

## SECTION 02221 - BUILDING DECONSTRUCTION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following, **and is in conjunction with Annex 6 (Scope of Work for Deconstruction Contractor)**:
1. Deconstruction and removal of building.
  2. Abandoning in place and removing below-grade construction concrete to Cellar Level "B".
  3. Disconnecting, capping or sealing, and removing site utilities.
  4. Protection of existing level B slab & foundation walls. (See Spec. Section 02060PS).

#### 1.2 DEFINITIONS

- A. Demolish/ Deconstruct: Completely remove and legally dispose of off-site.
- B. Recycle: Recovery of Deconstruction waste for subsequent processing in preparation for reuse.
- C. Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner at owners discretion ready for reuse.

#### 1.3 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, Deconstruction waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during Deconstruction remain the property of Owner.
1. Carefully salvage in a manner to prevent damage and promptly return to Owner.
  2. Items of salvageable value to the Contractor must be asbestos free and removed from the structures and site as work progresses. All salvaged items must be transported off the site as they are removed during Deconstruction operations.
  3. In certain instances salvaged items removed may be permitted to be stored on the site only upon receipt of written acceptance by the owner. However, in no instance will the stored items be involved in any auction, liquidation or sale activities. Areas of any stored items will also require the owner's approval.

1.4 SUBMITTALS

- A. Contractors Implementation Plan: Contractor shall engage the services of a New York State Licensed Professional Engineer who shall prepare the Deconstruction Contractor's Implementation Plan in accordance with Annex 6 SOW.
1. Adjacent Buildings: Detail special measures proposed to protect buildings within 70' of any side of 130 Liberty Street, including 90 West Street. Adjacent streets Washington, Albany, Cedar, & Liberty
- B. Schedule of Building Deconstruction Activities: Indicate the following:
1. Detailed method and sequence of Deconstruction work for each area of building, with start and end dates for each activity.
  2. Abatement and Removal of Asbestos and Contaminants of Potential Concern.
  3. Structural Deconstruction (curtain wall, structural steel, concrete slabs, etc).
  4. Termination, and capping of utility services.
  5. Backfilling.
  6. Site utilization plan.
- C. Building Deconstruction Plans: Drawings indicating the following:
1. The Contractor must receive approval by Owner on all work plans, programs, methods and techniques proposed to be used during all deconstruction operations including the use and operation of equipment prior to commencing work. The approval process performed by the owner will include but not be limited to review of all safety and health issues, regulatory agency requirements by federal, state, and local entities and LMDC procedures.
  2. Site Safety Plan.
  3. Site Utiliation plan.
  4. Truck Traffic Plan (MOT).
  5. MTA Influence Plan.
  6. Protection of slab and foundation walls.
  7. Locations of temporary protection and facilities.
  8. Deconstruction Plan.
  9. See Scope of Work (Annex 6).
- D. Pre-Deconstruction Photographs and Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by building Deconstruction operations. Coordinate with property owners. Submit before the Work begins. Refer to Section 01322.
- E. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes including waste hauler manifests.

- F. All documents required to obtain a New York City Building Department alteration application permit and a mechanical means special Deconstruction permit.
- G. The deconstruction contractor will be required to develop a storm water management plan per Specification 02010 and follow all the regulations of the Owners Permit with New York State DEC and City of New York for storm runoff. It is critical to the success of this project that all run off that drains directly into the City System on site be protected from contamination for the work being performed by this contract. If the runoff is not properly protected and the conditions of the owners permit are violated, by this contract, this Deconstruction contractor will need to take all corrective action to eliminate the problem, will be held liable of all clean up efforts required, any fines imposed, and ultimately could result in the termination of the contract for lack of due diligence.

#### 1.5 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
  - 1. Equipment in the Mechanical Equipment rooms, and elsewhere, have not been evacuated of refrigerant.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning abatement or Deconstruction. Comply with hauling and disposal regulations of authorities having jurisdiction, including the City of New York.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.
- D. PreDeconstruction Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to building Deconstruction including, but not limited to, the following:
  - 1. Inspect and discuss condition of construction to be demolished.
  - 2. Review structural load limitations of existing structures.
  - 3. Review and finalize building Deconstruction schedule and verify availability of Deconstruction personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review and finalize protection requirements.
  - 5. Review procedures for noise control and dust control.
  - 6. Review procedures for protection of adjacent buildings.

