


TO: SUPERSEDED BY EB 01-010 EFFECTIVE 2/6/01	ENGINEERING INSTRUCTION NEW YORK STATE DEPARTMENT OF TRANSPORTATION	
	SUBJECT: DEMOLITION SPECIFICATION Subject Code: 7.27-1-202	
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APPROVED:  J.R. LAMBERT, Deputy Chief Engineer, Facilities Design Division		

In order to reduce the possibility of unanticipated collapse during demolition operations the Department has revised Section 202 -REMOVAL OF STRUCTURES & OBSTRUCTIONS of the Standard Specifications with the intent of increasing safety.

The attached Section 202 is the result of several Department wide reviews and the following is a description of the major changes to this section.

1. Language was added throughout the section basically drawn from Title 29 Code of Federal Regulation, Part 1926, Subpart T-Demolition, Safety and Health Regulations for Construction (OSHA). This includes requirements for an Engineering Survey to be conducted by the Contractor. The findings of this survey shall constitute a removal plan and shall address the following areas of concern:

- a) existing condition of the building or structure
- b) possibility of a collapse during demolition operation
- c) condition of adjacent buildings or structures within 100 feet if directed by the Engineer
- d) description of type, size and location of equipment to be used in the demolition operation
- e) sequence of removal activities
- f) required bracing or shoring needed to secure or stabilize deteriorated buildings or structures to allow workers to work safely
- g) walls, supports, and bracing necessary to accomplish the demolition of a party wall structure

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h) details of the shoring and foundation of said shoring necessary to prevent damage to adjacent property during demolition operations.

i) designation and identification of non-access areas during structure demolition activities

The specifications require that registered professional engineers or registered professional architects are to perform these engineering surveys except for bridges less than 20 feet and buildings of ordinary wood frame construction. The specification is written however so that the State may waive this requirement in the Contract Documents.

The decision to waive is to be made by the designer. In making the decision the following factors should be considered:

Structural Condition. A deteriorated structure may be more prone to unplanned collapse and such structures would not be good candidates for waiving the requirements.

Construction Material. Concrete structures may be more prone to unplanned collapse during removal thus may not be good candidates for waiving requirements.

Structural Form. Girder bridges may be more simply removed than either truss or arch bridges and single span bridge demolition is simpler than that for continuous spans. These would suggest these structures as possible candidates for which the waiver might be appropriate. However, if the bridge deck works in composite action and equipment is to work from a such a deck while its concrete element is being removed, it will be necessary to re-rate the bridge deck to reflect this condition.

Unless the designer performs this analysis during the design of the demolition, the work of re-rating would have to done by a registered professional engineer commissioned by the Contractor.

Crossed Feature. Deep or fast moving water or an active highway beneath the structure may complicate removal. This would tend to exclude such structures from waiver.

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Removal Notes for Bridge Structures. The following notes should be placed on the Contract Plans for structures longer than twenty feet, as appropriate:

Either of;

"1. The Contractor's attention is directed to the requirements of §202-3.01 General and Safety Requirements. A removal plan, signed by a registered professional engineer in the State of New York shall be submitted to the Engineer thirty (30) days prior to beginning the demolition."

OR

"1A. The Contractor's attention is directed to the requirements of §202-3.01 General and Safety Requirements. A removal plan shall be submitted to the Engineer fifteen (15) days prior to beginning the demolition. The requirement that it be signed by a registered professional engineer is waived."

In addition to either of the above notes, either of the following should also be placed on the contract plans:

"2. Record plans for this structure are available at the Regional Office of the Department of Transportation."

OR

"2A. Record plans for this structure are not available."

2. A general requirement was added that asbestos and other hazardous materials be removed from the buildings and structures in accordance with specifications for this work, prior to their demolition. This includes following the requirements found in the asbestos remediation plan and specifications prepared for the project by the department's consultants and disposing of these materials according to all applicable laws, rules, and regulations.

3. Provisions were added to the section on tank removal (§202-3.04). These increase safety by requiring explosion meters and monitoring, breathing apparatus, standby workers, and harnesses for workers actually working in the tank.

Petroleum storage tanks were previously disposed of under a lump sum pay item. To facilitate contract administration should additional tanks be encountered during the course of the work,

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the item has been broken up into various tank sizes with payment on a per tank basis.

The range of sizes is as follows:

Size Range	Tank Capacity
01	0 to 275 gallons
02	276 to 500 gals
03	501 to 1000 gals
04	1001 to 2500 gals
05	2501 to 5000 gals
06	5001 to 10,000 gal
07	10,001 to 20,000
08	20,000 plus gals

The full pay item is formed by adding the size range to the parent item 202.05. For example, Item 202.0501 would apply to the removal of an ordinary household fuel oil tank of 275 gallons or less.

