

SECTION 01 57 19 – TEMPORARY ENVIRONMENTAL CONTROLS

1.01 GENERAL REQUIREMENTS:

A. ^{A17}**General.**^{A17}

1. ^{A19}For the monitoring, mitigation, and prevention actions in this Contract, the Contractor shall comply with Employer standards and regulations and with the requirements established in the Environmental Impact Study (referred to herein as the EsIA), including those concerned with the environmental management plan (chapter 8 of the EsIA) and the Environmental Resolution by the Autoridad Nacional del Ambiente (ANAM) that approved the study.^{A19}
2. ^{A17}The following parts of Chapter 8 of the EsIA shall not apply to this Contract: all aspects related to the operations phase (which refer to the future operation phase of the new locks); section 8.3.5.1 — related to compensation and reforestation; 8.3.8.5 — related to changes in land use; 8.3.8.7 — related to affected infrastructure; 8.3.8.8 — related to affected structures; 8.3.8.18 — related to indigenous people; 8.3.8.19 —related to Gatun Lake; and 8.3.8.20 — related to resettlement. The EsIA is included in Volume II, Part 3, Subpart 3 (*ACP Environmental Requirements*) of the Employer's Requirements.^{A17}

- B. The environmental management system (EMS) to be submitted by the Contractor under Paragraph 1.03 of Section 01 57 19.13 (*Environmental-Management System*) shall present in detail the proposed implementation procedures and other required plans as described in the EsIA. The EMS shall be presented in the form of a manual (EMS Manual) and shall include mitigation measures, monitoring methodologies, costs, manpower requirements, equipment information, and schedules.

C. **Pollution Prevention:** ^{A17}The Contractor shall:^{A17}

1. Conduct his work in such a way that environmental pollution and hazards resulting from any and all activities involved in the Works — including vegetation clearing, demolition, site clearance and cleaning, excavation, concrete and cement preparation and mixing, vehicle maintenance, boring, spoil disposal, quarrying, dredging, and all construction work — are minimized and properly monitored.
2. Protect natural resources within the limits of the different project working areas, as well as those resources that could be affected outside the working areas.
3. Cleanse, contain, treat, or dispose of, to the Employer's Representative's satisfaction, all contamination resulting from the Works and return the affected areas to their original condition. The original condition shall be agreed upon with the Employer's Representative prior to any disturbance.
4. ^{A16}Follow the requirements of chapter 8 of the EsIA that are applicable to the Works and provide capable personnel, such as an environmental manager and specialists, to ensure compliance with the environmental requirements under this Contract.^{A16}
5. ^{A16}Include in the EMS Manual, for approval, a summary of all construction, administrative and operational controls that will be implemented to contain or

avoid leaks or spills of hazardous substances and materials into the air, water, or soil, whether accidentally or intentionally.^{A16}

- D. ^{A19}Without prejudice to the Contractor’s responsibility for preventing, detecting, and diligently correcting environmental non-conformities, the Employer’s Representative will notify the Contractor concerning any non-compliance with the environmental management system, including the detailed implementation proposal and other system components, as set forth in Section 01 57 19.13 (*Environmental-Management System*) or regarding the occurrence or the potential occurrence of any adverse condition which may arise during execution of the Works.^{A19} After receipt of such notification, the Contractor shall submit to the Employer’s Representative, within seven 7 days, or earlier in case of an emergency, details of the corrective actions [see Subparagraph 1.05 B.1 of Section 01 57 19.13 (*Environmental-Management System*)] proposed to be taken to correct the situation, which, following approval, shall be carried out immediately or within an agreed time frame. If the Contractor fails to diligently comply, the Employer’s Representative may issue a stop work order for the relevant part of the Works affected, until the corrective actions are implemented and the environmental non conformities corrected to the satisfaction of the Employer’s Representative. No extensions of time or additional compensation will be awarded to cover the cost resulting from such work suspensions.

