

## SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

### 1.01 SUMMARY:

- A. <sup>A17</sup>This Section requires the Contractor to handle, store, and dispose of all waste generated by his work in accordance with applicable Laws, [the Environmental Impact Study](#) (included in Volume II, Part 3, Subpart 3 (*ACP Environmental Requirements*) of the Employer's Requirements), and the Employer's standards preventing or mitigating impact to the environment, human health, or both. Waste description is provided in Section 01 57 19 (*Temporary Environmental Controls*).<sup>A17</sup> The Contractor shall treat or dispose of the materials or residues generated by the Works in approved areas.
- B. Without prejudice to the generality of Subparagraph 1.01 A. above, the Contractor shall implement administrative and procedural requirements to specifically address the following.<sup>A16</sup>
1. Salvaging of non-hazardous demolition and construction waste.
  2. Recycling of non-hazardous demolition and construction waste.
  3. Disposing of non-hazardous demolition and construction waste.
- C. **Related Sections:**
1. 01 57 19 *Temporary Environmental Controls.*
  2. 01 57 19.13 *Environmental Management System.*

### 1.02 <sup>A16</sup>REFERENCES: <sup>A16</sup>

- A. **Autoridad del Canal de Panamá (ACP):**
- |  |  |
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|  | Estudio de Impacto Ambiental Categoría III, Ampliación del Canal de Panamá – Tercer Juego de Esclusas  |
| Acuerdo No. 116                            | Por el cual se aprueba el Reglamento sobre Ambiente, Cuenca Hidrográfica y Comisión Interinstitucional de la Cuenca Hidrográfica del Canal de Panamá. (Del 27 de julio de 2006.) |
| <sup>A7</sup> (Deleted text) <sup>A7</sup> |  |
| 2610ESM103                                 | Norma Ambiental de Manejo y Utilización de Aceites Lubricantes y Derivados de Hidrocarburos.   |
| 2610ESM104                                 | Norma Ambiental de Manejo de Tanques de 55 Galones y otros Recipientes.  |
| 2610ESM105                                 | Norma Ambiental de Condiciones para Tanques de Almacenamiento de Petróleo, Aceites y Lubricantes.  |
| 2610ESM106                                 | Norma Ambiental de Recuperación y Manejo de Desechos Metálicos.  |
| 2610ESM107                                 | Norma Ambiental para Manejo de Desechos Sólidos.   |

<sup>A17</sup> 2600SEG-223	Norma para el Manejo y Disposición de Preservativos Químicos de Madera y Productos de Madera Tratados con Preservativos Químicos.
2600SEG-230	Norma para la Exposición al Plomo.
2600SEG-240	Norma para la Manipulación de Asbestos.
2600SEG-243	Norma para el Manejo de Fibras de Vidrio.
	Manual para Manejo de Materiales y Desechos. <sup>A17</sup>

**B. Autoridad Nacional del Ambiente (ANAM):**

Resolución DIEORA-IA-632-07 que aprueba el Estudio de Impacto Ambiental Categoría III y el Plan de manejo Ambiental de la Ampliación del Canal – Tercer Juego de Esclusas.

<sup>A7</sup> (Deleted text) <sup>A7</sup>

**C. Autoridad del Tránsito y Transporte Terrestre (ATTT) Decree-Law:**

Decreto Ejecutivo N° 640 (dictado por el Ministerio de Gobierno y Justicia) del 27 de diciembre de 2006, (Gaceta Oficial N° 25701), por el cual se expide el Reglamento de Tránsito Vehicular de la República de Panamá.

**1.03 DEFINITIONS:** Refer to Section 01 42 16.

**1.04 PERFORMANCE REQUIREMENTS:**

- A. <sup>A16</sup>**General:** The Contractor shall develop a waste-management plan to ensure the proper handling, storing, and disposal of all non-hazardous construction and demolition wastes generated by the Works.<sup>A16</sup> See Section 01 57 19.13 (*Environmental-Management System*).
- B. **Lead Hazard Control Activities:** <sup>A17</sup>The Contractor shall conduct waste management and disposal activities in compliance with ACP 2600SEG-230.<sup>A17</sup>
- C. <sup>A7</sup>**Salvage/Recycling** <sup>A7</sup> **Recommendations:** The Contractor shall salvage and recycle as much non-hazardous demolition and construction waste as possible. <sup>A16A17</sup>Salvaged or recycled materials shall not be used in the Permanent Works, but may be used in the Temporary Works. The Employer in no way guarantees that any salvaged or recycled materials are adequate or meet the requirements for the Contractor's proposed design of the Temporary Works or are suitable for the Temporary Works.<sup>A17</sup> The Contractor's salvaging and recycling of materials may include:<sup>A16</sup>
1. **Demolition Waste:**
    - a. Wood studs.
    - b. Wood joists.
    - c. Plywood and oriented strand board.
    - d. Wood paneling.

