this alternative.

2.9 TEMPORARY SEDIMENT TRAP

A. Core (Riprap): Broken, irregular size and shape, graded stone conforming to Form 816, Section M.12.02, size as indicated.

B. Face (Stone): Article M1.01 of Form 816, size No.3 or as indicated.

2.10 POLYACRYLIMIDE EROSION CONTROL BLOCKS

A. APS 700 Series Floc Log, or approved equal

B. Formulation as recommended by the manufacturer.

2.11 DUST CONTROL

A. Water: Potable.

B. Calcium Chloride: ASTM D98, Type 1 or Type 2.

PART 3 - EXECUTION

3.1 GENERAL

A. Minimize environmental damage during construction. Prevent discharge of fuel, oil, lubricants, and other fluids. Mitigate effects of discharge.

B. Install erosion and sediment control measures prior to clearing, demolition or construction.

C. Construct erosion and sediment control measures in accordance with standards and specifications of the Owner, state regulations and guidelines, and the following.

1. Provide additional sedimentation and erosion controls as required by the Engineer to address field conditions at no additional cost.

2. Do not discharge turbid water from dewatering to inland wetlands or watercourses.

3. Inspect site weekly and prior to any anticipated rain event. Ensure that erosion controls are properly maintained and functioning.

4. Supply a 24-hour contact name and telephone number as part of the erosion control plan.

D. Install additional control measures, if deemed necessary by the Owner, Engineer, and authorities having jurisdiction.

E. Protect catch basins with bale filters throughout construction until disturbed areas are stabilized.

1. Remove and dispose of sediment from control structures.

F. Control dust and wind erosion. Control dust to prevent a hazard to traffic on adjacent roadways. Dust control includes sprinkling of water or calcium chloride application.

G. Do not discharge directly into wetlands or watercourses where dewatering is necessary. Utilize methods and devices as permitted by authorities having jurisdiction and appropriate regulations to minimize and retain suspended solids including pumping water into a temporary sedimentation basin, providing surge protection at inlet and outlet of pumps, floating pump intake.

1. If pumping operation results in turbidity problems, stop pumping until means of controlling turbidity are determined and implemented.

H. Where control measures are required for longer than 60 days, use silt fence instead of hay bales.

I. Cut Areas

1. Establish an erosion control line (haybale check or filter fabric) at toe of slope in cut areas and slope stabilization with mulch or grass within 30 days of start of cut operations.

J. Fill Areas

1. Establish an erosion control line (woodchip berm or filter fabric) approximately 10 feet from toe of slope of proposed fill areas prior to beginning fill installation.
2. Initiate slope stabilization with mulch or grass within 30 days of start of fill installation.

K. Within 7 days of completing slope construction, stabilize slopes with vegetation or matting to minimize exposure.

L. Stockpiles

1. Side Slopes: 2:1 maximum.
2. Surround stockpiles by a sediment barrier.
3. Stabilize stockpiles left bare for more than 15 days with temporary vegetation or mulch.

M. Final Grading

1. If final grading is delayed for more than 30 days after land disturbances cease, stabilize soils with temporary vegetation or mulch.

N. Planting Season for Temporary Vegetation

1. March 1 to June 15 and August 1 to October 1.
2. After September 15, stabilize areas with haybale check, filter fabric, or woodchip mulch.

O. Areas to Be Left Bare Prior to Finished Grading and Seeding

1. Within Planting Seasons
   a. Temporarily seed with Perennial Ryegrass
   b. Apply at a rate of 2 pounds per 1000 sq. ft. at a depth of 1/2 inch.
   c. Where grass predominates, fertilize according to a soil test at a minimum application rate of one pound per acre.
2. Outside of Planting Seasons
   a. Apply air-dried wood chip mulch, free of coarse matter.
   b. Apply at a rate of 185 to 275 pounds per 1000 sq. ft.

3.2 CONTROL SYSTEMS

A. Prevent damage to geomembrane liner resulting from control system installation. Repair damaged geomembrane liner in accordance with manufacturer's requirements, at no additional cost to Owner.

B. Construct erosion and sediment control structures prior to site clearing and grubbing operations.

C. Silt Fence.

1. Install fencing at locations indicated or where directed by the Engineer. Maintain pitch of 2 to 20 degrees, with inclination toward potential silt source.
2. Install bottom 6 inches of fabric by trenching and burying the fabric into the notched ground.
3. Drive posts into ground a minimum of 12 inches. Additional care should be taken when installing posts above the geomembrane liner.
4. Locate fabric splices at posts only. Provide 6-inch overlap and seal.

D. Sedimentation Control Hay Bales.

1. Install bales at locations indicated or where directed by the Engineer. Place bales lengthwise with ends tight, abutting one another. Install bales with bindings located on the sides.
2. Entrench bales 4 inches and backfill. Place backfill toward potential silt source.
3. Secure in place with two stakes per bale and insert straw in voids between bales. Additional care should be taken when installing stakes above the geomembrane liner.

E. Alternative Filtration Barriers.

1. Install where conventional filtration barriers (i.e., silt fence or hay bales) are impractical or infeasible to install.
2. Installation shall be performed by a manufacturer approved installer.

F. Catch Basin Insert

1. Inspect after each major precipitation event. Inspect every two weeks if no major rain events have occurred.
2. Remove, clean, and reinstall silt sack when sediment accumulates to half capacity of sack.

G. Pipe Slope Drains and Aprons

1. Install, relocate, and maintain as required to allow work to progress.

H. Temporary Sediment Trap

1. Install were indicated or as directed by the engineer
2. Remove and reinstall as required to allow installation of geomembrane liner and final cover material below trap.

I. Polyacrylimide Erosion Control Blocks

1. Install at locations, and in quantities recommended by the manufacturer.
2. Replace as needed during the duration of the project.

J. Dust Control.

1. Apply water uniformly over the surface when dust becomes a nuisance and when directed by the Engineer.
   a. Apply water from trucks capable of uniform distribution over the surface. Provide suitable devices for positive shut-off and for regulating flow of water.
2. Apply calcium chloride at locations only when directed by Engineer at no additional cost to Owner. Spread calcium chloride by approved devices and methods for uniform distribution.
   a. Engineer shall determine application rate based upon site conditions.
3. Provide sweeping equipment with provisions for water application ahead of sweeping brooms to prevent dusting.

3.3 MAINTENANCE

A. Silt Fence and Bale Control Systems

1. Inspect control system immediately after each rainfall and daily during prolonged rainfall. Make repairs immediately.
2. Remove and dispose of accumulated sediments when sediment reaches approximately one-third the height of the control system, or when directed by the Engineer.
3. Replace control system promptly if fabric decomposes or system becomes ineffective prior to the expected usable life.
4. Maintain or replace system until no longer necessary for the intended purpose.

B. Construction Entrance Pad

1. Maintain in good condition throughout construction period. Clean or replace stone when pad has accumulated sediment.

C. Erosion Control Blanket

1. Repair damages portions of erosion control blanket until the area stabilizes with new growth or as directed by the Engineer.
2. Spray-Applied Bonded Fiber Mat Alternative: Reapply product to areas damaged by erosion until the area stabilizes with new growth or as directed by the Engineer.

D. Dust Control

1. Keep paved surfaces free of tracked sediment. Sweep adjacent paved areas throughout hauling operations, and at the end of each day's construction operation. Conduct sweeping at locations and times as directed by the Engineer at no additional cost.

E. Connecticut DOT Drainage Channel cleaning. Remove debris and sediment from drainage channel after upland areas have been stabilized. Stockpile excavated material on site at a location designated by the Engineer.

3.4 REMOVAL

A. Remove and dispose of control systems off-site after area stabilizes with new growth or as directed by the Engineer.

1. After removal of system, restore disturbed areas to original condition or better.

END OF SECTION

SECTION 01660 - PRODUCT STORAGE AND HANDLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following administrative and procedural requirements:

1. product delivery, storage, and handling;

B. Related Sections include the following:

1. Division 1 Section "Closeout Procedures" for submitting warranties for contract closeout.

1.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
    a. Packages, materials, and equipment showing evidence of damage shall be rejected and replaced at no additional cost to the Owner.
5. Store products to allow for inspection and measurement of quantity or counting of units.
6. Store materials in a manner that will not endanger Project structure.
7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

8. Products Stored for Extended Periods of Time: Perform periodic inspections to assure products are maintained under required conditions and are undamaged.
9. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
10. Protect stored products from damage.
11. Loose Granular Materials. Store on solid-surfaces in a well-drained area. Prevent materials from mixing with foreign matter or other granular materials.

B. Materials that have become so damaged as to be unfit for the use intended or specified, as determined by the Engineer, shall be promptly removed from the site. Replace such damaged materials at no additional cost to the Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Progress cleaning.
5. Protection of installed construction.
6. Correction of the Work.

B. Related Sections include the following:

1. Division 1 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
2. Division 1 Section "Submittal Procedures" for submitting surveys.
3. Division 1 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

A. Land Surveyor Qualifications.

B. As-Built Survey:

1. Draft Copy. Submit at Substantial Completion.
   a. Scale: 1" = 50'.
   b. Mapping Details. Include the following.
      1) Contours at 2-foot intervals.
      2) Drainage structure invert and outlet elevations.

3) Existing and constructed features, labeled, including access roads, monitoring wells, gas riser vents, limit of landfill cap, limit of riprap ditches, underdrains, and landfill limit markers.

2. Final Copy. Address Engineer's comments and resubmit within 30 days of receipt of Engineer's comments, and before request for Site Final Inspection.

a. Deliverables:

1) Original, certified, fixed-line mylar.

2) Three blackline copies.

3) Electronic copy of survey on CD in AutoCAD Version 2000 or Version 2005 format.

1.4 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

1. Experience: Minimum of two years in construction surveying layout and preparation of as-built surveys in accordance with the specified horizontal and vertical control requirements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.

2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

a. Description of the Work.

b. List of detrimental conditions, including substrates.

c. List of unacceptable installation tolerances.

d. Recommended corrections.

2. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer prior to proceeding with the Work.

B. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points in addition to those indicated to set lines and grades of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Notify Engineer when deviations from required grades, lines, and levels exceed allowable tolerances.
4. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Owner. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

D. Coordinates

1. Establish X, Y and Z coordinates for benchmarks and survey control points.
   a. Maximum Permissible Error: 0.10 feet, plus or minus in any coordinate direction.
2. X, Y Coordinates: Refer to coordinate system (NAD27).
3. Z Coordinates: Refer to nearest USGS benchmark.
   a. Accuracy: 0.10 feet, plus or minus (NGVD 29).

E. Certified Survey: On completion of the work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

1. Mapping details shall include, but not be limited to, two foot contour intervals, cap limits, and invert and outfall elevation of drainage structures. In addition, survey work should show locations of existing and constructed features such as access roads, monitoring wells, gas riser vents, riprap ditches, underdrains, toe drains and landfill limit markers.

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.8 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged areas.

B. Restore permanent facilities used during construction to their specified condition.

C. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

END OF SECTION

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Project Record Documents.
3. Warranties.
4. Final cleaning.

B. Related Sections include the following:

1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
2. Division 1 Section "Execution Requirements" for as-built survey and progress cleaning of Project site.
3. Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
10. Complete final cleaning requirements, including touchup painting.
11. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Include the following information at the top of each page:

a. Project name.

b. Date.

c. Name of Engineer.

d. Name of Contractor.

e. Page number.

1.6 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.

B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings.

1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.

b. Accurately record information in an understandable drawing technique.

c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

d. Mark Contract Drawings completely and accurately.

2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.

3. Mark important additional information that was either shown schematically or omitted from original Drawings.

4. Note Work Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.

5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

3. Note related Field Orders, Work Change Directives, and Change Orders where applicable.

D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference. Include the following:

1. Field Orders, Work Change Directives, Change Orders, and other modifications to the Contract.

2. Manufacturer's certificates.

3. Quality Control Reports

a. Field test reports and documentation.

b. Photographs.

c. Laboratory test records.

d. Daily inspection records.

e. Dated truck slips.

f. Samples.

g. Other items that may be required by the Owner.

E. Deliver one set of original Record Documents to Owner before Substantial Completion.

1. Acceptance of Record Documents by Owner is a condition for issuance of final payment.

1.7 WARRANTIES

A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Submit two signed copies of warranties, bonds, and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, Installers, and subcontractors.

D. Warranty Types

1. Type A: Manufacturer's Standard Warranty. Must be written for specific project and signed by manufacturer.

2. Type B: General Contractor's Warranty. Must be written on Contractor's letterhead and signed by Contractor. Also signed by Installer or Subcontractor when designated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning:

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

1) Remove material and debris from existing and constructed water courses, ditches, gutters, drains, pipes structures located within the Contract Limit. Dispose of

b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

c. Remove tools, construction equipment, machinery, and surplus material from Project site.

d. Remove debris from limited access spaces, including roofs, equipment vaults, manholes, and similar spaces.

e. Sweep concrete floors broom clean in unoccupied spaces.

f. Remove labels that are not permanent.

g. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

h. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

DIVISION 2
SITE CONSTRUCTION

SECTION 02141 – LANDFILL EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Preparing landfill subgrade including general fill where required.
2. Cap base material.
3. Sand Drainage layer which includes the following:
    a. Geonet.
    b. Drainage Sand.
    c. Non-woven geotextile cover.
4. Disposal of unsuitable material.
5. Disposal of surplus suitable material, if required.

B. Related Sections include the following:

1. Division 1 Section "Temporary Erosion and Sedimentation Control" for temporary site measures.
2. Division 2 Section "LLDPE Geomembrane Liner."
3. Division 2 Section "Landfill Vegetative Support Material" for landfill topsoil.
4. Division 2 Section "Site Earthwork" for miscellaneous earthwork materials and procedures for utility systems and locations beyond landfill limits.
5. Division 2 Section "Underdrains" for piped subdrainage systems.
6. Division 2 Section "Permanent Erosion and Sedimentation Control" for riprap at cap anchors.

1.3 DEFINITIONS

A. ASTM: American Society for Testing and Materials.

B. ETPH: Extractable Total Petroleum Hydrocarbons.

C. HDPE: High Density Polyethylene

D. LLDPE: Linear Low Density Polyethylene

E. RCRA: Resource Conservation Recovery Act.

1.4 SUBMITTALS

A. Product Data and Material Certifications: For the following:

1. General fill.
2. Cap Base material
3. Drainage Sand material.
4. Geonet.
5. Non-woven geotextile.

B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance with requirements indicated. Prepare separate reports for each type and application of soil material.

1. Gradation according to ASTM D 422 and classification according to ASTM D 2487, prior to delivery and at a rate of one per 5,000 cu. yd.
2. Modified Proctor Testing according to ASTM D 1557.
   a. General Fill, Cap Base and Sand Drainage Layer: prior to delivery and at a rate of one per 5,000 cu. yd.
3. Origin of material, prior to delivery.
4. Permeability Testing according to ASTM D 5084:
   a. Cap Base and Sand Drainage Layer: One prior to delivery and one per 5,000 cu. yd. delivered.
5. Interface Friction Angle Testing according to ASTM D 5341(for interface surfaces described in Part 2):
   a. Cap Base and Sand Drainage Layer: One prior to delivery and one per 5,000 cu. yd. delivered.
   b. General Fill Material proposed for Diversion Swales: One prior to delivery and one per 5,000 cu. yd. delivered.
   c. All other General Fill: None.
   d. Geonet: One per proposed geomembrane liner type prior to delivery
6. Internal Friction Angle Testing according to ASTM D 3080:
   a. General Fill, Cap Base and Sand Drainage Layer: One prior to delivery and one per 5,000 cu. yd. delivered.

7. Soil Chemical Analysis Reports:

   a. General Fill, Cap Base and Sand Drainage Layer: RCRA 8 metals (according to EPA Method 6010 / 7421 / 7470) and ETPH (according to CTETPH): prior to delivery and one report for each 10,000 cu. yd., or portion thereof, delivered. Owner reserves the right to disqualify the source based on the results of the chemical testing.

C. Field Test Reports

1. Depth Test Hole Drawing: Identify installed layer, locate field test holes on plan, and record depth of tested layer. Submit before proceeding with subsequent layer installation.

1.5 QUALITY ASSURANCE

A. Where "Form 816" is referenced, it shall mean "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816," and issued supplements.

B. Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials testing, as documented according to ASTM D 3740 and ASTM E 548.

1. Testing Agency performing tests involving geosynthetic materials shall also be accredited by the Geosynthetics Research Institute.

1.6 PROJECT CONDITIONS

A. Stage earthwork operations to minimize travel of vehicular traffic over the cap area.

1. Damage to the LLDPE geomembrane liner resulting from construction activities shall be repaired at the Contractor's expense.

2. No vehicular traffic shall be allowed to operate directly on the geomembrane liner.

3. Additionally, heavily-loaded construction vehicles such as loaded dump trucks and front-end loaders will not be allowed to travel over areas with installed geomembrane liner with less than 18 inches of cover.

PART 2 - PRODUCTS

2.1 GENERAL FILL

A. General Fill: Free from ice, snow, roots, sod, rubbish, and other deleterious or organic matter.

1. Use for general raises in landfill grade and waste cover.

2. Meet the following gradation:

U.S. Standard Sieve Size	Percent Finer By Weight
3-inch	100
No. 10	30-90
No. 40	10-70
No. 200	0-20

3. Minimum Interface Friction Angle: Between the non-woven geotextile and general fill material proposed for diversion swales shall be 29 degrees peak and 29 degrees residual. Test shall be performed with general fill compacted to a dry density equal to a range between 85 and 90 percent of the maximum density, at a moisture content 3 percent wet of optimum moisture, obtained in accordance with ASTM D 1557 and tested in accordance with ASTM D 5321 after soaking the prepared samples for a period of at least 24 hours to obtain uniform moisture content in the materials being tested. The specimens shall be sheared via the large scale direct shear method at a rate of 0.005 in/minute at 1 and 5 psi normal stresses.

4. Minimum Internal Friction Angle: When tested in accordance with ASTM D 3080. Test shall be performed with general fill compacted to a dry density equal to a range between 85 and 90 percent of the maximum density, at a moisture content 3 percent wet of optimum moisture, obtained in accordance with ASTM D 1557 after soaking the prepared samples for a period of at least 24 hours to obtain uniform moisture content in the materials being tested. The specimens shall be sheared via the large scale direct shear method with 1 and 5 psi normal stresses.

   a. Material proposed for Diversion Swale and Road Embankment fill: Minimum internal friction angle of 35 degrees.

   b. All other General Fill applications: Minimum internal friction angle of 29 degrees.

5. Minimum Compacted Wet Unit Weight: When compacted to 90 percent of maximum dry density at a moisture content of 3 percent wet of optimum, obtained in accordance with ASTM D 1557.

   a. Material proposed for Diversion Swale fill: Minimum of 130 pounds per cubic foot

   b. All other General Fill applications: Minimum of 110 pounds per cubic foot

2.2 CAP BASE

A. Cap Base Material. Naturally or artificially graded mixture of natural or crushed gravel free of sharp edges, and natural or crushed sand.

1. Use directly beneath landfill geomembrane liner.

2. Minimum Permeability: ASTM D 5084, 1.0 x 10^{-3} cm/sec when compacted at optimum to 3 percent of optimum moisture content, and 90 percent of maximum density in accordance with ASTM D 1557.

   a. Test samples at effective confining pressure of 3 psi, under hydraulic gradients ranging from 5 to 20.

3. Minimum Interface Friction Angle: Between the cap base material and geomembrane liner. Test shall be performed with cap base material compacted to a dry density equal to a range between 85 and 90 percent of the maximum density, at a moisture content 3 percent wet of optimum moisture, obtained in accordance with ASTM D 1557 and tested in accordance with ASTM D 5321 after soaking the prepared samples for a period of at least 24 hours to obtain uniform moisture content in the materials being tested. The specimens shall be sheared via the large scale direct shear method at a rate of 0.005 in/minute at 1, 5 and 12 psi normal stresses.

   a. Material proposed for slopes >10%: Minimum interface friction angle of 29 degrees peak and 29 degrees residual.

   b. Material proposed for slopes ≤10%: Minimum interface friction angle of 18 degrees peak and 18 degrees residual.

4. Minimum Internal Friction Angle: Shall be 29 degrees when tested in accordance with ASTM D 3080. Test shall be performed with cap base material compacted to a dry density equal to a range between 85 and 90 percent of the maximum density, at a moisture content 3 percent wet of optimum moisture, obtained in accordance with ASTM D 1557 after soaking the prepared samples for a period of at least 24 hours to obtain uniform moisture content in the materials being tested. The specimens shall be sheared via the large scale direct shear method with 1, 5 and 12 psi normal stresses.

5. Minimum Compacted Wet Unit Weight: Shall be 110 pounds per cubic foot when compacted to 90 percent of maximum dry density at a moisture content of 3 percent wet of optimum, obtained in accordance with ASTM D 1557.

6. Meet the following gradation:

U.S. Standard Sieve Size	Percent Finer By Weight
1-inch	100
No. 10	30-90
No. 40	10-70
No. 200	0-10

2.3 DRAINAGE LAYER

A. Geonet (Bi-Planar or Tri-Planar): Drainage net with non-woven geotextile fabric bonded to each side.

   1. Geonet: HDPE material.

Properties	Unit	Value	Test
Carbon Black Content	Percentage	2 to 3	ASTM D1603
Transmissivity	m^2/sec	$\geq 1.4 \times 10^{-3}$	GRI GC8
Polymer Specific Gravity		0.93	ASTM D1505
Polymer melt flow index	g/10 min	≤ 1.0	ASTM D1238
Thickness	millimeters	5.3	ASTM D5199

a. Perform transmissivity test with rigid platter or substratum and Ottowa Sand on super stratum. Test at gradient of 0.04 at a temperature of 68 degrees F and normal stress of 1,000 psf.

2. Non-Woven Geotextile:

Properties	Unit	Value	Test
Unit Weight per Area	oz./yd^2	6.0	N/A
Flow	gpm/sf	150	ASTM D4491
Grab Tensile	lbs.	120	ASTM D4632

3. Ties: Strings, plastic fasteners, or polymer braid used to secure adjacent sheets of drainage composite

   a. Metallic ties will not be allowed.

   b. Color: Yellow or white to facilitate inspection.

4. Minimum Interface Friction Angle: Between each type of proposed geomembrane liner and geonet (with non-woven geotextile heat-bonded to each side). The specimens shall be sheared via the large scale direct shear method at a rate of 0.005 in/minute at 1, 5 and 12 psi normal stresses. .

   a. Material proposed for slopes >10%: Minimum interface friction angle of 29 degrees peak and 29 degrees residual.

   b. Material proposed for slopes ≤10%: Minimum interface friction angle of 8 degrees peak and 8 degrees residual.

B. Drainage Sand.

1. Minimum Permeability: ASTM D 5084, 1.0×10^{-3} cm/sec when compacted at optimum to 3 percent of optimum moisture content, and 90 percent of maximum density in accordance with ASTM D 1557.

   a. Test samples at effective confining pressure of 3 psi, under hydraulic gradients ranging from 5 to 20.

2. Minimum Interface Friction Angle: Between the geonet and drainage sand. Test shall be performed with drainage sand compacted to a dry density equal to a range between 85 and 90 percent of the maximum density, at a moisture content 3 percent wet of optimum moisture, obtained in accordance with ASTM D 1557 and tested in accordance with ASTM D 5321 after soaking the prepared samples for a period of at least 24 hours to obtain uniform moisture content in the materials being tested. The specimens shall be sheared via the large scale direct shear method at a rate of 0.005 in/minute at 1, 5 and 12 psi normal stresses.

   a. Material proposed for slopes >10%: Minimum interface friction angle of 29 degrees peak and 29 degrees residual.

   b. Material proposed for slopes ≤10%: Minimum interface friction angle of 18 degrees peak and 18 degrees residual.

3. Minimum Internal Friction Angle: When tested in accordance with ASTM D 3080. Test shall be performed with drainage sand compacted to a dry density equal to a range between 85 and 90 percent of the maximum density, at a moisture content 3 percent wet of optimum moisture, obtained in accordance with ASTM D 1557 after soaking the prepared samples for a period of at least 24 hours to obtain uniform moisture content in the materials being tested. The specimens shall be sheared via the large scale direct shear method with 1, 5 and 12 psi normal stresses.

   a. Material proposed for Diversion Swale and Road Embankment fill: Minimum internal friction angle of 35 degrees.

   b. All other Drainage Sand Applications: Minimum internal friction angle of 29 degrees.

4. Minimum Compacted Wet Unit Weight: When compacted to 90 percent of maximum dry density at a moisture content of 3 percent wet of optimum, obtained in accordance with ASTM D 1557.

   a. Material proposed for Diversion Swale fill: Minimum of 130 pounds per cubic foot

   b. All other Drainage Sand Applications: Minimum of 110 pounds per cubic foot

5. In addition to the permeability requirements, all drainage sand shall be free of sharp edges and meet the following gradation requirement.

U.S. Standard Sieve Size	Percent Finer By Weight
1-inch	100
No. 10	30-90
No. 40	10-70
No. 200	0-10

C. Non-Woven Geotextile – Placed between drainage sand and vegetative support material.

1. Needle-punched fabric of polypropylene fibers, conforming with Form 816, Article M.08.01-26.

2. Geotextile shall have the following properties:
   a. Minimum Mass per Unit Area of 4.0 oz/yd^2
   b. Minimum Tensile strength of 90 lbs.
   c. Minimum elongation of 50 percent
   d. Minimum flow rate of 150 gpm/sq.ft.
   e. Minimum U.V. resistance of 70 percent at 150 hrs.

2.4 DRAINAGE LAYER – (ALTERNATE)

A. Side Slopes: Same as Article 2.3.

B. Top Slope (Slopes equal to 4 percent)
   1. Geonet: None. Replaced by geotextile as follows:
      a. Non-Woven Geotextile – Placed in contact with geomembrane in areas without geonet.
         1) Needle-punched fabric of polypropylene fibers, conforming with Form 816, Article M.08.01-26.
         2) Geotextile shall have the following properties:
            a) Minimum Mass per Unit Area of 8.0 oz/yd^2
            b) Minimum Tensile strength of 220 lbs.
            c) Minimum elongation of 50 percent
            d) Minimum flow rate of 110 gpm/sq.ft.
            e) Minimum U.V. resistance of 70 percent at 150 hrs.
   2. Drainage Sand: Same as Paragraph 2.3 B except for the following:
      a. Minimum Permeability: On slopes less than 10 percent, a sand drainage layer with a higher permeability may be used without geonet, but with 4" underdrains laid out as depicted on the drawings. If this alternative is chosen, this soil must conform to ASTM D 5084, 1.0 x 10^{-2} cm/sec when compacted at optimum to 3 percent of optimum moisture content, and 90 percent of maximum density in accordance with ASTM D 1557.
         1) Test samples at effective confining pressure of 3 psi, under hydraulic gradients ranging from 5 to 20.
      b. Gradation: On slopes less than 10 percent, a sand drainage layer with a higher permeability may be used without drainage composite. If this alternative is chosen, this soil must conform to:

U.S. Standard Sieve Size	Percent Finer By Weight
3/8-inch	100
1/4-inch	25-60
No. 10	15-45
No. 40	5-25
No. 100	0-10
No. 200	0-5

C. Non-Woven Geotextile Placed between drainage sand and vegetative support material:

1. Same as Paragraph 2.3 C.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Protect subgrades and foundation soils against freezing temperatures or frost.

3.2 LANDFILL SITE CLEARING

A. Strip existing vegetation to root depth to enable placement of cap base material directly on daily cover material. Collect and dispose of all vegetated material.

B. Site Improvements: Remove and dispose of in-place grouted riprap and concrete slurry.

1. Contractor's Option: Crush on-site removed riprap and concrete slurry for reuse as general fill material. Submit test reports for final material gradation.

3.3 APPROVAL OF SUBGRADES

A. Notify Engineer when site has reached proposed landfill subgrade and each material level subgrade.

B. If Engineer determines that unsatisfactory conditions are present, remove and replace material to the satisfaction of the Engineer at no additional cost to the Owner.

1. Reconstruct subgrade damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer.

3.4 STORAGE OF SOIL MATERIALS

A. Stockpile materials and excavated soil materials meeting project specifications. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Prevent windblown dust.

