ITEM 641.9700nn25 - MAINTENANCE CLEANING AND WASHING OF BRIDGES

1. DESCRIPTION:

1.01 This work shall consist of cleaning bridges by collecting and properly disposing of trash and debris from the bridge, pressure washing the deck, exposed concrete, asphalt and steel bridge surfaces, and cleaning the drainage system and other drainage ways as described herein.

1.02 **DEFINITIONS:**

Loose paint chips -	paint chips that are no longer adhered to bridge surface.
Flaking paint chips -	paint chips that are still partially adhered to bridge surface.
Trash and debris -	including but not limited to sand, soil, cinders, silt, dirt, mud, salt, glass, paper, rubber, metal, wood, loose paint chips and loose pieces of concrete and asphalt and rock or stones.
Protected Migratory Birds -	Includes all waterfowl, herons, hawks, owls, eagles and songbirds. Excludes rock doves (pigeons), house sparrows, European starlings and monk parakeets.
Migratory Bird Treaty Act Of 1918 With Amendments -	Federal law that protects migratory birds and their nests, eggs, and feathers. Conviction of violating the act can result in a fine of $15,000.00 or imprisonment for six (6) months or both.

2. MATERIALS:

2.01 Water for pressure washing shall be clean, fresh water. Equipment for collecting trash and other debris from bridge decks shall be determined by the Contractor, subject to the approval of the Engineer, and will normally consist of, but not be limited to, industrial vacuums, brushes, brooms, shovels or plastic shovels when indicated in the proposal, directed by the Engineer or when other shovels are damaging coated surfaces. Detergents or other agents shall not be used.

3. CONSTRUCTION DETAILS:

3.01 Bridge washing shall be done in such a manner so as to begin on the top surfaces and work downward. Unless otherwise indicated in the proposal, all stone, asphalt and concrete bridge surfaces shall be cleaned as closely to the order listed below. Cleaning shall include but not be limited to approach slabs and shoulders, signs, railings, parapets, drainage features and concrete beams.

Cleaning of concrete bridge deck surfaces shall be limited to all top surfaces including sidewalks, curbs, joints and fascias including the underside of the overhang to the fascia beam. The underside of deck shall be limited to cleaning ten (10) feet on either side of joint(s). Cleaning of structural steel shall be limited to end diaphragms, outside of fascia beams, and ten (10) feet on either side of joint(s) and/or piers. Other surfaces to be cleaned are wing walls, back walls, bridge seats, bridge bearings, piers and pier caps, columns, concrete paving block and other surfaces as designated by the Engineer. Limited paved drainage ways and gutters off-structure shall also be cleaned of debris that if permitted to remain would cast runoff back onto the structure or into its drainage ways including those that may exist underneath the structure. The extent of such removal shall be less than 100 feet but it is intended that they be only the minimum necessary to accomplish the purpose of ensuring that runoff is not cast back onto the structure being cleaned or its drainage ways.

3. CONSTRUCTION DETAILS: (cont'd)

3.02 The Contractor may either withdraw water from local on-site sources of use water from a municipal source for bridge washing. If water is to be drawn from a local on-site water source, to protect aquatic life, there may not be any loss of water elevation at the site of withdrawal or immediately downstream of the site. To further protect aquatic life, water withdrawal shall be accomplished with use of a screened hose, with a screen size not to exceed ¼ inch square. To prevent the unintentional spread of invasive species such as zebra mussels, wash water withdrawn from a local on-site water source may not be transported to be used at another bridge site in a different watershed. If water is withdrawn from an on-site source, cleaning of equipment will be conducted prior to leaving that watershed. All small equipment (pumps, hoses barriers, silt fences, floating booms, cofferdams, shovels, rakes, jumping jacks, plate tampers, boots, buckets, industrial vacuums, etc.) and large equipment (backhoes, excavators, trucks, tankers, rollers, trailers, etc.) that comes into direct contact with water withdrawn from a local on-site water source must be cleaned (internally and externally) by soaking, dipping in, or scrubbing with chlorine solution, and/or hot water or steam cleaned and allowed to dry before the next use. If approved by the Engineer, wash water may be drained back into the original body of water, as long as conditions are such that this would not cause chemical or biological contamination. Otherwise, wash water will be collected in suitable containers and disinfected prior to final disposal.