^{A16}**1.02 REFERENCES:**^{A16}

^{A7}**A. Autoridad Nacional del Ambiente (ANAM) Publications:**

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.
Decreto Ejecutivo N° 209 de 5 de septiembre de 2006	por el cual se aprueba el Reglamento del Proceso de Evaluación de Impacto Ambiente.
Título III, Capítulo I, Ley N° 24 de 7 de Junio de 1995	^{A19} por la cual se establece la Legislación de Vida Silvestre en la República de Panamá”. ^{A19}
Ley 1 de 3 de febrero de 1994	por la cual se establece la Legislación Forestal.
Resolución No. AG-0174-2005 de 25 de marzo de 2005	por la cual se reglamenta el transporte de madera en tucas, aserrada y semiaserrada y se dictan otras medidas y otras disposiciones.
ANAM N° AG 363-2005	que establece la obligatoriedad del registro de los hallazgos históricos y arqueológicos nacionales.
^{A16} Resolución No. 0020-98 del 11 de Noviembre de 1998 ^{A16}	emitida por la Autoridad Nacional del Ambiente (ANAM), la cual suministra los estándares de los niveles de emisión permisibles para centrales térmicas que utilicen combustible líquido.

B. Autoridad del Canal de Panamá (ACP) Studies, Agreements, and Directives:

^{A19}Environmental Impact Study of the Third Set of Locks (and the environmental management plan requirements therein).^{A19}

Acuerdo No. 116
(de 27 de julio de 2006)

por el cual se aprueba el Reglamento sobre Ambiente, Cuenca Hidrográfica y Comisión Interinstitucional de la Cuenca Hidrográfica del Canal de Panamá.

Directriz AD 2003-02

Establecimiento de los Procedimientos Ambientales de la ACP.

Directriz AD 2006-02

Programa de Ahorro de Energía de la ACP.

^{A19}Procedimiento para el Manejo de Recursos Históricos Encontrados en Áreas del Proyecto de Ampliación.^{A19}

C. Autoridad del Canal de Panamá (ACP) Manuals and Procedures:

Manual para Manejo de Materiales y Desechos.^{A7}

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.

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2610ESM105

Norma Ambiental de Condiciones para Tanques de Almacenamiento de Petróleo, Aceites y Lubricantes.

2610ESM107

Norma Ambiental para Manejo de Desechos Sólidos.

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D. ^{A7}Ministerio de Comercio e Industrias:

Reglamento Técnico
DGNTI-COPANIT 35-2000

Descarga de efluentes líquidos directamente a cuerpos y masas de aguas superficiales y subterráneas.

Reglamento Técnico
DGNTI-COPANIT 39-2000

Descarga de efluentes líquidos directamente a sistemas de recolección de aguas residuales.

Reglamento Técnico DGNTI-COPANIT 47-2000	Usos y disposición final de lodos.
Reglamento Técnico COPANIT 44-2000	Higiene y seguridad industrial. Condiciones de higiene y seguridad en ambientes de trabajo donde se genere ruido.
Reglamento Técnico DGNTI-COPANIT 45-2000	Higiene y seguridad industrial. Condiciones de higiene y seguridad en ambientes de trabajo donde se genere vibraciones.
Reglamento Técnico DGNTI-COPANIT 43-2001	Higiene y seguridad industrial. Condiciones de higiene y seguridad para el control de la contaminación atmosférica en ambiente de trabajo producida por sustancias químicas.
E. Ministerio de Salud (MINSA) Decree-Law:	
Decreto Ejecutivo N° 225 (dictado por el Ministerio De Salud) de 18 de diciembre de 1998, (Gaceta Oficial N° 23697)	Por el cual se reglamentan los artículos 7, 8 y 10 de la Ley N° 36 de 17 de mayo de 1996, y se dictan otras disposiciones relativas a la protección de la capa de ozono.
Decreto Ejecutivo N° 306 de 4 de septiembre de 2002	por el cual se adopta el reglamento para el control de los ruidos en espacios públicos, áreas residenciales o de habitación, así como en ambientes laborales.
Decreto Ejecutivo No. 1 de 15 de enero de 2004	que modificó el Art. 7 del Decreto Ejecutivo N° 306 de 4 de septiembre de 2002.
F. Coordinación de las Oficinas de Seguridad para la Prevención de Incendios (COSEPI), Cuerpo de Bomberos, dependiente del Ministerio de Gobierno y Justicia:	
Resolución N° 03-96, de 18 de abril de 1996	por la cual se crea el Manual Técnico de Seguridad para instalaciones, almacenamiento, manejo, distribución y transporte de productos derivados del petróleo.
Resolución CDZ-03/99 de 11 de febrero de 1999	por la cual se aclara la Resolución N° CDZ-10/98 del 9 de mayo de 1998 por la cual se modifica el Manual Técnico de Seguridad de Combustibles y se actualizan y unifican las normas y especificaciones bajo las cuales se elaboran, aprueban, construyen e inspeccionan las instalaciones que expenden y almacenan combustible derivados del petróleo, ya sean privada, industriales u otras.

