

SECTION 017419

CONSTRUCTION WASTE MANAGEMENT

PART 1 - General

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 Not used

1.3 SUMMARY

- A. Section includes:
 - 1. C&D Material Management Plan and Deconstruction & Salvage Assessment
 - 2. Salvaging nonhazardous demolition and construction materials
 - 3. Recycling nonhazardous demolition and construction materials
 - 4. Disposing of nonhazardous demolition and construction waste
 - 5. Reporting forms and requirements for tracking C&D Material diversion and disposal

1.4 RELATED SECTIONS:

- A. SECTION 011500 – Sustainable Design Requirements
- B. SECTION 024100 – Selective Demolition
- C. SECTION 033000 – Cast-in-Place Concrete
- D. SECTION 312000 – Earth Moving

1.5 DEFINITIONS

- A. C&D Material Diversion Report: Report documenting execution and status of C&D material included in the waste management report.
- B. C&D Materials Management Plan: Project specific plan for the collection/handling, disposition (recycle, reuse, salvage, disposal), transportation and tracking of C&D material.
- C. Construction and Demolition Materials: Includes all non-hazardous solid materials resulting from construction, renovation, alterations, repair and demolition. Includes material that is recycled, reused, salvaged, or disposed of as garbage.
- D. Construction Material: Building and site improvement materials and waste resulting from construction, remodeling, renovation, or repair operations. Construction materials includes packaging.

- E. Construction or Demolition Waste: Building materials with no recoverable value resulting from construction, remodeling, renovation, or repair operations. These materials are to be disposed of in a landfill.
- F. Deconstruction and Salvage Assessment: A project specific evaluation of the materials to be removed during a full or partial building removal.
- G. Demolition Debris: Building removal materials and waste resulting from demolition or selective demolition operations.
- H. Disposal: Removal off-site of demolition and construction waste for deposit in a landfill acceptable to authorities having jurisdiction.
- I. Diversion: Consisting of reuse, recycling and salvage of C&D Materials.
- J. Mixed Construction and Demolition (C&D) Recycling: The process of collecting mixed recyclable materials in one container on-site. The container is taken to a C&D processing facility where materials are separated for recycling. Containers with mixed C&D recycling may not include items for which current recycling markets do not exist. Non-recyclable materials must be placed into a separate waste container and disposed of as garbage.
- K. Qualified Facilities: Mixed C&D Material processing facilities certified as required.
- L. Recycle: Process of sorting, cleaning, treating and reconstituting materials for re-purposed use or for use in the manufacture of a new product.
- M. Reuse: Making use of a material without altering its form. Materials can be used on-site or reused on other projects off-site.
- N. Salvage: Recovery of materials for on-site reuse, off-site sale or donation to a third party.
- O. Source-Separated C&D Recycle: Process of separating recyclable materials in separate containers as they are generated on the job-site. The separated materials are hauled directly to an approved recycling facility providing recycling services for 100% diversion.

1.6 PERFORMANCE REQUIREMENTS

- A. General: C&D Debris shall be diverted from the landfill whenever practicable in accordance with the county's "Zero Waste by 2030" policy.
 - B. Disposal shall comply with King County Ordinance 17709 which provides in part that diversion rates for demolition and construction debris achieve a minimum of 80%.
 - C. All generators, handlers and collectors of mixed and nonrecyclable C&D Waste generated within the jurisdiction of King County shall deliver or ensure delivery to a designated C&D receiving facility. Mixed C&D materials and non-recyclable C&D waste generated in King County (outside of the cities of Seattle and Milton) must be sent to designated C&D material recovery facilities or transfer stations.
1. Beginning Jan. 1, 2016, mixed construction and demolition (C&D) materials and C&D waste from jobsites located in King County (outside of Seattle) must be sent to the facilities listed on the King County website at <https://kingcounty.gov/depts/dnrp/solid-waste/programs/green-building/construction-demolition/designated-facilities.aspx>