3.03 All nests of protected migratory birds on bridges should be presumed to be active and occupied between April 15 and August 15. The areas within three (3) feet laterally or the nest should not be cleaned or washed, pressure washing should start at the three (3) feet line and progress away from the nest.

Before April 15 and after August 15 nests of protected migratory birds on bridges will most likely be inactive and unoccupied. If confirmed to be unoccupied, the nests should be removed as part of the cleaning operation.

Nests of unprotected species should be removed as part of the cleaning operations. However, pigeons should be treated as humanely as possible, in socially and environmentally sensitive situations removal of young from the nest for raising by a wildlife rehabilitator should be considered.

3.04 Block paving and paved surfaces other than asphalt paving between adjacent or parallel bridges shall also be cleaned if required by the Engineer or if indicated in the proposal. Such cleaning shall be limited to narrow areas less than seven meters in width.

3.05 All loose trash and debris shall be collected by sweeping, shoveling, vacuuming and other suitable methods. The Contractor shall not cause or allow trash and/or debris from the bridge to be deposited into a wetland, stream, other water body or active traffic lanes during the cleaning of the bridge.

Sand, dirt, cinders and similar debris collected from the bridge deck may be disposed of at an on-site upland area when not prohibited by the proposal if approved by the Engineer, and if the amount of this material does not exceed one cubic meter 1.0 cubic yard in volume. This material shall be disposed of in such a way that it cannot enter a wetland, stream or other water body. If the amount of sand, dirt, cinders and similar debris is greater than three (3) feet, or if the EIC does not approve of on-site disposal of the material, then the material shall be disposed at a suitable off-site disposal facility.

All other trash and debris collected from the bridge shall be disposed of at a suitable off-site disposal facility.

3. CONSTRUCTION DETAILS: (cont'd)

3.06 When trash and debris collection from the bridge is complete, all bridge surfaces, including the underside of the bridge as described above, shall be pressure washed with clean, fresh water. The washing of all surfaces of the structural steel as described above shall be adequate to remove all visible dirt, salt, animal waste and similar debris, however if flaking paint exists on the bridge surface, then the surface where paint is flaking shall not be washed.

3.07 The equipment for pressure washing shall be operated at pressures that do not damage adhered coatings on the bridge or undercut the grout or harm the masonry plates beneath the bearings. At no time shall the pressure wash exceed 1,000 psi, except when pressure washing weathering steel surfaces. All flakes and delaminations will be removed from weathering steel. The Contractor will be required to pressure wash weathering steel with a minimum water pressure of 3,200 psi, with the wand held 12 inches or less from the surface and moved parallel to the surface. When washing stream and wetland bridges, the quantity and flow rate of the water used shall be the minimum necessary, as approved by the Engineer, to clean foreign materials from the surfaces where they are encountered. Pressure washing will not be allowed when ambient temperatures are less than 40°F before the bridge is dry.

The Engineer will be the sole determiner as to when temperatures lower than 40°F are likely to occur and adequate pressure and/or volume of water is being maintained.

3.08 Scuppers, troughs, downspouts and drain pipes shall be cleared of debris above ground level or to their outlet if above ground by using high pressure water, vacuum, or other techniques satisfactory to the Engineer. In addition, all cleanouts shall be opened and cleaned to the satisfaction of the Engineer. The system shall then be visually inspected for the complete removal of all debris by use of flashlights, cameras, or other means satisfactory to the Engineer. Chemical cleaning compounds shall not be used during flushing operations, unless their use has been approved by the D.E.C. and clearance has been given by the Engineer for their use. Debris from the cleaning operations shall not be deposited in, or around the structure, highway roadway slopes, drainage systems or streams. It shall be disposed of in a manner satisfactory to the Engineer.

