SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

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 administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

B. Related Sections include the following:
1. Division 0 Section "Waste Management Plan" for a sample form for documenting waste management.
2. Division 1 Section "Sustainable Design Requirements" for additional LEED requirements.
3. Division 1 Section "Temporary Facilities and Controls" for environmental-protection measures during construction, and location of waste containers at Project site.
4. Division 1 Section "Selective Structure Demolition" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements, and for disposition of hazardous waste.
5. Division 2 Section "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.
6. Division 4 Section "Unit Masonry Assemblies" for disposal requirements for masonry waste.
7. Division 4 Section "Stone Veneer Assemblies" for disposal requirements for excess stone and stone waste.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of 75 percent by weight of total waste generated by the Work.

B. Salvage/Recycle Requirements: Salvage and recycle as much nonhazardous demolition and construction waste as possible including, but not limited to, the following materials:

1. Demolition Waste:
   a. Asphalitic concrete paving.
   b. Concrete.

2. Construction Waste:
   a. Site-clearing waste.
   b. Masonry and CMU.
   c. Lumber.
   d. Wood sheet materials.
   e. Wood trim.
   f. Metals.
   g. Roofing.
   h. Insulation.
   i. Carpet and pad.
   j. Gypsum board.
   k. Piping.
   l. Electrical conduit.
   m. Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
      1) Paper.
      2) Cardboard.
      3) Boxes.
4) Plastic sheet and film.
5) Polystyrene packaging.
7) Plastic pails.

1.5 SUBMITTALS

A. Waste Management Plan: Submit 3 copies of plan within 30 days of date established for commencement of the Work.

B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three copies of report. Include the following information:

1. Material category.
2. Generation point of waste.
3. Total quantity of waste in tons (tonnes).
4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

C. Waste Reduction Calculations: Before request for Substantial Completion, submit three copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

H. LEED Submittal: LEED letter template for Credit MR 2.1 and 2.2, signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.

I. Qualification Data: For Waste Management Coordinator.
J. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE


B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

3. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement waste management plan as approved by Architect/Engineer. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with Division 1 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to everyone concerned within three days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
2. Comply with Division 1 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.
B. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
   a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.

4. Store components off the ground and protect from the weather.

5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.3 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Grind asphalt to maximum 1-1/2-inch (38-mm) size.

1. Crush asphaltic concrete paving and screen to comply with requirements in Division 2 Section "Earthwork" for use as general fill.

B. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.

C. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 1-1/2-inch (38-mm) size.

2. Crush concrete and screen to comply with requirements in Division 2 Section "Earthwork" for use as satisfactory soil for fill or subbase.

3.4 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.


3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.

4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
B. Site-Clearing Wastes: Chip brush, branches, and trees on-site.
   1. Comply with requirements in Division 2 Section "Exterior Plants" for use of chipped organic waste as organic mulch.

3.5 DISPOSAL OF WASTE
A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
   1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

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<td>6/30/2009</td>
<td>0.97</td>
<td>TN</td>
<td>0.97</td>
<td>0.97</td>
<td>100%</td>
<td>WOOD</td>
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<tr>
<td>6/30/2009</td>
<td>6.60</td>
<td>TN</td>
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<td>6.60</td>
<td>100%</td>
<td>TRASH</td>
<td>30-396</td>
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<tr>
<td>7/2/2009</td>
<td>1.46</td>
<td>TN</td>
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<td>CARDBOARD</td>
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<tr>
<td>7/3/2009</td>
<td>3.84</td>
<td>TN</td>
<td>3.84</td>
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<td>100%</td>
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<td>30-114</td>
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<td>7/16/2009</td>
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<td>TRASH</td>
<td>30-?</td>
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<tr>
<td>7/24/2009</td>
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<td>15%</td>
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</tr>
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</table>

Totals 145.77 90.49 62% Overall Recycled Material
11 Nov. 2009

IU Incubator Building
Materials & Resources Credit 2.1: Construction Waste Management

Construction Application Review: The LEED Submittal Template has been provided stating that the project team has diverted 90.49 tons (62.07%) of on-site generated construction waste from landfill. Calculations have been provided to document the waste types and receiving agencies for recycled materials. However, the narrative describing the project's Construction Waste Management Plan requires more detail regarding the actual plan and procedure for waste management and diversion. Also, the calculation table documenting the waste types and receiving agencies for recycled materials has not been completed.

TECHNICAL ADVICE:
1. Please provide a more detailed narrative describing the project's Construction Waste Management Plan.
2. Please complete the calculation table in the LEED Submittal Template with a general description of each type of waste generated; location of receiving agent for waste; and quantity of waste diverted in tons or cubic yards.

Response:
1.) The attached Waste Management specification was included in each subcontractors scope of work and followed to direct construction debris to appropriate recycling centers. For the duration of the project, a 30 yard scrap metal dumpster, cardboard dumpster, drywall dumpster, and general waste dumpster were maintain with the weight of the debris tracked and reported by Ray's waste service (see attached report). The scrap metal, cardboard, and drywall materials were recycled at the recycling centers noted on the attached report. Considerable planning and efforts to fabricate systems off site were undertaken to minimize potential waste on the project (structural steel frame, re-steel fabrications, metal panels systems, sprinkler system. Drywall was ordered to appropriate sizes to minimize waste as well. The extensive coordination efforts through the project's 3-D modeling also minimized re-work which generally produces significant waste. These efforts led to exceeding the 50% recycle goal by nearly 17 Tons.

2.) The completed calculation table is attached as requested.
We hope the attached narrative address the GBCI reviewer's request for additional information.

Sincerely,

Jeremy Welu
LEED Administrator
BSA LifeStructures