- D. Washington State regulations (WAC 173-345-040) require a separate collection container be provided for waste at jobsites that conduct recycling. Disposal shall comply with King County Ordinance 18166 using facilities that comply with Solid Waste Division Construction and Demolition Material Rule.
1. An updated list of facilities for King County is available at:
<https://kingcounty.gov/depts/dnrp/solid-waste/programs/green-building/construction-demolition/designated-facilities.aspx>.
- E. The following C&D Waste disposal bans apply to generators, handlers, collectors, and privately- and publicly-owned facilities designated by King County to manage C&D Waste, as authorized under King County Code Title 10:
1. As of January 1, 2016, the following materials are banned from disposal:
 - a. Concrete, asphalt paving and bricks, unpainted, without a hazardous constituent, and not attached to other materials.
 - b. Metal, ferrous and nonferrous – includes composite, multi-metal products or products with nonmetal contaminants but metal content must be more than 90 percent by weight of the material.
 - c. Cardboard – includes with tape, staples, and other fasteners and is dry and free of contamination such as paint, grease, grime or dirt.
 - d. Unpainted new construction gypsum scrap that is dry and does not have adhering spackling compound or excessive water damage that would prevent recycling.
 - e. Unpainted/untreated wood – excludes particle board and laminated veneer wood.
 2. Exceptions:
 - a. Bans do not apply where C&D Wastes are painted, have hazardous or asbestos containing constituents, are glued, nailed or otherwise connected to other material types, are present only in very small quantities, or are generated during disaster emergency situations where disaster debris needs to be removed quickly and recycling options are not available.
 - b. Waste residual from designated C&D Material Recovery Facilities (MRFs) may contain up to 10 percent by total combined weight of the materials listed above, based on the sampling methodology specified in the King County C&D MRF Waste Residual Sampling Protocol.
 3. In addition to the C&D materials banned from disposal by King County and the City of Seattle the following materials often have viable recycling markets and should be diverted for recycling whenever possible.
 - a. Carpet
 - b. Carpet pad
 - c. Window glass

- d. Field office material, including office paper, aluminum cans, glass, plastic, batteries.

F. Diversion Rates

- 1. King County: Disposal for all King County capital projects shall comply with King County Code 18.17.020 which provides in part that diversion rates for demolition and construction debris achieve a minimum of 80%. Disposal shall comply with K.C.C.10.30 using facilities that comply with Solid Waste Division Construction and Demolition Waste Rule.
- 2. Projects using the Scorecard achieve points by achieving diversion rates of 50, 75 and 95% under credit CM 1.1-1.3.
- 3. LEED Rating System (for all non-residential projects): Projects using LEED achieve points for achieving diversion rates of 50% (1 point) and 75%(1 additional point, 2 points total) under LEED 2009 MRc2.1-2.2 with an additional point available at 95% diversion under Innovation in Design. All King County capital projects are required to achieve 80% diversion and thus will be able to pursue at least 2 points in LEED

1.7 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling, diversion, and disposal regulations of authorities having jurisdiction.
- B. Preconstruction Conference: A portion of the Preconstruction Conference shall be dedicated to discussing C&D debris management, including:
 - 1. Review methods and procedures related to C&D materials management, including the requirements of each trade.
 - 2. Review and discuss C&D materials management plan including responsibilities of each subcontractor.
 - 3. Review C&D debris diversion goal(s) and reporting requirements.
 - 4. Review and finalize procedures for materials separation into container(s) for mixed recycling, source separated container(s) if applicable and disposal/trash container.
 - 5. Review container labeling. Verify availability of containers needed to avoid delays.
 - 6. Review plan to maintain proper container signage through to the completion of the project
 - 7. Review procedures for periodic container collection and transportation to diversion and disposal facilities.
- C. Weekly Review: Discuss C&D debris management at least weekly during standard safety/coordination meetings.
 - 1. Possible Topics
 - a. Discuss highlights and shortcomings of the previous week's diversion program

- b. Overall project diversion rate in comparison to goals
 - c. Upcoming C&D issues on site
 - 1) Moving/Locations of containers
 - 2) Source separated bins on site for specific scopes/contractors
 - D. Orientations: Include C&D debris management in subcontractor site orientations.
- 1.8 SUBMITTALS
- A. Submit the following according to SECTION 01 33 00.
 - 1. C&D Materials Management Plan: Submit plan prior to Preconstruction Conference.
 - 2. Deconstruction and Salvage Assessment
 - 3. C&D Materials Diversion Report(s): Submit completed waste report form prior to or as part of Substantial Completion. Sample report form is included at the end of this Section. Online reporting is also acceptable, as approved by the Project Representative.
- 1.9 CONSTRUCTION AND DEMOLITION MATERIALS MANAGEMENT PLAN
- A. Material Identification: Indicate anticipated types and quantities of demolition and construction material generated by the Work.
 - B. C&D Material Reduction Work Plan: List each type of C&D material and whether it will be salvaged, recycled, or disposed of in landfill. Include total quantity of each type of debris, quantity for each means of recovery, and handling and transportation procedures.
 - C. Salvaged Materials
 - 1. Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing and storing salvaged materials before incorporation into the Work.
 - 2. For Sale: For materials that will be sold to individuals and organizations, include a brief description of how the materials will be marketed for sale. Include list of their names, addresses, and telephone numbers.
 - 3. Donation: For materials that will be donated to individuals and organizations, include names of recipient (if known).
 - D. Recycled Materials: Include list of local receivers and processors likely to be used and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 - E. Disposed Materials: Indicate how and where waste will be disposed of. Include name, address, and telephone number of each transfer station that is intended to be used. Include also the landfill(s) in which the waste will be disposed.