- e. Wood trim.
- f. Structural and miscellaneous steel.
- g. Rough hardware.
- h. Roofing.
- i. Insulation.
- j. Doors and frames.
- k. Door hardware.
- l. Windows.
- m. Demountable partitions.
- n. Equipment.
- o. Cabinets.
- p. Plumbing fixtures.
- q. Piping.
- r. Supports and hangers.
- s. Valves.
- t. Electrical conduit.
- u. Copper wiring.
- v. Lighting fixtures.
- w. Lamps.
- x. Ballasts.
- y. Electrical devices.
- z. Switchgear and panel boards.
- aa. Transformers.
- bb. Copper flashing.

2. **Construction Waste:**

- a. Timber:
- b. Wood sheet materials.
- c. Wood trim.
- d. Metals.
- e. Roofing.
- f. Piping.
- g. Electrical conduit.
- h. **Packaging:** The Contractor shall salvage or recycle the following uncontaminated packaging materials.

- 1) Paper.
- 2) Cardboard.
- 3) Boxes.
- 4) Wood crates.
- 5) Plastic pails.

#### 1.05 SUBMITTALS:

- A. <sup>A16</sup>**Waste-Management Plan:** <sup>A17</sup>The Contractor shall submit to the Employer’s Representative the waste-management plan (which forms part of the EMS manual) as indicated in Paragraph 1.04 of Section 01 57 19.13 (*Environmental-Management System*).<sup>A17</sup> The Contractor shall update the plan every 175 days and shall submit all such updates for approval to the Employer’s Representative.
- B. **Waste Reduction:** The Contractor shall provide evidence of his efforts to salvage, reuse, or recycle non-hazardous waste to the Employer’s Representative upon request. Evidence which is to be provided by the Contractor shall include the following:<sup>A16</sup>
1. Material categories.
  2. Generation point of waste.
  3. Total quantity of waste, in tons.
  4. Quantity of waste salvaged, in tons.
  5. Quantity of waste recycled, in tons.
  6. Total quantity of waste recovered (salvaged plus recycled), in tons.
- <sup>A7</sup> (deleted text) <sup>A7</sup>
- C. <sup>A16</sup>**Landfill-Disposal Records:** The Contractor shall, on a monthly basis, provide to the Employer’s Representative copies of all receipts and acceptance of waste by landfill facilities, including manifests, weight tickets, receipts, and invoices.<sup>A16</sup>

#### 1.06 QUALITY ASSURANCE:

- A. **Regulatory Requirements:** The Contractor shall comply with local disposal landfill regulations and the ACP document “Manual para Manejo de Materiales y Desechos”.<sup>A16</sup> Additionally, the Contractor shall engage only licensed, legally chartered transportation and disposal contractors and shall be solely responsible for compliance with Autoridad de Tránsito y Transporte Terrestre (ATTT) and other local regulations.<sup>A16</sup>(deleted text)
- B. **Waste-Management Meetings:** In conjunction with the Employer’s Representative, the Contractor shall arrange and conduct sufficient meetings to comply with waste-management requirements <sup>A7</sup>and the Contractor’s waste-management program.<sup>A7</sup> The first meeting shall be as soon as practicable after the submission of the waste-management plan to the Employer’s Representative. The meetings shall review methods and procedures related to waste management including, but not limited to, the following.
1. Review of the waste-management plan, including responsibilities of the waste-management coordinator.

2. Review requirements for documenting quantities of each type of waste and its <sup>A7</sup>disposal. <sup>A7</sup>
3. Review and finalize procedures for material separation and verify the availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities, <sup>A7</sup> if applicable <sup>A7</sup>.
5. Review waste-management requirements for each trade.

#### 1.07 WASTE-MANAGEMENT PLAN:

- A. <sup>A16</sup>**General:** The Contractor shall develop a plan consisting of waste identification, waste-reduction <sup>A7</sup> initiatives, and <sup>A7</sup> waste-reduction procedures during the Works. <sup>A16</sup>
- B. **Waste Identification:** The Contractor shall indicate anticipated types and quantities of demolition, site-clearing, and construction wastes generated by the Works and shall include estimated quantities and assumptions for estimates.
- C. **Waste-Reduction Work Plan:** The Contractor shall list each type of waste and <sup>A7</sup> indicate <sup>A7</sup> whether it will be salvaged, recycled, or disposed of in an approved landfill or waste-treatment facility. The Contractor shall include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, staging locations for each type, and handling and transportation procedures.
  1. <sup>A16</sup>**Salvaged Materials for Reuse:** For materials that will be salvaged and reused in the Temporary Works, describe methods for preparing salvaged materials before incorporation into the Temporary Works. <sup>A16</sup>
  2. **Salvaged Materials for Sale:** For materials that will be sold to individuals and organizations, include a list of their names, addresses, and telephone numbers.
  3. **Salvaged Materials for Donation:** For materials that will be donated to individuals and organizations, include a list of their names, addresses, and telephone numbers.
  4. **Recycled Materials:** Include a list of local receivers and processors and the type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  5. **Disposed Materials:** Indicate how and where materials will be disposed of. Include name, owner, operator, and location of each landfill or treatment facility, together with transportation manifests and acceptance receipts.
  6. **Handling and Transportation Procedures:** Describe the method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Site where material separation will be located.