3.5 FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 10 percent so fill material will bond with existing material.

1. Refuse Area Grades: Do not exceed earth slopes indicted in Closure Plan.

a. Maximum Slope: 3H:1V (33 percent).

b. Minimum Slope: 25H:1V (4 percent).

3.6 CAP BASE MATERIAL

A. Place and compact cap base material in one layer or 6 inch maximum lifts, to the lines and grades indicated.

B. Perform depth test hole testing.

3.7 GEONET

A. Installation:

1. Install geonet on top of geomembrane liner in accordance with manufacturer's requirements.

a. A manufacturer's Technical Service Representative shall be present during all geonet installation activities.

b. The Contractor shall bear the expense of this Technical Service Representative.

2. Placement of the geonet shall be done without damaging any underlining geosynthetic. The geonet shall be placed on the prepared surface in such a manner as to assure minimum handling. Any necessary surface preparation should be completed before installation begins.

3. Geonets shall be anchored in anchor trenches with the geomembrane cap as detailed on the approved shop drawings.

a. Only those rolls of geonet material which can be anchored and tied together that same day shall be unpackaged and placed in position.

4. Adjacent rolls shall be overlapped and plastic ties pushed through the geotextiles and geonet in the overlap area. Plastic ties shall be white or other bright color to allow easy inspection and metallic ties shall not be allowed. Plastic ties shall be installed at 5 foot intervals. There shall be no slack in the geonet, but the material shall be installed in a relaxed condition.

5. In the corners of the side slopes where there is a gap between overlapping rolls of the geonet, an extra layer of material shall be installed from the top to the bottom of the slope.

B. Protection:

1. Materials, equipment, or other items shall not be dragged across the surface of the geonet and no materials shall be allowed to slide down the slopes on the geonet.

2. The Contractor shall place all cover materials in such a manner as to ensure the geonet is not damaged.

3.8 DRAINAGE SAND LAYER

A. Place sand drainage material over goenet in one continuous lift and spread using tracked equipment weighing equivalent to or less than that of a Caterpillar D-6 bulldozer, or equal. Equipment must have a ground pressure less than 10 psi.

B. Immediately track sand after fine grading has been completed. Utilize tracked bulldozers with grousers of sufficient height to leave visible depressions in the subgrade. Operate equipment parallel to the direction of water flow, leaving track depressions that are perpendicular to the direction of water flow, which will reduce erosion potential until placement of Vegetative Support Material.

C. Perform depth test hole testing.

3.9 NON-WOVEN GEOTEXTILE

A. Installation:

1. Install non-woven geotextile where shown on the drawings in accordance with manufacturer's requirements.

   a. The surface on which the geotextile is placed shall be maintained in a firm, clean, dry and smooth condition during installation.

   b. The geotextile shall be placed over the prepared surface in a manner as to assure minimum handling.

   c. The sheets shall be of such lengths and widths and shall be placed in such a manner as to minimize field seaming.

   d. Horizontal field seams on the slopes shall be kept to a minimum.

2. Geotextile material shall be anchored as shown on the approved shop drawings, as shown on the plans or as directed by the Engineer.

   a. Geotextile shall not be welded to the liner.

   b. Only those sheets of material which can be anchored and sealed together that same day shall be unpackaged and placed in position.

   c. The leading edge of the material shall be secured at all times with sandbags or other means sufficient to hold it down during high winds.

3. Adjacent rolls shall be overlapped a minimum of 12 inches to assure continuity or as specified by the manufacturer with approval of the Engineer.

a. The overlap shall be in the direction, such that the aggregate being spread does not push the fabric apart.

4. Installation of the geotextile shall be approved by the Engineer prior to placing cover material over the geotextile.

B. Patching:

1. If the geotextile is damaged during installation, it shall be immediately repaired.

a. A patch of fabric large enough to cover the damage, plus an 18 inch overlap shall be placed on top of the damaged section or as specified by the manufacturer.

3.10 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill layer before compaction to no more than 1 percent dryer and 3 percent wetter than optimum.

B. Do not place fill material on surfaces that are muddy, frozen, or contain frost or ice.

C. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture and is too wet to compact to specified dry unit weight.

3.11 COMPACTION OF FILL

A. Place and compact fill materials in the presence of the Engineer.

B. Compact soil to not less than the following percentages of maximum dry density according to ASTM D1557:

1. General Fill: 90 percent minimum.

2. Cap Base Material: 90 percent minimum.

3. Drainage Soil: Two passes of a Caterpillar D-6 bulldozer, or equal.

4. Landfill Slopes: Scarify and recompact top 6 inches below subgrade.

3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.

2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to prevent ponding. Finish subgrade to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch, however, not consistently in one direction.

3.13 FIELD QUALITY CONTROL

A. Allow testing agency to inspect and test subgrade and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

B. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. General Fill: Perform six tests per acre, minimum.
2. Cap Base Material: Perform six tests per acre, minimum.
3. Drainage Soil: Perform six tests per acre, minimum.

C. When testing agency reports that subgrade or fill has not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

D. Depth Test Hole. Confirm depth of cap base material and sand drainage layer before placement of subsequent membrane or cover material.

1. Hand excavate test holes at 100 feet on-center, maximum.
2. Record depth of layer at each test hole on site plan.
3. Refill test hole and compact material as required.
4. Engineer shall review depth readings and determine extent of areas that contain an insufficient depth of material. Provide additional material as required to meet minimum layer thickness at no additional cost. Repeat test hole process until satisfactory results are obtained.

3.14 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Transport waste material, including unsatisfactory soil, trash, and debris, to designated locations on Owner's property.

1. To minimize voids within on-site disposal areas, crush rocks and pieces of concrete-site improvements 6 inches and larger in size to a maximum size of 3 inches. At the Contractor's option, items of this nature may be:
   a. Crushed for recycled fill.
   b. Disposed of off-site.

B. Disposal: Transport surplus satisfactory soil to designated locations on Owner's property. Stockpile or spread satisfactory soil as directed by Engineer.

END OF SECTION

SECTION 02142 - LLDPE GEOMEMBRANE LINER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes a geomembrane landfill liner with seaming and testing.

B. Related Sections include the following:

1. Division 2 Section "Landfill Earthwork" for landfill cap materials.
2. Division 2 Section "Earthwork" for general site earthwork requirements.

1.3 DEFINITIONS

A. Installer: Authorized installer of geomembrane manufacturer.

B. LLDPE: Linear Low Density Polyethylene

C. Manufacturer's Field Representative: Authorized and trained manufacturer representative.

D. Quality Assurance Consultant (QAC): Owner's representative that will review material, procedure, and testing submittals; and will observe on-site installation including seaming operations and repair work.

1.4 SUBMITTALS

A. Bidding Submittals

1. Installer name and qualifications, including Project experience descriptions.
2. Superintendent qualifications.
3. Geomembrane product data sheet.
4. Warranties regarding quality of materials, workmanship, and long-term performance of the completed geomembrane system.

B. Process submittals to the Owner's Quality Assurance Consultant (QAC.)

C. Action Submittals, as prepared by the Installer.

1. Product Data: Include manufacturer's requirements for surface preparation, technical data, and tested physical and performance properties of geomembrane.

2. Qualification Data: For Installer and geomembrane manufacturer's Field Representative.

3. Shop Drawings: Indicate extent, panel sizes, panel identification number, and details of penetrations and seams.

   a. Assign each geomembrane panel and seam a simple and logical identification number or letters. Correlate seam identification system with panel identification system.

   b. Panel layout. Indicate seam direction and roll sizes.

      1) Design layout to utilize largest panel sizes possible, minimize seams, and to minimize horizontal field seams on slopes.

   c. Details

      1) Termination of material at perimeter of membrane areas.

      2) Penetration sealing procedures.

      3) Anchoring procedures.

4. Installation Procedures: Include manufacturer's requirements and detailed quality control procedures.

D. Informational Submittals

1. Material Quality Control Certificate: Provide for each geomembrane roll delivered to the site. List specified material properties. Clearly label with distinctive code number.

2. Manufacturer's Quality Control Test Data: Provide test data collected in accordance with the requirements of GRI Test Method GM17, dated June 2003, including test frequencies and physical/chemical properties listed in Tables 1(a) and 2(a) thereof.

3. Samples: As requested by the Quality Assurance Consultant.

4. Daily Examination Report: Before proceeding with membrane installation, complete and submit to Owner "Letter of Surface Confirmation," which states observation and acceptance of surface area to receive membrane, signed by Installer and QAC.

5. Trial Seam Test Report: Submit on a weekly basis. Installer shall record date, time, weather conditions, test results, operator, and equipment number for each trial seam tested.

   a. Trial Seam Sample: Submit properly identified unused section of trial weld seam to Owner.

6. Record Drawings: Include panel layout and identification, seam type and identification, repair locations and identifications, and destructive test sample locations and identification.

   a. Record the roll number, location, and date of installation of each panel placed.

   b. Submit working copies when requested by the Quality Assurance Consultant.

   c. Submit final Record Drawings prior to demobilizing from the site.

7. Installation Certificate: The Installer shall submit a Certificate of Acceptance stating that installation procedures and required testing have been completed in accordance with the specifications.

1.5 QUALITY ASSURANCE

A. Geomembrane Manufacturer: Manufacturer that has successfully supplied a minimum of 10,000,000 s.f. of geomembrane for landfill applications.

B. Geomembrane Manufacturer's Field Representative Qualifications: Competent, field technical representative that has personally supervised and directed the installation of a minimum of 2,000,000 s.f. of the specified geomembrane product.

C. Installer: An experienced Installer that has successfully completed projects similar in size and scope but no less than 20 geomembrane landfill closures totaling a minimum of 2,000,000 s.f.

1. Seaming Personnel: Experienced in projects of similar nature, material, and installation method, with at least one seamer having a minimum of 1,000,000 s.f. installation experience.

D. Source Limitations: Obtain each type of geomembrane through one source from a single manufacturer.

E. The Installer shall promptly inform the Quality Assurance Consultant upon placing an order for materials so that arrangements may be made, if desired, for inspection before shipment from the place of manufacture.

F. The Installer shall provide the Quality Assurance Consultant and his representatives with facilities, labor, tools, and equipment as required during installation, and allow proper time for inspecting and testing materials and workmanship.

G. Preinstallation Conference: Conduct conference at Project site.

1. Review manufacturer requirements including surface condition, forecasted weather conditions, seam details, installation and repair procedures, testing and inspection procedures, and protection of installed geomembrane.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Upon delivery of geomembrane rolls to the site, assist Owner's Quality Assurance Consultant with inspection and provide labor as needed for inspection.

1. Immediately remove from the site damaged or defective material.

B. Store membrane rolls on a prepared surface approved by the QAC, no more than 3 rolls high. Protect rolls from dirt, grease, water, abrasions, excessive heat or cold, or other damage.

C. Handle geomembrane rolls with appropriate equipment, designed to handle sheet materials. Use spreader bars and cloth chokers when loading and transporting to prevent damage or stressing of the geomembrane material.

D. Any damaged membrane shall be repaired or replaced immediately, at the discretion of the Quality Assurance Consultant, and at no cost to the Owner.

1.7 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit system to be installed according to manufacturer's written instructions and warranty requirements.

1. Install material when ambient air temperature is within the temperature range as specified and as required by the manufacturer.

B. Do not allow vehicular traffic directly on geomembrane panels. Equipment shall not damage panels by handling, leakage, transporting across panels, or any other means.

C. Personnel working with geomembrane panels shall not wear shoes that will damage the panels.

1.8 WARRANTY

A. Manufacturer's Warranty: Provide written warranty as it relates to the quality of the material, for a period of not less than 30 years.

B. Installer: Provide written, standard general contractor's warranty as it relates to performance for a period of not less than 5 years.

PART 2 - PRODUCTS

2.1 LLDPE GEOMEMBRANE

A. Material: First quality LLDPE resin containing less than 2-percent clean recycled polymer.

Properties	Requirement
Melt Index ASTM D1238, Condition 190/2.16	< 1 gram/10 min.
Specific Gravity ASTM D792, Method A	> 0.90 g/cm^3
Oxidative Inductive Time ASTM D3895 (1atm/200°C)	100

B. Membrane Properties: Unreinforced LLDPE containing 3 percent by weight maximum additives, fillers or extenders including carbon black; free of striations, pinholes, blisters, bubbles, undispersed raw materials, or signs of contamination by foreign matter on the material surface.

1. Smooth LLDPE: Physical and Chemical properties meeting the requirements of the Geosynthetic Research Institute's "Test Method GM17", Table 1(a)

2. Textured LLDPE: Physical and Chemical properties meeting the requirements of the Geosynthetic Research Institute's "Test Method GM17", Table 2(a)

C. Membrane Seams

Properties	Smooth LLDPE	Textured LLDPE
Peal Adhesion ASTM D6392	48 lb/in, width, minimum and Film Tear Bond	48 lb/in width, minimum and Film Tear Bond
Bonded Seam Strength ASTM D6392	55 lb/in width, minimum and Film Tear Bond	55 lb/in width, minimum and Film Tear Bond

2.2 CAP PENETRATIONS

A. Penetrations shall be made as shown on the drawings and in accordance with liner manufacturer's instructions.

1. Geomembrane liner boots shall be specifically manufactured by the liner manufacturer for such use or field fabricated of Geomembrane Liner material in accordance with manufacturer's instructions.

2. Stainless steel banding shall be type 304, ¾" wide with adjustable screw-type clasp, or approved equal.

3. Gasket shall be neoprene, closed cell medium, ¼" thick, 2" wide with adhesive on one side as supplied by geomembrane liner manufacturer, or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

A. Owner's Quality Assurance Consultant (QAC) will observe the complete installation of the geomembrane system including delivery to site, handling, deploying, seaming, testing, and repair work.

1. Do not install geomebrane without QAC being present.

2. No additional compensation will be provided for possible delays that may be caused due to inspection and testing of materials and workmanship.

B. Inform QAC on a daily basis of proposed work schedule, including changes.

C. Mark geomembrane panels by their identification number or letters.

D. Install geomembrane under the direct supervision of the Manufacturer's Field Representative.

1. Do not install geomembrane without Field Representative being present.

E. The Installer shall be responsible for field handling, storing, placing, seaming, plus any other processes required to assemble a continuous secure geomembrane system.

3.2 PREPARATION

A. See Division 2 Section "Landfill Earthwork" for subgrade preparation and bedding placement.

1. Surfaces shall be smooth and free of rocks, stones, sticks, roots, sharp objects, and debris, and provide a firm, unyielding foundation for the geomembrane with no sudden, sharp or abrupt changes or break in grade.

3.3 EXAMINATION

A. Installer and Quality Assurance Consultant shall inspect the prepared subgrade on a daily basis and immediately inform the Contractor of remedial work required to bring the subgrade to the specifications required for liner installation.

1. Upon satisfactory subgrade condition, the Installer and Quality Assurance Consultant will issue a joint "Letter of Surface Confirmation."

3.4 INSTALLATION

A. Install and seam membrane panels when the ambient air temperature is between 40 degrees F and 104 degrees F, as measured 6 inches above subgrade surface elevation.

1. Do not install, seam, or repair membrane panels during precipitation, excessively high winds, or in areas of ponded water or excessive moisture.

2. Do not install and seam geomembrane panels in ambient temperatures below 40 degrees F unless approved by the Quality Assurance Consultant, and only if trial seams demonstrate the ability to meet seaming specifications.

B. Before deploying geomembrane panels, Installer shall repair subgrade or other underlying surface disturbed or damaged after issuance of "Letter of Surface Confirmation."

C. Place material over prepared subgrade with minimum handling. Place rolls in accordance with approved panel layout.

1. Install only rolls of material that can be anchored and sealed by end of each day's operation.

D. Properly secure geomembrane during installation with sandbags, rubber tires or other means approved by the QAC. Do not use large or sharp rocks, or other sharp objects.

E. Install geomembrane material in relaxed condition. Provide excess material for each panel as per requirements. Do not stretch material to fit area; keep material free from stress and tension during installation.

1. Unroll geomembrane panels in a manner that will not stretch, crimp, abrade, or otherwise damage panels. Place panels in a manner that minimizes wrinkles and differential wrinkles between adjacent panels.

F. Overlap geoemembrane panels to facilitate drainage of water. All panels deployed during a single day shall be seamed or tack welded together that same day to the extent practicable.

G. Anchor perimeter of geomembrane panels in trench as indicated on the Drawings.

3.5 FIELD SEAMING

A. Lay out the geomembrane seams parallel to the line of maximum slope.

1. Minimize the use of cross or butt seams on slopes, seams located in corners, and unusual geometric panel shapes.

B. The seam identification system shall be related to and compatible with the panel identification system.

C. Equipment: Include temperature gages and readout devices that allow continuous monitoring of apparatus temperatures during seaming. Electric generators shall be capable of providing constant voltage under load and shall be underlain with a splash pad to collect spilled fuel or oil when located on the membrane.

D. Overlap geomembrane surfaces a minimum of 4 inches and clean surfaces of moisture, grease, dust, dirt, debris and foreign material.

1. Do not use solvent or adhesive for seaming without approval from the manufacturer and the Quality Assurance Consultant.

2. When needed, install beneath the seam a protective sheet of plastic beneath the geomembrane sheets to minimize moisture and dirt during seaming

3. Where moisture or dirt causes seaming difficulty, install a protective sheet of plastic below the geomembrane material being seamed. As seaming progresses, pull the protective sheet along beneath the seaming apparatus.

a. Do not leave the protective sheet beneath the geomembrane.

4. For extrusion welding, clean surfaces to be seamed of oxidation by disc grinder not more than one hour before extruding the seam. Abrasion of the seam area with the disc grinder shall not extend more than one-half inch beyond the extrusion bead area. Tack welding of the panels to be seamed shall not damage the membrane or adversely affect the seaming operation. The top membrane of the seam overlap shall be beveled and the extrusion apparatus shall be purged of heat-degraded extrudant before seaming.

E. Fish mouths shall be cut along the ridge of the wrinkle and laid flat to overlap the edges of the cut. The overlap shall be extrusion-seamed and any portion of the seam with less than 3 inches of overlap shall be patched with a circular or oval patch extending a minimum of 6 inches beyond the cut in all directions.

F. The Installer shall log the ambient air temperature 6 inches above the membrane elevation, extruded temperatures in extruder barrels and nozzles, and operating temperatures of hot wedge seamers at intervals of 2 hours or less.

3.6 CAP PENETRATIONS

A. Any penetrations in the liner required by a pipe, vent, utility pole, fence post, concrete structure or other constructed feature shall be connected to the liner as shown on the drawings and in accordance with the geomembrane Manufacturer's recommendations as approved by the Engineer.

1. The connection to the geomembrane shall be made to assure the permeability of the liner at the connection has not been increased. Any damage to the liner materials shall be repaired in accordance with the specifications. Each penetration shall be inspected and approved by the Engineer prior to being covered.

3.7 INSPECTION

A. Visually inspect seams and panels for holes, crimps, abrasions, or defects, and mark suspect locations. Clearly mark repair locations and assign an appropriate identifying label which shall be clearly marked on the panel adjacent to the repair location and shall be shown on the Record Drawing. Each marked location shall be repaired, non-destructively tested, and data recorded on the Record Drawings.

1. Do not cover repairs until passing results of non-destructive tests are achieved and accepted by the Quality Assurance Consultant.

B. Remove large wrinkles in geomembrane panels before installation of protection sand cover. Cut wrinkle, reseam and test until an acceptable seam is obtained.

3.8 GEOMEMBRANE PROTECTION

A. Direct heavily-loaded construction vehicles, such as loaded dump trucks, to travel over geomembrane panels with a cover of 18 inches minimum.

B. Use tracked-equipment for spreading of sand cover over geomembrane panels.

1. Tracked equipment shall exert a maximum contact pressure of 10 psi (equivalent to a Caterpillar D-6 bulldozer with standard track configuration), and shall operate on a minimum of 9 inches of sand cover over geomembranes

2. Tracked equipment will not make turns in such a manner as to displace underlying soil or put additional stress on the geomembrane liner.

3. Under no circumstances shall tracked equipment be permitted to pivot steer.

C. Do not place sand layer on a membrane that is under stress due to thermal contraction or other causes, or that has large wrinkles that may fold over and crimp, or when the ambient air temperature 6 inches above the membrane is greater than 104 degrees F or lower than 40 degrees F.

D. Cut and patch panels under tensile stress due to thermal contraction or any other cause, and compensate for membrane contraction prior to placement of Drainage Sand Layer Material.

3.9 REPAIRS

A. Remove or repair damaged geomembrane panels damaged during installation at no additional cost to Owner.

B. Repair geomembrane panels as follows:

1. Preparation. Abrade surface of geomembrane in the seam/repair area no more than one hour before the repair is made. Keep repair/seam areas clean and dry at the time of the repair.

2. Spot weld small tears, pinholes or over-abraded areas where thickness of the geomembrane has been reduced by more than 4 mils (0.004 inches).

3. Abrade and reweld small sections of defective extrusion welds.

4. Remove defective seam and replace with a new strip of material. Defective hot wedge seams may be abraded and extrusion welded providing the top membrane overlap is carefully cut off.

5. Patch larger holes and defects. Extend patch material a minimum of 6 inches beyond the edges of the defect. Round corners of patches with a radius of at least 3 inches.

3.10 FIELD QUALITY CONTROL TESTING

A. Seam Testing. Record locations and results of seam tests on the Record Drawing. Keep records on site for inspection by the Owner and Quality Assurance Consultant.

B. Trial Seams

1. Sample Quantity: For each seaming apparatus, for the following instances.

a. At the beginning of each shift.

b. After apparatus has been turned off or disconnected from its power source.

c. When apparatus has been idle for 30 minutes (extrusion welder) or 60 minutes (hot wedge welder).

d. Change in operator personnel.

e. When deemed necessary by the Quality Assurance Consultant.

2. Sample Size: 3 feet long and 12 inches wide (perpendicular to the seam), minimum.

a. Cut 1-inch-wide samples perpendicular to the seam for testing. Provide at a minimum, six for peel test and three for shear test.

3. Shear (Bonded Seam Strength) and Peel (Adhesion) Tests: In accordance with ASTM D6392. Installer shall provide tensiometer, calibrated within one year from start of geomembrane installation.

4. Conduct trial seams under the same physical conditions as permanent seaming.

   a. For double-fusion hot wedge seams, both seams in each sample shall be tested for peel adhesion.

   b. All six peel tests and all three shear tests are required to pass for the trial seam to be acceptable.

   c. Each sample failure must consist of a ductile break that is film tearing bond.

5. If either test sample fails (shear or peel), repeat trial seam test procedure. If any test seams fail on the second trial seam, the seaming apparatus shall not be used until it is repaired or faulty conditions are corrected, and two trial seams pass the destructive tests.

C. Non-destructive Seam Testing

1. Acceptable Methods. Vacuum box testing, air-pressure testing of double-fusion seams, or other methods approved by the manufacturer and Quality Assurance Consultant.

2. Perform non-destructive testing over the full length of each seam. Perform testing as work progresses. Do not wait to perform testing until the completion of large segments of field seaming.

3. Vacuum Box Testing: In accordance with ASTM D5641. Utilize vacuum box approved by the Quality Assurance Consultant. Vacuum box shall include rigid housing, transparent viewing window, a soft rubber gasket on the bottom edge, and a valve assembly with a vacuum gage.

   a. Mark geomembrane seamed areas when soap bubbles are visible in the viewing window.

   b. Repair marked locations and retest.

4. Air Pressure Testing: In accordance with ASTM D5820. Perform air –pressure test on double-fusion seams having an air channel between the seams in accordance with ASTM D 5820. Mark results on the geomembrane adjacent to the test location.

5. If a seam is located where non-destructive testing cannot be performed, the seam shall, at the discretion of the Quality Assurance Consultant, be cap-stripped and the cap-stripping operation shall be observed by the Quality Assurance Consultant and Installation Contractor for completeness.

D. Destructive Seam Testing

1. Samples: The Installer shall cut and remove destructive test samples from the installed geomembrane material, assign the sample an identification number, and record the sample location on the Record Drawings.

   a. Perform one series of destructive seam tests per 1,000 l.f. of seam, minimum. One test must be performed per welding machine per day.

   b. Locations: As determined by the Quality Assurance Consultant.

   c. Sample Size: 12 inches wide and 40 inches long with the seam centered lengthwise.

   d. Perform destructive seam strength testing as work progresses in order to obtain test results before seams are covered.

   e. The Installer shall immediately repair the geomembrane at the destructive test sample location, and perform non-destructive test.

2. Destructive Seam Series Test: In accordance with ASTM D6392.

   a. Field Testing. Installer shall provide field tensiometer, calibrated within one year from start of geomembrane installation.

      1) Shear (Bonded Seam Strength)

         a) One 1-inch strip cut from sample.

      2) Peel (Adhesion) Tests:

         a) Laboratory Test: Five 1-inch strips cut from samples.

   b. Laboratory Testing. Coordinated by the Quality Assurance Consultant and performed by an independent geosynthetic testing laboratory paid for by the Owner.

      1) Shear (Bonded Seam Strength)

         a) Laboratory Test: Five 1-inch strips cut from samples.

      2) Peel (Adhesion) Tests:

         a) Laboratory Test: Five 1-inch strips cut from samples.

      3) Double-fusion Hot Wedge Seams. Test both seams in each sample for peel. Testing shall include, but not necessarily be limited to, thickness (ASTM D 5199/D 5594)

E. Failure of Seam Tests.

1. If either field destructive test seams or laboratory test seams do not pass, reconstruct the seam between two passing test seam locations. Intermediate tests may be performed on each side of the failed test sample location to further isolate the defective seam area.

2. If intermediate field test seams pass, laboratory test seams shall be performed on samples from the same locations.

3. If laboratory test seams also pass, then the seam shall be reconstructed between the intermediate sample locations.

4. If either of the test seams fail, then the process shall be repeated with intermediate samples further away from the original failing seam location to determine the defective seam area.

F. Acceptable Seams.

1. Each seam shall be bounded by two locations where samples passed the laboratory destructive tests.

2. Whenever a reconstructed seam exceeds 200 feet, an additional sample shall be obtained for destructive testing along the reconstructed seam.

3. At the Quality Assurance Consultant's discretion, the Installer may be directed to take additional samples from seams welded on the same day by a seaming apparatus that welded a failed seam, at no additional cost to the Owner.

3.11 CLEANING

A. The Contractor shall be responsible for cleaning the work area at the end of each work day of unnecessary scrap material, sand bags, tools and other materials used during geomembrane installation.

3.12 POST CONSTRUCTION

A. An inspection shall be performed by the Installation Contractor, Quality Assurance Consultant, and Owner prior to the Installers' capping crew moving off the site. All identified problem areas shall be repaired by the Installation Contractor and accepted by the Quality Assurance Consultant prior to the crew moving off site.

END OF SECTION

SECTION 02144 - LANDFILL VEGETATIVE SUPPORT LAYER

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Vegetative support soil
2. Soil amendments.
3. Seeding.

B. Related Sections include the following:

1. Division 2 Section "Earthwork" for excavation, filling and backfilling, and rough grading.
2. Division 2 Section "Landfill Cover Material" for cover material requirements.

1.2 DEFINITIONS

A. Finish Grade: Elevation of finished surface of vegetative support soil.

B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce vegetative support soil.

C. Vegetative Support soil: Imported or manufactured soil or surface soil modified to become vegetative support soil; mixed with soil amendments.

D. Subgrade: Top surface of a fill immediately beneath vegetative support soil.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

C. Product Certificates: For soil amendments, fertilizers and mulch, signed by product manufacturer.

D. Material Test Reports: For vegetative support soil.

E. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of seeded areas during a calendar year. Submit before expiration of required maintenance periods.

F. Temporary Irrigation Plan: Indicating, at a minimum,

1. Proposed pipe size, material, and layout.
2. Sprinkler head type, range, flow rate and pressure requirements.
3. Method of conveying owner-supplied potable water to the system.
4. System output, in inches / hour.
5. System operation and maintenance instructions

1.4 QUALITY ASSURANCE

A. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

B. Vegetative Support Soil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content of soil. Obtain one composite soil sample for every 5,000 cu. yds. of material with at least one sample from each borrow source location.

1. Report suitability of soil for growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce a satisfactory soil.

C. Vegetative Support Soil Chemical Analysis: Obtain one composite soil sample for every 10,000 cu. yds. of material with at least one sample from each borrow source location. Analyze each for pesticides (EPA Method 8081), chlorinated herbicides (EPA Method 8151), Total Petroleum Hydrocarbons (CTETPH method), Total RCRA 8 Metals (EPA Method 6010 / 7421 / 7470).