#### 1.6 PROJECT CONDITIONS (See Scope of Work – Annex 6).

- A. Building to be demolished is vacant.
- B. Buildings immediately adjacent to Deconstruction area at Greenwich Street, Albany Street, and Washington Street will be occupied. Conduct building Deconstruction so operations of occupied buildings will not be disrupted.

1. Provide not less than three business days' notice of activities that may affect operations of adjacent buildings.
  2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.
    - a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction thereof.
- C. Owner assumes no responsibility for condition of buildings and structures to be demolished.
1. Conditions existing at time of inspection for bidding purposes will be maintained by LMDC as far as practical.
- D. Hazardous Materials: Hazardous Materials are present in the Building to be deconstructed and must be remediated in accordance with Sections 02076, 02080, 02089, 02090, 02091. Characterization Reports on the presence of Hazardous Materials in the Building are attached to the Contract Documents. Examine reports to become aware of locations where hazardous materials are present.
1. Hazardous Material remediation is specified elsewhere in the Contract Documents.
  2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
  3. The Contractor shall place oil absorbent pads, clay-based absorbent such as "Speedi-Dri" or sand as soon as possible after an oil spill is observed. For example, during Deconstruction, unknown abandoned-in-place hydraulic lines could leak oil upon being removed during Deconstruction. The Contractor will be required to clean up accidental spills with absorbent as soon as possible to prevent spreading of the spill and tracking of the oil by Deconstruction equipment. The Contractor shall clean up the absorbent at the end of each day or each shift.
- 1.7 COORDINATION
- A. Arrange Deconstruction schedule so as not to interfere with other contractors and operations of adjacent occupied buildings.
  - B. Haulage of trash away from the site, subject to approval by the Port Authority of New York and New Jersey, shall be only from West Street (through Gate 8 Port Authority and Cedar Streets) during hours acceptable to Owner and City of New York, Regulatory Agencies, and Port Authority.
  - C. Work with LMDC to ensure "Coordination Schedule" with adjacent property owners. At time of commencement of this project, up to Five (5) or more simultaneous projects within a One (1) block radius of the site will have commenced.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting Deconstruction operations.
- B. Verify that hazardous materials have been remediated or removed before proceeding with building Deconstruction operations.
- C. The Deconstruction Contractor is responsible to remove all materials as necessary to allow for the environmental materials removal. Floor cleaning operations must be completed prior to the Structural Deconstruction, and it will be necessary for this contract to remove whatever materials will prevent them from doing a complete cleaning effort.

3.2 PREPARATION

- A. Refrigerant: Remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction before starting Deconstruction.
- B. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving buildings and structures to be demolished.
  - 1. Contractor shall obtain and pay for all permits and fees imposed by any agencies or utilities.
  - 2. If removal, relocation, or abandonment of utility services will affect other buildings or contractors, then provide bypass temporary utilities and maintain continuity of service to other buildings or contractors. Alternatively, temporary shutdowns shall be made at night or at times that will cause the least interferences with established operating routine of other affected properties or contractors. Provide at least three business days' notice to affected buildings or contractors if shutdown of service is required. Associated costs shall be handled under the Site Utility Allowance as stipulated on the bid form.
  - 3. Cut off pipe or conduit a minimum of 24 inches below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
- C. Existing Utilities: Refer to Utility company requirements for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start Deconstruction work until utility disconnecting and sealing have been completed and verified in writing. Do not interrupt existing utilities serving adjacent facilities unless authorized in writing by Owner and authorities having jurisdiction.
- D. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished. Prior to start of Work, submit plans of temporary shoring prepared and

signed/sealed by a New York State Professional Engineer. Conspicuously post any weight limitations.

