CONNECTICUT
RESOURCES
RECOVERY
AUTHORITY

ADDENDUM NO. 1
Issued March 25, 2009

TO

"REQUEST FOR BIDS
FOR
COMPLETION OF CLOSURE
OF THE
PHASE 1 ASH AREA
AT THE
HARTFORD LANDFILL"
(RFB Number FY09-EN-004)
(RFB Issued March 18, 2009)

Note: Bidders are required to acknowledge this and all Addenda in Section 5(a) of the Bid Form.

This Addendum consists of a change in the date that written questions are due at CRRA and CRRA's response to a written question that was received.

1. CHANGE IN DUE DATE FOR WRITTEN QUESTIONS

CRRA is changing the date by which written questions must be submitted to CRRA from Wednesday, April 1, 2009 to **Tuesday, April 7, 2009**. Any questions that potential bidders may have must be submitted in writing by **3:00 p.m.** on that date to Ronald Gingerich, by e-mail (rgingerich@crra.org), by fax ((860) 757-7742), or by correspondence (CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722).

2. RESPONSE TO QUESTION

QUESTION: Item 12 on the Bid Price Form refers to Technical Specification Section 06641, but no such Technical Specification Section is included in the RFB Package Documents.

RESPONSE: Technical Specification Section 06641 is attached to this Addendum and is included in the RFB Package Documents.

3. ADDITION OF TECHNICAL SPECIFICATION SECTION

In reviewing the Technical Specification Sections included in the RFB Package Documents, CRRA discovered that Technical Specification Section 02630 was inadvertently omitted. Technical Specification Section 02630 is attached to this Addendum and is included in the RFB Package Documents.

SECTION 02630

STORM-DRAINAGE SYSTEM

PART 1 GENERAL

1.1 REFERENCES

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

STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION

FORM 816 (2004) Standard Specifications for Roads, Bridges, and Incidental Construction

1.2 SUBMITTALS

The CONTRACTOR shall submit manufacturer's catalog data for Corrugated HDPE Smooth Bore Pipe, Manholes, Catch Basins, and Flared End Sections. The CONTRACTOR shall provide sufficient data indicating conformance to specified requirements on materials provided under the section. Submittals shall include joints and specified accessories.

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery and Storage

Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. Before, during, and after installation, plastic pipe and fittings shall be protected from any environment that would result in damage or deterioration to the material. The Contractor shall have a copy of the manufacturer's instructions available at the construction site at all times and shall follow these instructions unless directed otherwise by the ENGINEER. Solvents, solvent compounds, lubricants, elastomeric gaskets, and any similar materials required to install plastic pipe shall be stored in accordance with the manufacturer's recommendations and shall be properly disposed offsite if the storage period exceeds the recommended shelf life. Solvents in use shall be discarded when the recommended pot life is exceeded.

1.3.2 Handling

Materials shall be handled in a manner that ensures delivery to the place of use in sound, undamaged condition. Pipe shall be carried, not dragged.

PART 2 PRODUCTS

2.1 PIPE FOR STORM DRAINS

Pipe for storm drains shall be of the sizes indicated and shall conform to the requirements specified. Smooth Bore HDPE Pipe shall conform to ASTM F 714, maximum DR of 26 for pipes 26 to 48 inches in diameter. Pipe shall be produced from HDPE certified by the resin producer as meeting the requirements of ASTM D 3350, minimum cell class 345434C.

2.2 DRAINAGE STRUCTURES

2.2.1 Flared End Sections

Sections shall be of a standard design fabricated from HDPE (as shown on the Contract Drawings).

2.2.2 Catch Basins

Pre-cast concrete catch basins shall include the drain basin type as indicated on the contract drawing and referenced within the contract specifications. The grates are to be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer.

2.2.3 Manholes

Pre-cast concrete manholes shall be provided as indicated on the contract drawing and referenced within the contract specifications. The cover is to be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer.

2.3 MISCELLANEOUS MATERIALS

2.3.1 Mortar

Mortar for pipe joints, connections to other drainage structures, and brick or block construction shall conform to ASTM C 270, Type M, except that the maximum placement time shall be 1 hour. The quantity of water in the mixture shall be sufficient to produce a stiff workable mortar but in no case shall exceed 5.5 gallons of water per sack of cement. Water shall be clean and free of harmful acids, alkalies, and organic impurities. The mortar shall be used within 30 minutes after the ingredients are mixed with water. The inside of the joint shall be wiped clean and finished smooth. The mortar head on the outside shall be protected from air and sun with a proper covering until satisfactorily cured.