The resulting set of pay items is applicable for above-ground and in-ground storage tanks but for only petroleum product storage tanks. If the tank contains other materials, a special specification must be used.

4. Requirements were added for sidewalk canopies to protect workers and pedestrians alike from injury by falling objects during building demolition. These are required by OSHA.

5. Mention was made in the section that the Engineer has the authority to direct pest control be performed as extra work even without an order by some governmental authority (City, County, or State). This section was also slightly expanded to involve DEC or the Local Animal Control Officer if wildlife (raccoons, birds) are involved and the Local Animal Control Officer if the animals are domestic animals.

6. Provisions were added providing more equitable payment for reestablishing grass and for building walks and driveways. Designers should make themselves familiar with the "basis of payment" subsection before preparing an estimate because substantial changes have been made to past practice. In some cases the designer should consider drawing details indicating how the

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work is to be accomplished and paid for.

7. The whole section was made gender neutral so as to be consistent with DOT policy in this area.

8. Payment for the removal of Substructures is by the Cubic Yard based on payment lines shown on the plans. It is important that the designer detail these so as to avoid confusion and difficulty in the administration of the contract.

These changes, most of which are already required by OSHA, will require an increase in the preparatory effort by the contractor for projects involving demolition. In addition, the format is new. How much all this will affect bid prices remains to be seen because it can not be predicted. However in relation to the potential savings because of increased safety the changes are warranted.

The following changes have been made to the existing list of pay items at the end of the section.

Item No.	Description
deleted 202.04	Disposal of Petroleum Storage Tanks or other tanks (275 Ea gallons or less) Containing Explosive Gases or Flammable Liquids
deleted 202.13nnnn	Dismantling and Removing Existing Superstructures
added 202.05xx	Disposal of Petroleum Storage Tanks (various size ranges)

Question regarding this Engineering Instruction and attached Section 202 can be directed to E. Gillespie at (518) 457-4090

This Engineering Instruction becomes effective on October 22, 1992.

SECTION 202 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Make the following changes to the Standard Specifications of January 2, 1990.

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Delete Section 202 REMOVAL OF STRUCTURES AND OBSTRUCTIONS in its entirety and *replace* it with the following:

"SECTION 202 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

202-1 DESCRIPTION. This work shall consist of the removal and disposal, wholly or in part, of all buildings, structures, pavements, obsolete utility lines and tanks which are released to the Contractor in accordance with the provisions of these specifications. The work includes the demolition of existing superstructures, substructures, supporting bents and columns, surrounding material, and the removal of old bituminous concrete overlay and bituminous patches, within the right-of-way, listed in the itemized proposal, or directed by the Engineer. It also includes salvaging and storing designated materials, relocating designated buildings and backfilling resulting trenches, holes, pits, and cellars.

202-2 MATERIALS (Not specified)

202-3 CONSTRUCTION DETAILS

202-3.01 General And Safety Requirements. The Contractor shall conduct all demolition operations in a safe, legal, and responsible manner and shall ensure that any equipment, material, or method used shall be safe for the workers and the public. All laws, rules, regulations, and local building codes shall be followed. Local building code shall mean, outside of New York City, a code enacted or adopted by competent local officials or bodies at least as stringent in its requirements as the "New York State Fire Prevention and Building Code" and its associated reference standards. In New York City, Local Building Code shall mean the New York City Building Code.

Prior to demolition operations, an engineering survey as outlined in Title 29 Code of Federal Regulation, Part 1926, Subpart T- Demolition, Safety and Health Regulations for Construction (OSHA), shall be made by a competent person of the building, bridge, or other structure to determine its condition and possibility of collapse of any portion. As defined in Title 29 Code of Federal Regulation, Part 1926, Subpart C-General Safety and Health Provisions (OSHA); "Competent Person" means someone employed by the Contractor who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are or will be unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. For purposes of this contract a competent person shall mean a registered professional engineer experienced in structures design, construction or demolition for bridge structures longer than twenty feet unless waived in the contract documents and for buildings, other than ordinary wood frame construction, shall mean a registered professional architect or registered professional engineer experienced in building design, construction, or demolition.

Adjacent buildings or structures, within 100 feet of the building or structure, shall also be included in the survey if directed by the Engineer. The findings and recommendations of this

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survey shall constitute a "removal plan." Removal plans that are required to be prepared by a registered professional engineer or architect shall be made available to the Engineer thirty (30) days prior to the commencement of demolition. Other removal plans shall be made available fifteen (15) days prior to demolition. The removal plan shall include a description of the type, size, weight, and location of all equipment to be used and a sequence of removal activities. The removal plan shall be filed with the Project Safety and Health Plan prepared, pursuant to §107-05 Safety and Health Requirements for the project .