1. Strengthen or add new supports when required during progress of Deconstruction.

### 3.3 PROTECTION

#### A. EXTERIOR SCAFFOLD SYSTEM, HOIST(S), AND SIDEWALK BRIDGING:

1. Exterior Scaffold System, Hoist(s), and Sidewalk Bridging will be provided by the Scaffolding Contractor. After Completion of the erection of Scaffold, Hoist(s), Sidewalk Bridging, Exterior Netting Removal, etc., the **Deconstruction Contractor will take over the operation and maintenance of the Scaffold, and Hoist(s) including but not limited to the following:**
  - a. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during Deconstruction operations. Maintain exits from existing buildings.
  - b. Existing Utilities: Maintain utility services to remain and protect from damage during Deconstruction operations.
  - c. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction. Comply with requirements in Division 1 Section "Temporary Facilities and Controls."
    - 1) Protect adjacent buildings and facilities from damage due to Deconstruction activities.
    - 2) Protect existing site improvements, appurtenances, and landscaping to remain.
    - 3) Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building Deconstruction operations.
    - 4) Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to adjacent buildings and site area.
  - d. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.
  - e. Planking movements and relocations including "Safety Protection Roof" between Environmental and Deconstruction Activities.
  - f. Suspended Scaffold: Deconstruction Contractor is required to complete form CD-5 and file with NYC Building Department if suspended scaffold is used on an interim basis for construction.
  - g. All work areas are to be lit including staging areas.

- h. **Power Availability:** If adequate power source is not available from owner, contractor shall furnish his own temporary power.
- i. **All labor for operation and maintenance of the Hoist(s).**
- j. Maintenance and housekeeping on a daily basis of the Scaffolding, Hoist(s) and Sidewalk Bridging including sweeping of Scaffolding, Hoist(s), and Sidewalk Bridging, Sidewalk Bridging Lighting, tie-down of loose planks, debris removal, tie-up netting, and maintaining guardrail system. All operations required to maintain a safe work environment and meet all requirements of the NYC Building Code Subchapter 19. **Maintenance of the Sidewalk Bridging will be the responsibility of the Scaffolding Contractor.**
- k. Maintain Chain Link Fence and/or painted plywood on the Scaffold to 9' from Ground.
- l. Maintain top rail, mid-rail, and toe-board as per NYC Building Code Subchapter 19 Requirements. Scaffolding cross bracing may not be used as a top or mid-rail.
- m. Maintain locks on stair tower gates provided by Scaffolding Contractor.
- n. **Scaffold Inspection:**
  - 1) Provide inspection, detailed audit report, and signoff by a New York State Licensed Professional Engineer, immediately should any alteration to any sidewalk bridge, hoist(s) or scaffolding components occurs to facilitate work.
  - 2) At a minimum, provide monthly inspection and audit report of the condition of the sidewalk bridge, hoist(s) and scaffold by a Licensed New York State Professional Engineer.
  - 3) Inspect Scaffolding/ Hoist(s), Sidewalk Bridging on a Daily Basis by a competent person (Site Safety Representative). Any items needing corrective work shall be addressed immediately. A site log shall be maintained by the Deconstruction Contractor's competent person indicating Daily Inspections. All necessary repairs and/ or rework of the Scaffold, Hoist(s) or Sidewalk Bridging to accommodate the work after transfer to the Deconstruction Contractor will be the responsibility of the Deconstruction Contractor and shall follow the inspection and audit protocols as stipulated in Section m.1 above.
- o. **Fire Protection:**
  - 1) Maps and Signs. Maintain and/ or replace weatherproof maps indicating emergency egress routes that are posted at all scaffold access/ egress points provided by the Scaffolding Contractor.
  - 2) Fire Extinguishers. Provide and/or maintain 100 lb. Size extinguishers. The smaller, more portable ones (i.e. 10-20 lb.) will not be permitted. Placement locations and quantities to meet all applicable code requirements.
- p. **Night Work:** contractor will be responsible for illuminating his work area including access/ egress to and from stair towers in order to create a safe working environment.

- q. **Staging Area:** Contractor will be required to fence off and illuminate his staging/ storage area subject to review and approval by the Owner.
  