G. **Instituto Nacional de Cultura:**

Ley No. 14 de 5 de mayo
de 1982

por la cual se dictan medidas sobre custodia,
conservación y administración del patrimonio
histórico de la nación.^{A7}

1.03 ^{A16}**DEFINITIONS:** Refer to the Conditions of Contract and Section 01 42 16.^{A16}

1.04 **ENVIRONMENTAL REQUIREMENTS:**

- A. **General:** ^{A17}The Contractor shall conduct all work exercising care for the environment, controlling hazardous and non-hazardous wastes, and preventing pollution and unnecessary damage to the environment that may result from activities performed under the Contract.^{A17 A19}The Contractor shall implement the mitigation measures required by the applicable sections of the EsIA and by the Environmental Resolution. The project signs required in the Environmental Resolution shall be installed by the Contractor in both the Atlantic and the Pacific areas.^{A19}
- B. **Pollution Prevention:** ^{A17}The Contractor shall implement measures to prevent pollution in working areas, carefully complying with the environmental management plan with respect to the use, handling, and disposal of hazardous and non-hazardous wastes and of hazardous materials (including petroleum, oils and lubricants - POL and other hydrocarbons, pesticides, solvents, paints, sludge, and slurry) and preventing their release into the air, water, or soil.^{A17}
- C. ^{A16}**Environmentally Preferable Products:** ^{A17}The Contractor shall use environmentally friendly products whenever possible to reduce the introduction of dangerous chemicals or materials to the work area and the environment.^{A17} Refer to Reglamento Técnico DGNTI-COPANIT 43-2001.^{A16}
- D. ^{A16}**Waste:** Refer also to Section 01 74 19 (*Construction Waste Management and Disposal*) and the EsIA.^{A16}
1. The Contractor shall temporarily store all waste generated by his work and shall treat it according to the Employer's regulations and standards to prevent or mitigate impact to the environment, human health, or both.
 2. Waste includes, but is not limited to, paint and solvent residues, paintbrushes, rags, paint rollers and empty paint cans, oily water, metallic waste, wasted concrete and/or truck washout, portable toilet waste, grey water, grease and kitchen wastes, food and beverage containers, utensils, and wrappers. Wasted concrete and/or concrete truck washout shall be disposed of in a designated area for wasted concrete. Containers must be in good condition, closed when not in use, protected from the rain, and marked to indicate the substances in them. If the Contractor is using more than one solvent for painting or equipment-cleaning operations, these need to be stored in separate, covered containers to facilitate recovery. The Contractor shall treat or dispose of these materials or residues generated by his work in approved areas.
 3. ^{A17}For the 1939 excavations in the Pacific area, the Employer has conducted a sediment sampling and testing program. The sampling and testing program reveals that contaminants in sediments do not exceed Employer's reference

values; therefore, the Contractor shall remove the material from the 1939 excavation and dispose of it at any of the inland disposal areas assigned to the Contractor, pursuant to normal practices and the terms of this Contract.^{A17}