The Engineer may return the removal plan and require additional engineering surveys and studies to be conducted if the removal plans do not adequately identify and address obvious safety and other identified conditions. However, the Engineer's failure to return any removal plan for additional studies and recommendations shall not relieve the Contractor from the obligation of preparing an adequate removal plan and conducting adequate engineering surveys that safeguard the workers and public.

During the course of the operation, the buildings or structures, including adjacent buildings or structures directed to be included, shall be monitored on a frequent and continuing basis by the Contractor's competent person. The results shall be made available to the Engineer and filed with the Project Safety and Health Plan in a timely manner.

Before any structure or building served with or having utilities thereon is demolished or relocated all telephone, cable, electric, gas, water, steam, or any other service shall be shut off at the street and capped, or otherwise made safe and controlled, outside the building or off the structure before the general demolition work is started. Remediation work of asbestos or other hazardous material however may proceed before services are cut. In each case, the utility companies involved shall be notified, in writing, at least five (5) working days, or longer if indicated elsewhere in the contract documents, in advance of the work. The Contractor will be held fully responsible for any claim arising from failure to do so.

All severed sewer lines or drains emanating from the building or structure shall be capped or otherwise tightly sealed to prevent the entry of foreign materials into the main sewer or drain.

The Contractor shall protect power, water, or other utility lines during demolition. If such lines cannot be protected in place they shall be temporarily relocated, as necessary, and protected prior to undertaking any demolition work that might affect them. Unless indicated otherwise, all utility relocation work will be performed by, and at the expense of, its respective owners upon adequate notice.

During the periods that personnel are required to work on, in, or around a building or structure to be demolished or relocated which is in a damaged or deteriorated condition by fire, flood, explosion, weather, or other cause, its elements shall be adequately braced to prevent collapse. Details of the bracing shall be provided in the removal plan previously mentioned in connection with the engineering survey and shall be included with the Project Safety and Health Plan for the project.

All asbestos materials or other hazardous materials shall be removed from or otherwise remediated on each structure or building before the general demolition work on that building or structure begins. The requirements and payment for this work will be as indicated elsewhere in the contract documents and as outlined in the asbestos or hazardous material remediation plan prepared by the State or others for the project.

Where a falling hazard exists to personnel, the openings shall be protected to a height of approximately forty-two (42) inches. All floor or deck openings not used as material drops shall be covered over with materials substantial enough to support the weight of any loads which

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may be imposed upon them. Such materials shall be properly secured to prevent accidental movement.

The Contractor shall repair or replace in kind, at no cost to the State and in a manner as approved by the Engineer, sidewalks, curbs, roadway and other materials designated to remain in place which are damaged by or as a result of the work.

202-3.02 Disposal Of Buildings. Any building designated for disposal and released to the Contractor thirty (30) days or earlier before the contract completion date, shall become the property of the Contractor and shall be promptly demolished at its site. Any proposal to allow such building or any portion thereof to remain standing at the site, or to be relocated to another site, shall be referred to the Director of the Real Estate Division for approval and shall be accomplished under terms and conditions established by the State. An appropriate extension of time may be allowed for work resulting from demolition of buildings released to the Contractor after the date indicated above. All abandoned equipment, material other than those of a hazardous nature, and fixtures of any kind remaining on the property after it is released to the Contractor shall become the Contractor's property and shall be removed as part of the building disposal. Materials of a hazardous nature shall be removed or remediated as indicated below. All the requirements of §202-3.01 General and Safety Requirements shall apply together with the following:

A. Unauthorized Entry. The Contractor shall immediately inspect all buildings released for demolition and shall prevent unauthorized entry to these buildings by boarding up or otherwise blocking potential entrances.

If material blocking entrances is removed, the Contractor shall, after determining the building to be vacant, replace the removed material in such a manner as to keep the buildings from being re-entered.

B. Hazardous Material. Asbestos, hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous materials in the building or on the property shall be removed and disposed of or otherwise remediated in accordance with all applicable rules, regulations and laws concerning the handling and disposal of Hazardous Materials or Hazardous Wastes. Payment and requirements for such disposals and/or remediations shall be as indicated elsewhere in the contract documents. Petroleum products in storage tanks shall be removed in accordance with and paid for under the pay item for Disposal of Petroleum Storage Tanks.

C. Rodent, Insect, and Wildlife Control. The Contractor shall exterminate rodents and insects in each building so infested, as determined by the Engineer, City, County or District Office of the State Department of Health. The Contractor or Subcontractor performing the exterminating work shall, upon request, show at least five (5) years experience at extermination of the kind required. If the building or structure to be demolished is inhabited by wildlife, the Regional Office of the Department of Environmental Conservation or the local animal control officer shall be contacted and given the opportunity to remove such wildlife before extermination or demolition operations are commenced. If inhabited by domesticated animals, the local animal control officer shall be given the opportunity to arrange for their removal.