D. Organic Soil Amendment Chemical Analysis: Obtain one composite soil sample from each borrow source location. Analyze each for pesticides (EPA Method 8081) and chlorinated herbicides (EPA Method 8151). Owner reserves the right to disqualify the source based on the results of the chemical testing.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Seed, Lime, and Fertilizer: Deliver in original sealed, labeled, and undamaged containers.

1.6 SCHEDULING

A. Planting Restrictions: Plant during one of the following periods. Perform seeding at other times when acceptable to the Engineer.

1. Spring Seeding: April 15 to June 15.
2. Fall Seeding: August 15 to October 15.

B. Weather Limitations: Proceed with seeding only when existing and forecasted weather conditions permit.

1.7 MAINTENANCE

A. Begin maintenance immediately after each area is planted and continue until acceptable turf area is established, but for not less than the following periods:

1. Seeded Areas: 365 days from the date of Substantial Completion.

a. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established, continue maintenance during next planting season.

B. Maintain and establish seeded areas by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn.

C. Mow seeded area when grass reaches a height of 10 inches. Repeat mowing to maintain specified height without cutting more than 40 percent of grass height. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow grass to 6 inches high.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species: Seed of grass species as follows:

	Proportion by Weight (Percent)	Minimum Purity (Percent)	Minimum Germination (Percent)
Orchard Grass	30	85	75
Creeping Red Fescue	10	98	85
K.31 Tall Fescue	50	98	85
Domestic Ryegrass	10	98	90

2.2 SOIL

A. Vegetative Support Soil: ASTM D 5268, pH range of 6 to 7, a minimum of 6 percent and a maximum of 20 percent organic material content; free of stones 1-1/4 inch or larger in any dimension and other extraneous materials harmful to plant growth.

1. Minimum Internal Friction Angle: Shall be 29 degrees when tested in accordance with ASTM D 3080. Specimen shall be prepared with moderate compactive effort and moisture content as received from the source. Tests will be performed with normal stresses of 1 and 5 psi via the large scale direct shear method.

2. Minimum In-place Wet Unit Weight: Shall be 110 pounds per cubic foot when with a moisture content as received from the source.

3. Vegetative Support Soil Source: Reuse surface soil stockpiled on-site. Existing soil that does not meet the minimum internal friction angle and in-place wet unit weight requirements above can be used only on slopes less than 10% (i.e. top of the landfill). Verify suitability of stockpiled surface soil to produce vegetative support soil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

    a. Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

2.3 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural limestone containing a minimum 90 percent calcium carbonate equivalent and as follows:

1. Provide lime in form of dolomitic limestone, with a minimum of 95 percent passing a No. 100 sieve.

2. Liquid lime will not be allowed.

B. Perlite: Horticultural perlite, soil amendment grade.

C. Sand: Clean, washed, natural or manufactured, free of toxic materials.

2.4 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings.

1. Organic Matter Content: 50 to 60 percent of dry weight.

    a. State of Connecticut, Department of Environmental Protection approved when derived from food and agricultural residues, animal manures, and sewage sludge.

2. Approved Products: Agresource, Inc., 100 Main Street, Amesbury, MA 01913 (1-800-313-3320), or equal.

B. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.5 FERTILIZER

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.6 MULCHES

A. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; free of plant-growth or germination inhibitors; with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

1. Product and Manufacturer:

a. Mat-Fiber by Mat, Inc. (formerly Silva-Fiber Mulch by Weyerhaueser).

b. Approved equal.

B. Straw Mulch: Air-dry, clean, mildew- and seed-free, hay or threshed straw of wheat, rye, oats, or barley; free of weeds, reeds, and twigs; maximum moisture content of 15 percent. Do not use salt hay.

C. Non-Asphalitic Tackifier:

1. Model and Manufacturer:

a. Soilmaster WR, by Environmental Soil Systems, Inc.

b. Approved equal.

2.7 WATER

A. Potable water will be supplied by the owner via an existing MDC hydrant meter in the vicinity of the landfill scalehouse.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive seed for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydroseeding overspray.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 INSTALLATION

A. Place vegetative material in one continuous lift and spread using tracked equipment weighing equivalent to or less than that of a Caterpillar D-8 bulldozer, or equal. Equipment must have a ground pressure less than 15 psi.

3.4 SEEDED AREA PREPARATION

A. Limit subgrade preparation to areas to be planted.

B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

1. Spread planting soil mix to a depth of 6 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

C. Finish Grading: Grade seeded areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.

D. Moisten prepared seededareas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

E. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

3.5 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

1. Do not use wet seed or seed that is moldy or otherwise damaged.

B. Sow seed at the rate of 200 lb/1 acre.

C. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.

D. Protect seeded areas with slopes exceeding 1:3 with erosion-control blankets installed and stapled according to manufacturer's written instructions.

E. Protect seeded areas with slopes not exceeding 1:3 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.

1. Bond straw mulch by spraying with non-asphaltic tackifier at manufacturer's recommended rate. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.

2. Install cellulose fiber mulch, erosion control blanket, or other stabilization measure, as directed by the Engineer, if straw mulch is does not provide adequate erosion protection to a disturbed area.

3.6 HYDROSEEDING

A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with tackifier.

2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a minimum rate of 175-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate.

3.7 SATISFACTORY SEEDED AREAS

A. Satisfactory Seeded Area: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 3 by 3 inches.

1. Replant areas and spots that do not show a prompt catch at 15 day intervals, or as directed by the Engineer.

B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

3.8 IRRIGATION

A. Install temporary irrigation system in accordance with approved irrigation plan.

B. Provide means of conveying Owner-supplied potable water from designated MDC hydrant meter to the temporary irrigation system including storage tank, pumps, hoses, etc.

1. Coordinate use of MDC Hydrant with landfill staff

2. Record quantity of water used for temporary irrigation

C. Operate the irrigation system during the maintenance period.

D. Monitor the system during operation and discontinue operation, as necessary, to prevent excess water from running off the landform or causing erosion.

E. Remove temporary irrigation system when vegetation has been established to the satisfaction of the engineer.

3.9 FIELD QUALITY CONTROL

A. Depth Test Hole. Confirm depth of vegetative support material after final grading.

1. Hand excavate test holes at 100 feet on-center, maximum.
2. Record depth of layer at each test hole on site plan.
3. Refill test hole and compact material as required.
4. Engineer shall review depth readings and determine extent of areas that contain an insufficient depth of material. Provide additional material as required to meet minimum layer thickness at no additional cost. Repeat test hole process until satisfactory results are obtained.

3.10 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after grass is established.

END OF SECTION

SECTION 02310 – SITE EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, and pavements.
2. Base course for drainage ditches, structures, and swales.
3. Base course for bituminous concrete paving.
4. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.
5. Disposal of unsuitable material.
6. Disposal of surplus suitable material, if required.

B. Related Sections include the following:

1. Division 2 Section "Landfill Earthwork" for earthwork associated with landfill subgrade preparation, and various earth material layers for landfill cap and cover.

1.3 DEFINITIONS

A. Backfill: Soil materials used to fill trench, structure or pit excavations.

B. Base Course:

1. Layer placed between the subgrade course and bituminous concrete paving.
2. Layer placed between subgrade and surface materials including riprap.

C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.

D. Excavation: Removal of material encountered above subgrade elevations.

1. Additional Excavation: Excavation below subgrade elevations as directed by Engineer. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Engineer. Unauthorized excavation, as

well as remedial work directed by Engineer, shall be without additional compensation.

E. General Fill: Soil materials used to raise existing grades where indicated on the Drawings.

F. Structures: Utility appurtenances, or other man-made stationary features constructed above or below the ground surface.

G. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below base, drainage fill, or topsoil materials.

1.4 SUBMITTALS

A. Product Data:

1. Each type of warning tape listed in paragraph 2.2.B.
2. Material certifications for general fill, base material, bedding course material, and trench backfill.

B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated. Prepare separate reports for each type and application of material.

1. General Fill
   a. Refer to Division 2 Section "Landfill Earthwork" for testing requirements.
2. Base, Bedding, Backfill Material
   a. Classification according to ASTM D 2487, prior to delivery to the site and one per 5,000 CY delivered.
   b. Gradation and particle size analysis according to ASTM D 422, prior to delivery to the site and one per 5,000 CY delivered.
   c. Laboratory compaction test results according to ASTM D 1557, prior to delivery to the site and one per 5,000 CY delivered.
   d. Soil Chemical Analysis Reports according to RCRA 8 metals (according to EPA Method 6010 / 7421 / 7470) and ETPH (according to CTETPH): prior to delivery and one report for each 10,000 cu. yd., or portion thereof, delivered. Owner reserves the right to disqualify the source based on the results of the chemical testing.
3. On-Site Soil Material
   a. Classification, gradation, and laboratory compaction curve in accordance with the requirements specified for General Fill material, when requested by the Engineer.

1.5 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil material testing, as documented according to ASTM D 3740 and ASTM E 548.

B. Where "Form 816" is referenced, it shall mean "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816," and issued supplements.

1.6 PROJECT CONDITIONS

A. Extent of trench excavation and excavated areas will be controlled by site conditions and Owner's requirements.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. All soil shall be free of debris, waste, frozen materials, vegetation, clay and other deleterious matter; adequately graded for satisfactory compaction.

C. General Fill: Refer to Division 2 Section "Landfill Earthwork" for material requirements.

D. Base: Naturally or artificially graded mixture of natural or crushed gravel, broken or crushed stone:

1. Drainage Ditch and Swales: Form 816, Section M.02.03, Grading B.
2. Processed Aggregate Base: Form 816, Section M.05.01.

E. Bedding:

1. Sand: Form 816, Section M.03.01-2.
2. Stone: Form 816, Section M.01.01, No. 6.

F. Backfill:

1. Sand: Form 816, Section M.03.01-2.

2.2 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core

encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep.

B. Identifying Colors for Utilities:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding or damaging Project site and surrounding area.

B. Protect excavations, backfills, fills and subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches. Provide positive drainage of backfill and fill.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended for bearing surface.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches on each side of pipe or conduit.

2. Clearance: As indicated.

C. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.8 APPROVAL OF SUBGRADE

A. Notify Engineer when excavations have reached required subgrade.

B. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill may be used when approved by Engineer.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Engineer.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Prevent windblown dust. Provide erosion control measures.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade.
2. Inspecting and testing underground utilities.
3. Removing trash and debris.
4. Removing temporary shoring and bracing, and sheeting.

3.12 UTILITY TRENCH BACKFILL

A. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

B. Place and compact initial backfill of subbase material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.

1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.

C. Coordinate backfilling with utilities testing.

D. Fill voids with approved backfill materials while shoring and bracing, and as sheeting is removed.

E. Place and compact final backfill of satisfactory soil material to final subgrade.

F. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

1. Install detectable warning tape over non-ferrous piping.

3.13 FILL

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 3 horizontal so fill material will bond with existing material.

C. Place and compact fill material in layers to required elevations.

3.14 MOISTURE CONTROL

A. General Application: Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF BACKFILLS AND FILLS

A. Place fill material in loose lifts not exceeding 12 inches in depth for material compacted by heavy compaction equipment.

B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material.

2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 95 percent.

3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 85 percent.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch, however, not consistently in one direction.
2. Walks: Plus or minus 1 inch.

3.17 SUBBASE AND BASE COURSES

A. Under pavements and walks, place and compact materials on prepared subgrade as follows:

1. Place and compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness (within 3/4 inch, plus or minus) to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
2. Shape subbase and base to required crown elevations and cross-slope grades.
3. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.
4. When thickness of compacted subbase or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

3.18 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 square feet or less of paved area or building slab, but in no case fewer than three tests.
2. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 150 feet or less of trench length, but no fewer than two tests.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.19 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.20 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Engineer.

1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION

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SECTION 02372 - PERMANENT EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Riprap for swales and protection for drain inlets and outlets including stilling basins.
2. Grouted riprap for drainage down chutes.
3. Permanent erosion control matting (turf reinforcement matting.)
4. Articulated concrete block revetment.

B. Related Sections include the following:

1. Division 1 Section "Temporary Erosion and Sedimentation Control" for temporary site measures.
2. Division 2 Section "Landfill Earthwork" and "Site Earthwork" for excavation and backfill.
3. Division 2 Section "Underdrains" for piped subdrainage systems.
4. Division 2 Section "Storm Drainage" for enclosed, piped drainage systems.

1.3 DEFINITIONS

A. CPP: Corrugated, polyethylene pipe.

B. HDPE: High-density polyethylene plastic.

C. NPS: Nominal pipe size.

1.4 SUBMITTALS

A. Product Data and Material Certifications: For the following:

1. Riprap.
2. Erosion control matting.
3. Geotextile fabric.
4. Articulated concrete block revetment.

B. Shop Drawings: For the following.

1. Articulated concrete revetment. Include details showing layout pattern in relation to feature alignment, anticipated locations of cast-in-place concrete joints, junction details, soil anchors, and installation methods for void filling materials.

C. Calcualtions: For the following.

1. Articulated concrete block revetment. Include manufacturer's performance research results and calculations for open channel flow including hydraulic performance characteristics and Factor-of Safety design methodology.

1.5 QUALITY ASSURANCE

A. Where "Form 816" is referenced, it shall mean "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816," and issued supplements.

PART 2 - PRODUCTS

2.1 PIPE OUTLETS

A. Riprap: Broken, irregular size and shape, graded stone conforming to Form 816, Section M.12.02, size as indicated.

B. Bedding Material: Granular fill conforming to Form 816, Section M.02.01-1 or M.02.01-2.

2.2 EROSION CONTROL MATTING (TURF REINFORCEMENT MATTING)

A. Matting: Double net cover blanket; minimum width of 6-feet.

1. Available Products:

a. North American Green, SC250.

b. Enkamat 7020.

c. Or approved equal.

2.3 ARTICULATED CONCRETE BLOCK REVETMENT

A. Materials: Provide system meeting design criteria listed on the Drawings.

B. System: Provide a matrix of interconnected block units for erosion protection, connected by geometric interlock or by cables. Include geotextile underlayment for subsoil retention.

C. Available Systems and Manufacturers:

1. AmorFlex® by Armortec, Inc., West Chester, Ohio

2. Or approved equal.

2.4 MISCELLANEOUS

A. Concrete: Form 816, Section M.03.01-01, Class "C".

B. Grout: Form 816, Section M.03.01-14.

C. Geotextile: Form 816, Section M.08.01-26.

D. Precast Concrete Culvert Flared Ends: Form 816, Section 6.52.02.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Division 2 Section "Earthwork."

3.2 INSTALLATION, GENERAL

A. General Locations and Arrangements: Drawing plans and details indicate general location of permanent erosion and sedimentation control systems. Lengths are approximate.

3.3 RIPRAP INSTALLATION

A. Place bedding material and geotextile where indicated on accurately shaped subgrade.

B. Construct riprap of broken stone, to the lines and grades indicated. Prevent displacement of bedding material.

C. Place riprap to full course thickness in one layer. Rearrange individual stones by hand or equipment as required to produce a reasonably well-graded distribution of rock, free from pockets of small stones and clusters of larger stones.

D. Place bedding material and filter fabric where indicated on accurately shaped subgrade.

3.4 STORM DRAINAGE INLET AND OUTLET INSTALLATION

A. Construct inlet head walls, aprons, and sides of precast, or cast-in-place reinforced concrete, as indicated.

B. Construct riprap of broken stone, as indicated. Prevent displacement of base material.

C. Place riprap in one layer and rearrange individual stones by hand or equipment as required to produce a reasonably well-graded distribution of rock, free from pockets of small stones and clusters of larger stones.

D. Install outlets that spill onto grade, anchored with concrete, where indicated.

E. Install outlet flared end sections, where indicated.

3.5 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318 and ACI 350R.

3.6 EROSION CONTROL MATTING (TURF REINFORCEMENT MATTING)

A. Install matting where indicated. Staple or stake in accordance with manufacturer's recommendations.

1. Overlap seams 2 to 5 inches.
2. Extend mat beyond top and bottom of slopes 3 feet minimum
    a. At top of slopes where 3 feet is not available, anchor mat in 10-inch wide by 8-inch deep trench.

3.7 ARTICULATED CONCRETE REVETMENT

A. Install revetment system in accordance with details, manufacturer's recommendations, and approved shop drawings.

END OF SECTION

SECTION 02531 – LEACHATE FORCE MAIN SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes pipe, fittings, joining methods and general construction practice for HDPE piping systems.

B. Related Sections include the following:

1. Division 2 Section "Earthwork" for trenching and backfill.

1.3 DEFINITIONS

A. HDPE: High density polyethylene plastic.

1.4 PERFORMANCE REQUIREMENTS

A. Force-Main Pressure Ratings: At least equal to system operating pressure, but not less than 150 psig.

1.5 SUBMITTALS

A. Product Certification: Pipe, fittings, and miscellaneous appurtenances.

B. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic structures, pipe, and fittings in direct sunlight. Keep plastic items at ambient outdoor temperature.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

1.7 PROJECT CONDITIONS

A. Locate existing structures and piping to be closed and abandoned.

B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's written permission.

PART 2 - PRODUCTS

2.1 HDPE FORCE MAIN

A. Pipe: ASTM D3035 or ASTM F714.

1. Material: ASTM D3350, minimum cell classification of PE345464C.
   a. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material.
   b. The pipe shall be homogenous throughout and free of visible cracks, holes, foreign inclusions, voids or other injurious defects.
2. Markings: Legibly marked in green to identify sewer pipe at intervals of 5 feet maximum with manufacturer's name, trademark, pipe size (nominal size and OD base IPS), PE3408, SDR-11 appropriate legend such as HDPE, ASTM D3035 or ASTM F714, date of manufacture, and point of origin.
3. Pipe not marked as specified will be rejected.

B. HDPE Fittings

1. Butt Fusion Fittings: In accordance with ASTM D3261, and shall be manufactured by injection molding, a combination of extrusion and machining, or fabricated from HDPE pipe conforming to this specification.
   a. Material and cell classification: Same as pipe.
   b. Fabricated fittings shall be manufactured using a McElroy Datalogger to record fusion pressure and temperature. A graphic representation of the temperature and pressure data for all fusion joints made producing fittings shall be maintained as part of the quality control. The fitting shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, voids, or other injurious defects.
2. Electrofusion Fittings: ASTM F1055
   a. Material and cell classification: Same as pipe.
3. Flanged and Mechanical Joint Adapters: ASTM D3216.
   a. Material and cell classification: Same as pipe.
4. All fittings and adapters shall be pressure rated to provide a working pressure rating no less than that of the pipe.

C. HDPE Pipe Mechanical Restraint

1. Mechanical restraint for HDPE may be provided by mechanical means separate from the mechanical joint gasket sealing gland. The restrainer shall provide wide, supportive contact around the full circumference of the pipe and be equal to the listed widths.

   a. Means of restraint shall be machined serrations on the inside surface of the restrainer equal to or greater than the listed serrations per inch and width.

   b. Loading of the restrainer shall be by a ductile iron follower that provides even circumferential loading over the entire restrainer. Design shall be such that restraint shall be increased with increases in line pressure.

   c. Serrated restrainer shall be ductile iron ASTM A536 with a ductile iron follower; bolts and nuts shall be corrosive resistant, high strength alloy steel.

   d. The restrainer shall have a pressure rating of, or equal to that of the pipe on which it is used or 150 PSI which ever is lesser.

      1) Restrainers shall be JCM Industries, Sur-Grip or pre-approved equal.

Nominal Size	Restraint Width	Serrations per inch
4", 6"	1-1/2"	8

   e. Pipe stiffeners shall be used in conjunction with restrainers. The pipe stiffeners shall be designed to support the interior wall of the HDPE. The stiffeners shall support the pipe's end and control the "necking down" reaction to the pressure applied during normal installation. The pipe stiffeners shall be formed of 304 or 316 stainless steel to the HDPE manufacturers published average inside diameter of the specific size and DR of the HDPE. Stiffeners shall be by JCM Industries or pre-approved equal.

2.2 CLEANOUTS

A. HDPE Cleanout: HDPE pipe with ductile iron flange and HDPE blind flange.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Division 2 Section "Earthwork."

3.2 IDENTIFICATION

A. Materials and their installation are specified in Division 2 Section "Earthwork." Arrange for installing detectable green warning tapes directly over piping.

3.3 INSTALLATION, GENERAL

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground leachate piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical.

B. Install force-main piping to existing force main leachate system.

3.4 PIPE JOINT CONSTRUCTION AND INSTALLATION

A. HDPE Pipe and Fittings:

1. Follow HDPE pipe manufacturer's installation instructions for field cutting and fusion jointing techniques for HDPE pipe. Include acceptable size and shape of fusion bead; and minimum radius of curvature of various sizes of pipes for installing curved sections of pipe.
2. Do not install flanges, fittings, or valves in curved sections.
3. Use butt fusion jointing technique for connections between sections of fittings, unless otherwise noted herein.
4. Inspect and evaluate following manufacturer's installation instructions.
5. Remove and replace damaged HDPE pipe and fittings.

3.5 CLEANOUT INSTALLATION

A. Install cleanouts and riser extension from leachate pipe to cleanout at grade. Use HDPE pipe for riser extensions to cleanouts.

3.6 CLOSING ABANDONED LEACHATE SYSTEM

A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either procedure below:

1. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.

3.7 FIELD QUALITY CONTROL

A. Clear interior of piping and structures of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed.

1. Place plug in end of incomplete piping at end of day and when work stops.

B. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place; after completion of backfill and compaction; and again at completion of Project.

1. Submit separate reports for each system inspection.

2. Defects requiring correction include the following:

a. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 95 percent of piping diameter.

b. Crushed, broken, cracked, or otherwise damaged piping.

c. Infiltration: Water leakage into piping.

d. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.

4. Reinspect and repeat procedure until results are satisfactory.

C. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.

2. Test completed piping systems according to authorities having jurisdiction.

3. Submit separate reports for each test.

4. Perform tests as follows:

a. Force Main: Perform hydrostatic test after joint restraint is complete. Test at pressure not less than one and one-half times maximum system operating pressure, but not less than 150 psig.

1) PVC Piping: Test according to manufacturer's requirements.

5. Leaks and loss in test pressure constitute defects that must be repaired.

6. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

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SECTION 02621 - UNDERDRAINS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes subdrainage systems for the following:

1. Landfills.

B. Related Sections include the following:

1. Division 2 Section "Landfill Earthwork" for sand drainage layer material.

1.3 DEFINITIONS

A. PE: Polyethylene plastic.

B. PP: Polypropylene plastic.

C. Subdrainage: Drainage system that collects and removes subsurface or seepage water.

1.4 SUBMITTALS

A. Product Data and Certification: For the following:

1. Perforated-wall pipe and fittings.
2. Geotextile filter fabric sock.

PART 2 - PRODUCTS

2.1 PERFORATED PIPES AND FITTINGS

A. Perforated and Solid Wall PE Pipe and Fittings:

1. NPS 6 and Smaller: ASTM F 405 or AASHTO M 252, Type CP; corrugated, for coupled joints.
2. NPS 8 and Larger: ASTM F 667; AASHTO M 252, Type CP; or AASHTO M 294, Type CP; corrugated; for coupled joints.
3. Couplings: Manufacturer's standard, band type.

2.2 SOIL MATERIALS

A. Drainage Sand Layer material is specified in Division 2 Section "Landfill Earthwork."

2.3 GEOTEXTILE FILTER FABRICS

A. Description: Fabric of PP or polyester fibers or combination of both, with flow rate range from 110 to 330 gpm/sq. ft. when tested according to ASTM D 4491.

1. Structure Type: Nonwoven, needle-punched continuous filament.

2. Style: Sock.

2.4 MISCELLANEOUS

A. Bird Screening: Galvanized steel, 1/2-inch-square mesh, 0.041-inch wire.

B. Underdrain Pipe Clamp for Bird Screening: Stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces and areas for suitable conditions where subdrainage systems are to be installed.

B. Locate and mark existing utilities, underground structures, and aboveground obstructions before beginning installation and avoid disruption and damage of services.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PIPING APPLICATIONS

A. Landfill Subdrainage Piping:

1. Perforated PE pipe and fittings wrapped in geotextile fabric.

2. Solid wall pipe and fittings.

3.3 PIPING INSTALLATION, GENERAL

A. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Install tees, sleeves, and couplings according to manufacturer's written instructions and other requirements indicated.

1. Lay perforated pipe with perforations down.

B. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.

C. Install PE piping according to ASTM D 2321.

3.4 LANDFILL UNDERDRAIN INSTALLATION

A. Layout underdrain piping as shown on the drawings. Provide couplings and tees where necessary.

B. Install sand drainage material over underdrain piping in accordance with Division 2 Section "Landfill Earthwork."

C. Daylighting Requirements:

1. Extend underdrain piping horizontally a minimum of 6 inches beyond final grade elevation at invert of pipe.

2. Install bird screen on daylighted pipe and secure with pipe clamp.

3.5 IDENTIFICATION

A. Arrange for installation of detectable green warning tape directly over piping.

3.6 FIELD QUALITY CONTROL

A. Testing: After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

3.7 CLEANING

A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

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SECTION 02630 - STORM DRAINAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies enclosed storm drainage system for landfill closure and includes the following:

1. Precast concrete structures with frames and covers, or frames and grates.
2. Enclosed, underground piping systems.
3. Metal-lined, half-pipe, drainage swales.

B. Related Sections include the following:

1. Division 2 Section "Site Earthwork" for excavation and backfill.
2. Division 2 Section "Permanent Erosion and Sedimentation Control" for exposed drainage swales and outlets.
3. Division 2 Section "Underdrains" for subdrainage systems.

1.3 DEFINITIONS

A. HDPE: High-density polyethylene.

B. PVC: Polyvinyl chloride plastic.

C. RCP: Reinforced concrete pipe.

1.4 SUBMITTALS

A. Product Data and Material Certifications.

1. Piping.
2. Precast concrete manholes and other structures.
3. Structure frames, covers, and grates.

B. Shop Drawings:

1. Corrugated Steel Pipe and Fittings
   a. Details of factory-fabricated elbows

C. Design Mix Certifications: For each class of cast-in-place concrete.

D. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.5 QUALITY ASSURANCE

A. Where "Form 816" is referenced, it shall mean "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816," and issued supplements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic structures, pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle precast concrete manholes and other structures according to manufacturer's written rigging instructions.

1.7 PROJECT CONDITIONS

A. Site Information: Perform site survey, research public utility records, and verify existing utility locations.

B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Engineer not less than 2 days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without Engineer's written permission.

PART 2 - PRODUCTS

2.1 PIPES AND FITTINGS

A. HDPE: Corrugated PE Pipe and Fittings NPS 12 to NPS 48: AASHTO M 294M, Type S, with smooth waterway for coupling joints.

1. Soiltight Couplings: AASHTO M 294M, corrugated, matching pipe and fittings.

B. Reinforced-Concrete Sewer Pipe and Fittings: ASTM C 76, Class IV, for gasketed joints.

1. Gaskets: ASTM C 443, rubber.

C. Corrugated Steel Pipe and Fittings: ASTM A 760/A 760M, Type I with fittings of similar form and construction as pipe.

1. Spiral pipe will not be allowed.

2. Elbows: Custom factory-fabricated units.
3. Coating: Zinc.
4. Connections: Galvanized self-tapping screws.
5. Deadman: Polymer lumber made from reclaimed post-consumer or post-industrial plastic and wood waste in approximately equal proportions.

2.2 CONCRETE

A. General: Cast-in-place concrete according to ACI 318, ACI 350R, and the following:
1. Cement: ASTM C 150, Type II.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Portland Cement Design Mix: 4,000 psi minimum, with 0.45 maximum water-cementitious ratio.
1. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.

C. Structure Channels and Benches: Factory or field formed from concrete. Portland cement design mix, 4,000 psi minimum, with 0.45 maximum water-cementitious ratio.
1. Include channels in catch basins.
a. Channels: Concrete invert, formed to same width as connected piping, with height of vertical sides to three-fourths of pipe diameter. Form curved channels with smooth, uniform radius and slope.

D. Ballast and Pipe Supports: Portland cement design mix, 3,000 psi minimum, with 0.58 maximum water-cementitious ratio.
1. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.