#### 1.08 PLAN IMPLEMENTATION:

- A. **General:** The Contractor shall implement the waste-management plan as approved by the Employer's Representative and shall provide the required handling, containers,

storage, segregation, staging, invoices, receipts, permits, signage, transportation, and other items during the entire duration of the Contract.

- B. <sup>A16</sup>**Waste-Management Coordinators:** As part of the Contractor’s Personnel, the Contractor shall designate waste-management coordinators to be responsible for implementing, monitoring, and reporting on the status of the waste-management plan – one on the Pacific side and one on the Atlantic side. The coordinators shall be properly qualified and experienced in the management of construction wastes and shall be present on Site full time for the duration of the Works.<sup>A16</sup>
- C. **Training:** The Contractor shall institute a training regime for Contractor’s Personnel on proper waste-management procedures, as appropriate for the Works. The Contractor shall:
1. Distribute the waste-management plan to everyone concerned within 3 days of approval by the Employer’s Representative and document its receipt and dissemination.
  2. Distribute the waste-management plan to all personnel when they first begin work on the Site. Review plan procedures and locations established for salvage, recycling, and disposal.
  3. Post copies of the waste-management plan at Contractor’s offices<sup>A7</sup> on site.<sup>A7</sup>
- D. <sup>A16</sup>**Site Access and Temporary Controls:** The Contractor shall conduct waste-management operations to prevent any nuisance or inconvenience to the owners, tenants, or occupiers of other premises upon or in the locality of the Site and to the public in generally. This shall include taking measures to reduce the nuisance from noise, dust, odors, fumes, and vibrations during the carrying out of the Works.
- E. The Contractor shall, without limitation:<sup>A16</sup>
1. Designate and label specific areas, on or near the Site, necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
  2. Comply with Section 01 50 00 (*Temporary Facilities, Accesses and Controls*) for controlling dust and dirt, environmental protection, noise control, and management of storm-water runoff from staging locations.

## 1.09 SALVAGING DEMOLITION WASTE:

- A. <sup>A16</sup>**Salvaged Items for Reuse in Temporary Works:**<sup>A16</sup>
1. <sup>A7</sup>The Contractor shall notify the Employer’s Representative of all proposed reuse of salvaged items.
  2. The Contractor shall pack or crate items and identify contents of containers.
  3. The Contractor shall store items in a secure area until installation.
  4. The Contractor shall install salvaged items to comply with installation requirements and shall provide the connections, supports, and miscellaneous materials necessary to make items functional for the use indicated.<sup>A7</sup>

- B. **Salvaged Items for Sale and Donation:** The Contractor shall be entitled to sell or donate salvaged items.
- C. **Salvaging Incentives:** Revenues, savings, and other incentives received for salvaging waste materials shall accrue to the Contractor.

**1.10 GENERAL RECYCLING OF DEMOLITION AND CONSTRUCTION WASTES:**

- A. **Aluminum Cans:** The Contractor shall collect for recycling aluminum beverage containers used by on-site workers.
- B. **Recycling Receivers and Processors:** The list below is provided for information only. Available recycling receivers and processors include, but are not limited to, the following.
  - 1. Panametal Traders, S.A. (Jose Pinilla) 221-0811, 202-4510.
  - 2. Ivan Alvarez Lopez 6673-6363.
  - 3. Pamersa, S.A. (Evelio Peralta) 295-0029, 6674-3292.
  - 4. Panascrap, Inc. (Pablo Naya) 261-8012, 261-6300, 6677-8797.
  - 5. Yit Hua International, Trade, Ltd. (Israel Guerra) 6622-3064.
  - 6. Rong Bao International (Roberto Huang) 290-1388, 290-1688.
  - 7. SSMS International Inc. (Anand Mohta) 216-6041, 6675-2551.
- C. **Recycling Incentives:** Revenues, savings, <sup>A7</sup>tax deductions, <sup>A7</sup> and other incentives received for recycling waste materials shall accrue to the Contractor.
- D. **Procedures:** The Contractor shall separate recyclable waste from other waste materials, trash, and debris and shall separate recyclable waste by type on Site to the maximum extent practical.
  - 1. The Contractor shall provide appropriately marked containers or bins for controlling recyclable wastes until they are removed from Site. A list of acceptable <sup>A7</sup>materials shall be displayed at each container or bin. <sup>A7</sup> The Contractor shall inspect containers and bins for contamination and shall remove any contaminated materials <sup>A7</sup>that are found. <sup>A7</sup>
  - 2. The Contractor shall stockpile processed materials on Site without intermixing them with other materials. The Contractor shall place, grade, and shape stockpiles to drain surface water <sup>A7</sup>(deleted text). <sup>A7</sup>
  - 3. The Contractor shall stockpile materials away from the construction area, but not within the drip line of remaining trees.
  - 4. The Contractor shall store components off the ground and protect them from the weather, <sup>A7</sup>which will help maintain their recyclable value <sup>A7</sup>.
  - 5. The Contractor shall remove recyclable waste from the Employer's property and transport it to a recycling receiver or processor.