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The work of extermination shall be performed in accordance with the requirements of the City, County or District Office of the State Department of Health.

Bait shall be placed at least thirteen (13) calendar days but not more than thirty (30) calendar days before actual demolition is started, or at such other times as required by the City or County Health Department. Insects shall be controlled by spraying or fumigating. If it is necessary to seal the building for the treatment to be effective or to prevent migration of insect, pest, or vermin, the Contractor shall seal the building.

If extermination is being conducted because it was ordered by the City, the County, or the State Department of Health, then the Contractor shall notify that office that the extermination has been completed and shall obtain their written concurrence that the extermination work was satisfactorily completed. Demolition work shall not proceed until the Engineer receives a copy of the written concurrence of the City, County or District Office of the State Health Department stating the extermination has been satisfactorily performed.

D. Glass. Glass that will create a hazard if fragmented shall be removed.

E. Demolition of Party Wall Structures. In the event that the demolition of one or more units of a group of party wall structures leaves a wall or walls exposed, the Contractor shall comply with the following requirements:

1. Furring, plaster, chimneys which are directed to be removed, projecting parts, and the like shall be removed.
2. The walls shall be made self-supporting, safe and weatherproof with construction similar to or consistent with the remaining building. The supports and bracing details necessary to accomplish this shall be included as a recommendation contained in the removal plan.
The walls shall be left in a presentable and sound weatherproof condition compatible in appearance with the remaining building and in conformance with local building codes, as determined by the Engineer.
3. The roof shall be properly flashed, repaired, or otherwise treated to prevent leaks.
4. The Contractor shall provide and place on solid foundation any shoring necessary to prevent damage to adjacent property. Necessary details of the foundation and shoring shall be included in the Removal Plan. The Contractor shall be held responsible for any claim arising out of failure to prevent damage to adjacent properties.
5. All work shall be in conformance with local building codes.

F. Demolition of Buildings. Unless mechanically demolished, the demolition of multi-story buildings herein defined as consisting of more than 2 1/2 stories shall be accomplished story by story without accumulating rubble on the floors of the partially demolished structure.

If mechanical demolition is used, during actual operations no worker shall be permitted at any location onto which debris may fall or which may become unstable or collapse as a result of the demolition operations. Only the minimum number of workers actually necessary

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for the performance of the work shall be permitted in those locations at other times until such time as the operations are complete and the debris has been removed.

If debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with substantial barricades nominally forty-two (42) inches high, or higher if directed, and placed not less than six (6) feet back from the projected edge of the opening above. If the hole is to be used by machines as a material drop, substantial timber or other curbing shall be securely anchored around the hole. The barricades, but not the curbing, may be moved aside temporarily during periods that the machines are actually using the hole. Barricades shall be promptly restored to their proper locations when the machines have ceased actually using the hole.

Signs warning of the hazard and of falling materials shall be posted at each level. Demolition and removal activities shall not be permitted in lower areas until debris handling ceases above.

G. Partial Demolition of Buildings. If the work involved consists of demolishing only a portion of a building, the Contractor shall cooperate with the owner(s) of the remaining portion so that annoyance and inconvenience is minimized.

The Contractor shall close the open ends of the buildings being partially demolished with construction similar to the remainder of the building and shall furnish and install supporting members, framing, and foundations to support the remaining structure. All construction necessary to close the openings shall be of a strength and type to meet the local building codes. Structural supports shall be of the same materials as the existing supporting members to which they frame or with which they share load or shall be compatible with them. The Contractor may use salvaged lumber for sheathing provided that such lumber is sound and suitable, as determined by the Engineer. New kiln dried timber and lumber shall be used for all other purposes. The supporting members, framing and foundation etc, necessary to accomplish this shall be submitted as a recommendation of the previously mentioned engineering survey and included with the Removal Plan for the building.

H. Demolition of Foundation. Unless indicated otherwise or their removal would endanger adjacent improvements, the Contractor shall remove the foundation walls to the depth of the lowest cellar floor and shall break up any cellar floor, backfill the hole and grade the site to the satisfaction of the Engineer immediately after disposal of the structure.

I. Dust Control. Provisions shall be made at every demolition site to control the quantity of dust resulting from demolition operations by wetting the debris and the immediate work area with water or other appropriate spraying agents or by means acceptable to the Engineer.

J. Maintenance and Protection of Traffic, Including Pedestrians. The contractor shall, for the duration of the contract, maintain and keep safely passable and free from debris, snow and ice, all public walkways adjacent to the properties on which buildings to be demolished are located.