2.3 MISCELLANEOUS

A. Grout: Form 816, Section M.03.01-14.

B. Filter Fabric: Form 816, Section M.08.01-26.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Division 2 Section " Site Earthwork."

3.2 IDENTIFICATION

A. Materials and their installation are specified in Division 2 Section "Site Earthwork." Arrange for installing green warning tapes directly over piping and at outside edges of underground structures.

1. Use warning tape or detectable warning tape over ferrous piping.

2. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.3 INSTALLATION, GENERAL

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line, and pull past each joint as it is completed.

C. Install gravity-flow piping and terminate piping as indicated.

1. Install piping pitched down in direction of flow, at minimum slope of 1 percent, unless otherwise indicated.

3.4 PIPE JOINT CONSTRUCTION AND INSTALLATION

A. General: Join and install pipe and fittings according to installations indicated.

B. Corrugated PE Piping: Join according to CPPA 100.

C. Concrete Pipe and Fittings: Install according to ACPA's "Concrete Pipe Installation Manual." Use the following seals:

1. Round Pipe and Fittings: ASTM C 443, rubber gaskets.

D. System Piping Joints: Make joints using system manufacturer's couplings, unless otherwise indicated.

E. Join piping made of different materials or dimensions with couplings made for this application. Use couplings that are compatible with and that fit both systems' materials and dimensions.

3.5 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318 and ACI 350R.

3.6 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate reports for each system inspection.
2. Defects requiring correction include the following:
    a. Alignment: Less than full diameter of inside of pipe is visible between structures.
    b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
    c. Crushed, broken, cracked, or otherwise damaged piping.
    d. Infiltration: Water leakage into piping.
    e. Exfiltration: Water leakage from or around piping.
3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
4. Reinspect and repeat procedure until results are satisfactory.

3.7 CLEANING

A. Clear interior of piping and structures of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed.

1. In large, accessible piping, brushes and brooms may be used for cleaning.
2. Place plug in end of incomplete piping at end of day and when work stops.
3. Flush piping between manholes and other structures to remove collected debris, if required by authorities having jurisdiction.

B. Existing Piping, Culverts, Drainage Flows, and Structures. Clean interiors of drainage systems located within the limits of the Work of accumulated sediment and debris.

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SECTION 02732 –GRAVEL SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. One course gravel wearing surface (Traffic Bound Gravel Surface).
2. Restoration of existing gravel road or drive as indicated or as directed by the Engineer.
3. Geogrid.

B. Related Sections include the following:

1. Division 2 Section "Landfill Earthwork" for landfill cap material beneath roadway.

1.3 SUBMITTALS

A. For Information Only

1. Material Certification: Signed by manufacturers or suppliers certifying that the material complies with requirements.
2. Geogrid:
   a. Shop Drawings: Indicate proposed roll layout and indicate direction of geogrid. Show roll sizes. Include details showing termination of the rolls at perimeter of lined areas; and methods of connecting, overlapping, and anchoring geogrid.
      1) Lay out geogrid to minimize field connections.
   b. Sample: One per each lot of geogrid to be used. Label samples with manufacturer's name, product identification, lot number, and roll number.
   c. Inventory tickets, roll numbers or batch identifications, packing papers, and invoices.
   d. Installation Certification: By installer and manufacturer's Technical Representative, stating the geogrid was installed in an acceptable manner per manufacturer's requirements.

1.4 QUALITY ASSURANCE

A. Form 816: State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction, Form 816.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Traffic Bound Gravel Surface: Form 816, Section M.02.03, Traffic Bound Gravel Surface.

1. Single Course: Form 816, Section M.02.06, Grading C.

B. Geogrid Reinforcement: Integrally formed bi-axial grid structure manufactured from first quality virgin high-density polyethylene.

Property	Test Method	Requirement
Carbon Black Content (min. percentage)	ASTM D4218	2
Tensile Strength (5% strain)	ASTM 6637	920 lb/ft machine direction
		1,350 lb/ft cross direction

PART 3 - EXECUTION

3.1 EXAMINATION

A. Confirm subgrade is in conformance with Division 2 Section "Earthwork." Maintain subgrade or subbase true to line and grade.

B. Proof-roll subgrade or subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.

C. Proceed with surfacing only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Stabilization Geotextile: See Division 2 Section "Landfill Earthwork" for requirements.

3.3 GEOGRID

A. Keep geogrid clean before installation. Unpackage, install and join together only enough geogrid material that can be completely installed in the same day.

B. Provide manufacturer's Technical Service Representative during start of geogrid installation activities. Inspect

C. Verify that subgrade is dry and in suitable condition to begin installation of geogrid.

D. Geogrid Installation

1. Install geogrid on prepared surface and in the presence of a manufacturer's Technical Representative. Minimize handling and movement of product. Overlap layers in accordance with manufacturer's requirements.

2. Do not allow materials or equipment to be dragged or travel over installed geogrid.

3. Place overlying materials to prevent damage to geogrid. Install 9 inch minimum layer over geogrid before allowing tracked vehicles to traverse over locations containing the geogrid.

3.4 GRAVEL SURFACE INSTALLATION

A. Spread surfacing material uniformly over geogrid.

B. Spread material to the lines, depth, and shape indicated. If required, wet material and blade, drag, or scrape to conform to typical cross section.

C. Compact to a firm and uniform surface satisfactory to the Engineer. Compact and bound each course of material with equipment specifically designed for compaction.

1. Rollers:

a. Weight: 10 tons minimum.

b. Ground Pressure: Not less than 300 pounds per linear inch of contact width.

2. Vibratory Units: Static weight of not less than 4 tons.

3. Water. Water may be used during compacting and binding operations when applied from an approved watering device. Direction and intensity of water stream shall be as ordered by the Engineer.

D. Perform compacting and binding operation at outside edges, overlapping for a distance not less than 6 inches, and progressing towards the middle of the surfacing area, parallel with the centerline of the road.

E. Remove areas of segregated coarse or fine materials and replace with well-graded material.

1. Provide additional material to fill irregularities in surface course. Evenly incorporate material with in-place gravel by scarifying, harrowing, or brooming.

3.5 RESURFACING

A. Confirm existing surface is in conformance with subgrade requirements in Division 2 Section "Site Earthwork."

B. Pre-fill ruts with material before installing overlay.

C. Install overlay in conformance with installation requirements specified herein.

3.6 INSTALLATION TOLERANCES

A. Variation from Design Elevation

1. Traffic Bound Gravel Surface: 1 inch plus or minus.

3.7 FIELD QUALITY CONTROL

A. Surface Installation: Measure finished surface for compliance with Installation Tolerances.

1. Course Thickness.

a. Roads, Drives, Walks: Take measurements at intervals of 500 feet or less, along each edge of road lane.

2. If measurements indicate a deficient or excess thickness, take additional measurements to determine the longitudinal limits of the deficiency. Correct areas found to be deficient or in excess of Installation Tolerances.

3.8 REPAIRS AND PROTECTION

A. Protecting Gravel Surfacing Roads and Areas: Protect newly graded roads and areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace material to depth as directed by Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

END OF SECTION

SECTION 02741 – BITUMINOUS CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Bituminous concrete paving.
2. Bituminous concrete patching and restoration.

B. Related Sections include the following:

1. Division 2 Section "Site Earthwork" for aggregate subbase and base courses, and for reclaimation of existing bituminous concrete.

1.2 DEFINITIONS

A. Bituminous Concrete Base Course: Asphalt-aggregate layer placed over subgrade, aggregate subbase course, or aggregate base course; and beneath bituminous concrete surface course.

B. Bituminous Concrete Surface Course: The asphalt-aggregate top course of a bituminous concrete pavement, sometimes called a wearing course.

C. DOT: Department of Transportation.

1.3 SYSTEM DESCRIPTION

A. Provide bituminous concrete paving according to materials, workmanship, and other applicable requirements of standard specifications of state or local DOT.

1. Standard Specification: State of Connecticut, Standard Specifications for Roads, Bridges and Incidental Construction, Form 816
2. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.4 SUBMITTALS

A. For Information:

1. Job-Mix Designs: Certification of each job mix proposed for the Work.
2. Qualification Data: For bituminous concrete supplier.

B. Material Certificates:

1. For each batch of paving material delivered to the Site, signed by manufacturers.

1.5 QUALITY ASSURANCE

A. Supplier Qualifications: A qualified supplier, registered with and approved by CT DOT.

B. Regulatory Requirements: Comply with CT DOT Form 816 for bituminous concrete paving work.

C. Asphalt-Paving Publication: Comply with AI MS-22, "Construction of Hot Mix Asphalt Pavements," unless more stringent requirements are indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Transport bituminous concrete mixture in tight body trucks that have been previously cleaned of foreign material.

1. Tightly cover trucks with waterproof canvas or other suitable covers.

B. Deliver mixture within 25 degrees F of approved job mix formula temperature.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:

1. Prime and Tack Coats: Minimum surface temperature of 60 deg F.

2. Bituminous Concrete Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.

3. Bituminous Concrete Surface Course: Minimum surface temperature of 60 deg F at time of placement.

PART 2 - PRODUCTS

2.1 BITUMINOUS CONCRETE

A. Materials: Section M.04 and M.05.02 of Form 816.

B. Tack Coat: AASHTO M 140 Grade SS-1 or SS-1H, emulsified asphalt or AASHTO M 208 Grade CSS-1 or CSS-1H, cationic emulsified asphalt, slow setting, diluted in half with water.

2.2 MIXES

A. Bituminous Concrete: Dense, hot-laid, bituminous concrete plant mixes approved by authorities having jurisdiction and complying with the following requirements:

1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.

2. Binder Course: Class 1.

3. Surface Course: Class 2.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surface to receive paving is dry and in suitable condition to support paving and imposed loads.

B. Proof-roll subbase or aggregate base course using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.

C. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

A. General: Immediately before placing bituminous concrete, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.

B. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying bituminous concrete paving.

2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.3 REPAIRS

A. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, bituminous concrete paving at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying bituminous concrete paving.

2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

B. Temporary Repair: Fill excavated pavement area with bituminous concrete base mix to indicated thickness and, while still hot, compact flush with adjacent surface.

C. Permanent Repair: Partially fill excavated pavement area with bituminous concrete base mix and, while still hot, compact. Cover bituminous concrete base course with compacted, bituminous concrete surface layer finished flush with adjacent surfaces.

3.4 BITUMINOUS CONCRETE PLACING

A. Machine place hot bituminous concrete on prepared surface, spread uniformly, and strike off. Place by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Place bituminous concrete base course in number of lifts and thicknesses indicated.
2. Spread mix at minimum temperature of 250 deg F.
3. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes, unless otherwise indicated.
4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in bituminous concrete paving mat.
5. In areas inaccessible to pavers, use staked forms to maintain indicated line and grade. Prevent segregation of mix when placing mix by hand.

B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of bituminous concrete base course before placing bituminous concrete surface course.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot bituminous concrete to prevent segregation of mix; use suitable hand tools to smooth surface.

3.5 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of bituminous concrete course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints as described in AI MS-22, "Construction of Hot Mix Asphalt Pavements."
5. Compact joints as soon as bituminous concrete will bear roller weight without excessive displacement.
6. Compact material at joints to a density within 2 percent of specified course density.

3.6 COMPACTION

A. General: Begin compaction as soon as placed paving material will bear roller weight without excessive displacement. Compact material with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F.

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while bituminous concrete is still hot enough to achieve specified density. Continue rolling until course has been uniformly compacted to the following density:

1. Average Density: 95 percent of reference maximum theoretical density according to AASHTO T 209, but not less than 92 percent nor greater than 97 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while bituminous concrete is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while material is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh material. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.7 INSTALLATION TOLERANCES

A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Base Course: Plus or minus 1/2 inch.

2. Surface Course: Plus 1/4 inch, no minus.

B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

1. Base Course:

a. Access Roadways: 3/8-inch.

2. Surface Course: 1/4 inch.

3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.

1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from specified requirements.

B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

C. Thickness: In-place compacted thickness of bituminous concrete courses will be determined according to ASTM D 3549.

D. Surface Smoothness: Finished surface of each bituminous concrete course will be tested for compliance with smoothness tolerances.

E. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to AASHTO T 168.

1. Reference maximum theoretical density will be determined by averaging results from four samples of bituminous concrete mixture delivered daily to site, prepared according to AASHTO T 209, and compacted according to job-mix specifications.

2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.

a. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than 3 cores taken.

b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.

F. Remove and replace or install additional bituminous concrete where test results or measurements indicate that it does not comply with specified requirements.

3.9 DISPOSAL

A. Remove excavated and excess materials from Project site and legally dispose of them in an approved landfill.

1. Do not allow excavated and excess materials to accumulate on-site.

END OF SECTION

SECTION 02822 - CHAIN LINK FENCE

PART 1 - GENERAL

1.1 SUMMARY

A. Work under this Section shall consist of furnishing and installing woven wire fencing/gates, supported by metal posts, erected where indicated on the Drawings or as ordered, and in conformity with these Specifications.

1.2 QUALITY ASSURANCE

A. Where "Form 816" is used, it shall mean "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816"and issued supplements.

1.3 SUBMITTALS

A. Submit manufacturer's certification demonstrating compliance with specifications for Chain Link Fence and Gates.

PART 2 - PRODUCTS

2.1 GENERAL

A. Materials for this Work shall conform to the requirements of Form 816, Article M.10.05, and shall be aluminum coated steel fabric with galvanized posts, rails and hardware.

PART 3 - EXECUTION

3.1 GENERAL

A. Space posts as indicated.

1. Provide pull posts with two braces for changes in horizontal or vertical alignment of 10 degrees or more.

B. Fasten braces to posts by suitable connections, and truss from line post back to post requiring bracing with 3/8-inch round rod, having a turnbuckle adjustment.

C. Pass top rail through base of line post cap and form a continuous brace from end to end of fence. Provide rail with couplings approximately every 20 feet.

1. Couplings: Outside-sleeve type, 7 inches long minimum, with one in every five couplings having a heavy spring to take up expansion and contraction in top rail.

D. Fasten fabric to line posts with bands or wire clamps of No. 6 gage aluminized steel wire 4-3/4 inches long. Space bands approximately 14 inches apart.

1. Fasten fabric to top and bottom rail with tie wires, 6-1/4 inches long, spaced approximately 24 inches apart.

END OF SECTION

SECTION 02845 – METAL BEAM GUIDE RAIL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes steel rail elements fastened to posts and terminal ends as indicated.

1. Posts: Galvanized steel.
2. Rails: Galvanized steel.
3. System:
    a. Metal beam rail Type R-B 350

B. Removal and resetting of existing guard rail.

1. Provide new posts, rail or hardware as required for a complete installation.

C. Related Sections include the following:

1. Division 2 Section "Earthwork" for excavation, filling, and rough grading.

1.3 SUBMITTALS

A. Material and Product Certificates: For each type of material required for a complete rail system.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Where referenced, comply with the following.

1. Form 816: State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction.

PART 2 - PRODUCTS

2.1 METAL BEAM RAIL SYSTEM

A. Steel Posts, Welded-Soil Plates, Brackets, Back-up Rails, and Channel Rubrails: Form 816, Subarticle M.10.02-1.

B. Rail Element and Terminal Sections: Form 816, Subarticle M.10.02-3.

C. Steel Plates, Steel Washer Plates and Square Steel Washers: Form 816, Subarticle M.10.02-5.

1. ASTM A36.

2. Galvanized: ASTM A153.

D. Bolts, Rods, Washers, and Nuts: Form 816, Subarticle M.10.02-6.

E. End Anchorages: Form 816, Subarticle M.10.02-7.

F. Plastic Block-Outs: Form 816, Subarticle M.10.02-9.

G. Touch-Up Material: Zinc-rich galvanized paint conforming to Form 816, Subarticle M.10.02-8.

PART 3 - EXECUTION

3.1 GENERAL

A. Install metal beam rail system in accordance with the following and Form 816 Subarticle 9.10.03.

B. Post Installation

1. Set posts plumb and in alignment with the rail or rail treatments.

2. Drive steel posts. Protect posts and galvanized surfaces from damage during driving operations.

C. End Anchor Post.

1. Where required, set end anchor post in excavated holes. Backfill and compact material.

D. Block Outs, Brackets, Rub Rails, and Rail Elements. Erect elements to produce a smooth continuous rail. Lap terminal connectors, rubrails, and rail elements in direction of traffic.

E. Anchorages, Channels, Terminal Sections and Fittings. Install as indicated.

1. Backfill anchorage excavations with suitable material and compact in 6-inch layers.

F. Furnish extra length posts at transition areas or where field conditions warrant to maintain indicated embedment depth.

3.2 WELDING

A. Weld steel plates and posts according to the applicable requirements of American Welding Society Specifications for Welded Highway and Railway Bridges as supplemented and revised by the following:

1. Engineer will perform visual inspection of welds.
2. Correct welds found unacceptable by the Engineer.

3.3 REPAIRS

A. Before final erection, clean and paint damaged galvanized surfaces with two coats of zinc-rich touch-up material.

3.4 CLEAN UP

A. Remove and dispose of surplus and unsuitable backfill material immediately after completion of installation.

END OF SECTION

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SECTION 02891 – SITE SIGNS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Site signs and post.

1.3 SUBMITTALS

A. Material Certification. For each product, certifying material meets the Specification requirements.

B. Shop Drawings

1. Location and dimension of signs including details of copy, border and mounting holes.

2. Sign post and mounting bolts.

1.4 QUALITY ASSURANCE

A. Where "Form 816" is referenced, it shall mean "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816," and issued supplements.

PART 2 - PRODUCTS

2.1 SIGNAGE

A. Sign Posts: Galvanized steel; Form 816, Article M.18.14.

B. Mounting Bolts: Form 816, Article M.18.15.

C. Sign Panel: Sheet aluminum; Form 816, Article M.18.13.

D. Reflective Sheeting: Form 816, Article M.18.09, Type I, II or III.

E. Silk Screening: According to the requirements of the reflective sheeting manufacturer.

PART 3 - EXECUTION

3.1 FABRICATION

A. Panels: Fabricate aluminum sign blanks free of buckles, warps, dents, cockles, burrs and defects. Cut to size and shape and punch mounting holes prior to metal degreasing and application of reflective sheeting. Meet requirements of Form 816 Section 12.08 for sign face.

B. Placement and dimensions of copy, border and mounting holes in signs shall conform to the approved shop drawings. Apply non-reflective copy, border and background by the silk screen process in the manner specified by the reflective sheeting manufacturer.

3.2 INSTALLATION

A. Prior to installation, mark in paint the proposed location of signs, for review and approval by the Owner.

B. Install posts and signs in accordance with Form 816 Section 12.08, Sign Face-Sheet Aluminum.

1. Drive or auger metal sign post, and tamp backfill after posts have been set level and plumb.

C. Mount signs only after support has been satisfactorily installed in its proper location.

END OF SECTION

SECTION 02899 – LANDFILL LIMIT MARKER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Concrete filled, metal posts to act as landfill limit markers delineating the lateral limits of the geomembrane liner at locations shown on the Contract Drawings.

1.3 SUBMITTALS

A. Material Certification. For each product, certifying material meets the Specification requirements. Materials include the following:

1. Steel posts.
2. Concrete components and mix.
3. Paint.

1.4 QUALITY ASSURANCE

A. Where "Form 816 is referenced, it shall mean "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816," and issued supplements.

PART 2 - PRODUCTS

2.1 STEEL POST

A. Limit Marker Posts: Black steel; ANSI/ASME B36.10/19; Schedule 40.

1. Diameter: 6 inches or as indicated.

2.2 CONCRETE

A. General: Comply with ACI 301 for cast-in-place concrete.

B. Materials: Portland cement complying with ASTM C 150, aggregates complying with ASTM C 33, and potable water for ready-mixed concrete complying with ASTM C 94. Measure, batch, and mix Project-site-mixed concrete according to ASTM C 94.

1. Concrete Mixes: Normal-weight concrete air entrained with not less than 4000 psi compressive strength (28 days), 3-inch slump, and 1-inch maximum size aggregate.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Air Content: 5.5 percent plus or minus 1.5 percent.

2.3 PAINT

A. Enamel Paint System: Form 816, Article M.18.08.
   1. Color: As indicated.
   2. Coats:
      a. Primer: One Coat
      b. Finish Coat: Two coats.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set edge of concrete footing adjacent to limit of landfill geomembrane cap.

B. Install landfill limit marker posts as indicated. Set posts plumb and fill with concrete. Rod concrete to remove air pockets.

C. Remove spilled concrete from post and adjacent surfaces and clean surface.

D. Use excess excavated material as fill or dispose of off-site.

3.2 PAINTING

A. Paint landfill limit marker post with one coat of primer and two finish coats.

END OF SECTION

DIVISION 3
CONCRETE

SECTION 03301 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies cast-in-place concrete, including reinforcement, concrete materials, mix design, placement procedures, and finishes.

B. Cast-in-place concrete applications include the following:

1. Impact basins.

C. Related Sections include the following:

1. Division 2 Section "Earthwork" for subgrade preparation, grading, and subbase course.

1.3 SUBMITTALS

A. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:

1. Design mixes.
2. Cementitious materials and aggregates.
3. Form materials and form-release agents.
4. Steel reinforcement and reinforcement accessories.
5. Admixtures.
6. Curing materials.
7. Bonding agents.
8. Joint-filler strips.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed concrete work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

C. Source Limitations: Obtain each type of cement of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.

D. Comply with ACI 301, "Specification for Structural Concrete," including the following, unless modified by the requirements of the Contract Documents.

1. General requirements, including quality assurance, acceptance of structure, and protection of in-place concrete.
2. Formwork and form accessories.
3. Steel reinforcement and supports.
4. Concrete mixtures.
5. Handling, placing, and constructing concrete.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

1.6 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FORMWORK

A. Furnish formwork and form accessories according to ACI 301.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

2.3 CONCRETE MATERIALS

A. General: Use the same brand and type of cementitious material from the same manufacturer throughout the Project.

B. Portland Cement: ASTM C 150, Types I or II or Type I/II.

C. Normal-Weight Aggregate: ASTM C 33, uniformly graded, not exceeding 1-inch nominal size.

D. Water: Potable and complying with ASTM C 94.

2.4 ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures. Do not use admixtures containing calcium chloride.

B. Air-Entraining Admixture: ASTM C 260.

C. Water-Reducing Admixture: ASTM C 494, Type A.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

2.6 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

F. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.7 CONCRETE MIXES

A. Comply with ACI 301 requirements for concrete mixtures.

B. Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mix or field test data bases, as follows:

1. Compressive Strength (28 Days): 4000 psi.
2. Slump: 4 inches.

C. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content of 5.0 percent within a tolerance of plus 1.0 or minus 1.5 percent.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Comply with ASTM C 94.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 PREPARATION

A. Proof-roll prepared subbase surface to check for unstable areas and verify need for additional compaction. Proceed with pavement only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.

B. Remove loose material from compacted subbase surface immediately before placing concrete.

3.2 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Construct forms tight enough to prevent loss of concrete mortar.

D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.

1. Do not use rust-stained steel form-facing material.

E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required lines, grades, elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

G. Chamfer exterior corners and edges of permanently exposed concrete.

H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.3 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor bolts, accurately located, to elevations required.

3.4 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.5 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.

B. Construction Joints: Locate and install so as not to impair strength or appearance of concrete, at locations indicated or as approved by Engineer.

C. Isolation (Expansion) Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint fillers full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

3.6 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcement steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.

D. Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.

E. Do not add water to concrete during delivery, at Project site, or during placement.

F. Consolidate concrete with mechanical vibrating equipment.

G. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.

H. Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.

1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.

2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.

I. Deposit and consolidate concrete for slabs in a continuous operation, until placement is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

2. Maintain reinforcement in position on chairs during concrete placement.

3. Screed slab surfaces with a straightedge and strike off to correct elevations.

4. Slope surfaces uniformly to drains where required.

5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

J. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.

K. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Completely remove fins and other projections.

1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.

2. Apply the following rubbed finish, defined in ACI 301, to smooth-formed finished concrete.

   a. Smooth-rubbed finish.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.8 FINISHING UNFORMED SURFACES

A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on the surface.

1. Do not further disturb surfaces before starting finishing operations.

C. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots, and fill low spots. Refloat surface immediately to uniform granular texture.

3.9 TOLERANCES

A. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

B. Comply with the additional requirements for pavements.

1. Elevation: 1/4 inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/4 inch.
4. Joint Spacing: 3 inches.
5. Contraction Joint Depth: Plus 1/4 inch, no minus.
6. Joint Width: Plus 1/8 inch, no minus.

3.10 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection, and follow recommendations in ACI 305R for hot-weather protection during curing.

B. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.

C. Curing Methods: Cure formed and unformed concrete for at least seven days by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

a. Water.

b. Continuous water-fog spray.

c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.11 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Tests will be performed according to ACI 301.

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.

3.12 REPAIRS AND PROTECTION

A. Remove and replace concrete that does not comply with requirements in this Section.

B. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this Section.

C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

DIVISION 16
ELECTRICAL

(To Be Issued Via Addenda)

APPENDIX A
STORMWATER POLLUTION CONTROL PLAN

Stormwater Pollution Control Plan

Connecticut Resources Recovery Authority
Hartford Landfill
Hartford, Connecticut

July 2006

Revised January 2007

FUSS & O'NEILL
Disciplines to Deliver

146 Hartford Road
Manchester, CT 06040

STORMWATER POLLUTION CONTROL PLAN
Connecticut Resources Recovery Authority
Hartford Landfill - Hartford, Connecticut
July 2006

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1.0 INTRODUCTION

The Connecticut Resources Recovery Authority (CRRA) is performing landfill closure activities for the Municipal Solid Waste/Interim Ash Disposal Area (the "MSW Area") of the Hartford Landfill located at 185 Liebert Road in Hartford, Connecticut. This project is a "construction activity" in accordance with the "General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities," dated October 1, 2002 (modified on April 8, 2004). A copy of this general permit and registration is included in Attachment A. This stormwater pollution control plan was prepared as required by the general permit. The purpose of this plan is to specify the erosion and sedimentation control requirements, both during and after construction. Erosion and sedimentation control requirements are also shown on the Drawings for this project.

During construction, the contractor shall be responsible for implementing all elements of the erosion and sedimentation control measures as defined on the Drawings and in this stormwater pollution control plan. After construction, the Owner shall be responsible for maintaining these erosion and sedimentation control measures. Throughout the construction process, the Owner or Owner's agent shall periodically inspect all erosion control measures. A copy of the inspection form to be used is provided in Attachment B. This project will not be considered complete until all disturbed areas have been satisfactorily stabilized, all erosion has been repaired, and all temporary erosion control measures have been removed.

The general contractor and subcontractor will be required to sign the certification statement provided in Attachment C of this plan.

2.0 SITE DESCRIPTION

2.1 Project Description

The MSW Area of the Hartford Landfill occupies approximately 80 acres of an approximately 124 acre parcel in the north meadows section of Hartford, Connecticut (Figure 1). Sixteen acres of the parcel, located immediately north of the 80-acre MSW Area, was developed as a lined ash landfill in 1998 (Phase I Ash Disposal Area). The remaining area is occupied by site facilities (e.g., Scale House, Maintenance Garage, etc.) on the southerly portion of the parcel and undisturbed land to the north of the Phase I Ash Disposal Area.

Access to the landfill is off of Jennings Road (Exit 33 off of Interstate 91) with a turn onto Leibert Road, heading north, into the south end of the landfill. The landfill parcel is bounded on the south by the City of Hartford Department of Public Works facility; on the west by Interstate 91; on the north by Weston Street and the Army Corps of Engineers (USACE) Flood Control Dike (herein referred to as the "USACE Dike"); and on the east by the USACE Dike.

Buildings and structures located on the site include the scale house, vehicle maintenance facility, leachate pre-treatment facility, vehicle wheel wash facility, groundwater pumping system control building, leachate storage tank and landfill gas blower/flare station. Site utilities include:

- Storm sewers along the southern boundary of the landfill
- Water lines servicing the onsite buildings and fire hydrants

- Overhead and underground electric lines servicing the onsite buildings and the landfill gas-to-energy plant, the ash leachate collection and treatment system and the groundwater flow control system

- A 36-inch water main that enters the site from the south near the vehicle maintenance facility and then heads west across the south side of the site and crossing Interstate 91.