2.3.2 Brick

Brick shall conform to ASTM C 62, Grade SW; ASTM C 55, Grade S-I or S-II; or ASTM C 32, Grade MS. Mortar for jointing and plastering shall consist of one part portland cement and two parts fine sand. Lime may be added to the mortar in a quantity not more than 25 percent of the volume of cement. The joints shall be filled completely and shall be smooth and free from surplus mortar on the inside of the structure. Brick structures shall be plastered with 1/2 inch of mortar over the entire outside surface of the walls. For square or rectangular structures, brick shall be laid in stretcher courses with a header course every sixth course. For round structures, brick shall be laid radially with every sixth course a stretcher course.

2.3.3 Precast Reinforced Concrete Manholes

Precast reinforced concrete manholes shall conform to ASTM C 478. Joints between precast concrete risers and tops shall be made with flexible watertight, rubber-type gaskets.

PART 3 EXECUTION

3.1 EXCAVATION FOR PIPE STORM DRAINS AND DRAINAGE STRUCTURES

Excavation of trenches, and for appurtenances and backfilling for culverts and storm drains, shall be in accordance with the applicable portions of Section 02225, "Excavation, Backfilling, and Compacting".

3.2 BEDDING REQUIREMENTS

The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe and shall be free of debris. Pipe bedding shall be as indicated on the Contract Drawings and comply with the requirements of Section 02225, "Excavation, Backfilling, and Compaction."

3.3 PLACING PIPE

Each pipe shall be thoroughly examined before being laid; defective or damaged pipe shall not be used. Pipe shall be protected from exposure to direct sunlight prior to laying, if necessary to maintain adequate pipe stiffness and meet installation deflection requirements. Pipelines shall be laid to the grades and alignment indicated. Proper facilities shall be provided for lowering sections of pipe into trenches. Pipe shall not be laid in water, and pipe shall not be laid when trench conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary. Deflection of installed flexible pipe shall not exceed 7.5 percent.

Laying shall be with the separate sections joined firmly on a bed shaped to line and grade and shall follow manufacturer's recommendations.

3.4 DRAINAGE STRUCTURES

3.4.1 Manholes

Construction shall be precast reinforced concrete, complete with frames and covers, and with fixed ladders where indicated. Structures and construction to conform to the Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction Form 816 Section 5.07.

3.4.2 Catch Basins

Construction shall be precast reinforced concrete, complete with frames and grates. Structures and construction to conform to the Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction Form 816 Section 5.07.

3.5 BACKFILLING

3.5.1 Backfilling Pipe in Trenches

Backfilling for culverts and storm drains, shall be in accordance with the applicable portions of Section 02225, "Excavation, Backfilling, and Ash Regrading".

3.5.2 Movement of Construction Machinery

When compacting by rolling or operating heavy equipment parallel with the pipe, displacement of or injury to the pipe shall be avoided. Movement of construction machinery over a culvert or storm drain at any stage of construction shall be at the Contractor's risk. Any damaged pipe shall be repaired or replaced.

3.5.3 Compaction

Backfill over and around the pipe and backfill around and adjacent to drainage structures shall be compacted in accordance with the applicable portions of Section 02225, "Excavation, Backfilling, and Ash Regrading".

END OF SECTION

SECTION 06641

FLAT PIPE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope: CONTRACTOR shall provide all labor, materials, tools, equipment, and incidentals necessary for the placement of drainage flat pipes with filter fabric wrapping on geomembrane located on slopes and beneath drainage downchute including fittings and other drain pipe as shown and specified on the Contract Drawings, or as otherwise directed by the ENGINEER.

B. Related Sections:
1. Section 02227, Cover Soil and Drainage Sand.
2. Section 06643, Geomembranes.

1.2 REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D3350	Specification for Polyethylene Plastic Pipe and Fittings Materials
D4355	Test Method for Deterioration of Geotextile from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
D4491	Test Methods for Water Permeability of Geotextiles by Permittivity
D4533	Test Method for Trapezoid Tearing Strength of Geotextiles
D4632	Test Method for Grab Breaking Load and Elongation of Geotextiles
D4633	Standard Test Method for Energy Measurement for Dynamic Penetrometers
D4751	Test Method for Determining Apparent Opening Size of a Geotextile
D4833	Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products

1.3 QUALITY CONTROL

A. Manufacturer Qualifications: Drainage flat pipe manufacturer shall be a specialist in the manufacture of the pipe. All fittings and appurtenances will be obtained from the same manufacturer as that for the drainage flat pipe.

1.4 SUBMITTALS

A. Shop Drawings:
   1. Submit six (6) copies of manufacturer data, specifications, dimensions and installation instructions for slopes.
   2. Submit six (6) copies of an affidavit certifying that the drainage flat pipe furnished complies with all requirements specified herein.
   3. No drainage flat pipe shall be shipped until the affidavit is submitted to ENGINEER.