Employee entrances to two or more story buildings being demolished shall be completely protected by sidewalk sheds, canopies or other means approved by the Engineer. Protection shall be provided a minimum distance of eight (8) feet from the face of the building. All such protection shall extend a minimum of one (1) foot beyond each side of the

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building entrances or openings and shall be capable of sustaining a load of 150 pounds per square foot.

All sidewalks or other walkways within eight (8) feet of a two story or taller building, or greater distance if indicated in the contract documents, upon which traffic is to be maintained shall be protected by sidewalk shed or canopy as required above. For single story buildings, these requirements may be waived if in the opinion of the Engineer the work may be satisfactorily and safely completed without these protective devices. No canopy or shed shall contain design features that will deflect falling material into an area where they could cause harm or injury to person or property.

K. Disposal of Materials. Disposal of all materials shall be in accordance with all federal, state, and local laws, rules, and regulations, any provision found elsewhere in the contract documents, and most specifically in the special provision "Construction and Demolition Debris", if included in the contract, and shall be subject to the approval of the Engineer.

L. Removal of Salvaged Materials. All salvaged materials shall be removed from the site of the work prior to the final acceptance of the project. The Contractor shall not hold any sales, public or private, of salvaged equipment, material, or articles on State owned land. The State does not guarantee the number of fixtures, quantity or quality of equipment or any other material of value existing in the building to be present after its release to the Contractor. The Contractor waives all claims against the State because the salvage value of any building has decreased at the time of disposal.

M. Use of Non- State Owned Land. If any material is to be placed upon non-state owned lands, written permission from the owner or tenant thereof shall be furnished to the Engineer prior to the use of such lands.

N. Removal of Buildings by Others. The State reserves the right to clear the Right of Way of any building by permitting the owner thereof to remove it from the site. Should any building be removed or demolished by its owner, the Contractor shall demolish the foundation and grade the site as indicated in §202-3.02H Demolition of Foundation.

O. Deletion of Buildings from Contract. The State reserves the right to delete any building demolition work from the Contract. There will be no compensation for claims of lost profits.

P. Explosives. Unless specifically authorized in the contract documents, demolition shall be accomplished without the use of explosives.

Q. Domestic Sewage Facilities. Septic tanks, leaching basins, cesspools and other similar facilities associated with buildings being demolished or those that will be abandoned shall be pumped free of septage or sewage, removed, and the resulting hole shall be backfilled in lifts of compacted suitable material. If permitted by the Engineer, the facilities may be collapsed in place after pumping instead of removal. Septage recovered from the pumping operation shall be handled, transported, and disposed of in accordance with 6 NYCRR Part 364.

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202-3.03 Relocating Buildings. The Contractor shall, if directed by the Engineer, relocate specified buildings to sites designated by the owner and approved by the Department. The Contractor shall do all work in accordance with applicable State and local requirements and shall obtain necessary permits.

All the applicable requirements of §202-3.01 General and Safety Requirements, §202-3.02 Disposal of Buildings and the following shall apply:

A. Preparation of Site. The Contractor shall construct all necessary foundations and cellar floors for the relocated building to meet applicable local building codes but not less than equivalent in construction to the existing features. The Contractor shall also grade the new site, and construct necessary driveways and sidewalks, topsoil and/or seed the area and perform other incidentally required items of work to prepare the site as indicated in the contract documents or by the Engineer.

B. Moving Buildings. The Contractor shall move the building safely and in a manner so as to cause the least possible damage to the building and the least possible interference with or inconvenience to its occupant(s). The Contractor shall also arrange for any temporary rerouting of overhead lines or relocating guide wires and for the clearance of other obstructions. The Contractor shall be responsible for the repair of any damage that may occur to the building, pavement and other features within and around the area of the move as a result of the move.

C. Service Connections. At the building's final location, the Contractor shall reconnect or arrange for the reconnection of necessary plumbing, gas, heating, electrical, sanitary, water supply and other services at least equivalent in construction to those existing. The work shall be accomplished in such a manner as to cause the least possible disruption to the properties affected. All work shall be in conformance with the requirements of the various utilities and local building codes. Payment and requirements for such work shall be as indicated elsewhere in the contract documents.

D. Restoration Work. The Contractor shall restore all portions of the building, including steps, porches, railings, lean-tos, and other appurtenances, to as good and serviceable condition as existed prior to its relocation as determined by the Engineer. Any property damaged or destroyed during the execution of the work shall be repaired or replaced, as determined by the Engineer at the contractor's expense to the satisfaction of the Engineer.

E. Demolition of Old Foundations. The Contractor shall remove old foundation walls in compliance with the provisions of §202-3.02H Demolition of Foundation.

F. Expenses and Liabilities. The Contractor shall save the State and the owner harmless as to all costs, expenses, and liabilities in connection with carrying out the work, and shall not hold the State liable for any claim on account of any delay or interferences with any part of the work due to relocating buildings.