- A sanitary sewer line servicing the on-site buildings at the south end of the site that also crosses Interstate 91

- Leachate force main piping from the ash disposal area to the leachate storage tank at the southeast corner of the site and from the tank to the leachate pre-treatment facility

- Wastewater conveyance piping from the vehicle wheel wash facility to the leachate storage tank

- Sanitary sewer piping from the leachate pre-treatment facility to the sanitary sewer in the cul-de-sac of Leibert Road

- Two below grade sediment settling tanks, two oil water separators, and three condensate storage tanks

- Above ground fuel tanks near the leachate pre-treatment facility and the vehicle wheel wash facility

- A condensate force main and air line from the landfill gas flare running along the southerly slope of the landfill to a condensate pump station near the Leibert Road cul-de-sac

CRRA is currently finalizing a Closure Plan for the landfill that assumes closure will occur in three phases. A tentative closure construction schedule has been estimated assuming CTDEP authorization is received and construction documents can be prepared during 2006. In the spring of 2007, Phase I construction is expected to begin and to be completed before winter 2007-2008. While Phase I construction is taking place, waste will continue to be received on the east slopes of the landfill. The Phase II area is expected to be ready for closure for the 2008 construction season and should be completed during the 2008 construction season. Waste will no longer be received at the landfill after December 31, 2008. Therefore, closure construction of Phase III is expected to take place during the 2009 construction season.

This construction schedule is tentative. There are many factors, such as weather conditions, which may affect the proposed schedule. CTDEP will be kept apprised of changes in schedule as they become necessary.
Erosion control measures were designed in accordance with the 2002 edition of the "Connecticut Guidelines for Soil Erosion and Sediment Control" (CT DEP bulletin 34) as published by The Connecticut Council on Soil and Water Conservation in cooperation with the Connecticut Department of Environmental Protection. We have provided installation details

and detailed erosion and sediment control notes in the plans. These notes are in accordance with DEP Bulletin 34.

2.2 Area of Disturbance

The general intent of the landfill closure grading plan is to promote rapid runoff of stormwater while simultaneously preventing erosion. On the top of the landform, stormwater is allowed to run off as sheet flow. This sheet flow is intercepted and channelized on the steeper side slopes in order to minimize erosion. The end result is the creation of a stable, mounded landform that will maximize surface water run-off and minimize infiltration, which, in turn, reduces the potential for leachate generation.

The total disturbed area within the project site will be approximately 80 acres. The following table summarizes the disturbed areas and their drainage characteristics:

Description	Drainage Characteristics	Area
Western Side of Landform	Sheet flow until intercepted by swales, then conveyed by channels and culverts to ConnDOT drainage channel.	41 Acres
Eastern Side of Landform	Sheet flow until intercepted by swales, then conveyed by channels and culverts to USACE Dike drainage ditch.	46 Acres
Northern End of Landform	Sheet flow until intercepted by swales, then conveyed by channels to the wetlands area North of the landform.	1.5 Acres

2.3 Landfill Cap Underdrain

The landfill final cover has been designed pursuant to State of Connecticut Solid Waste Regulations. The cap structure consists of a cap base material layer, a barrier layer, and a drainage /barrier protection layer. The structure is discussed in detail in the Closure Plan, and details of the drainage layer are reproduced herein.

The composite drainage layer, consisting of a bi-planar high-density polyethylene (HDPE) drainage net with a non-woven polyester or polypropylene geotextile bonded to both sides of the net, will be placed over geomembrane on 3H:1V slopes to serve as the drainage medium for water that infiltrates through the overlying layers of the landfill cap. At the cross-slope diversion swales, spaced at approximately 100-foot intervals on the 3H:1V side slopes, four-inch slotted polyethylene tubing will be installed directly below the centerline of the swales to intercept subsurface water flowing on top of the geomembrane. This pipe system will further protect against destabilizing head build-up on top of the geomembrane. Due to the importance of maintaining the stability of the 3H:1V slopes, both the Hydrologic Evaluation of Landfill Performance (HELP) model and additional subsurface drainage composite flow calculations were performed to assess whether or not unconfined flow conditions will be maintained on the steep side slopes.

2.4 Stormwater Discharge Information

Currently, precipitation that falls on the landfill property flows in three general directions as described below:

- Stormwater falling on the western half of the landfill flows west to the western toe of slope. It is then conveyed south and discharges to a rectangular concrete channel owned by the Connecticut Department of Transportation (ConnDOT). Flow within the channel continues generally south, eventually reaching North Meadows Pond. The total upland area discharging to the ConnDOT channel is approximately 41 acres.

- Precipitation falling on the Eastern half of the landfill flows east until it is intercepted by one of several existing riprap and concrete channels. These various channels convey the stormwater toward the southeast corner of the property where it discharges to a vegetated drainage ditch that ultimately enters North Meadows Pond. The total upland area discharging to the vegetated ditch is approximately 46 acres.

- A very small area in the northwestern portion of the landfill drains to the north and into a heavily vegetated wetlands area. Flow from this wetlands area outlets to Weston Brook where it is conveyed to North Meadows Pond via MDC storm piping. The total upland area discharging to the wetlands is approximately 1.5 acres.

The proposed final landform will not substantially alter the drainage patterns described above. Only slight adjustments to the relative drainage areas will result from closure. However, due to the improved drainage characteristics of the proposed cap, total runoff volume and peak flow rates are expected to increase. Several existing drainage features will be replaced or upgraded during closure in order to accommodate these increased flows and several new permanent drainage features such as underdrains, swales, and storm piping will be added. All proposed drainage features have been engineered to safely convey a 25-year/24-hour storm event.

Because closure of the landfill will affect the volume of stormwater discharged to off-site drainage systems, Fuss & O'Neill analyzed the capacity of these systems to receive the additional flow. Both the ConnDOT drainage channel and the vegetated ditch are designed with significant storm storage capacity. Hydraulic analysis of these structures indicates that they would fully contain the total run-off volume from a 25-year/24-hour storm event from the landfill even if the outfalls were completely blocked. Therefore, the increased flow from the landfill will not adversely affect off-site drainage.

Drainage calculations used to size permanent stormwater drainage features are provided in Appendix D.

2.5 Receiving Waters

All stormwater runoff from the Landfill eventually flows into North Meadows Pond. The North Meadows Pond and Pump Station is part of the Greater Hartford Flood Control System. Under normal conditions, the pond drains by gravity to the Connecticut River. During flood events, the pump station pumps water from the pond into the Connecticut River to prevent flooding inside the USACE Dike.

The Connecticut River located to the east of the subject site is classified as SC/SB. Decker's Brook and Meadow Brook are both located north and upgradient of the landfill. Decker's Brook classification status is not shown on the maps likely because it is too small to classify. It is therefore assumed to be SA. Meadow Brook is classified as SC/SB.

The North Meadows Pond that is located south of the landfill, is a tributary to a much larger watershed than just the landfill, and is classified as B/A.

3.0 CONSTRUCTION SEQUENCE

While the majority of the landfill has reached final elevations and is ready for capping, the southeast corner and east side of the landfill will continue to receive waste until final grades are achieved. Therefore, the closure will be phased to allow closure of portions of the landfill while other portions continue to receive waste. The west and south sides of the landfill will be closed first as Phase I. Because the access road to the top of the landfill must remain open through construction, the new proposed access road will be constructed on the Phase I area prior to completing closure construction. This will allow construction and landfill traffic to continue with minimal interruption. A road construction detail is included in the project Drawings. Phase II will then be closed and tied into the completed Phase I cap system. The Ash Disposal Area is not a part of the closure plan for the MSW Area and will be closed under a separate closure plan. An estimated construction timeline is presented below:

Description	Estimated Start Date	Estimated Completion Date
Receive CTDEP Permits	4/1/07	4/1/07
Phase I Construction	7/1/07	6/30/08
Phase II Construction	7/1/08	6/30/09

Within each phase of construction, three main activities will occur in a sequential fashion:

- rough grading and cap base preparation
- geomembrane liner installation
- and cover soil placement and stabilization

Area of disturbance associated with rough grading and base preparation will be limited to no more than 10 acres prior to placement of geomembrane liner. Similarly, area of installed cover soil will be limited to no more than 10 acres prior to installation of stabilization measures (e.g. erosion control blanket or straw mulch).

4.0 CONTROLS

The following paragraphs address the controls and measures to be implemented on this site both during and after construction to minimize stormwater pollution to the waters of the State of Connecticut.

4.1 Erosion and Sediment Controls

The goal of this plan is to control erosion on the site and to control movement of sediment into adjacent wetlands, watercourses or storm sewer systems. Note that erosion and sediment

controls shall conform to the requirements of the "Connecticut Guidelines for Soil Erosion and Sediment Control," dated May 2002, which will hereafter be referred to as the "Guidelines."

Permanent on-site retention/detention of stormwater is not proposed for this landfill for two primary reasons. First, upland areas are almost exclusively vegetated. Only the paved access road and existing parking areas will be impermeable. Once vegetation has been established, down-gradient sediment migration will be minimal. Second, site constraints limit the available space to locate a basin. Construction of a basin on the property would require either taking of wetlands, relocation of substantial quantities of waste, or altering the drainage of the adjacent USACE Dike. None of these alternatives are deemed to be prudent or practicable.

Stormwater flows from impervious surfaces will be treated with "best management practices" during construction (e.g., silt sacks, hay bales, etc.). When construction is complete, sediment from impervious areas is expected to be negligible and additional treatment should not be required. CRRA will continue to monitor stormwater discharges as required by the "General Permit for the Discharge of Stormwater from Industrial Activities". If monitoring results indicate additional treatment is required to meet applicable stormwater quality standards, appropriate measures will be taken.

To meet the goals of stabilization, structural and maintenance practices shall be implemented by the Contractor as outlined below.

4.1.1 Stabilization Practices

Both temporary and permanent stabilization practices shall be implemented throughout the project to minimize erosion of soil from the disturbed site. Temporary and permanent stabilization measures are proposed to provide protection against erosion both during and after construction. When construction activities have permanently ceased or have been temporarily suspended for more than thirty days, or when final grades are reached in any portion of the site, stabilization practices shall be implemented within seven days.

The stabilization practices to be implemented during the construction of the proposed development are as follows:

- **Grading sequence** - Construction activities will generally commence from a point on the landfill furthest from the final stormwater discharge. This process will allow sediment to be transported downgradient by stormwater to be controlled within the existing drainage features. In addition, newly installed features will not be subject to heavy siltation because up-gradient surfaces will have been stabilized.

- **Limitation of Disturbance** – Disturbed earth surfaces will be limited to no more than 10 acres before liner installation and no more than 10 acres of un-stabilized final cover soil.

- **Temporary Vegetative Cover** – All exposed areas that will be inactive for more than 30 days, or 15 days for stockpiles, and have not yet reached finished grades shall receive a temporary vegetative cover during the planting season of March 15 to October 1. Note that planting between June 15 and August 1 will require watering as necessary to

promote growth. This temporary vegetative cover shall consist of perennial rye grass. The rye grass shall be planted at a rate of 1 pound per 1,000 square feet. Also, fertilizer shall be applied at a rate of 7.5 pounds per 1,000 square feet of 10-10-10 or equivalent and limestone shall be applied at a rate of 45 pounds per 1,000 square feet. Seed bed preparation and seeding shall be conducted as outlined in the "Guidelines."

- **Temporary Mulching –** Temporary mulching shall be used to temporarily stabilize areas that will be inactive for 30 days or more, or 15 days for stockpiles, and cannot be seeded within the recommended planting dates. In addition, temporary mulching shall be conducted immediately following temporary or permanent seeding in order to aid the growth of vegetation. Temporary mulch shall consist of straw or hay overlay applied at a rate of 70 to 90 pounds per 1,000 square feet (two tons per acre). This mulch shall be spread uniformly by hand or mulch blower and shall be bonded with a non-asphalitic tackifier or other approved method immediately after spreading.

- **Permanent Vegetative Cover** – Once the planting season begins, temporary stabilization measures shall be removed and slopes shall be prepared and seeded. Seeding shall only occur between April 1 and June 1 and August 15 and October 15.

- **Vegetative Cover Irrigation** – A temporary irrigation system shall be installed on side slopes to allow watering without operating equipment on steep areas. The contractor will be responsible for designing, installing, and maintaining the temporary irrigation system throughout the duration of the project. The contractor must also monitor the system and shut it down, as necessary, to prevent excess water from running off the landform or causing erosion.

4.1.2 Structural Practices

Structural practices shall be implemented to control the movement of sediment and minimize any discharge of pollutants from the site. The structural practices to be implemented during construction are as follows:

- **Filtration barriers** - Silt fence or hay bales will be installed at the base of incomplete or disturbed slopes. Silt fence is generally recommended for this application, but hay bales may be used in lieu of silt fence when areas are to be disturbed for less than sixty days. The silt fence and hay bales will reduce down gradient siltation by acting as sediment filters. These filters will remove sediment transported by sheet flow from stormwater runoff.

- **Alternative Filtration Barrier –** If conventional filtration barriers discussed above and depicted on the project drawings prove impractical or infeasible to install, alternative filtration barriers may be installed. These alternative systems may include Ecoberm™, SiltSoxx®, or other products.

- **Anti-Tracking Aprons**: To prevent soil or sediment from being carried off site by construction equipment, anti-tracking aprons will be installed before construction traffic into and out of the project area begins. The width of the anti-tracking apron shall not

be less than the width of any ingress or egress. Adjacent roadways shall be swept daily to remove any material that may be tracked onto pavement.

- **Diversion Swales** - Earthen swales will be constructed on the side slopes of the landfill to intercept sheet flow. These channels are graded with a slope of four percent to allow rapid drainage without developing erosive velocities. The swales have been sized to maintain freeboard in accordance with the "Guidelines" while conveying the peak discharge from the design storm.

- **Permanent Erosion Control Matting** - This non-biodegradable, flexible channel lining will be installed in diversion swales to reinforce vegetative cover and minimize the potential for erosion.

- **Erosion control blankets** - Erosion control blankets, or equivalent protection, will be installed on all landfill side slopes exceeding 10%, after placement of final cover, to minimize erosion and allow growth of permanent vegetative cover. These controls also retain soil moisture and modify soil temperature to further enhance growth.

- **Mulch for Seed –** Straw mulch will be installed on all disturbed surfaces with slopes not exceeding 10%, after placement of final cover, to minimize erosion and allow growth of permanent vegetative cover.

- **Grouted Riprap Downchutes** - Downchutes will collect the flow from diversion swales and underdrains and convey it down the side slopes of the landfill.

- **Impact Basins** - Cast-in-place concrete impact basins will be constructed at the bottom of each downchute to safely dissipate the energy of the rapidly flowing water. The impact basins serve the same function as the more commonly used energy dissipater, but will fit within the restricted space available on-site.

- **Temporary Diversions and Slope Drain** - In order to minimize the volume of runoff flowing over the steeper side slopes of the landfill, a temporary diversion and slope drain system will be placed at the top-of-slope to minimize surface run-on to disturbed areas. The temporary diversions will include silt fence backed by haybales and sandbag diversion berms for installation directly on top of the liner. These diversions will be relocated and replaced as necessary during various stages of construction to permit installation of the proposed cap. Diverted stormwater will be conveyed to the toe of the slope through temporary slope drains.

- **Temporary Sediment Traps** – Temporary Sediment Traps (TST) shall be installed at the downstream ends within the toe-of-slope drainage ditches located on both the east and west sides of the landfill.

- **Flocculation Enhancing Polyacrylimide Blocks – Floc-**Logs® or similar products will be installed in toe of slope drainage ditches to assist in the treatment of suspended solids and pollutants. Block formulation will be specified based on site specific stormwater chemistry.

4.1.3 Maintenance

The erosion and sediment controls must be maintained in a condition that will protect the resource areas from pollution during site construction. The Contractor shall conduct the following maintenance to ensure the proper performance of erosion and sediment control measures.

- **Temporary and Permanent Vegetation**: At any eroded areas, repair by filling to finished grades, replace vegetative support material and seed, fertilize and lime, as specified for temporary and permanent stabilization. Add additional mulch as required.

- **Temporary Mulching**: Where erosion is observed additional mulch should be applied. If it is determined that straw mulch is not providing adequate erosion protection to a disturbed area, the Engineer will direct the contractor to install cellulose fiber mulch, erosion control blanket, or other stabilization measure.

- **Filtration Barriers**: Inspect silt fence and haybales immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately. Should the barrier decompose or become ineffective while it is still needed, the barrier shall be replaced promptly.

  Sediment deposits should be removed when they reach approximately one-half the height of the barrier. Sediment shall be disposed of on-site as non-structural fill. Any sediment deposits remaining in place after the barrier is no longer required shall be removed and placed in a stockpile surrounded by silt fence in a location suitable to the Owner.

- **Swales, Downchutes, and Impact Basins**: Remove accumulated sediment from the affected area when sediment reaches a depth of 6 inches. Use removed sediment to complete non-structural fill areas during project. Once the site has been stabilized, sediment removed at the end of construction shall be stockpiled on-site, surrounded by silt fence, in a location approved by the Owner.

4.2 Dewatering Wastewaters

Should excavation dewatering become necessary for this project, there shall be no discharge directly into wetlands, watercourse, or storm sewer structures. Proper methods and devices shall be utilized to the extent permitted by law, such as pumping water into a temporary pumping settling basin, providing surge protection at the inlet and outlet of pumps, floating the intake of the pump, or other methods to minimize and retain the suspended solids. If a pumping operation causes turbidity problems, the operation shall cease until feasible means of controlling turbidity (e.g. discharge to the sanitary sewer) are determined and implemented.

4.3 Post-Construction Stormwater Management

At the end of construction, all areas disturbed by construction activities shall be stabilized. As a result, the potential for erosion at this site after construction is minimal. Grassed areas will also

serve as a filter to remove any sediment from runoff if permanently stabilized areas are properly maintained.

The goal of the post-construction stormwater management is to remove 80% of the total suspended solids from the stormwater runoff.

After all areas are stabilized, catch basin inserts will be cleaned and reinstalled. Periodic inspection of the inserts will be done in conjunction with the inspections performed in accordance with the existing General Permit for the Discharge of Stormwater Associated with Industrial Activities (No . GSI000500).

4.4 Other Controls

4.4.1 Vehicle Tracking and Dust Control

As shown on the plans, two temporary anti-tracking aprons shall be installed and maintained to prevent vehicles from tracking sediments onto city roads. The Contractor shall provide water or calcium chloride as necessary to control dust from construction activities.

5.0 INSPECTION

The Owner or the Owner's agent shall inspect disturbed areas of the construction activity that have not been permanently stabilized, structural control measures, drainage control facilities including diversion and perimeter drainage ditches, and locations where vehicles enter or exit the site at least once every seven calendar days and within 24 hours of the end of a storm that generated 0.1 inches during a twenty-four hour period. Where sites have been temporarily or finally stabilized, inspection shall be conducted at least once every month for three months.

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be visually inspected to ascertain whether erosion control measures are effective in preventing significant impacts, such as turbidity to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking.

Based on the results of the inspection, the description of potential sources and pollution prevention measures identified in the plan shall be revised as appropriate by the Owner or his agent as soon as practicable after such inspection.

A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution control plan, and actions taken shall be made and retained as part of the storm water pollution control plan for at least three years after the date of inspection. A blank copy of the inspection report is provided in Attachment B.

In addition to the inspections required by this plan, the Closure Plan requires periodic inspection to assess the integrity of the access roads, slopes, and cover material. Qualified personnel will conduct inspections at a minimum of once per quarter. Roadway and access

gates will be maintained to control access to the landfill for maintenance and emergency vehicles. Although it is not anticipated that leachate seeps will be found once the geomembrane cap is in place, the site walkovers will look for and identify any problems of this nature. If erosion of slopes is noted, the affected areas will be re-graded and re-vegetated as soon as possible to prevent additional erosion.

6.0 CONTRACTORS

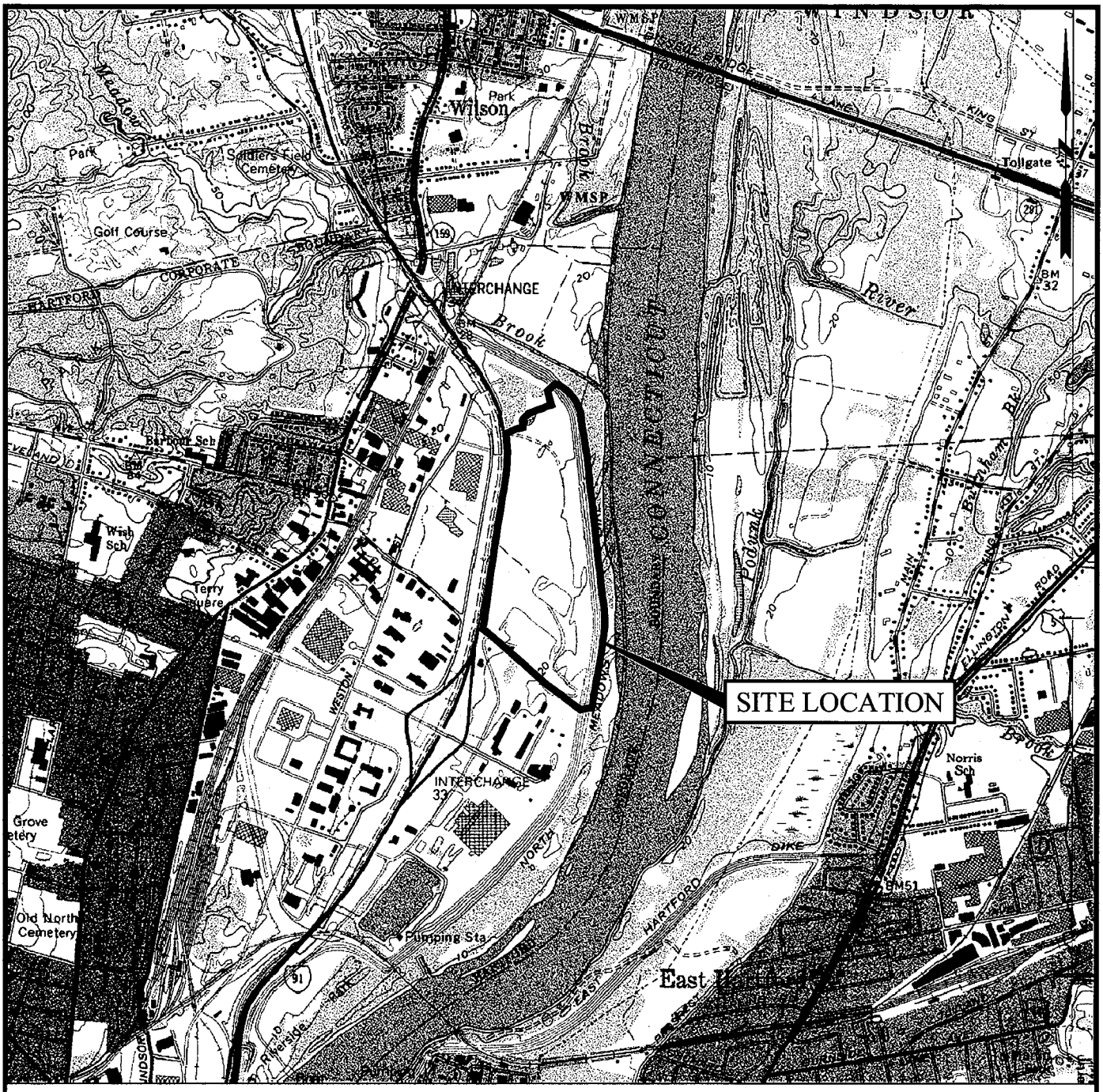
6.1 General

All contractors and subcontractors who will perform actions on site that may reasonably be expected to cause or have the potential to cause pollution of the waters of the State are identified in Attachment C.

6.2 Certification Statement

All contractors and subcontractors must sign the certification included in Attachment C. All certifications will be included in this Stormwater Pollution Control Plan.

FIGURES



MAP REFERENCE:
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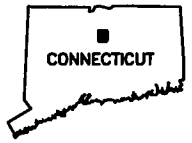
HARTFORD NORTH, CONN. 1964, PHOTOREVISED 1992.



QUADRANGLE LOCATION

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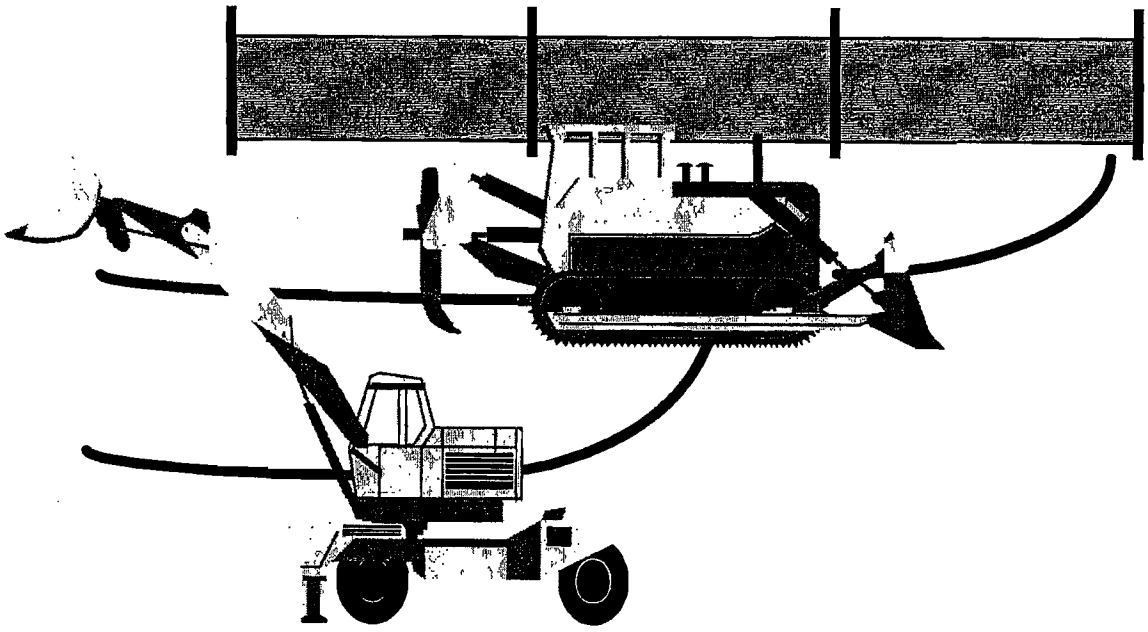
ATTACHMENT A

General Permit

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT
PERMITTING, ENFORCEMENT AND REMEDIATION DIVISION
860-424-3018

General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities



Issuance Date: October 1, 2002
Modified: April 8, 2004

Printed on recycled paper

General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

Table of Contents

General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

Section 1. Authority

This general permit is issued under the authority of Section 22a-430b of the Connecticut General Statutes.

Section 2. Definitions

The definitions of terms used in this general permit shall be the same as the definitions contained in Section 22a-423 of the Connecticut General Statutes and Section 22a-430-3(a) of the Regulations of Connecticut State Agencies. As used in this general permit, the following definitions shall apply:

"*Authorized activity*" means any activity authorized under this general permit.

"*Coastal area*" means coastal area as defined in Section 22a-93(5) of the Connecticut General Statutes.

"*Coastal waters*" means coastal waters as defined in Section 22a-29 of the Connecticut General Statutes.

"*Commissioner*" means commissioner as defined in Section 22a-2(b) of the Connecticut General Statutes.

"*Construction activities*" means activities including but not limited to clearing and grubbing, grading, excavation, and dewatering.

"*Department*" means the department of environmental protection.

"*Developer*" means a person who or municipality which is responsible, either solely or through contract, for the design and construction of a project site.

"*Dewatering wastewater*" means wastewater generated from the lowering of the groundwater table, the pumping of accumulated stormwater from an excavation, or the pumping of surface water from a cofferdam, or pumping of other surface water that has been diverted into a construction site.

"*Disturbance*" means the execution of any of the construction activities defined above.

"*Erosion*" means the detachment and movement of soil or rock fragments by water, wind, ice and gravity.

"*Fresh-tidal wetland*" means a tidal wetland with an average salinity level of less than 0.5 parts per thousand.

"Guidelines" means the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, or as may be amended, established pursuant to Section 22a-328 of the Connecticut General Statutes.

"High tide line" means high tide line as defined in Section 22a-359(c) of the Connecticut General Statutes.

"Individual permit" means a permit issued to a named permittee under Section 22a-430 of the Connecticut General Statutes.