4. For the 1939 excavation in the Atlantic area, the Contractor shall remove the sediments/sludge and dispose of it pursuant to normal practices and the terms of this Contract.^{A16}
- E. ^{A19}**List of Hazardous Materials:** The Contractor shall submit to the Employer's Representative a list of hazardous materials to be used during the work, in accordance with Section 01 35 23 (*Health and Safety Requirements*).^{A19}
- F. **Concrete Batching Plant and Aggregate Processing Plant (Including Cement Silos) and Water Cooling Plant with Water Intakes:** Emissions, control systems, and effluents shall comply with Employer and national regulations for particles and gases.^{A19} Refer to the Environmental Resolution and the EsIA.^{A19}
- G. **Lead Hazard Control Activities:** The Contractor shall protect the environment from lead hazards.^{A17} The Contractor shall execute the work in compliance with applicable sections of ACP 2600SEG-230 and Decreto Ejecutivo N° 225 (dictado por el Ministerio De Salud) del 18 de diciembre de 1998, (Gaceta Oficial N° 23697), por el cual se reglamentan los artículos 7, 8 y 10 de la Ley N° 36 de 17 de mayo de 1996 y se dictan otras disposiciones sobre la materia.^{A17}
- H. ^{A16}**Mangrove Protection:** Mangroves are protected ecosystems. The Contractor shall take all reasonable measures to avoid the unnecessary destruction or disturbance of mangroves and to protect existing patches of land covered with mangroves, both within and peripheral to the Site. The Employer will consider as a disturbance the Contractor's disruption of areas with mangrove vegetation or the destruction of mangroves.^{A19} Whenever a disturbance is unavoidable, the Contractor shall prepare a report detailing the nature of the anticipated disturbance, explaining why it is unavoidable, and describing measures to be taken to reduce its impact. This report shall be submitted to the Employer's Representative for approval at least 56 days before starting the work that is expected to produce the disturbance. The Contractor shall also design mitigation measures so that undisturbed mangroves are not affected by a reduction of salt-water inflows. If mangroves are eliminated or destroyed as a result of the Contractor's actions, the Contractor will be held responsible for paying the corresponding ecological compensation fees and the Employer will be responsible for the reforestation of the equivalent of twice the area affected.
- I. If any discrepancies arise among the environmental requirements in the RFP, Panamanian environmental regulations, measures specified in the EsIA, and the Environmental Resolution (DIEORA-IA-632-07), the Contractor shall adhere first to the strictest environmental requirements, i.e., those that offer the highest degree of environmental protection.^{A19}

1.05 LAND RESOURCES:

- A. **Project Limits:** The Contractor shall limit his activities to the areas established in drawings and specifications. Except for the areas indicated in drawings and specifications, he shall not work on or alter drainage, culverts, or access roads nor remove, cut down, deteriorate, harm, or destroy cultural or land resources (including

trees, shrubs, vines, sod,^{A7} brush^{A7} vegetation, and the lay of the land) without prior written approval^{A7} from^{A7} the Employer's Representative. The Employer inspected with ANAM the vegetation to be affected within the Footprint of the Lock Structures in order to proceed with the payment of the ecological compensation for these areas. ANAM's ecological compensation for clearing of vegetation in other areas beyond the Footprint of the Lock Structures could vary according to the Contractor's design. If so, this issue shall be addressed by the Employer when the areas have been identified by the Contractor.^{A19} However, the Employer has reached an agreement with ANAM to allow the Contractor to work on the Site.^{A19}