G. Furnishing Sites. Sites to which the buildings are to be moved will be furnished without cost to the Contractor.

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H. Removal of Building by Others. The State reserves the right to clear the Right of Way of any building by permitting the owner thereof to remove it from the site.

Should the building be removed or demolished by its owner, the Contractor shall demolish the foundation and grade the site as indicated in 202-3.02H Demolition of Foundation.

202-3.04 Disposal of Petroleum Storage Tanks. §202-3.01 General and Safety Requirements and the following shall apply to this work.

All tanks containing petroleum liquids shall be removed in accordance with the requirements of the local fire and police officials, and those of the New York State Department of Environmental Conservation in general and 6 NYCRR Part 613 in particular. In addition, the following requirements shall apply:

A. Explosion Meter. The contractor shall supply an explosion meter to monitor the tank atmosphere.

B. Emptying Tanks Before Removal. Before the removal of any tank is commenced, it shall first be pumped completely dry. Any water obtained from this operation shall be transported and disposed of in accordance with applicable laws. Any product obtained shall be either disposed of according to applicable laws or used or recycled at the contractor's option. During the emptying operation the following restrictions shall apply:

1. Smoking shall be banned in the area.
2. All open-flame and spark producing equipment within the area shall be shut down.
3. All electrical and internal combustion equipment, unless it is designed to be 'explosive proof', shall be removed from the area.
4. Only "non-sparking" tools shall be used.
5. Static electricity shall be controlled.
6. The work area shall be secured.

C. Safety Precautions. After the excavation work of underground tanks has been completed, but before removal of the tank, the Contractor shall distribute a minimum of one pound of crushed dry ice for each eight (8) cubic feet of capacity (approximately 60 gallons) in the tank. Removal work shall not start until the readings from the explosion meter indicate that a safe and non-explosive tank atmosphere has been achieved. Removal work shall be progressed diligently and expeditiously without interruption until its completion. The explosion meter shall be used to take subsequent readings periodically or continuously as directed by the Engineer as work is progressing. If any reading indicates a dangerous level is approaching, work shall cease and the tank shall be repurged.

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The Contractor shall permit only trained and properly equipped personnel to enter the tank. Tanks shall not be entered unless personnel have proper breathing apparatus and standby personnel similarly equipped are present at the site to safeguard and protect those working in the tank. Workers in the tank shall also have and use lifelines.

After removal from the ground or from its supporting structure, the tank shall be immediately transported to an approved disposal area and once there shall be fully collapsed and buried or blown or cut open so as to leave no pockets of explosive gases.

D. Removal of Contaminated Soil. Contaminated soil shall be removed and paid for in accordance with provisions found elsewhere in the contract documents.

E. Backfilling. The Contractor shall backfill any resulting holes and trenches with suitable material placed and compacted in lifts if directed and regrade the area to drain as directed by the Engineer.

F. Removal of Supporting Structures. Tank supports shall be removed and disposed of in a manner approved by the Engineer.

202-3.05 Demolition of Structures - General. §202-3.01 General and Safety Requirements shall apply to this work and in addition the following also apply:

Except as noted below, any structure designated for demolition and released to the Contractor shall be demolished at its site. Any proposal to allow such structure or any portion thereof to remain standing on the site or to be relocated to another site, shall be referred to the Deputy Chief Engineer, Structures for approval and accomplished under terms and conditions established by the State.

Colored tapes, barricades, marking paint, and signs shall be used to mark all areas that could become subject to collapse or that could become unstable as a result of demolition activity. Such areas are to be designated as non-access areas, and are to be identified by the previously mentioned Engineering Survey. Personnel and equipment with operators on board shall remain outside these designated non-access areas at all times during demolition operations or at any time the area is subject to collapse.

During the course of demolition work, the Contractor shall cause the structure to continue to be monitored by a competent person, as defined in §202-3.01, and the designated non-access areas or any additional non access areas identified during the course of the work shall be appropriately marked and signed.

In accordance with state policy, steel and other metals other than those embedded in concrete or otherwise inseparable from articles being discarded shall be disposed of in a manner that ensures their salvage or beneficial re-use.

202-3.06 Dismantling and Storing of Existing Superstructures. In accordance with §202-3.01 General and Safety Requirements, §202-3.05 Demolition of Structures-General and the following, all concrete and paving material and other materials as directed shall be carefully removed from the structure in a manner so as to not damage materials to be stored. If not incorporated into the work the removed materials shall be disposed of by the Contractor in a manner approved by the Engineer and as outlined in §202-3.02K Disposal of Waste Materials. The parts of superstructure designated to be stored shall be dismantled, protected, and stored

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onsite or at the locations designated without damage. All stored steel members and other stored members as directed shall be adequately match-marked in order to permit reassembly.