"Inland wetland" means wetlands as defined in Section 22a-38 of the Connecticut General Statutes.

"Municipal separate storm sewer" means conveyances for stormwater (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) owned or operated by any municipality and discharging directly to surface waters of the state.

"Municipality" means municipality as defined in Section 22a-423 of the Connecticut General Statutes.

"Permittee" means any person who or municipality which initiates, creates or maintains a discharge in accordance with Section 3 of this general permit.

"Person" means person as defined in Section 22a-423 of the Connecticut General Statutes.

"Point Source" means any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged.

"Registrant" means a person who or municipality which files a registration.

"Registration" means a registration form filed with the commissioner pursuant to Section 4 of this general permit.

"Retain" means to permanently hold on-site with no subsequent point-source release as in a detention system where there is a temporary holding or delaying of the delivery of stormwater downstream.

"Sediment" means solid material, either mineral or organic, that is in suspension, is transported, or has been moved from its site of origin by erosion.

"Site" means geographically contiguous land or water on which an authorized activity takes place or on which an activity for which authorization is sought under this general permit is proposed to take place. Non-contiguous land or water owned by the same person and connected by a right-of-way, which such person controls, and to which the public does not have access shall be deemed the same site.

"Soil" means any unconsolidated mineral and organic material of any origin.

"Stabilize" means the use of pavement, establishment of vegetation, use of geotextile materials, use of organic or inorganic mulching materials, or retention of existing vegetation to prevent erosion.

"Stormwater" means waters consisting of precipitation runoff.

"Tidal wetland" means a wetland as defined in Section 22a-29(2) of the Connecticut General Statutes.

"Total disturbance" means the total area on a site that will be exposed or susceptible to erosion during the course of a project.

"Total sediment load" means the total amount of sediment carried by stormwater runoff on an annualized basis.

"Upland soils" means soils which are not designated as poorly drained, very poorly drained, alluvial, or flood plain by the National Cooperative Soils Survey, as may be amended from time to time, of the Soil Conservation Service of the United States, Department of Agriculture, and/or the Inland Wetlands Commission of the community in which the project will take place.

"Water company" means water company as defined in Section 25-32a of the Connecticut General Statutes.

Section 3. Authorization Under This General Permit

(a) Eligible Activities

The following activity is authorized by this general permit, provided the requirements of subsection (b) of this section are satisfied:

The discharge of stormwater and dewatering wastewater from construction activities which result in the disturbance of one or more total acres of land area on a site regardless of project phasing. In the case of a larger plan of development (such as a subdivision), the estimate of total acres of site disturbance shall include, but is not limited to, road and utility construction, individual lot construction (i.e., house, driveway, septic system, etc.), and all other construction associated with the overall plan, regardless of the individual parties responsible for construction of these various elements.

(b) Requirements for Authorization

This general permit authorizes the activity listed in subsection (a) of this section provided:

(1) Coastal Management Act

Such activity must be consistent with all applicable goals and policies in Section 22a-92 of the Connecticut General Statutes, and must not cause adverse impacts to coastal resources as defined in Section 22a-93(15) of the Connecticut General Statutes.

(2) Endangered and Threatened Species

Such activity must not threaten the continued existence of any species listed pursuant to Section 26-306 of the Connecticut General Statutes as endangered or threatened and must not result in the destruction or adverse modification of habitat designated as essential to such species.

(3) Historic Places

Such activity must at all times be in compliance with State and Federal Historic Preservation statutes, regulations and policies including identification of any potential impacts on property listed or eligible for listing on the State and/or National Registers of Historic Places and a description of measures necessary to avoid or minimize those impacts.

(4) The stormwater is *not* discharged to a Publicly Owned Treatment Works or to ground water;

(5) The discharge shall *not* cause pollution due to acute or chronic toxicity to aquatic and marine life, impair the biological integrity of aquatic or marine ecosystems, or result in an unacceptable risk to human health.

(6) Any construction site that is registered under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities renewed on October 1, 1997, modified on December 20, 2000, and renewed on October 1, 2002, is authorized by this general permit provided that the site continues to meet the conditions listed in Section 6 of this general permit.

(c) Registration

Pursuant to Section 4 of this general permit, a completed registration with respect to the construction activity shall be filed with the commissioner thirty (30) days prior to the commencement of the activity unless exempted by Section 3(d) of this general permit.

(d) Small Construction

For construction projects with a total disturbed area (regardless of phasing) of between one and five acres, the permittee shall agree to adhere to the erosion and sediment control land use regulations of the town in which the construction activity is conducted. No registration pursuant to Section 4 of this general permit shall be required for such construction activity as long as it receives town review and written approval of its erosion and sediment control measures and follows the Guidelines. If no review is conducted by the town, the permittee must register and comply with Section 6 of this general permit.

(e) Geographic Area

This general permit applies throughout the State of Connecticut.

(f) Effective Date and Expiration Date of this General Permit

The modification of this general permit is effective on April 8, 2004, and expires on October 1, 2007.

(g) Effective Date of Authorization

Any activity is authorized by this general permit on the date the general permit becomes effective or on the date the activity is initiated, whichever is later.

(h) Revocation of an Individual Permit

If an activity is eligible for authorization under this general permit and such activity is presently authorized by an individual permit, the existing individual permit may be revoked by the commissioner upon a written request by the permittee. If the commissioner revokes such individual permit in writing, such revocation shall take effect on the effective date of authorization of such activity under this general permit.

(i) Issuance of an Individual Permit

If the commissioner issues an individual permit under Section 22a-430 of the Connecticut General Statutes, authorizing an activity authorized by this general permit, this general permit shall cease to authorize that activity beginning on the date such individual permit is issued.

Section 4. Registration Requirements

(a) Who Must File a Registration

With the exception noted below or in Section 3(d) of this general permit, any person who or municipality which initiates, creates, originates or maintains a discharge described in Section 3(a) of this general permit shall file with the commissioner a registration form that meets the requirements of Section 4 of this general permit, along with the applicable fee, at least thirty (30) days before the initiation of construction activities.

If a site has been previously registered under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities renewed on October 1, 1997, modified on December 20, 2000, and renewed on October 1, 2002, the permittee does *not* need to submit a new registration under this general permit, unless the ownership of the site has been transferred.

If the site for which a registration is submitted under this general permit is owned by one person or municipality but is leased or, in some other way, the legal responsibility of another person or municipality (the developer), the developer is responsible for submitting the registration required by this general permit. The registrant is responsible for compliance with all conditions of this general permit.

(b) Scope of Registration

A registrant shall register on one registration form every activity at a single site for which activity the registrant seeks authorization under this general permit. Activities at more than a single site may not be registered on one registration form.

(c) Contents of Registration

(1) Fees

(A) The registration fee of $500.00 shall be submitted with a registration form, provided that the registration fee for a municipality shall be $250.00. A registration shall not be deemed complete and no activity shall be authorized by this general permit (with the exception of activities previously registered under the general permit renewed on October 1, 1997, modified on December 20, 2000, and renewed on October 1, 2002), unless the registration fee has been paid in full.

(B) Registrants required to submit a stormwater pollution control plan (Plan) in accordance with Section 6(b)(3)(C) of this general permit shall pay an additional plan review fee of $500.00 with the submittal of the Plan, the registration form and registration fee, provided that the plan review fee for a municipality shall be $250.00.

(C) The registration fee and plan review fee shall be paid by check or money order payable to the **Department of Environmental Protection**.

(D) The registration fee and plan review fee are non-refundable.

(2) Registration Form

A registration shall be filed on forms prescribed and provided by the commissioner and shall include the following:

(A) Legal name, address, and telephone number of the registrant. If the registrant is a person transacting business in Connecticut and is registered with the Connecticut Secretary of the State, provide the exact name as registered with the Connecticut Secretary of the State.

(B) Legal name, address and telephone number of the owner of the property on which the activity will take place.

(C) Legal name, address and telephone number of the primary contact for departmental correspondence and inquiries, if different from the registrant.

(D) Legal name, address and telephone number of the developer of the property on which the subject activity is to take place.

(E) Legal name, address and daytime and off-hours telephone numbers of the general contractor or other representative, if different from the developer.

(F) Legal name, address and telephone number of any consultant(s) or engineer(s) retained by the permittee to prepare the registration and Stormwater Pollution Control Plan.

(G) Location address or description of the site with respect to which the registration is submitted.

(H) The estimated duration of the construction activity.

(I) A brief description of the construction activity, including, but not limited to:

(i) Number of acres disturbed.

(ii) Assurance that construction is in accordance with the Guidelines and local erosion and sediment control ordinances.

(iii) A determination of whether or not a coastal consistency review is necessary for the activity.

(iv) Assurance that there are no endangered or threatened species suspected or known to be impacted by the activity.

(J) A brief description of the stormwater discharge, including:

(i) The name of the municipal separate storm sewer system or immediate surface water body or wetland to which the stormwater runoff discharges, and whether or not the site discharges within 500 feet of a tidal wetland.

(ii) The name of the watershed or nearest waterbody to which the site discharges.

(K) An 8 ½" by 11" copy of the relevant portion or a full-sized original of a United States Geological Survey (USGS) quadrangle map, with a scale of 1:24,000, showing the exact location of the site and the area within a one mile radius of the site. Identify the quadrangle name on such copy.

(L) For all sites that will disturb 10 acres or more (regardless of phasing), a copy of the Stormwater Pollution Control Plan shall be submitted (with the $500 plan review fee) in accordance with Section 6(b)(3)(C) of this general permit.

(M) The signature of the registrant and of the individual or individuals responsible for actually preparing the registration, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I certify that this general permit registration is on complete and accurate forms as prescribed by the commissioner without alteration of the text. I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute.

I also certify under penalty of law that I have read and understand all conditions of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, that all conditions for eligibility for authorization under the general permit are met, all terms and conditions of the general permit are being met for all discharges which have been initiated and are the subject of this registration, and that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly making false statements."

(N) The following certification must be signed by a professional engineer, licensed to practice in Connecticut:

"I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the site. I further certify, based on such review and in my professional judgment, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and the conditions for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities and the controls required for such Plan are appropriate for the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements."

(d) Where to File a Registration

A registration shall be filed with the commissioner at the following address:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

(e) Additional Information

The commissioner may require a registrant to submit additional information that the commissioner reasonably deems necessary to evaluate the consistency of the subject activity with the requirements for authorization under this general permit.

(f) Additional Notification

For discharges through a municipal separate storm sewer system authorized by this general permit, a copy of the registration shall also be submitted to the owner and operator of that system.

For discharges within a public drinking water supply watershed or aquifer area, a copy of the registration and the Plan described in Section 6(b) of this general permit shall be submitted to the water company.

In addition, a copy of this registration and the Plan shall be available upon request to the local wetlands agency or its equivalent, or its duly authorized agent.

(g) Action by Commissioner

(1) The commissioner may reject without prejudice a registration if he determines that it does not satisfy the requirements of Section 4(c) of this general permit or more than thirty (30) days have elapsed since the commissioner requested that the registrant submit additional information or the required fee and the registrant has not submitted such information or fee. Any registration refiled after such a rejection shall be accompanied by the fee specified in Section 4(c)(1) of this general permit.

(2) The commissioner may disapprove a registration if he finds that the subject activity is inconsistent with the requirements for authorization under Section 3(b) of this general permit, or for any other reason provided by law.

(3) Disapproval of a registration under this subsection shall constitute notice to the registrant that the subject activity must be authorized under an individual permit.

(4) Rejection or disapproval of a registration shall be in writing.

Section 5. Termination Requirements

(a) Notice of Termination

At the completion of a construction project registered pursuant to Section 4 of this general permit, a Notice of Termination must be filed with the commissioner. A project shall be considered complete after the site has been stabilized for at least three months following the cessation of construction activities. A site is not considered stabilized until there is no active erosion or sedimentation present and no disturbed areas remain exposed.

(b) Termination Form

A termination notice shall be filed on forms prescribed and provided by the commissioner and shall include the following:

(1) The general permit number as provided to the permittee on the general permit certificate.

(2) The name of the registrant as reported on the General Permit Registration Form for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEP-PED-REG-015).

(3) The address of the completed construction site.

(4) The date all storm drainage structures were cleaned of construction debris pursuant to Section 6(b)(6)(C)(iv) of this general permit, the date of completion of construction, and the date of the final inspections pursuant to Section 6(b)(6)(D) of this general permit.

(5) A description of the post-construction activities at the site.

(6) Signature of the permittee.

(c) Where to File a Termination Form

A termination form shall be filed with the commissioner at the following address:

PERMIT COORDINATOR
BUREAU OF WATER MANAGEMENT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

Section 6. Conditions of this General Permit

The permittee shall at all times continue to meet the requirements for authorization set forth in Section 3 of this general permit. In addition, a permittee shall assure that authorized activities are conducted in accordance with the following conditions:

(a) Conditions Applicable to Certain Discharges

(1) Any person who or municipality which discharges stormwater into coastal tidal waters for which a permit is required under either the Structures and Dredging Act in accordance with Section 22a-361 of the Connecticut General Statutes or the Tidal Wetlands Act in accordance with Section 22a-32 of the Connecticut General Statutes, shall obtain such permit(s) from the commissioner. A tidal wetland permit is required for the placement of any sediment upon tidal wetland, whether it is deposited directly or indirectly.

(2) Any site which has a post-construction stormwater discharge that is located less than 500 feet from a tidal wetlands which is not a fresh-tidal wetland, shall discharge such stormwater through a system designed to retain the volume of stormwater runoff generated by 1 inch of rainfall on the site.

(b) Stormwater Pollution Control Plan

A registrant shall develop a Stormwater Pollution Control Plan ("Plan") for each site authorized by this general permit. Once the construction activity begins, the permittee shall perform all actions required by such Plan and shall maintain compliance with the Plan thereafter. The Plan shall be designed to address two components of stormwater pollution: (1) pollution caused by soil erosion and sedimentation during and after construction; and (2) stormwater pollution caused by use of the site after construction is completed, including, but not limited to, parking lots, roadways and the maintenance of grassed areas.

(1) Development of Plan

(A) The registrant shall develop a Plan for the site. Plans shall be prepared in accordance with sound engineering practices. The Plan shall ensure and demonstrate compliance with the Guidelines.

(B) For any stormwater discharges that were permitted under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities renewed on October 1, 1997, modified on December 20, 2000, and renewed on October 1, 2002, the existing Plan shall be updated in accordance with subsection (b)(6) of this section. The permittee shall maintain compliance with such Plan thereafter.

(2) Deadlines for Plan Preparation and Compliance

For construction activities authorized by this general permit that are initiated after the date of issuance of this general permit, the registrant shall prepare the Plan no later than thirty days before the date of initiation of the construction activity.

(3) Signature and Plan Review

(A) The Plan shall be signed by the registrant in accordance with Section 6(h) of this general permit. The Plan shall be certified by all contractors and subcontractors in accordance with subsection (b)(6)(E) of this section.

(B) The registrant shall provide a copy of the Plan, and the registration form required in Section 4 of this general permit to the following persons immediately upon request:

(i) the commissioner;

(ii) the local agency approving sediment and erosion plans, grading plans, or stormwater management plans, and the local official responsible for enforcement of such plans;

(iii) in the case of a stormwater discharge through a municipal separate storm sewer system, the municipal operator of the system;

(iv) in the case of a stormwater discharge located within a public drinking water supply watershed or aquifer area, the water company.

The registrant shall also provide a copy of the Plan to all contractors or developers conducting construction activities on individual lots or buildings within the overall plan of development, regardless of ownership. These additional contractors or developers shall sign the certification in Section 6(b)(6)(E)(iii).

For all registrants or permittees submitting a Plan in accordance with subsection (b)(3)(B)(i) of this section, a plan review fee of $500.00 shall be submitted with the Plan.

(C) For construction activities that result in the disturbance of ten or more total acres of land area on a site (regardless of phasing), the Plan shall be submitted to the commissioner no later than thirty days before the initiation of construction activities. Plans shall be submitted in conjunction

with the registration submitted in compliance with Section 4 of this general permit.

(D) The commissioner may notify the registrant at any time that the Plan and/or the site do not meet one or more of the minimum requirements of this general permit. Within seven (7) days of such notice, or such other time as the commissioner may allow, the registrant shall make the required changes to the Plan and perform all actions required by such revised Plan. Within fifteen (15) days of such notice, or such other time as the commissioner may allow, the registrant shall submit to the commissioner a written certification that the requested changes have been made and implemented and such other information as the commissioner requires, in accordance with Sections 6(g) and 6(h) of this general permit.

(4) Keeping Plans Current

The permittee shall amend the Plan whenever there is a change in contractors or subcontractors at the site, or a change in design, construction, operation, or maintenance at the site which has the potential for the discharge of pollutants to the waters of the state and which has not otherwise been addressed in the Plan or if the actions required by the Plan fail to prevent pollution.

(5) Failure to Prepare, Maintain or Amend Plan

In no event shall failure to complete, maintain or update a Plan in accordance with subsections (b)(1) and (b)(4) of this section relieve a permittee of responsibility to implement any actions required to protect the waters of the state and to comply with all conditions of the general permit, including but not limited to installation and maintenance of all controls and management measures described in subsection (b)(6)(C) of this section and in the Guidelines.

(6) Contents of the Plan

The Plan shall include, at a minimum the following items:

(A) Site Description

Proj. Desc. (i) A description of the nature of the construction activity;

(ii) Estimates of the total area of the site and the total area of the site that is expected to be disturbed by construction activities;

(iii) An estimate, including calculations if any, of the average runoff coefficient of the site after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;

(iv) A site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, the location of major structural and non-structural controls identified in the Plan, the location of areas where stabilization practices are expected to occur, areas which will be vegetated following construction, surface waters (including inland wetlands, tidal

wetlands, and fresh-tidal wetlands), and locations where stormwater is discharged to a surface water (both during and post-construction); and

(v) The name of the immediate receiving water(s) and the ultimate receiving water(s) of the discharges authorized by this general permit and areal extent of wetland acreage on the site.

(B) Construction Sequencing

Each Plan shall clearly identify the expected sequence of major construction activities on the site, including but not limited to installation of erosion and sediment control measures, clearing, grubbing, grading, cut and fill operations, drainage and utility installation, and paving and stabilization operations. This section shall include an estimated timetable for all activities which shall be revised in accordance with subdivision (4) of this section as necessary. Wherever possible, the site shall be phased to avoid the disturbance of over five acres at one time. The Plan shall clearly show the limits of disturbance for the entire activity and for each phase. Any Plan that shows a site disturbance of over ten acres total (regardless of phasing) requires submittal of the Plan to the department, in accordance with subsection (b)(3)(C) of this section.

(C) Controls

Each Plan shall include a description of appropriate controls and measures that will be performed at the site to prevent pollution of the waters of the state. The Plan shall clearly describe for each major activity identified in subsection (b)(6)(B) of this section, the appropriate control measures and the timing during the construction process that the measures would be implemented. (For example, perimeter controls for one portion of the site will be installed after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls will be actively maintained until final stabilization of those portions of the site upgradient of the perimeter control. Temporary perimeter controls will be removed after final stabilization.) Controls shall be designed in accordance with the Guidelines. Use of controls to comply with subsection (b)(6)(C)(i) of this section that are not included in the Guidelines must be approved by the commissioner or his designated agent. The description of controls shall address the following minimum components:

(i) Erosion and Sediment Controls

1) Stabilization Practices

The Plan shall include a description of interim and permanent stabilization practices, including a schedule for implementing the practices. Site plans shall ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include but not be limited to: silt fences, temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative

buffer strips, protection of trees, preservation of mature vegetation, and other vegetative and non-structural measures as may be identified by the Guidelines. Where construction activities have permanently ceased or have temporarily been suspended for more than seven days, or when final grades are reached in any portion of the site, stabilization practices shall be implemented within three days. Areas that will remain disturbed but inactive for at least thirty days shall receive temporary seeding in accordance with the Guidelines. Areas that will remain disturbed beyond the planting season, shall receive long-term, non-vegetative stabilization sufficient to protect the site through the winter. In all cases, stabilization measures shall be implemented as soon as possible in accordance with the Guidelines. Areas to be graded with slopes steeper than 3:1 (horizontal:vertical) and higher than fifteen (15) feet shall be graded with appropriate slope benches in accordance with the Guidelines.

2) Structural Practices

The Plan shall include a description of structural practices to divert flows away from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from the site. Such practices include but may not be limited to earth dikes (diversions), drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, outlet protection, reinforced soil retained systems, gabions, and temporary or permanent sediment basins and chambers. Unless otherwise specifically approved in writing, structural measures shall be installed on upland soils.

At a minimum, for discharge points that serve an area with between two (2) and five (5) disturbed acres at one time, a sediment basin, sediment trap, or other control as may be defined in the Guidelines for such drainage area, designed in accordance with the Guidelines, shall be designed and installed. All sediment traps or basins shall provide a minimum of 134 cubic yards of water storage per acre drained and shall be maintained until final stabilization of the contributing area. This requirement shall not apply to flows from off-site areas and flows from the site that are either undisturbed or have undergone final stabilization where such flows are diverted around the sediment trap or basin. Any exceptions must be approved in writing by the commissioner.

For discharge points that serve an area with more than five (5) disturbed acres at one time, a sediment basin designed in accordance with the Guidelines, shall be designed and installed, which basin shall provide a minimum of 134 cubic yards of water storage per acre drained and which basin shall

be maintained until final stabilization of the contributing area. This requirement shall not apply to flows from off-site areas and flows from the site that are either undisturbed or have undergone final stabilization where such flows are diverted around the sediment basin. Outlet structures from sedimentation basins shall not encroach upon a wetland. Any exceptions must be approved in writing by the commissioner.

3) Maintenance

Maintenance shall be performed in accordance with the Guidelines, provided that, if additional maintenance is required to protect the waters of the state from pollution, the Plan shall include a description of the procedures to maintain in good and effective operating conditions all erosion and sediment control measures, including vegetation, and all other protective measures identified in the site plan.

(ii) Dewatering Wastewaters

Where feasible and appropriate, dewatering wastewaters shall be infiltrated into the ground. Dewatering wastewaters discharged to surface waters shall be discharged in a manner that minimizes the discoloration of the receiving waters. Each plan shall include a description of the operational and structural practices that will be used to ensure that all dewatering wastewaters will not cause scouring or erosion or contain suspended solids in amounts that could reasonably be expected to cause pollution of waters of the State.

(iii) Post Construction Stormwater Management

Each plan must include a description of measures that will be installed during the construction process to control pollutants in stormwater discharges that will occur after construction operations have been completed. Unless otherwise specifically provided by the commissioner in writing, structural measures shall be placed on upland soils. This general permit only addresses the installation of stormwater management measures, and not the ultimate operation and maintenance of such structures included in such measures after the construction activities have been completed and the site has undergone final stabilization. The following measures must be implemented:

1) For construction activities initiated after October 1, 1992, the permittee shall install post-construction stormwater management measures designed to remove suspended solids and floatables (i.e., oil and grease, other floatable liquids, floatable solids, trash, etc.) from stormwater. A goal of 80 percent removal of total sediment load from the stormwater discharge shall be used in designing and installing stormwater management measures. Such measures may include but are not

limited to: stormwater detention structures (including wet ponds); stormwater retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff on-site; vegetated buffer strips; sediment removal chambers or structures; and sequential systems (which combine several practices). Provisions shall be included to address the maintenance of any system installed.

2) Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., maintenance of hydrologic conditions, such as the hydrodynamics present prior to the initiation of construction activities).

3) Any site which has a post-construction stormwater discharge located less than 500 feet from a tidal wetlands which is not a fresh-tidal wetland, shall discharge such stormwater through a system designed to retain the volume of stormwater runoff generated by 1 inch of rainfall on the site.

(iv) Other Controls

A description of other controls used at the site. The following controls must be implemented:

1) Waste Disposal

A description of best management practices to be performed at the site, which practices shall ensure that no litter, debris, building materials, or similar materials are discharged to waters of the State.

2) Off-site vehicle tracking of sediments and the generation of dust shall be minimized.

3) All post-construction stormwater structures shall be cleaned of construction sediment and any remaining silt fence shall be removed prior to filing of a termination notice pursuant to Section 5 of this general permit.

(D) Inspection

A description of the inspection procedures that must be addressed and implemented in the following manner:

Qualified personnel (provided by the permittee) shall inspect disturbed areas of the construction activity that have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days and within twenty-four (24)

hours of the end of a storm that is 0.1 inches or greater. Where sites have been temporarily or finally stabilized, such inspection shall be conducted at least once every month for three months.

(i) Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures shall be observed to ensure that they are operating correctly. Where discharge locations or points are assessable, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking.

(ii) Based on the results of the inspection, the description of potential sources and pollution prevention measures identified in the Plan shall be revised as appropriate as soon as practicable after such inspection. Such modifications shall provide for timely implementation of any changes to the site within twenty-four (24) hours and implementation of any changes to the Plan within three (3) calendar days following the inspection. The Plan shall be revised and the site controls updated in accordance with sound engineering practices, the Guidelines, and subdivisions (4) and (6)(C)(i) 3) of this section.

(iii) A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Plan, and actions taken shall be made and retained as part of the Plan for at least three years after the date of inspection. The report shall be signed by the permittee or his/her authorized representative in accordance with the requirements of Section 6(h) of this general permit.

(E) Contractors

(i) The Plan shall clearly identify each contractor and subcontractor that will perform actions on the site which may reasonably be expected to cause or have the potential to cause pollution of the waters of the State, and shall include a copy of the certification statement shown below signed by each such contractor and subcontractor. All certifications shall be included in the Plan.

(ii) Subdivisions

Where individual lots in a subdivision or other common plan of development are conveyed or otherwise the responsibility of another contractor, those individual lot contractors shall be required to comply with the provisions of this general permit and shall sign the certification statement below regardless of lot size or disturbed area.

The permittee shall provide a copy of the Plan to each of these contractors.

(iii) Certification Statement

The Plan shall include the following certification signed by each contractor and subcontractor identified in the Plan as described above:

"I certify under penalty of the law that I have read and understand the terms and conditions of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. I understand that as a contractor or subcontractor at the site, I am authorized by this general permit, and must comply with the terms and conditions of this general permit, including but not limited to the requirements of the Stormwater Pollution Control Plan prepared for the site."

The certification shall include the name and title of the person providing the signature; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

(c) Reporting and Record Keeping Requirements

(1) The permittee shall retain copies of the Plan and all reports required by this general permit, and records of all data used to complete the registration to be authorized by this general permit, for a period of at least three years from the date that construction at the site is completed unless the commissioner specifies another time period in writing.

(2) The permittee shall retain an updated copy of the Plan required by this general permit at the construction site from the date construction is initiated at the site until the date construction at the site is completed.

(3) Upon completion of construction for sites authorized by the General Permit for the Discharge of Stormwater Associated with Commercial Activity or the General Permit for the Discharge of Stormwater Associated with Industrial Activity, the Plan shall be kept as an appendix to the Stormwater Management Plan or Stormwater Pollution Prevention Plan (as applicable) for a period of at least three years from the date of completion of construction.

(d) Regulations of Connecticut State Agencies Incorporated into this General Permit

The permittee shall comply with the following Regulations of Connecticut State Agencies which are hereby incorporated into this general permit, as if fully set forth herein:

(1) Section 22a-430-3:

Subsection (b) General - subparagraph (1)(D) and subdivisions (2),(3),(4) and (5)
Subsection (c) Inspection and Entry
Subsection (d) Effect of a Permit - subdivisions (1) and (4)

Subsection (e) Duty to Comply
Subsection (f) Proper Operation and Maintenance
Subsection (g) Sludge Disposal
Subsection (h) Duty to Mitigate
Subsection (I) Facility Modifications, Notification - subdivisions (1) and (4)
Subsection (j) Monitoring, Records and Report Requirements - subdivisions (1), (6), (7), (8), (9) and (11) (except subparagraphs (9) (A) (2) and (9) (c)
Subsection (k) Bypass
Subsection (m) Effluent Limitation Violations
Subsection (n) Enforcement
Subsection (p) Spill Prevention and Control
Subsection (q) Instrumentation, Alarms, Flow Recorders
Subsection (r) Equalization

(2) Section 22a-430-4

Subsection (t) Prohibitions
Subsection (p) Revocation, Denial, Modification
Appendices

(e) Reliance on Registration

In evaluating the registrant's registration, the commissioner has relied on information provided by the registrant. If such information proves to be false or incomplete, the registrant's authorization may be suspended or revoked in accordance with law, and the commissioner may take any other legal action provided by law.