After cleaning has been completed, the Engineer shall determine the flow characteristics of the cleaned system with water. If, in the Engineer's opinion, flow is still impeded because of the presence of dirt or other removable matter or object in the system, the Engineer will direct the Contractor to reclean the system, including dismantling and reinstalling, if required, at no additional cost to the Authority. Any damage to the system or structure that occurs during the operations shall be repaired by the Contractor to the satisfaction of the Engineer at no additional expense to the Authority.

3.09 When concrete paving block is cleaned and washed, the removal of weeds between the blocks will not be required under this item.

3.10 All structures or bridge drainage systems over water courses shall be washed during the periods indicated in the proposal. If no schedule is presented, the following shall apply. Washing shall occur only when adequate flow in the stream exists to dilute possible contaminants as determined by the Engineer. Operations shall be sequenced so as to clean structures over small bodies of water or small streams in the spring of the year when flows are greatest.

Streams categorized by DEC as Ct(s) i.e. trout spawning, shall be washed prior to July 1 and bridges located at DEC yearling trout stocking sites shall not be washed during April. Washing, whether during a scheduled period or not, shall be stopped if stream flow drops below normal or if directed by the Engineer.

3. CONSTRUCTION DETAILS: (cont'd)

3.11 Work shall be conducted in such a manner so as not to damage or remove existing epoxy protective coatings or existing intact paint coatings or any other protective coating on the bridge. Any damage to the structure being worked on or to surrounding structures and property shall be repaired by the Contractor to the satisfaction of the Engineer and at no cost to the Authority.

3.12 After all trash and debris has been collected, the drainage system cleaned and washing is completed, the bridge will be inspected by the Engineer. The cleaned bridge surfaces shall be free of trash and debris as described under Construction Details and the drainage system free running except those systems the Engineer agrees were damaged prior to any cleaning work on the bridge.

3.13 Work Zone Traffic Control shall be in accordance with the proposal, Section 619 of the Standard Specifications, or as ordered by Engineer. High pressure spray and high volume drainage of wash water shall be controlled so as to not present a hazard to traffic or to cause erosion of adjacent ground or drainage ways. Under no circumstances shall high pressure spray or high volume drainage of wash water be discharged directly into active traffic lanes.

4. METHOD OF MEASUREMENT:

4.01 The work will be measured for payment on an each basis for structures satisfactorily washed.

5. BASIS OF PAYMENT:

5.01 The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete work including the cost of cleaning the drainage system; collecting, removing and disposing of trash and debris including that off structure but necessary to prevent backup of runoff onto the structure or its drainage ways.

NOTE: nn denotes a serialized pay item based on the number of spans in the bridge as follows:

nn	Number of Spans
01	One (1) or two (2) Spans Mainline Thruway Bridge – Rolled Beam/Plate Girder, Multi-Girder
02	Three (3) or Four (4) Spans Mainline Thruway Bridge – Rolled Beam/Plate Girder, Multi-Girder
03	Five (5) or more Spans Mainline Thruway Bridge – Rolled Beam/Plate Girder, Multi-Girder
04	One (1), Two (2) or Three (3) Spans Mainline Thruway Bridge – Deck Arch, Frame
05	One (1) or Two (2) Spans Bridge over the Mainline Thruway – Rolled Beam/Plate Girder, Multi-Girder – Floor Beam System
06	Three (3) or Four Spans Bridge over the Mainline Thruway – Rolled Beam/Plate Girder, Multi-Girder
07	One (1), Two (2), Four (4) or Five (5) Spans Pedestrian Bridge over Thruway or Local Roads
08	Five (5) or More Spans Bridge over the Mainline Thruway – Rolled Beam/ Plate Girder, Multi-Girder