Any parts of the structure designated for storage which are damaged during the course of the operation or during storage shall be repaired or replaced at the direction of the Engineer at the Contractor's expense.

202-3.07 Removing Existing Superstructures. In accordance with §202-3.01 General and Safety Requirements, §202-3.05 Demolition of Structures-General and the following, all concrete and paving material shall be removed from the structure and if not incorporated into the work shall be disposed of by the Contractor in a manner in accordance with laws, rules or regulations and as approved by the Engineer and as outlined in §202-3.02K Disposal of Waste Materials.

The rest of the material removed under this work will become the property of the Contractor and, except for materials incorporated into the work, shall be removed from the site of the work and disposed of in a manner approved by the Engineer.

202-3.08 Removing Old Bituminous Concrete Overlay. The Contractor shall remove the old bituminous concrete overlay and bituminous patches indicated in the Contract Documents in a manner approved by the Engineer. Should the overlay or patch to be removed contain one percent (1%) or less by weight asbestos, the material shall be softened by radiant heat and removed while still hot. Should the percentage asbestos be greater than one percent (1%) by weight, the material is defined as Asbestos Containing Material by Industrial Code Rule 56 and shall be removed and paid for as indicated elsewhere in the Contract Documents.

202-3.09 Removal of Substructures. The appropriate construction details specified for Section 203, Excavation and Embankment, as stated in §203-3.01 General through and including §203-3.08 Disposal of Surplus Excavated Material shall apply.

Sheeting or piling shown on the Contract Plans which is integral with the substructure and is designated to remain in place shall be cut off at the elevations shown on the plans. If indicated in the Contract Documents, existing sheeting or piling shall be extracted.

The Contractor may, with the permission of the Engineer, extract sheeting or piling not shown to be extracted or designated to remain in place rather than cutting it off at the elevations shown on the plans at no additional cost to the State.

If sheet piling is required solely to ensure the safety of workers and the public, Safe Operation Sheet Piling or a permitted alternative thereto shall be employed. The requirements indicating when Safe Operation Sheet Piling or a permitted alternative thereto is needed are indicated in Title 29, Code of Federal Regulations, Part 1926, Safety and Health Regulations for Construction (OSHA). If the sheet piling is necessary also to protect structures or other improvements, or if the alternatives of laying back slopes or benching are not permitted, the sheeting shall be Temporary Steel Sheet Piling or Temporary Timber Sheet Piling, as indicated or directed. Payment will be made under the designated respective item Temporary Timber Sheet Piling or Temporary Steel Sheet Piling.

If directed, the resulting hole shall be backfilled with suitable material placed in lifts and compacted to the satisfaction of the Engineer and the area shall then be regraded as directed, topsoiled, and/or seeded.

202-4 METHOD OF MEASUREMENT

SECTION 202 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

202-4.01 Relocating or Disposal of Buildings. The work will be measured on a lump sum basis for the relocation or disposal of the given building in accordance with the provisions of these specifications. Monthly estimates of the percentage completion will be made in proportion to the amount of work satisfactorily completed.

If a property owner, upon agreement with the Department, removes the building, the Contractor shall demolish the existing foundation, cellar floors, walks and other facilities to properly complete the work, and will be paid 20% of the bid price.

202-4.02 Disposal of Buildings (Credit Item). The bidder may provide a credit bid price for this work in the event that the estimated salvage value of the building materials exceeds the cost of demolition. When a credit bid price is intended for this work, it shall be identified by the bidder as follows:

- A. Where the unit bid price is written in words in the proposal the words "a credit to New York State of" shall be written by the bidder preceding the bid price in words.
- B. The bidder shall insert the word "credit" where the unit bid price and amount bid are written in numbers.

202-4.03 Disposal of Petroleum Storage Tanks. This work will be measured as the number of tanks within the indicated size range removed and disposed of in accordance with the provisions of these specifications.

However, if the tank owner, upon agreement with the Department, removes the tank or tanks, the Contractor shall remove any supporting structures and backfill the resulting hole and/or trenches with suitable material, placed and compacted in lifts if so directed, and will be paid 20% of the bid price in compensation for backfilling any resulting hole or for removing and disposing of the tank supporting structure.

202-4.04 Dismantling and Storing Existing Superstructures. The work will be measured on a lump sum basis for "Dismantling and Storing Existing Superstructures". Monthly estimates of the percentage completion will be made for this work in proportion to the amount of work satisfactorily completed.

203-4.05 Removing Existing Superstructures. The Contractor will be paid the lump sum price bid for "Removing Existing Superstructures". Monthly estimates of the percentage completion shall be made for this work in proportion to the amount of work satisfactorily completed.