### 1.11 RECYCLING OF SPECIFIC DEMOLITION WASTES:

- A. **Wood Materials:** The Contractor shall sort and stack these materials according to size, type, and length, separating lumber, engineered wood products, panel products, and treated wood.
- B. **Metals:** The Contractor shall separate metals by type.
  - 1. **Structural Steel:** The Contractor shall stack these items according to size, type, and length.
  - 2. The Contractor shall remove and dispose of bolts, nuts, washers, and other rough hardware.
- C. **Equipment:** The Contractor shall drain water tanks, piping, and fixtures, sealing openings with caps or plugs and protecting equipment from exposure to weather. Tanks, piping, and fixtures used for petroleum, oils, and lubricants require special handling in accordance with ACP 2610ESM104.
- D. **Plumbing Fixtures:** These items shall be separated by type and size.
- E. **Piping:** The Contractor shall reduce piping to straight lengths and store it by type and size. The Contractor shall separate supports, hangers, valves, sprinklers, and other components by type and size.
- F. **Lighting Fixtures:** The Contractor shall separate lamps by type, protect them from breakage<sup>A7</sup>, and eventually dispose of them at approved facilities<sup>A7</sup>.
- G. **Electrical Devices:** <sup>A7</sup>Switches,<sup>A7</sup> receptacles, switchgear, transformers, meters, panel boards, circuit breakers, and other devices shall be separated by type.
- H. **Conduit:** The Contractor shall reduce conduit to straight lengths and store <sup>A7</sup>them by <sup>A7</sup>type and size. <sup>A7</sup>This will facilitate storage and transportation.<sup>A7</sup>

### 1.12 RECYCLING OF SPECIFIC CONSTRUCTION WASTES:

- A. **Packaging:**
  - 1. **Cardboard and Boxes:** The Contractor <sup>A7</sup>shall break down packaging, preferably <sup>A7</sup>into flat sheets, bundling and storing it in a dry location<sup>A7</sup>, ready for disposal.<sup>A7</sup>
  - 2. **Pallets:** To the extent possible, the Contractor shall require pallets to be removed from Site following deliveries. The Contractor shall break down the pallets that remain on Site into component wood pieces and comply with the requirements for recycling wood.
  - 3. **Crates:** The Contractor shall break down crates into component wood pieces and comply with requirements for recycling wood.
- B. **Site-Clearing Wastes:** Refer to Section 31 23 00 (*Excavation and Fill*).



C. **Wood Materials:**

1. **Clean Lumber Cut-Offs:** The Contractor shall grind or chip these cuttings into small pieces.
2. **Clean Sawdust:** The Contractor shall bag sawdust that does not contain painted or treated wood.

**1.13 DISPOSAL OF WASTE:**

- A. **General:** Except for items or materials to be salvaged, recycled, or otherwise reused, the Contractor shall remove waste materials from Site and <sup>A7</sup> properly dispose of them in an approved landfill, **or throughout authorized waste management services**, as previously verified through local and pertinent authorities. <sup>A7</sup>
1. Except as otherwise specified, the Contractor shall not allow waste materials that are to be disposed <sup>A7</sup> of <sup>A7</sup> to accumulate on-Site.
  2. The Contractor shall remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas or along hauling roads.
  3. **Fluorescent lamps and scrap tires require special handling by the Contractor. Fluorescent lamps may be crushed and mercury vapors recovered, or exported to another country for recycling or final disposal according to national and international requirements for exporting hazardous waste. Scrap tires may be used for erosion control, vulcanized or reused. The Contractor shall submit for the Employer's Representative approval the selected management procedure for these wastes.**
- B. **Burning:** The Contractor shall not burn waste materials on the Site nor arrange for their burning off the Site.
- C. **Disposal:** The Contractor shall transport waste materials off the Employer's property and legally dispose of them.

**END OF SECTION**

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