(f) Duty to Correct and Report Violations

Upon learning of a violation of a condition of this general permit, a permittee shall immediately take all reasonable action to determine the cause of such violation, correct and mitigate the results of such violation, prevent further such violation, and report in writing such violation and such corrective action to the commissioner within five (5) days of the permittee's learning of such violation. Such information shall be filed in accordance with the certification requirements prescribed in Section 6(h) of this general permit.

(g) Duty to Provide Information

If the commissioner requests any information pertinent to the authorized activity or to compliance with this general permit or with the permittee's authorization under this general permit, the permittee shall provide such information within fifteen (15) days of such request. Such information shall be filed in accordance with the certification requirements prescribed in Section 6(h) of this general permit.

(h) Certification of Documents

Any document, including but not limited to any notice, information or report, which is submitted to the commissioner under this general permit shall be signed by the permittee, or a duly authorized representative of the permittee, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

(i) Date of Filing

For purposes of this general permit, the date of filing with the commissioner of any document is the date such document is received by the commissioner. The word "day" as used in this general permit means the calendar day; if any date specified in the general permit falls on a Saturday, Sunday, or legal holiday, such deadline shall be the next business day thereafter.

(j) False Statements

Any false statement in any information submitted pursuant to this general permit may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes.

(k) Correction of Inaccuracies

Within fifteen (15) days after the date a permittee becomes aware of a change in any information in any material submitted pursuant to this general permit, or becomes aware that any such information is inaccurate or misleading or that any relevant information has been omitted, such permittee shall correct the inaccurate or misleading information or supply the omitted information in writing to the commissioner. Such information shall be filed in accordance with the certification requirements prescribed in Section 6(h) of this general permit.

(l) Transfer of Authorization

Authorizations under this general permit are non-transferable. However, any person or municipality registering a discharge that has previously been registered under this general permit may adopt by reference the Plan developed by the previous permittee. The new permittee shall amend the Plan as required pursuant to Section 6(b)(4) prior to submitting a new registration.

(m) Other Applicable Law

Nothing in this general permit shall relieve the permittee of the obligation to comply with any other applicable federal, state and local law, including but not limited to the obligation to obtain any other authorizations required by such law.

(n) Other Rights

This general permit is subject to and does not derogate any present or future rights or powers of the State of Connecticut and conveys no rights in real or personal property nor any exclusive privileges, and is subject to all public and private rights and to any federal, state, and local laws pertinent to the property or activity affected by such general permit. In conducting any activity authorized hereunder, the permittee may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this state. The issuance of this general permit shall not create any presumption that this general permit should or will be renewed.

Section 7. Commissioner's Powers

(a) Abatement of Violations

The commissioner may take any action provided by law to abate a violation of this general permit, including but not limited to penalties of up to $25,000 per violation per day under Chapter 446k of the Connecticut General Statutes, for such violation. The commissioner may, by summary proceedings or otherwise and for any reason provided by law, including violation of this general permit, revoke a permittee's authorization hereunder in accordance with Sections 22a-3a-2 through 22a-3a-6, inclusive, of the Regulations of Connecticut State Agencies. Nothing herein shall be construed to affect any remedy available to the commissioner by law.

(b) General Permit Revocation, Suspension, or Modification

The commissioner may, for any reason provided by law, by summary proceedings or otherwise, revoke or suspend this general permit or modify to establish any appropriate conditions, schedules of compliance, or other provisions which may be necessary to protect human health or the environment.

(c) Filing of an Individual Application

If the commissioner notifies a permittee in writing that such permittee must obtain an individual permit if he wishes to continue lawfully conducting the authorized activity, the permittee must file an application for an individual permit within thirty (30) days of receiving the commissioner's notice. While such application is pending before the commissioner, the permittee shall comply with the terms and conditions of this general permit and the subject approval of registration. Nothing herein shall affect the commissioner's power to revoke a permittee's authorization under this general permit at any time.

Issued Date: April 8, 2004

ARTHUR J. ROCQUE, JR.
Commissioner

This is a true and accurate copy of the general permit modified on April 8, 2004 by the Commissioner of the Department of Environmental Protection.

ATTACHMENT B

Inspection Report Form

FUSS & O'NEILL

INSPECTION REPORT FORM
Stormwater Pollution Control Plan
Hartford Landfill - Hartford, Connecticut

INSPECTED BY: _____ DATE: _____ WEATHER: _____

TITLE: _____ CIRCLE TYPE OF INSPECTION: Monthly / Weekly / Within 24 hrs of Storm

Inspection Areas	Inspected For	Deficiencies?		Description of Deficiencies of Major Observations Noted	Corrective Actions Taken	Date Corrected
		Yes	No			
Disturbed Areas	no signs of erosion					
Filtration Barriers	in-place, in good condition, no sediment build-up					
Anti-Tracking Aprons	in-place, in good condition, no sediment build-up					
Diversion Swales	no debris blocking flow, or sediment build-up					
Erosion Control Matting	in-place and in good condition					
Erosion Control Blankets	in-place and in good condition					
Mulch for Seed	no signs of erosion					
Impact Basins	no debris blocking flow, or sediments in sump					
Temporary Diversions	no debris blocking flow, or sediment build-up					
Temporary Sediment Traps	no debris blocking flow, or sediment build-up					
Floc Logs®	in-place and in good condition					
Temporary Irrigation System	in-place and in good condition					
Other:						
Inspected By:		Reviewed By:			Date:	

ATTACHMENT C

Identification of Contractors And Certification Statements

CONNECTICUT RESOURCES RECOVERY AUTHORITY
HARTFORD LANDFILL
HARTFORD, CONNECTICUT

General Contractor	Point of Contact	Phone

Sub-Contractors	Point of Contact	Phone

CONNECTICUT RESOURCES RECOVERY AUTHORITY
HARTFORD LANDFILL
HARTFORD, CONNECTICUT

GENERAL CONTRACTOR

"I certify under penalty of law that I have read and understand the terms and conditions of the general permit for the discharge of stormwater associated with construction activity. I understand that as a contractor on the project, I am covered by this general permit, and must comply with the terms and conditions of this permit, including, but not limited to, the requirements of the stormwater pollution control plan prepared for this project."

Signed:_____ Date:_____

Printed Name: _____ Telephone:_____

Title: _____

Firm:_____

Address:_____

_____

_____

_____

CONNECTICUT RESOURCES RECOVERY AUTHORITY
HARTFORD LANDFILL
HARTFORD, CONNECTICUT

SUBCONTRACTOR

"I certify under penalty of law that I have read and understand the terms and conditions of the general permit for the discharge of stormwater associated with construction activity. I understand that as a contractor on the project, I am covered by this general permit, and must comply with the terms and conditions of this permit, including, but not limited to, the requirements of the stormwater pollution control plan prepared for this project."

Signed:_____ Date:_____

Printed Name: _____ Telephone:_____

Title: _____

Firm:_____

Address:_____

_____

_____

_____

ATTACHMENT D

Drainage Design Calculations

(Available Upon Request)

APPENDIX B
QUALITY ASSURANCE PLAN

Quality Assurance Plan
Landfill Closure Construction

Hartford Landfill
Hartford, Connecticut

July 2006

Revised January 2007

FUSS & O'NEILL
Disciplines to Deliver

Fuss & O'Neill
146 Hartford Road
Manchester, CT 06040

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QUALITY ASSURANCE PLAN
LANDFILL CLOSURE CONSTRUCTION
Hartford Landfill
Hartford, Connecticut

TABLE OF CONTENTS

QUALITY ASSURANCE PLAN
LANDFILL CLOSURE CONSTRUCTION
Hartford Landfill
Hartford, Connecticut

TABLE OF CONTENTS

1.0 INTRODUCTION

The Connecticut Resources Recovery Authority (CRRA) intends on closing the Mixed Waste/Interim Ash Disposal Area of the Hartford Landfill located at 180 Leibert Road in Hartford, Connecticut. This document serves as a Quality Assurance Plan (QAP) specifically developed for the proposed closure construction activities at the landfill. In general, closure construction activities will consist of constructing an impermeable barrier and soil cover over approximately 80 acres of landfill area with associated access roads and storm water control features. The closure will be performed in three phases. The east side of the landfill will continue to receive waste to reach final elevations, while the west side, which is currently at final elevations, will be closed. This document accompanies and is consistent with the Closure Plan for this landfill dated April 2006.

This QAP is intended to provide guidance for control of construction quality aspects of the proposed landfill closure activities. This document outlines specific duties of the Quality Assurance Consultant (QAC) and construction contractor, and procedures for documenting and reporting that the closure activities have been conducted in general conformance with the CTDEP-approved plans, specifications, and applicable regulations. Specific details of proposed construction quality assurance/quality control activities will be presented in the Standard General Conditions of the Construction Contract, supplementary conditions, technical specifications and final design drawings that will be made part of the project's contract documents. These documents should be consulted should questions arise or omissions be discovered in this QAP. Table 1 summarizes the reporting and testing requirements for the major tasks and materials for this project.

2.0 RESPOSIBILITY AND AUTHORITY

2.1 General

Quality assurance consists of implementing a planned system of activities to assure closure construction occurs as specified in the contract documents. Implementing quality assurance activities for this project involves applying standards and procedures outlined in the contract documents to assure the closure construction meets or exceeds the performance criteria. The following paragraphs outline the organization of the project participants and their responsibilities, meetings, and testing/submittal requirements.

2.2 Project Organization and Responsibilities

The construction phase of the project involves coordination between five participants:

- CTDEP
- CRRA
- Engineer
- Quality Assurance Consultant
- Construction Contractor

Each participant has a responsible role in implementing the proposed closure activities. A project organization chart has been provided as Figure 1 and shows the general lines of communication between the parties as described below:

2.2.1 Connecticut Department of Environmental Protection

The role of the CTDEP in this project is to review and approve, as appropriate, documents submitted in connection with the closure contract, and assess whether or not the closure is being constructed in conformance with the Connecticut General Statutes (CGS) Section 22a-208 and RSCA Section 22a-209.

The closure of the landfill is to be completed in accordance with the terms and conditions established in the Authorization for Closure (Authorization). It is anticipated that the terms and conditions of the Authorization will reference the CTDEP-approved landfill closure plan and engineering drawings, and require the CRRA to submit this QAP for CTDEP approval on or before sixty days prior to commencing the construction activities. No closure construction activities will be undertaken until the CTDEP issues approval of the QAP.

2.2.2 CRRA

CRRA will be the Authorization Holder. Therefore, CRRA is responsible for completing construction activities in accordance with the terms and conditions of the Authorization. Closure activities will be substantially completed by the date specified in the Authorization. CRRA will solicit bids and ultimately hire a qualified contractor who will complete the construction work. Alternatively, CRRA may act as the Contractor for all or part of the closure activities. CRRA will also retain the services of a Quality Assurance Consultant who will oversee the implementation of the Quality Assurance Plan.

2.2.3 Engineer

The Engineer for the project will be an experienced civil engineer, licensed by the State of Connecticut. The responsibilities of the Engineer during construction will be detailed in the contract documents. Generally, the Engineer will make visits to the site at intervals appropriate to the various stages of construction in order to observe the progress and quality of the work completed by the Contractor. The Engineer will provide clarifications and interpretations of the contract documents, have the responsibility to authorize minor variations in the work that are compatible with the CTDEP-approved closure plans, and have the authority to reject defective work. The Engineer may, at his discretion, test materials at random or observe quality control testing as it is being performed.

CRRA retained Fuss & O'Neill as Engineer to prepare the closure plan including draft technical specifications, engineering drawings and the QAP. After receiving the Authorization, Fuss & O'Neill will finalize the technical specifications, construction drawings and assemble the Contract Documents. Fuss & O'Neill will function as the Engineer and report to CRRA at least during the bidding phase of the construction.

2.2.4 Quality Assurance Consultant

The Quality Assurance Consultant (QAC) for the project will be an experienced civil engineer, licensed by the State of Connecticut. The individual or firm serving as the QAC will have a track record of successful landfill closures within the state. The QAC is responsible for coordinating the activities as presented in this QAP and will report to CRRA. The responsibilities of the QAC include:

- Providing written certification to the CTDEP that sedimentation and erosion controls have been installed (provided prior to initiating construction)
- Reviewing and approving submittals made by the construction contractor
- Documenting construction and QAC activities
- Coordinating independent testing services where applicable
- Preparing a final closure certification report upon completion of the landfill closure activities

The QAC and the Engineer may be filled by one and the same entity.

2.2.5 Construction Contractor

The Construction Contractor is the individual or entity who will complete the proposed closure construction work. Pursuant to the contract documents, the Construction Contractor is referred to as the "Contractor" who will enter into an agreement with the Owner to successfully complete the work.

The Contractor is responsible for supervising and directing the work and solely responsible for the means, methods, techniques, sequences and procedures of construction in accordance with the contract documents. The Contractor is responsible for maintaining and supervising all safety precautions and programs and compliance with all applicable laws. The Contractor also maintains the record documentation, including those annotations made to the construction documents that reflect minor changes to the proposed work.

The Contractor is responsible for providing material submittals to the QAC in a timely manner for review prior to installation. He or she is also responsible for performing soil and geomembrane testing on capping materials as required to determine compliance with the project specifications. A soil testing laboratory and a geomembrane testing laboratory approved by the QAC will be retained by the Contractor to provide the Contractor testing and reporting services. These documents will be submitted to the QAC to review for conformance with the requirements of the Contract Documents.

2.2.6 Land Surveyor

The Land Surveyor retained by the Construction Contractor will be a professional land surveyor who is legally qualified to practice in the State of Connecticut and who is experienced in providing land-surveying services of the kind required. The selected Land Surveyor will have a minimum of two years experience in construction surveying layout and preparation of as-built surveys in accordance with the specified horizontal and vertical control requirements.

2.3 Project Meetings

Project meetings are proposed throughout the course of the project. Meetings may or may not involve all the parties listed in the QAP. The intent of the meetings will be to establish lines of

communication to report, control and resolve problems that could affect the quality of the work. The following meetings are proposed as part of this project.

2.3.1 Pre-Construction Meeting

Prior to any work being undertaken at the site, a meeting with the Owner, Contractor, Engineer, QAC, and CTDEP will be held to establish a working understanding among the parties and to discuss the schedules listed in the contract documents (e.g., progress schedule and schedule of shop drawings). Other topics that will be discussed include the procedures for handling shop drawings, processing of applications for payment, and maintaining project record documents.

2.3.2 Project Progress Meetings

Progress meetings will be held bi-weekly (or more frequently as needed) at the site with the Owner, Contractor, Engineer, QAC and CTDEP, as necessary, for the purposes of understanding the project's construction and administration progress. Meeting notes will be prepared and distributed to the attendees within five days.

2.3.3 Daily Meetings

Contractor will conduct daily "tailgate meetings" with the crew leaders, subcontractors, QAC, and owner, as required, for the purpose of reviewing daily construction schedule and resolving outstanding construction issues.

2.3.4 Corrective Action Meetings

Significant conditions adverse to quality may be identified during the course of the construction work by one or more of the parties involved with the project. The condition reported to be adverse will be analyzed by the reporting party to determine if it represents a significant condition adverse to quality. If determined to be significant, the Owner will then perform an analysis to determine if corrective action is required, and if necessary, hold a meeting with the QAC, Contractor and others, as appropriate, to discuss the proper course of action.

3.0 OBSERVATION AND TESTING

3.1 General

Quality control includes testing and final observation of materials and workmanship before and during construction to assess compliance of the materials and workmanship with the final engineering design plans and specifications.
Detailed descriptions of the character and quality of material submittals, workmanship, and observation of the work will be presented in the contract documents. Technical specifications presented in the contract documents detail submittals, specific testing requirements and laboratory testing protocols in accordance with the American Society of Testing Materials (ASTM), the Connecticut Department of Transportation (ConnDOT) Standard Specifications for Roads, Bridges and Incidental Construction (Form 816), and other recognized standards. The Contractor's, QAC's and Owner's responsibilities concerning tests and observations, as well as correction, removal or acceptance of defective work will be presented in the Standard General Conditions of the Construction Contract presented in the contract documents.

3.1.1 Project Submittals

The Contractor will provide the QAC project submittals for review and approval in accordance with the contract documents. Before providing the project submittals, the Contractor will have determined and verified that the items contained in the submittal are acceptable for its intended use. The QAC will perform a timely review of the material submittal. Submittals determined to be deficient will be returned to the Contractor for corrections. Approved submittals will be returned to the Contractor for his use in maintaining the project record documents. Project record documents, which include a compilation of approved submittals and marked-up (i.e. red-lined) copies of the construction drawings and specifications, will be furnished to the QAC and Owner in connection with final payment at the time of contract closeout.

3.1.2 Testing and Reporting Requirements

There are testing and reporting requirements to verify the chemical and physical characteristics of materials and statements supporting the quality control of workmanship. Refer to the technical specifications for more detailed descriptions of the work to be performed and the testing/submittals required.

3.2 Disruption and Grading of Landfill Materials

This work will consist of the excavation, deposition, and compaction of existing on-site materials within the limits of the landfill necessary to prepare a suitable base for constructing the cap. The Contractor will provide odor control measures as needed including limiting areas of disturbance, covering exposed waste in a timely fashion, and/or applying odor control agents.

The Contractor will notify the QAC in writing one week prior to any excavation, disruption, or removal of deposited material, and submit an Odor Control Plan which will describe in narrative form proposed procedures in the event that odor control is required.

3.3 Cap Base Material

The following submittals, required for cap base material imported by the Contractor, will be made part of the quality control program prior to placing the cap base material layer:

- A materials certificate stating that cap base material meets the technical specification prior to delivery of soil to the site. If material is obtained from more than one source, then a materials certificate will be submitted from each source.

- A grain size analysis, modified proctor test report, permeability test report, interface friction angle test report (for cap base/liner interface) and internal friction angle.

The following testing, required of the Contractor, will be made part of the quality control program during placement of the cap base material layer:

- Compaction test reports immediately following field testing of material. Field testing will be measured with a Nuclear Density Gauge at a frequency of six tests per acre.

- Measurements of the cap base material thickness taken following compaction every 100 feet on center.

- Grain size, modified proctor, permeability, interface friction angle(for cap base/liner interface), and internal friction angle test reports at a rate of at least once per 5,000 cubic yards of material delivered.

3.4 Geomembrane

The following submittals, required for geomembrane supplied by the Contractor, will be made part of the quality control program prior to placing the geomembrane:

- Brand information and Manufacturer Literature, including manufacturer's quality control test results for the batch and lot numbers of material supplied to the project.

- Warranties for geomembrane material and installation workmanship.

- Installation contractor's name, qualifications, and project descriptions.

- Installation construction contractor superintendent's name and qualifications.

- Proposed panel layout drawing.

- Quality Control Plan

The following submittals shall be provided on a daily basis during the course of geomembrane installation:

- Cap base material layer surface conformation form signed by the installation contractor and the QAC representative.

- Trial seam test results.

- Destructive seam testing results.

- Vacuum testing results.

- Air testing results.

The following submittal shall be provided at the completion of the project.

- As-built panel layout drawing indicating panel locations, numbers and repair locations.

3.5 Bi-Planar Geonet

The following submittals, required for bi-planar geonet supplied by the Contractor, will be made part of the quality control program at least 10 days prior to delivery of materials to the site:

- A sample of the proposed bi-planar geonet
- Certification that the material meets the required specifications
- Interface friction angle test reports (for geonet/liner interfaces)

3.6 Underdrains

The Contractor shall submit to the Engineer product data sheet and certification that the material meets the required specifications at least 10 days prior to delivery of materials to the site.

3.7 Geotextiles

The Contractor shall submit to the Engineer samples of the proposed geotextiles, and certification that the material meets the required specifications, at least 10 days prior to delivery of materials to the site.

3.8 Drainage Sand Layer

The following submittals, required for Barrier Protection Soil supplied by the Contractor, will be made part of the quality control program prior to and during placement of the Barrier Protection Soil:

- A materials certificate stating that cover material meets the technical specification as well as a grain size, permeability, modified proctor, interface friction(for sand/geonet interface) and internal friction angle test analysis prior to delivery of soil to the site. If material is obtained from more than one source, then the items will be submitted from each source.
- Grain size analysis, permeability analysis, modified proctor, interface friction angle and internal friction angle test reports at a rate of at least once per 5,000 cubic yards of material delivered.
- Submit RCRA 8 metals and ETPH analytical testing reports for Geomembrane Protection Soil obtained at the source prior to delivery of the material to the landfill, and at a rate of at least once per 10,000 cubic yards delivered.
- Measurements of the barrier protection sand thickness taken following compaction (Two passes with a Caterpillar D-6 bulldozer) every 100 feet on center.
- Compaction test reports immediately following field testing of material. Field testing will be measured with a Nuclear Density Gauge at a frequency of six tests per acre. (Note: this testing is for record purposes only)

3.9 Vegetative Support Material

The following submittals, required of the Contractor, will be made part of the quality control program prior to and during placement of the vegetative support soil:

- For each source prior to delivery of the material to the site, a certified test report and certificate of conformance with the technical specification for vegetative support material, including grain size, organic content, cation exchange capacity, pH, nutrient content, internal friction angle, pesticide analysis, herbicide analysis, RCRA 8 metals analysis, and ETPH analysis.

- Submit certified test reports with grain size and organic content analyses cation exchange capacity, nutrient content, internal friction angle, and pH at a rate of at least one per 5,000 cubic yards of material delivered.

- Submit pesticide, herbicide, RCRA 8 and ETPH analytical testing reports for vegetative support material at a rate of at least one per 10,000 cubic yards delivered or one per source if less than 10,000 cubic yards is obtained from any one source.

- Submit a certificate of conformance and product information for the fertilizer prior to delivery to the site.

- Submit a certificate of conformance and product information for the mulch prior to delivery to the site.

- Measurements of the vegetative support material thickness taken following final grading every 100 feet on center.

3.10 Turf Establishment

The following submittals, required of the Contractor, will be made part of the quality control program prior to commencement of turf establishment activities:

- A materials certification and copies of catalog cut sheets for review and acceptance for fertilizer, lime, seed, erosion control blanket and matting products reflecting that they comply with the specifications.

- A hydroseed procedure and application rates for approval that includes the number of pounds of wood fiber mulch and tackifier to be used per one hundred (100) gallons water. This statement will also specify the number of square feet of seeding that can be covered with the quantity of solution in the hydroseeder.

- Full and complete written maintenance instructions for proper care and development of seeded areas.

3.11 Riprap

Prior to delivery of the riprap to the site, material certification of conformance with the specifications and one riprap sample per source meeting the requirements in the specification will be submitted.

3.12 Grout

The Contractor shall submit to the Engineer product data sheet and certification that the material meets the required specifications at least 10 days prior to delivery of materials to the site.

3.13 Crushed Stone

A material certification of conformance with the specifications and a grain size analysis, one per source, will be submitted prior to delivery of the material to the site.

3.14 Gravel Surfacing, Bituminous Concrete Base and Subbase Materials

The following submittals, required for gravel surfacing, road base and subbase materials imported by the Contractor, will be made part of the quality control program prior to placing the material:

- A materials certificate stating that material meets the technical specification prior to delivery of soil to the site. If material is obtained from more than one source, then a materials certificate will be submitted from each source.

- A soil classification, grain size analysis, and modified proctor test results.

The following testing, required of the Contractor, will be made part of the quality control program during placement of the gravel surfacing, road base and subbase material layers:

- Compaction test reports immediately following field testing of material. Field testing will be measured with a Nuclear Density Gauge at a frequency of one per 2,000 square feet of roadway per layer.

- Soil classification, grain size analysis, and modified proctor test reports at a rate of at least once per 5,000 cubic yards of material delivered.

3.15 Bituminous Concrete

The Contractor shall submit job-mix design and material certification for each type of bituminous concrete indicated to the Engineer at least 10 days prior to delivery of materials to the site.

3.16 General Fill

The following submittals, required of the Contractor, will be made part of the quality control program prior to delivery of the material to the site:

- A material certification of conformance with the specifications, a grain size analysis, and a modified proctor analysis, one per source.

- RCRA 8 metals analysis and ETPH analysis, one per source.

The following testing, required of the Contractor, will be made part of the quality control program during placement of General Fill:

- Grain size analysis and modified proctor analysis, one per 5,000 CY delivered to the site.
- RCRA 8 metals analysis and ETPH analysis, one per 10,000 CY delivered to the site.
- Compaction test results at a frequency of six per acre per lift, reported daily as placed and compacted.

4.0 REPORTING AND DOCUMENTATION

4.1 General

Documentation consists of the design drawings, approved submittals, addenda, change orders, written clarifications, and all other data required by the contract documents. In addition, documentation prepared by the QAC will include daily field reports, independent laboratory test results (where applicable), and photographs of pertinent phases of the construction.

4.2 Project Record Documents

As specified in the contract documents, record documents will be maintained by the Contractor in a safe place at the site and will be annotated to show changes made during construction. The documents will be made available to the Owner and QAC for reference during construction. Upon final completion of the work, the project record documents will be delivered to the QAC for the Owner in connection with final payment.

4.3 Final Certification Report

The QAC will prepare a report that documents the closure was conducted in general conformance with the approved plans and specifications. The report will include copies of daily field reports, testing results and as-built plans. The report will be submitted to the CTDEP upon completion of the landfill closure activities.

4.4 As-Built Drawings

In accordance with RCSA 22a-209-13(f), the CRRA will submit to the CTDEP as-built site drawings certified by a professional engineer licensed in the State of Connecticut that grading and closure have been completed as specified in the approved closure plan. The as-built drawings will be submitted to the CTDEP within ninety (90) days of completing the landfill closure. The drawings and a detailed description of the landfill will be recorded in the land records of the City of Hartford and a certified copy of the recording will be forwarded to the CTDEP.