203-4.06 Removing Old Bituminous Concrete Overlay. The quantity to be measured will be the number of square yards of bituminous concrete overlay removed in accordance with the plans or as approved by the Engineer.

202-4.07 Removal of Substructures. The quantity of material removed and disposed of shall be the number of cubic yards of material computed from the payment lines shown on the

SECTION 202 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Contract Plans whether or not the slopes are laid back or benched in lieu of installing Safe Operation Sheet Piling.

202-5 BASIS OF PAYMENT

202-5.01 Disposal of Buildings. Except as indicated in the following the lump sum bid for Disposal of Buildings shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work. Unless indicated otherwise, asbestos and hazardous waste removal or remediation work shall be paid for under separate pay items. Suitable or select material obtained from other than the demolition site used to fill cellars will be paid separately. Water used for dust control or compaction shall also be paid for separately if a pay item for water is included in the contract.

The cost of extermination work shall be included in the price bid if the contract documents indicate that extermination work is required for the given building; otherwise the work of extermination will be paid for as extra work.

202-5.02 Disposal of Buildings (Credit Item). When a credit price is bid for this work, the total or gross sum bid for the contract shall be the sum of all the bid amounts for the various items, not including those credit bids, reduced by the total bid amount involving credit bid prices.

202-5.03 Relocating Buildings. Except as indicated in the following the lump sum price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work including the cost of any excavation necessary at the old or the new building site, and any incidentals. Suitable or select material obtained offsite to backfill the original cellar hole will be paid for separately. Water used for dust control or for compaction shall be paid for separately only if an item for water exists in the contract. Sidewalks, driveways, topsoil, and turf reestablishment will also be separately paid. The cost of extermination work shall be included in the price bid if the contract documents indicate that extermination work is required for the given building; otherwise the work of extermination will be paid for as extra work.

Unless indicated otherwise, the work of reconnecting and providing services for the relocated building at its new site shall be performed and paid for under separate pay items.

202-5.04 Disposal of Petroleum Storage Tanks. The unit bid price for the removal and disposal of Tanks within the indicated size range shall include the cost of all labor, materials, and equipment necessary to satisfactorily perform the work except that suitable or select material obtained from other than the tank site used to fill the resulting hole will be paid separately. Removing and disposing of contaminated soil, except that contaminated during the tank removal operations, will be separately paid.

202-5.05 Dismantling and Storing Existing Superstructures and Removing Existing Superstructures. The lump sum bid shall include the cost of all labor, materials, and equipment necessary to complete the work. The lump sum bid shall also include the cost of repair or replacement of any element designated to be stored that is damaged during the operation. Temporary sheet piling, Safe Operation Sheet Piling, the extraction of existing sheeting designated to be extracted, topsoiling, and seeding will be paid for separately under their

SECTION 202 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

respective items. Water used for compaction or to control dust will also be paid for separately if a pay item for water is included in the Contract. Backfilling with select material or with suitable materials that must be obtained offsite will be separately paid.

202-5.06 Removal of Substructures. Except as indicated below, the unit price bid per cubic yard for this work shall include the cost of furnishing all labor, materials, and equipment necessary to complete the work, including the cost of cutting existing sheeting or piling. Temporary Sheet Piling, Safe Operation Sheet Piling, Topsoiling, and/or Seeding will be paid for separately under their respective items. Backfilling with select materials or with suitable materials which must be obtained offsite will be separately paid. Water will be paid for separately only if the pay item for Applying Water is in the contract. If the Contract Plans indicate that the sheeting or piling is to be extracted, payment for the extraction shall be made separately.

202-5.07 Removing Old Bituminous Concrete Overlay. The unit price bid per square yard shall include the cost of furnishing all labor, materials and equipment necessary to complete the work, except the cost of removing Asbestos Containing Material shall be paid for separately.

Payment will be made under:

Item No.	Item	Pay Unit
202.01 nnnn	Disposal of Buildings	L.S. for Ea. Bldg.
202.02 nnnn	Disposal of Buildings (Credit Item)	L.S. for Ea. Bldg.
202.03 nnnn	Relocating Buildings	L.S. for Ea. Bldg.
202.05 xx	Disposal of Petroleum Storage Tanks (various size ranges)	Each
202.11 nnnn	Dismantling and Storing Existing Superstructures	L.S. for Ea. Struct.
202.12 nnnn	Removing Existing Super-structures	L.S. for Ea. Struct.
202.19	Removal of Substructures	Cubic Yard
202.20	Removing Old Bituminous Concrete Overlay	Square Yard

NOTE: nnnn denotes serialized pay item, see §101-53.

xx see Catalog of Standard Pay Items, Proposal, or Engineering Instruction for complete description.