- B. **Resources to be Preserved:** ^{A17}Before the work begins, the Employer's Representative will identify and inform the Contractor of land resources to be preserved within the Site.^{A17} ^{A16}In the case of the Pacific locks, the Contractor shall take all reasonable steps to avoid affecting mangrove ecosystems.^{A16} ^{A17}In the case of the Atlantic locks, buildings and areas listed as being of historic importance shall be maintained in their present state, in particular, but not limited to, the lighthouse located on Lighthouse Road, the cemetery that is located on Thelma King Road, and Building 206 in Gatun.^{A17}
- C. **Protection of Trees:** ^{A17}Trees within the limits of the Site shall be protected and shall not be used for anchoring purposes using lines or cables, unless specifically authorized.^{A17} Wherever this technique is allowed, effective protection of land resources and vegetation shall be provided at all times, as indicated by the Employer's Representative. Any tree that must be eliminated in order to comply with the Works may be harvested.^{A10} However, such removal requires prior authorization from the Employer's Representative, to comply with Resolución AG-0174-2005.^{A10} ^{A19}The Contractor shall mark the trees that have logging potential. Trees with logging potential are those with diameters of at least 60 cm at breast height and from species having commercial value (Jobo, Espavé, Tachuelo, Laurel, Zorro, Cedro, Corote, Cortezo, Amarillo, María, Higuérón, Caoba, and Guayacan). The Contractor shall selectively harvest all marked trees at 30 cm. from the ground by cutting them into logs with saws. The Contractor shall limb the harvested wood and crosscut it into 8-, 10-, or 12-foot pieces. Harvesting activities shall be included within the wildlife rescue and relocation plan. (Refer to Paragraph 1.07.)
1. As a reference, trees with logging potential have been estimated to amount to a maximum of 10 trees per hectare in the Pacific area and 12 trees per hectare in the Atlantic area. The areas where these trees are found are limited to partial sections of the Site that are covered with mature secondary forest. These span approximately 40 hectares in the Pacific area and 80 hectares in the Atlantic area.
 2. Harvested wood may be used by the Contractor for the Works. If any is not used for the Works, the Contractor shall deliver it, entirely at his own expense, to the designated holding area. For the Atlantic area, the designated holding area is located in the Parque Natural San Lorenzo (615108.8 E, 1020091.7 N), approximately 7 km from the Site; for the Pacific area, the designated holding area is located along the west access road to the Centenario Bridge (648536 E, 995444 N), approximately 6 km from the Site. The designated holding areas are shown in the figure "Harvested Wood — Designated Holding Areas" in Volume II, Part 3, Subpart 3 (*ACP Environmental Standards/Regulations*). Both designated holding areas are accessible by road and within areas administered by ANAM.

3. The Contractor shall coordinate harvesting and delivery activities with the Employer's Representative. The Contractor shall be responsible for obtaining all necessary transportation authorizations and shall meet the requirements of Ley 1 de 3 de febrero de 1994 and of Resolución AG-0174-2005.^{A19}
- D. **Preservation of Clear Areas:** Clear areas shall be preserved as found. Soil, rocks, or any other materials transferred to these areas shall be removed.^{A7} This applies both to areas that might be used temporarily as staging or working areas and to any temporary facilities that will not be used again by ACP after Contract completion. All such temporary structures shall be demolished.^{A7}
- E. ^{A16}**Hydrocarbon-Spill Control:** The Contractor shall implement and rigidly enforce handling and control procedures to prevent any petrol, oil, or lubricant spill within the Site. In the event of an accidental POL spill, the Contractor shall clean and remove the contaminated soil for proper final disposal.^{A17} Cleanup procedures shall be included in the contingency plan to be approved by the Employer's Representative. Refer to Section 01 57 19.13 (*Environmental-Management System*) and the EsIA.^{A17A16}
- 1.06** ^{A16}**WATER RESOURCES:** ^{A17}The Contractor shall protect water resources at all times.^{A17A16} The Contractor shall keep control of all work-related activities to avoid contamination of surface, ground and ocean water. The Contractor shall not pour or discharge, intentionally or non-intentionally, ^{A7}wastewater, or any materials or chemicals (hazardous or non-hazardous) ^{A7} into the soil or onto vegetation as a disposal or treatment method.
- 1.07** ^{A16}**PROTECTION OF FAUNA:** Prior to and during Site preparation in areas to be excavated and prior to and during the execution of any activities within the 1939 excavations, the Contractor shall comply with the requirements for the wildlife rescue and relocation plan that are found in the EsIA. Refer to the fauna rescue plan requirements in Section 01 57 19.13 (*Environmental-Management System*) and the EsIA.^{A16}
- 1.08** **OTHER RESOURCES - CULTURAL, HISTORICAL, AND PALEONTOLOGICAL:** ^{A19}The Contractor shall safeguard any as yet undiscovered structures, antiquities, or archeological or paleontological resources and shall stop the work in the vicinity of whatever is discovered.^{A19} The Contractor shall then inform the Employer's Representative, who ^{A7}will ^{A7} give the Contractor appropriate instructions.^{A7} The Contractor shall allow the salvaging of cultural resources in project areas, in accordance with Instituto Nacional de Cultura, Ley No. 14 del 5 de mayo de 1982.^{A7} ^{A19}Historical findings shall be managed in compliance with the Employer's established procedure for historical findings (see reference in Paragraph 1.02.B.) In accordance with Sub-Clause 4.6 (*Co-operation*), the Contractor shall allow the Employer to perform paleontological studies at the Site.^{A19}
- 1.09** **END OF WORK CLEANUP:** ^{A17}Prior to the issue of a Taking-Over Certificate, with the exception of the Permanent Works, the Contractor shall clean and restore to their original condition all areas used for the execution of the Works under this Contract and remove all Temporary Works; refer to Sub-Clause 4.23 (*Contractor's Operations on Site*) of the Conditions of Contract and to post-operations environmental recovery plan requirements in Section 01 57 19.13 (*Environmental-Management System*) and the EsIA. To this purpose, all areas shall be inspected with the Employer's Representative prior to the commencement of the Works and a report on existing conditions prepared by the Contractor shall be submitted to the Employer's Representative for approval within 21 days of the Commencement Date.^{A17} ^{A19}The