- F. Handling and Transportation Procedures: Include method that will be used for separating recyclable materials from waste including sizes of containers, container labeling, and designated location where materials separation will be performed.
- G. General: Develop a C&D Materials Management Plan for this project that:
 - 1. Is consistent with King County Ordinance 17709. King County projects can use the C&D Materials Management Plan Template within the Sustainable Infrastructure Scorecard/Annual Green Building Reporting form at: <http://your.kingcounty.gov/solidwaste/greenbuilding/scorecard.asp>. The plan should be based on the one submitted at 30% design phase by the design team with any appropriate updates for changes in design that influence materials management.
 - 2. LEED Construction Waste Management Plans are not required to be in a specific format. Specific information needs to be included in the Plan. The King County above fulfill the LEED requirements and the C&D Plan can be used for LEED.
- H. All non-recyclable C&D materials must be placed in a separate waste container, destined for a landfill. A separate container is required by Washington State Law – WAC 173-345-040

1.10 DECONSTRUCTION AND SALVAGE ASSESSMENT

- A. General: If a salvage assessment has not already been provided, conduct a deconstruction and salvage assessment of the structure and equipment to be removed during the project using the template at the end of this section.
- B. The Deconstruction and Salvage Assessment (DSA) must be submitted as part of the C&D Materials Management Plan.
- C. A 3rd party verifying agent is required for projects involving whole building removal/interior renovation.

1.11 CONSTRUCTION AND DEMOLITION MATERIAL DIVERSION REPORT

- A. The Final Construction Material Management Report shall include the following.
 - 1. For each material recycled, reused, or salvaged from the Project:
 - 2. The total amount of the material, in tons or cubic yards.
 - 3. The receiving party.
 - 4. Net total costs or savings to the Project.
 - 5. Manifests, weight tickets, receipts and invoices.
- 6. For mixed materials, include the appropriate monthly or quarterly construction and demolition (C&D) diversion/recycling rate of the receiving facility. These rates are available on-line at <http://www.seattle.gov/util/ForBusinesses/Construction/CDWasteManagement/RecyclingRequirements/CertifiedFacilities/index.htm>. Note that mixed materials must only be recyclable materials. All non-recyclable C&D materials must be placed in a separate waste container, destined for a landfill.

7. The total amount (in tons or cubic yards) of material disposed of as waste from the Project, the location of the receiving facility, and the total disposal cost. Include manifests, weight tickets, receipts and invoices.
 - a. Disposal Receipts: Copy of receipts issued by a disposal facility for C&D waste that is disposed in a landfill.
 - b. Recycling Receipts: Copy of receipts issued by approved recycling facilities for mixed materials. Include weight tickets from the recycling hauler or material recovery facility and verification of the recycling rate for mixed loads at the facility.
 - c. Salvaged Materials Documentation: Types and quantities, by weight, for materials salvaged for reuse on site, sold or donated to a third party.
- B. Note that material used as Alternative Daily Cover (ADC) or Industrial Waste Stabilizer (IWS) do not count as diversion within the City of Seattle or King County. LEED v2009 for New Construction allows the use of ADC and IWS to be counted as diverted. LEED for Homes allows ADC and IWS to be counted as 50% diverted. LEED v4 does not allow ADC or IWS to be counted as diverted. No LEED system includes hazardous waste or land clearing debris in calculations.
- C. Provide final C&D report and documentation as required.
 1. King County: King County projects must report C&D diversion via the Sustainable Infrastructure Scorecard/Annual Green Building Reporting form or via the use of Green Halo on-line C&D tracking software (<https://greenhalosystems.com/>).
 2. Projects using the Sustainable Infrastructure Scorecard/ annual reporting form available at: <http://your.kingcounty.gov/solidwaste/greenbuilding/scorecard.asp> do not need to provide additional reporting. Final C&D Materials Diversion Report shall be submitted at project completion.
 3. LEED Rating System: Projects using LEED must complete the Credit Form and provide required uploads (CWM Plan, Commingle Facility Diversion Rate Documentation) directly through the project's LEED Online portal.