This QAP Prepared By:	Chris T. Cullen, P.E., Project Manager
This QAP Reviewed By:	Craig M. Lapinski, P.E., Senior Project Manager Richard D. Jones, P.E., Senior Vice President

TABLES

TABLE 1
TESTING/REPORTING SUMMARY

Construction Task/Product	Test/Submittal	Frequency
Landfill Disruption/ Regrading	Odor Control Plan	Once: one week prior to disruption
Cap Base Material	Materials certification	One per source: prior to delivery
	Grain Size, permeability, modified proctor interface friction angle and internal friction angle reports	One per 5,000 CY delivered
	Compaction test results	6 per acre
	Cap base material thickness	100' on center
Geomembrane	Manufacturer's factory QC results	Per delivery: Prior to installation
	Warranties: Material and Workmanship	Prior to installation
	Installation contractor qualifications	Prior to installation
	Installation superintendent qualifications	Prior to installation
	Proposed panel layout drawing	Prior to installation
	Cap base surface conformation form	Daily prior to work
	Trial seam test results	Daily
	Destructive seam test results	One per 1,000 linear feet
	Vacuum test results	Daily
	Air test results	Daily
Bi-Planar Geonet	Material sample, certification	Prior to delivery
	Interface friction angle test reports	One per proposed geomembrane type: prior to delivery
Underdrains	Product data sheet and material certification	Prior to installation
Geotextiles	Material certification and sample	One per geotextile specified: Prior to installation
Drainage Sand	Materials certification	One per source: prior to delivery
	Grain Size, permeability, modified proctor interface friction angle and internal friction angle reports	One per 5,000 CY delivered
	Compaction test results	6 per acre
	RCRA 8 metals & ETPH analyses	One per source prior to delivery & one per 10,000 CY delivered
	Drainage Sand thickness	100' on center
Vegetative Support Material	Material Certification	One per source: prior to delivery
	RCRA 8 metals, ETPH, pesticide and herbicide analyses	One per source prior to delivery and one per 10,000 CY delivered
	Grain size analysis, organic content, pH, cation exchange cap., nutrient content and internal friction angle test report	One per source prior to delivery, and one per 5,000 CY delivered
	Fertilizer Certification	Prior to delivery
	Mulch Certification	Prior to delivery
	Vegetative Support Material thickness	100' on center
Turf Establishment	Material certification and catalog cuts for fertilizer, lime, seed, erosion control blankets	Prior to installation
	Hydroseed procedure, application rates	Prior to application
	Maintenance instructions	Prior to installation
Riprap	Material certification and sample	Prior to installation
Crushed Stone	Material certification & grain size results	One per source: prior to Delivery
Gravel Surfaceing, Bituminous Concrete Base, and Subbase Material	Material certification, grain size analysis, modified proctor analysis	For each type of material, one per source: prior to delivery, and one per 5,000 CY delivered

Construction Task/Product	Test/Submittal	Frequency
	Compaction test results	One per 2,000 square feet per layer
Bituminous Concrete Base	Job Mix Design and material certification	Prior to installation
	In-place density test results	One per 1,000 square yards
General Fill	Material certification, grain size analysis, modified proctor analysis	One per source: prior to delivery, and one per 5,000 CY delivered
	RCRA 8 metal & ETPH analyses	One per source prior to delivery & one per 10,000 CY delivered
	Compaction test results	6 per acre

FIGURE

Project Organization Chart

Quality Assurance Plan
Landfill Closure Construction
Hartford Landfill
Hartford, Connecticut
July 2006

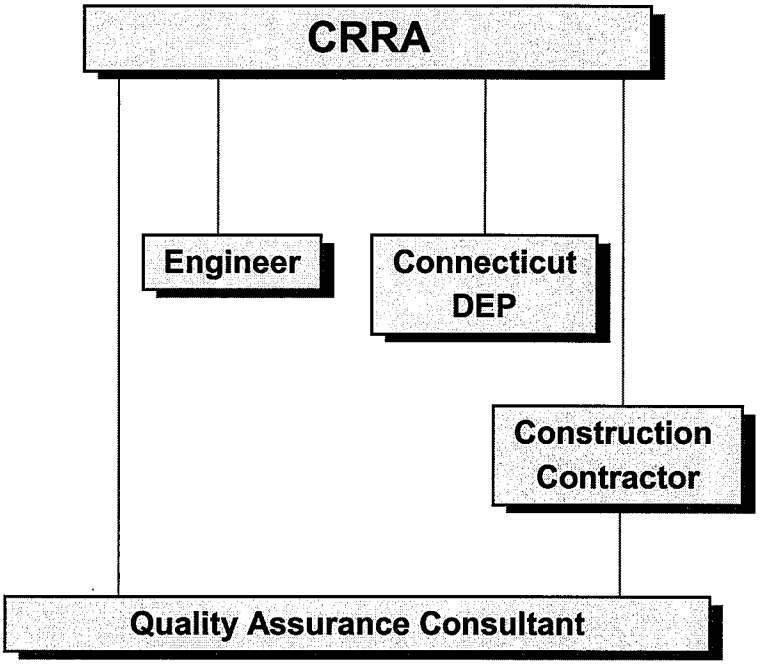

Figure 1

FUSS & O'NEILL
Disciplines to Deliver

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QAP/Org Chart.ppt

EXHIBIT C

To

HARTFORD LANDFILL CLOSURE - MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

PROJECT SCHEDULE

EXHIBIT C

PROJECT SCHEDULE

The work is separated into two parts as shown on the plans and described throughout the Contract Documents as follows:

PHASE 1A

- Substantial Completion Date: A total of one hundred and twenty (120) days are allowed to substantially complete the Work associated with Phase 1A and have such Work ready for acceptance by CRRA. Contractor shall commence performance of the Work upon CRRA's issuance to Contractor of the Notice To Proceed pursuant to Section 4.2 of the Agreement.

- Final Completion Date: Punch-List items and the maintenance period outlined in Division 2 Section "Landfill Vegetative Support Layer" associated with Phase 1A will be completed and ready for final payment in accordance with the Agreement within four hundred and eighty-five (485) days from the date established in the Notice To Proceed.

PHASE 1B

- Substantial Completion Date: A total of five hundred (500) days are allowed to substantially complete the Work associated with Phase 1B and have such Work ready for acceptance by CRRA. Contractor shall commence performance of the Work upon CRRA's issuance to Contractor of the Notice To Proceed pursuant to Section 4.2 of the Agreement.

- Final Completion Date: Punch-List items and the maintenance period outlined in Division 2 Section "Landfill Vegetative Support Layer" associated with Phase 1B will be completed and ready for final payment in accordance with the Agreement within eight hundred and sixty-five (865) days from the date established in the Notice To Proceed.

EXHIBIT D

To

HARTFORD LANDFILL CLOSURE - MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

CONSTRUCTION PERFORMANCE BOND

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable. The below addresses are to be used for giving required notice.

CONTRACTOR (Name and Address):	**SURETY** (Name and Principal Place of Business):

OWNER (Name and Address):

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103-1722

AGREEMENT

DATE:	
AMOUNT:	
PROJECT DESCRIPTION (Including Name and Location):	Hartford Landfill Closure – MSW/Interim Ash Disposal Area Agreement Hartford Landfill 180 Leibert Road Hartford, Connecticut 06120

BOND

BOND NUMBER:	
DATE: (Not earlier than Agreement Date)	
AMOUNT:	DOLLARS ($)

IN WITNESS WHEREOF, Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on Pages 2 and 3 hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL		**SURETY**	
	(SEAL)		(SEAL)
Contractor's Name and Corporate Seal		Surety s Name and Corporate Seal	
SIGNATURE:		**SIGNATURE:**	
NAME AND TITLE:		**NAME AND TITLE:**	

TERMS AND CONDITIONS TO PERFORMANCE BOND

1. The Contractor and the Surety jointly and severally bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the foregoing Agreement, the terms of which are incorporated herein by reference. Any singular reference to the Contractor, the Surety, the Owner or any other party herein shall be considered plural where applicable.

2. If the Contractor performs the Agreement, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3. If there is no Owner Default (as hereinafter defined), the Surety's obligation under this Bond shall arise after:

   3.1 The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below, that the Owner is considering declaring a Contractor Default (as hereinafter defined) and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen (15) days after the receipt of such notice to discuss methods of performing the Agreement. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Agreement, but such an agreement shall not waive the Owner's right, if any, to subsequently declare a Contractor Default; and

   3.2 The Owner has declared a Contractor Default (as hereinafter defined) and formally terminated the Contractor's right to complete the Agreement. Such Contractor Default shall not be declared earlier than twenty (20) days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1.

   3.3 The Owner has agreed to pay the Balance of the Agreement Price to the Surety in accordance with the terms of the Agreement or to a contractor selected to perform the Agreement in accordance with the terms of the agreement with the Owner.

4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

   4.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Agreement; or

   4.2 Undertake to perform and complete the Agreement itself, through its agents or through independent contractors; or

   4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Agreement, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with a performance bond executed by a qualified surety equivalent to the bond issued on the Agreement, and pay to the Owner the amount of damages described in Paragraph 6; or

   4.4 Waive its right to perform and complete, arrange for completion or obtain a new contractor and with reasonable promptness under the circumstances:

      4.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or

      4.4.2 Deny liability in whole or in part and notify the Owner citing reasons therefor.

5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen (15) days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4 and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6. After the Owner has terminated the Contractor's right to complete the Agreement, and if the Surety elects to act under Subparagraph 4.1, 4.2 or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Agreement, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Agreement. To the limit of the amount of this Bond, the Surety is obligated without duplication for:

   6.1 The responsibilities of the Contractor for correction of defective work and completion of the Agreement;

   6.2 Additional legal and delay costs resulting from the Contractor's Default and resulting from the actions or failure to act of the Surety under Paragraph 4; and

   6.3 Liquidated damages, or if no liquidated damages are specified in the Agreement, actual damages caused by delayed performance or non-performance of the Contractor.

7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Agreement. No right of action shall accrue on this Bond to any person or entity other than the Owner or its successors and assigns.

8. The Surety hereby waives notice of any change, including changes of time, to the Agreement or to related subcontracts, purchase orders and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two (2) years after Contractor Default or within two (2) years after the Contractor ceased working or within two (2) years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions

of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page of this Bond.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Agreement was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions confirming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

    12.1 Balance of the Agreement Price: The total amount payable by the Owner to the Contractor under the Agreement after all proper adjustments have been made, including allowance to the Contactor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Agreement.

    12.2 Agreement: The agreement between the Owner and the Contractor identified on the signature page, including all Agreement Documents and changes thereto.

    12.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with any of the terms of the Agreement.

    12.4 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Agreement or to perform and complete or comply with the other terms hereof.

EXHIBIT E

To

HARTFORD LANDFILL CLOSURE - MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

CONSTRUCTION PAYMENT BOND

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable. The below addresses are to be used for giving required notice.

CONTRACTOR (Name and Address):	**SURETY** (Name and Principal Place of Business):

OWNER (Name and Address):

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103-1722

AGREEMENT

DATE:	
AMOUNT:	
PROJECT DESCRIPTION (Including Name and Location):	Hartford Landfill Closure – MSW/Interim Ash Disposal Area Agreement Hartford Landfill 180 Leibert Road Hartford, Connecticut 06120

BOND

BOND NUMBER:	
DATE: (Not earlier than Agreement Date)	
AMOUNT:	DOLLARS ($)

IN WITNESS WHEREOF, Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on Pages 2 and 3 hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL		**SURETY**	
	(SEAL)		(SEAL)
Contractor's Name and Corporate Seal		Surety s Name and Corporate Seal	
SIGNATURE:		**SIGNATURE:**	
NAME AND TITLE:		**NAME AND TITLE:**	

TERMS AND CONDITIONS TO PAYMENT BOND

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Agreement, which is incorporated herein by reference.

2. With respect to the Owner, this obligation shall be null and void if the Contractor:

   2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and

   2.2 Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity whose claim, demand, lien or suit is for the payment for labor, materials or equipment furnished for use in the performance of the Agreement, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.

4. The Surety shall have no obligation to Claimants under this Bond until:

   4.1 Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

   4.2 Claimants who do not have a direct contract with the Contractor:

      4.2.1 Have furnished written notice to the Contractor and sent a copy, or notice thereof to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and

      4.2.2 Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and

      4.2.3 Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.

5. If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.

6. When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:

   6.1 Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

   6.2 Pay or arrange for payment of any undisputed amounts.

7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

8. Amounts owed by the Owner to the Contractor under the Agreement shall be used for the performance of the Agreement and to satisfy claims, if any, under any Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Agreement are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

9. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Agreement. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. The Surety hereby waives notice of any change, including changes of time, to the Agreement or to related subcontracts, purchase orders and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the work or part of the work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Subparagraph 4.1 or Clause 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Agreement, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

    15.1 Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Agreement. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Agreement, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished,

    15.2 Agreement: The agreement between the Owner and the Contractor identified on the signature page, including all Agreement Documents and changes thereto.

    15.3 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Agreement or to perform and complete or comply with the other terms thereof.

EXHIBIT F

To

HARTFORD LANDFILL CLOSURE - MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

CONTRACTOR'S WAGE CERTIFICATION FORM

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

I,_____of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

Subscribed and sworn to before me this _____ day of _____, :

_____
Notary Public

☞ Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

EXHIBIT G

To

HARTFORD LANDFILL CLOSURE - MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

SCHEDULE OF PREVAILING WAGES

Project Hartford Landfill Closure MSW/Interim Ash Disposal Area

Minimum Rates and Classifications
for Heavy Construction

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number **Project Town Hartford**
FAP **State**
Project Hartford Landfill Closure MSW/Interim Ash Disposal Area

CLASSIFICATION	Hourly Rate	Benefits
01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 7**		
1) Boilermaker	$31.65	8.72 + 32%
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	$30.25	16.60
2) Carpenters, Piledrivermen	$26.65	16.21
2a) Diver Tenders	$26.65	16.21
3) Divers	$35.11	16.21

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4) Painters: Brush, Roller, Blasting (Sand, Water, etc.), Spray	$35.20	12.55
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	$32.00	17.38
6) Ironworkers: (Ornamental, Reinforcing, Structural, and Precast Concrete Erection	$30.05	20.18 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	$31.77	18.26
----LABORERS----		
8) Group 1: Laborer (Unskilled)	$23.00	13.40
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen.	$23.25	13.40
10) Group 3: Pipelayers	$23.35	13.40
11) Group 4: Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block pavers and curb setters.	$23.50	13.40
12) Group 5: Toxic waste workers (non-mechanical systems).	$25.00	13.40

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13) Group 6: Blasters	$24.75	13.40
Group 7: Asbestos Removal, non-mechanical systems (does not include leaded joint pipe).	$24.00	13.40
Group 8: Traffic control signalmen.	$15.00	13.40
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	$27.25	13.40 + a
13b) Brakemen, Trackmen	$26.45	13.40 + a
14) Concrete Workers, Form Movers, and Strippers	$26.45	13.40 + a
15) Form Erectors	$26.73	13.40 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	$26.45	13.40 + a

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17) Laborers Topside, Cage Tenders, Bellman	$26.35	13.40 + a
18) Miners	$27.25	13.40 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	$32.53	13.40 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	$30.87	13.40 + a
21) Mucking Machine Operator	$33.20	13.40 + a
----TRUCK DRIVERS----(*see note below)		
Two axle trucks	$25.43	11.5225
Three axle trucks; two axle ready mix	$25.53	11.5225
Three axle ready mix	$25.58	11.5225

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Four axle trucks, heavy duty trailer (up to 40 tons)	$25.63	11.5225
Four axle ready-mix	$25.53	11.5225
Heavy duty trailer (40 tons and over)	$25.88	11.5225
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	$25.68	11.5225
----POWER EQUIPMENT OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over.	$32.05	16.05 + a
Group 2: Cranes (100 ton rate capacity and over); Backhoe over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer)	$31.73	16.05 + a
Group 3: Backhoe; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber tire backhoe.	$30.99	16.05 + a
Group 4: Trenching machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper)	$30.60	16.05 + a
Group 5: Specialty Railroad Equipment; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	$30.01	16.05 + a

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Group 5 continued: Side; Combination Hoe and Loader; Directional Driller	$30.01	16.05 + a
Group 6: Front end loader (3 up to 7 cubic yards), Grader; Bulldozer.	$29.70	16.05 + a
Group 7: Asphalt roller, concrete saws and cutters (ride on type), Vermeer Concrete Cutter, Scraper; Snooper; Skidder; Milling Maching (24" and Under Mandrel).	$29.36	16.05 + a
Group 8: Mechanic, grease truck operator, hydroblaster, barrier mover, power stone spreader; welder; work boat under 26 ft.; transfer machine.	$28.96	16.05 + a
Group 9: Front end loader (under 3 cubic yards), skid steer loader (regardless of attachments), (Bobcat or similar); fork lift, power chipper; landscape equipment (including hydroseeder).	$28.53	16.05 + a
Group 10: Vibratory hammer, Ice machine, Diesel and Air Hammer, etc..	$27.96	16.05 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), robot demolition equipment.	$26.49	16.05 + a
Group 12: Wellpoint operator.	$26.43	16.05 + a
Group 13: Compressor Batter Operator.	$25.85	16.05 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	$24.71	16.05 + a

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Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator.	$24.30	16.05 + a
Group 16: Maintenance Engineer.	$23.65	16.05 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator	$25.98	16.05 + a
Group 18: Power safety boat; vaccum truck; zim mixer; sweeper	$25.54	16.05 + a

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)

20) Lineman, Cable Splicer, Dynamite Man	$35.65	10.70 + 6.25%
21) Heavy Equipment Operator	$22.09	10.70 + 6.25%
22) Equipment Operator, Tractor Trailer Driver, Material Men	$30.30	10.70 + 6.25%
23) Driver Groundmen	$26.74	10.70 + 6.25%

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----LINE CONSTRUCTION----

24) Driver Groundmen	$25.99	10.70 + 6.25%
25) Groundmen	$19.06	10.70 + 6.25%
26) Heavy Equipment Operators	$31.19	10.70 + 6.25%
27) Linemen, Cable Splicers, Dynamite Men	$34.65	10.70 + 6.25%
28) Material Men, Tractor Trailer Drivers, Equipment Operators	$29.45	10.70 + 6.25%

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Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.50 per hour for power equipment operators and $1.00 per hour for truck drivers.*

***Note: Hazardous waste premium $1.50 per hour over classified rate*

Crane with 150 ft. boom (including jib) - $ .75 extra
Crane with 200 ft. boom (including jib) - $1.20 extra
Crane with 250 ft. boom (including jib) - $2.50 extra
Crane with 300 ft. boom (including jib) - $3.50 extra
Crane with 400 ft. boom (including jib) - $4.00 extra
Crane with 500 ft. boom (including jib) - $5.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work ~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Project Hartford Landfill Closure MSW/Interim Ash Disposal Area

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification -

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: 5/29/2007
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Statute 31-55a

Last Updated: October 23, 2006

- Special Notice -

To All State and Political Subdivisions,Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the ***contractor's*** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent

annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

Workplace Laws

Published by the Connecticut Department of Labor, Automation Support Unit

EXHIBIT H

To

HARTFORD LANDFILL CLOSURE - MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

CONTRACTING AGENCY CERTIFICATION FORM

ALSO INCLUDED:

CONNECTICUT DEPARTMENT OF LABOR FOOTNOTES

PAYROLL CERTIFICATION FORMS

INFORMATIONAL BULLETIN - OCCUPATIONAL CLASSIFICATIONS

NOTICE TO ALL MASON CONTRACTORS

SEC. 31-53b. CONSTRUCTION SAFETY AND HEALTH COURSE

INFORMATIONAL BULLETIN - THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

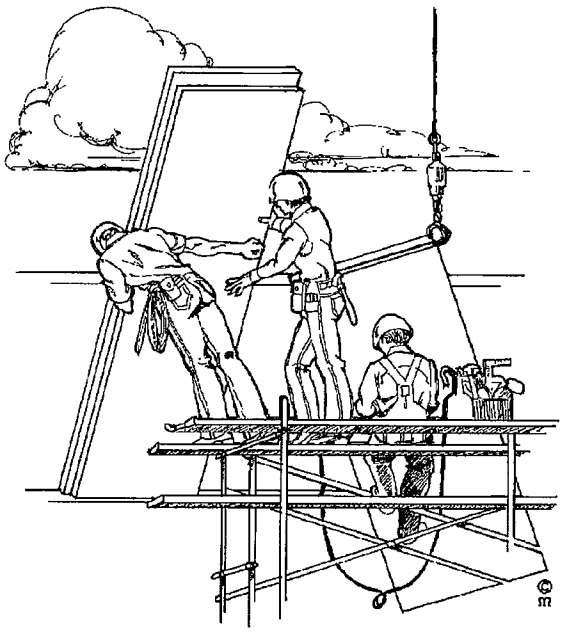
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860)263-6543.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative title

for _____, located at _____,
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number address

shall be $_____, which includes all work, regardless of whether such project

consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

CONNECTICUT DEPARTMENT OF LABOR
FOOTNOTES

Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Plasters, Stone Masons (BUILDING CONSTRUCTION)

a. Paid Holiday: If an employee works on Christmas Eve until noon he shall be paid for 8 hours

b. Fringe contributions for cement masons (performing flatwork only) will receive one and one-half times fringe contributions for hours worked over eight hours per day.

Bricklayers, Cement Masons, Cement Finishers, Plasters, Stone Masons (HEAVY AND HIGHWAY CONSTRUCTION)

a. Paid Holiday: If an employee works on Christmas Eve until noon he shall be paid for 8 hours

Carpenters, Diver Tenders, Dockbuilders, Piledrivers (HEAVY AND HIGHWAY CONSTRUCTION)

a. Paid Holidays: Memorial Day, Independence Day, Labor Day, provided the employee works 3 days during the week of the holiday and the working day before and after the holiday, if scheduled.

Electricians

Fairfield County: West of the Five Mile River in Norwalk

a. $2.00 per hour not to exceed $14.00 per day.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(HEAVY AND HIGHWAY CONSTRUCTION & BUILDING CONSTRUCTION)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday.

Ironworkers

a. Paid Holidays: Last four working hours on Christmas Eve and New Year's eve are paid holidays, provided the employee has been on the employer's payroll for the five consecutive days prior to Christmas Eve and New Year's Eve.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th and Labor Day, provided the employee is employed 15 days prior to the holiday; and Christmas Day, provided the employee has worked in a shop on or after December 11th.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a such contractor 20 working days prior to any such holiday.

Truck Drivers

(HEAVY & HIGHWAY CONSTRUCTION & BUILDING CONSTRUCTION)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 days service and works the last scheduled day before and the first scheduled day after the holiday.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:

SUBCONTRACTOR NAME & ADDRESS

WORKER'S COMPENSATION INSURANCE CARRIER

POLICY #

EFFECTIVE DATE:
EXPIRATION DATE:

PAYROLL NUMBER

Week-Ending Date

PROJECT NAME & ADDRESS

PERSON/WORKER AND ADDRESS	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION / TRADE LICENSES TYPE & NUMBER	DAY AND DATE / HOURS WORKED EACH DAY: S	M	T	W	TH	F	S	S-TIME / O-TIME	BASE HOURLY RATE / TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS: FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
											S-TIME	$ Base Rate	1. $ 2. $ 3. $							
											O-TIME	$ Cash Fringe	4. $ 5. $ 6. $							
											S-TIME	$ Base Rate	1. $ 2. $ 3. $							
											O-TIME	$ Cash Fringe	4. $ 5. $ 6. $							
											S-TIME	$ Base Rate	1. $ 2. $ 3. $							
											O-TIME	$ Cash Fringe	4. $ 5. $ 6. $							
											S-TIME	$ Base Rate	1. $ 2. $ 3. $							
											O-TIME	$ Cash Fringe	4. $ 5. $ 6. $							

9/1/2005 *IF REQUIRED
WWS-CP1

*SEE REVERSE SIDE

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.)

Please specify the type of benefits provided:

1) Medical or hospital care _____
2) Pension or retirement _____
3) Life Insurance _____
4) Disability _____
5) Vacation, holiday _____
6) Other (please specify)_____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as Employer)

in my capacity as _____ (title) do hereby certify and state:

All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

A) The records submitted are true and accurate;

B) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

C) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

D) Each such employee of the Employer is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

E) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

F) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

Submitted on

_____

(Date) (Signature) (Title)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Weekly Payroll Certification For
Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Week-Ending Date:
Contractor or Subcontractor Business Name:

PERSON/WORKER AND ADDRESS	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION TRADE LICENSES TYPE & NUMBER	DAY AND DATE S	M	T	W	TH	F	S HOURS WORKED EACH DAY	S-TIME O-TIME	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
											S-TIME O-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
											S-TIME O-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
											S-TIME O-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
											S-TIME S-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
											S-TIME S-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

*IF REQUIRED

9/1/2005
WWS-CP2

NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)

PAGE NUMBER ______OF

Revised: March 22, 2007

Informational Bulletin

Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53.

√ ***Note:*** *This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification.*

Below are additional clarifications of specific job duties performed for certain classifications:

Asbestos Insulator:

- Handle, install, apply, fabricate, distribute, prepare, alter, repair, or dismantle heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

Carpenter:

- Assembly and installation of modular furniture/furniture systems.
  [**New**] a. Free-standing furniture is not covered. This includes: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two- position information access station, file cabinets, storage cabinets, tables, etc.
- Applies fire stopping materials on fire resistive joint systems only.
- Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings.
- Installation of curtain/window walls only where attached to wood or metal studs.

Cleaning Laborer:

- The clean up of any construction debris and the general cleaning, including sweeping, wash down, mopping, wiping of the construction facility, washing, polishing, dusting, etc., prior to the issuance of a certificate of occupancy falls under the *Labor classification.*

Delivery Personnel: (Revised)

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer/tradesman and not a delivery personnel.

Continued

Electrician:

- Installation or maintenance of telecommunication, LAN wiring or computer equipment. Low voltage wiring.

Fork Lift Operator:

- Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.
  Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

Glaziers:

- Installs light metal sash, head sills, and 2-story aluminum storefronts.
  Installation of aluminum window walls and curtain walls is the "joint" work of the Glaziers and Ironworkers classification which requires either a blended rate or equal composite workforce.

Ironworkers:

- Handling, sorting, and installation of reinforcing steel (rebar).
- Installation of aluminum window walls and curtain walls is the "joint" work of the Glaziers and Ironworkers classification which requires either a blended rate or equal composite workforce. Insulated metal and insulated composite panels are still installed by the Ironworker.
- Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation.

Insulator:

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings. Past practice using the applicable licensed trades, Plumber, Sheet Metal, Sprinkler Fitter, and Electrician, is not inconsistent with the Insulator classification and would be permitted.

Lead Paint Removal:

- Painter Rate -
  1) Removal of lead paint from bridges.
  2) Removal of lead paint as preparation of any surface to be repainted.
  3) Where removal is on a *Demolition* project prior to reconstruction.
- Laborer Rate-
  1) Removal of lead paint from any surface *NOT* to be repainted.
  2) Where removal is on a *TOTAL* Demolition project only.

Roofers:

- Preparation of surface, tear-off and/or removal of any type of roofing, and/or clean-up of any areas where a roof is to be relaid.

Continued

Sheet Metal Worker:

- Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, wall panel siding, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Insulated metal and insulated composite panels are still installed by the Iron Worker. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers

Truck Drivers:

- Truck Drivers delivering asphalt are covered under prevailing wage while on the site and directly involved in the paving operation.
- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

Any questions regarding the proper classification should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd, Wethersfield, CT 06109 at (860)263-6543.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Sec. 31-53b. Construction safety and health course. Proof of completion required for employees on public building projects. Enforcement. Regulations. (a) Each contract entered into on or after July 1, 2007, for the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public building project by the state or any of its agents, or by an political subdivision of the state or any of its agents, where the total cost of all work to be performed by all contractors and subcontractors in connection with the contract is at least one hundred thousand dollars, shall contain a provision requiring that, not later than thirty days after the date such contract is awarded, each contractor furnish proof to the Labor Commissioner that all employees performing manual labor on or in such public building, pursuant to such contract, have completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, in the case of telecommunications employees, have completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any employee required to complete a construction safety and health course required under subsection (a) of this section who has not completed the course shall be subject to removal from the worksite if the employee does not provide documentation of having completed such course by the fifteenth day after the date the employee is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2007, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) For the purposes of this section, "public building" means a structure, paid for in whole or in part with state funds, within a roof and within exterior walls or fire walls, designed for the housing, shelter, enclosure and support or employment of people, animals or property of any kind, including, but not limited to, sewage treatment plants and water treatment plants, "Public building" does not include site work, roads or bridges, rail lines, parking lots or underground water, sewer or drainage systems including pump houses or other utility systems.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007*, where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

EXHIBIT I

To

HARTFORD LANDFILL CLOSURE - MSW/INTERIM ASH DISPOSAL AREA AGREEMENT

SEEC FORM 11
NOTICE TO EXECUTIVE BRANCH STATE CONTRACTORS AND PROSPECTIVE STATE CONTRACTORS OF CAMPAIGN CONTRIBUTION AND SOLICITATION BAN

SEEC FORM 11

NOTICE TO EXECUTIVE BRANCH STATE CONTRACTORS AND PROSPECTIVE STATE CONTRACTORS OF CAMPAIGN CONTRIBUTION AND SOLICITATION BAN

This notice is provided under the authority of Connecticut General Statutes 9-612(g)(2), as amended by P.A. 07-1, and is for the purpose of informing state contractors and prospective state contractors of the following law (italicized words are defined below):

Campaign Contribution and Solicitation Ban

No *state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract* or *state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall make a contribution to, or *solicit* contributions on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee;

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to, or solicit contributions on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

Duty to Inform

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

Penalties for Violations

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

Civil penalties--$2000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of $2000 or twice the amount of the prohibited contributions made by their principals.

Criminal penalties—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or $5000 in fines, or both.

Contract Consequences

Contributions made or solicited in violation of the above prohibitions may result, in the case of a state contractor, in the contract being voided.

Contributions made or solicited in violation of the above prohibitions, in the case of a prospective state contractor, shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State will not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information and the entire text of P.A 07-1 may be found on the website of the State Elections Enforcement Commission, www.ct.gov/seec. Click on the link to "State Contractor Contribution Ban."

Definitions:
"State contractor" means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. "State contractor" does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

"Prospective state contractor" means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. "Prospective state contractor" does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

"Principal of a state contractor or prospective state contractor" means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract,* (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

"State contract" means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. "State contract" does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan or a loan to an individual for other than commercial purposes.

"State contract solicitation" means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

"Managerial or discretionary responsibilities with respect to a state contract" means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

"Dependent child" means a child residing in an individual's household who may legally be claimed as a dependent on the federal income tax of such individual.

"Solicit" means (A) requesting that a contribution be made, (B) participating in any fund-raising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact

information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.