PART 2 - PRODUCTS

2.1 ACCEPTABLE PRODUCTS

A. Drainage Flat Pipe
   1. Drainage Flat Pipe shall be made from high density polyethylene meeting the structural and chemical resistance requirements and minimum cell classifications of 424420C as defined in ASTM D 3350. Drainage Flat Pipe shall be:
      a. Advanedge Pipe by Advanced Drainage Systems, Inc..
      b. Or equivalent.

   2. The drainage flat pipe shall have a nominal pipe size of 12 or 18 inches and a cross-section area of 15 square inches (nominal 12 inch pipe) or 20 square inches (nominal 18 inch pipe), as shown on the contract drawings. Perforations shall be 1.125 inches long and 0.125 inches wide.

B. Geotextile Filter Fabric
   1. Geotextile filter fabric shall be a heat-bonded non-woven geotextile made from polypropylene. Geotextile filter fabric shall meet the requirements of Table 1:

Table 1 – Filter Fabric

Fabric Properties	Test Method	Minimum Average Roll Values
Grab Tensile Strength (lbs.) (weakest principle direction)	ASTM D4632	120
Grab Elongation (%) (weakest principle direction)	ASTM D4633	60
Trapezoidal Tear (lbs.) (weakest principle direction)	ASTM D4533	40
Puncture (lbs.)	ASTM D4833	30
Permittivity (sec^{-1})	ASTM D4491	0.7
AOS (U.S. Sieve Size)	ASTM D4751	60
U.V. Resistance	ASTM D4355	70

PART 3 - EXECUTION

3.1 PREPARATION

A. The drainage flat pipe product shall be installed explicitly according to the manufacturer recommendations. All perforated flat pipe sections shall be wrapped in a geotextile prior to installation.

B. The drainage flat pipe shall be installed after the geomembrane has been installed, tested, and certified by the ENGINEER. The CONTRACTOR shall not install flat pipe without certification from the ENGINEER.

3.2 INSTALLATION

A. Install drainage flat pipe directly on the geomembrane surface. The CONTRACTOR shall exercise care during the installation of the flat pipe to prevent damage to the geomembrane. If damaged, the CONTRACTOR shall repair the geomembrane in accordance with the requirements of Section 06643 and all associated costs are to be borne by the CONTRACTOR.

B. All piping laterals and trunks are to be 12-inch flat corrugated and perforated drain pipe. Lateral pipes will be installed along the existing slopes at a three percent grade (3%). Lateral to trunk intersections shall be wyes or perpendicular as required to ensure tight connections. All lateral pipe ends not intersecting with the trunk are to be capped.

C. Cleanouts will be installed at the upslope terminus of each of the trunk sections. The transition shall consist of two 45 degree elbows connecting to 4-inch round smooth interior corrugated and non-perforated drainage pipe that is to extend 36 inches above the final cap surface.

D. The CONTRACTOR shall use couplings available from the manufacturer of the drainage flat pipe when needed to secure two sections of the flat pipe. The coupling shall be installed explicitly according to the manufacturer's recommendations.

E. Drainage flat pipe sections terminating within the perimeter drainage swale shall be constructed as shown on the Contract Drawings. The CONTRACTOR shall protect the 4-inch round pipe section on the perimeter berm slope with geotextile prior to placing modified riprap. The CONTRACTOR shall exercise care to prevent damage to the pipe section when placing modified riprap and shall be responsible for the repairs and costs associated with replacing any damaged pipe section. The CONTRACTOR shall bevel the edge of the 4-inch round pipe section where it daylights into the perimeter drainage swale.

F. Drainage flat pipe sections terminating within the slope diversion swales shall be constructed as shown on the Contract Drawings. The CONTRACTOR shall exercise care to prevent damage to the pipe section when placing the 1-inch angular stone and shall be responsible for the repairs and costs associated with replacing any damaged pipe section. The CONTRACTOR shall bevel the edge of the 12-inch flat pipe section where it daylights

into the slope diversion swale.

G. Cover soil in all areas where the drainage flat pipe system is installed shall consist of 12 inches of drainage sand with a hydraulic conductivity equal to or greater than 10^{-2} cm/s. The CONTRACTOR shall take care when installing the drainage sand so as to not move or disturb the drainage flat pipe sections.

3.3 SURVEY

A. The CONTRACTOR shall survey the locations of all trunks, laterals, cleanouts and other structures associated with the drainage flat pipe construction. The survey information shall be included as part of the final as-builts for the final closure construction. Costs for the survey shall be included in the price for the installation of the drainage flat pipe system.

END OF SECTION 06641