Contractor is responsible for documenting initial conditions and establishing the environmental baselines by sampling the applicable parameters of the areas assigned.^{A19}

1.10 TRAINING OF CONTRACTOR'S PERSONNEL: The Contractor shall be responsible for providing^{A7} and documenting^{A7} environmental-awareness^{A7} subject training^{A7} sessions among all his personnel.^{A19} All the Contractor personnel shall receive an initial and periodic training sessions; in some instances personnel may be required to receive additional training to strengthen their capabilities.^{A19} These sessions shall cover the^{A7} Employer's commitment to environmental protection and the requirements established for environmental protection, including pollution prevention, handling of hazardous materials and waste, solid-waste disposal, protection of water resources, wildlife protection, and preservation of raw materials and natural resources.^{A16} Refer to the environmental education plan requirements in Section 01 57 19.13 (*Environmental-Management System*) and the EsIA.^{A16} Contractor's Personnel shall be trained concerning the EsIA requirements to ensure compliance during^{A7} the entire execution period under this Contract.

1.11 ACCESS ROADS: The Contractor is responsible for preparing a traffic-management plan to^{A7} mitigate the impact of^{A7} increases in the regular flow of traffic to and from the work areas. Contractor's Personnel shall be transported in an organized manner, with preset transport schedules, preferably moving workers from specified locations during off-peak hours in surrounding communities.^{A8} When feasible, equipment and supplies may be transported by water, as detailed in Sub-Clause 4.13 (*Rights of Way and Facilities*) and Section 01 50 00 (*Temporary Facilities, Accesses and Controls*).^{A8} The traffic management plan shall be incorporated to the EMS Manual in accordance with Section 01 57 19.13 (*Environmental Management System*).^{A19}

1.12 ENVIRONMENTAL MONITORING AND INSPECTIONS:

- A.^{A16} The Contractor shall monitor and maintain audit compliance records as indicated in the environmental management plan requirements of the EsIA and shall prepare, for the review of the Employer's Representative, a monthly written report that reflects the status of any spills, incidents, or other environmental non-compliance issues, together with the monitoring reports. These reports shall include the EMS Manual compliance evaluation and all the relevant information, evidence, analysis, registers, and other documentation to support the compliance status, including contents defined within the EsIA.^{A16} They shall be submitted in both English and Spanish, and within the deadline requirement of Sub-Clause 4.21 (*Progress Reports*) of the Conditions of Contract.
- B.^{A19} The area for installation of water intakes and the estimated amount of water to be consumed shall be submitted to the Employer's Representative. Water discharged from cooling plants or any wastewater treatment facility shall comply with applicable Employer and national regulations described in Reglamento Técnico DGNTI-COPANIT 35-2000 and Reglamento Técnico DGNTI-COPANIT 39-2000. Refer to Section 01 50 00 (*Temporary Facilities, Accesses and Controls*).^{A19}
- C. Incidents and spills shall be reported immediately to the Employer's Representative.

END OF SECTION

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