1.12 RESOURCES

- A. King County Solid Waste Division Construction & Demolition Materials Diversion website: <http://your.kingcounty.gov/solidwaste/greenbuilding/construction-demolition.asp> for general information on King County's construction recycling program, program contact and online resources.
 1. Contact the King County Solid Waste Division at (206)477-4466 or swd@kingcounty.gov.
 2. Publications may also be found on-line at www.greentools.us.
 - a. King County's "What Do I Do With . . . ?" on-line database <https://info.kingcounty.gov/Services/recycling-garbage/Solid-Waste/what-do-i-do-with/King-County-GreenTools-Construction-Recycling-Directory>
<http://your.kingcounty.gov/solidwaste/greenbuilding/construction-demolition.asp>

3. King County Solid Waste Division List of C&D Recycling Facilities
<https://kingcounty.gov/depts/dnrp/solid-waste/programs/green-building/construction-demolition/designated-facilities.aspx>.
4. Contact Kinley Deller of King County GreenTools at (206) 477-5272

PART 2 - PRODUCTS ¾ NOT USED

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Provide handling instructions, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B. Containers for C&D waste to be recycled and/or diverted clearly labeled with a list of acceptable and unacceptable materials
 1. The list of acceptable materials must be the same as the materials recycled at the recycling processor or receiving material recovery facility.
 2. Container labels, including list of acceptable and unacceptable materials shall be in language(s) and/or pictures understood by all the Contractor's and Subcontractors' workers.
 3. Protect and manage containers and their contents in accordance with the requirements of the recycling processor or receiving material recovery facility
- C. Engage a waste diversion management coordinator to be responsible for implementing, monitoring, and reporting status of the waste diversion management work plan. The designated coordinator shall be someone who is present at Project site full time for duration of Project.
- D. Include a C&D Materials reduction provision in material purchasing agreements for construction materials requesting that to the greatest extent possible materials and equipment be delivered in packaging made of recyclable material, the amount of packaging be reduced and packaging be taken back for reuse or recycling. Require that subcontractors have the same waste reduction provisions in material purchasing agreements.
- E. Training: Train employees, subcontractors, and suppliers on proper waste management procedures.
 1. Distribute waste diversion plan to all on-site employees, subcontractors and suppliers before starting the work. Review plan procedures and locations established for salvage, recycling, reuse and disposal with new employees.
- F. 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. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, and reused.

- G. Conduct regular visual inspections of containers, and remove any unacceptable materials.

3.2 SALVAGING DEMOLITION AND CONSTRUCTION MATERIALS

A. Salvaged Items for Reuse in the Work:

- 1. Clean salvaged items.
 - a. Pack or crate items after cleaning. Identify contents of containers.
 - b. Store items in a secure area until installation.
 - c. Protect items from damage during transport and storage.
 - d. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Removal From Site:

- 1. Clean salvaged items.
 - a. Pack or crate items after cleaning. Identify contents of containers.
 - b. Store items in a secure area until delivery.
 - c. Transport items to a storage area designated by Project Representative
 - d. Protect items from damage during transport and storage.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION MATERIALS

A. Packaging:

- 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
- 2. Polystyrene Packaging: Separate and bag materials.
- 3. Pallets: As much as possible, collect pallets for reuse, and require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, recycle with clean wood.
- 4. Crates: Break down crates and recycle with clean wood.

B. Wood Materials:

- 1. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- 2. Reusable: Sort and stack materials according to size, type, and length as required for reuse.
- 3. Non-Reusable:

- a. Clean wood shall be recycled.
 - b. Painted and treated wood should be disposed of as waste.
- C. Concrete:
1. Pulverize concrete to maximum size suitable for recycling or reuse applications identified in the C&D Materials Management Plan.
 2. Reinforcement may need to be removed and recycled with other metals, dependent on the requirements of the concrete receiving facility
 3. Concrete removed as a result of selective demolition shall be recycled by transporting to established concrete recycling facilities.
 4. Contractor shall maintain records, including weight tickets, of all recycled concrete loads and provide to King County a compilation of tons of concrete recycled upon project completion.
- D. Green Waste (Landclearing) Recycling
1. Green waste, such as trees, plants, and brush, removed as a result of selective demolition shall be recycled by delivery to established compost facilities. Contractor shall maintain records, including weight tickets, of all recycled green waste loads and provide to King County a compilation of tons of green waste recycled upon project completion.
- E. Scrap Metal Recycling: Separate metals by type.
1. Scrap metal, such as fencing and old reinforcement bar, removed as a result of selective demolition shall be recycled at established metal recycling facilities. Candidate facilities are listed below, but do not represent an endorsement. Contractor may propose alternative facilities.
 2. Contractor shall maintain records, including weight tickets, of all recycled metal loads and provide to King County a compilation of tons of scrap metal recycled upon project completion.
- 3.4 DISPOSAL OF WASTE (TRASH)
- 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, via a transfer station acceptable to authorities having jurisdiction.
 - B. Containers for C&D waste to be disposed in landfill shall be clearly labeled.
 - C. Some materials, such as filter fabric, plastic perforated pipe, pipe insulation, and roofing felt/protection board, are not readily recyclable. Such material is to be disposed of as waste. Contractor is responsible for loading and transportation of solid waste. Weight tickets of solid waste loads are to be maintained and written documentation provided to King County upon project completion.
 - D. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on-site.

- E. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- F. Burning: Do not burn or incinerate waste materials.

END OF SECTION