- r. **Fire Protection:**
  - 1) Fire extinguishers, fire watch personnel and task appropriate fire protection equipment (welding blankets, welding shields, etc.) will be mandatory subject to Owner review prior to workers being allowed on scaffold.
  - 2) An individual, assigned as a Firewatch, shall be present during burning operations. This individual equipped with a fire extinguisher, or water hose, shall insure that all potential slag and sparks released from those operations is immediately controlled.
  - 3) Water can be provided from city fire hydrants, and through a series of pumps, to be distributed throughout the work areas of the building for fire protection and dust control during deconstruction, or by any means the contractor sees fit.
  - 4) A dry standpipe shall be maintained within the building, throughout the duration of the Scaffold/Hoist erection and/or Deconstruction process.
  - 5) Torch cutting and welding shall be performed in accordance with the Contractor's standard cutting and welding safety procedures and in accordance with applicable federal, state, and local laws including but not limited to the following requirements:
    - a) All cutting and welding will be performed under a Hot Work (Welding/Cutting) Permit Program;
    - b) All work will be performed by personnel who possess the appropriate New York City Fire Department Flammable gas Torching/ Welding Certificate of Fitness.
    - c) All work will be performed under firewatch supervision by personnel who possess the New York City Fire Department Flammable Gas Torching/Welding Fire Guard Certificate of Fitness;
    - d) Protection from fire hazards with guarding will be required to confine heat, sparks and slag generated by operation;
    - e) Prior to cutting/ welding, inspections will be conducted by experienced and certified personnel authorized to issue Hot Work Permit; and
    - f) Additional special precautions will be taken when combustible materials are located within 35 feet of the point of operation or wall or floor openings that are within a 35 foot radius of operation.
  
- s. Conduct Scaffolding, Hoist, and Sidewalk Bridging operations to prevent injury to people and damage to adjacent facilities to remain. Ensure safe passage of people around deconstruction area.

### 3.4 DECONSTRUCTION, GENERAL

- A. General: Demolish indicated existing building completely. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.

2. Maintain fire watch during and for at least 1/2 hour after flame cutting operations.
  3. Maintain adequate ventilation when using cutting torches.
  4. Locate building Deconstruction equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- B. Engineering Surveys: During Deconstruction, perform surveys to detect hazards that may result from building Deconstruction activities.
1. Provide existing slab survey with established points so as to monitor movement if any during deconstruction activity. Provide existing survey at least 30 days prior to deconstruction.
- C. Site Access and Temporary Controls: Conduct building Deconstruction and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent facilities.
1. Do not close or obstruct streets, walks, walkways, or other adjacent facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
  2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
- D. Explosives: Use of explosives is not permitted.
- E. Work shall not be performed with permanently positioned equipment in fire lanes. Provide temporary barricades. No complete street closures shall be permitted. All safety precautions to the public must be provided as directed by LMDC. All requirements required to protect pedestrians and traffic must be utilized. Make necessary arrangements with Police and the City of New York. Locate Deconstruction equipment throughout the structure and remove materials so as not to impose excessive loads on supporting walls, floors, and framing. Walls fronting on streets remaining open shall be demolished inward toward the middle of the building.

### 3.5 DECONSTRUCTION BY MECHANICAL MEANS

- A. Proceed with Deconstruction of structural framing members systematically. Complete building Deconstruction operations on each floor or tier before disturbing supporting members on the next level.
- B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation..
- C. The Building basement shall be backfilled to resist uplift groundwater pressures based on the following requirements. (See Spec Sections 02222, and 02060PS)
1. The Contractor shall backfill the basement during deconstruction to resist uplift groundwater pressures.

2. The Contractor shall maintain the stability of the basement walls throughout the backfilling operation. All Building contents shall be removed from the basement prior to backfilling.
  3. At the completion of backfilling, the area shall be graded to drain.
  4. The basement shall be filled with material complying with either designation or, at the Contractor's option, select recycled Deconstruction debris containing brick, mortar, CMU, and concrete having a maximum gradation of 1-1/2" and containing no deleterious material.
  5. Below the pavement subgrade in lieu of the compaction requirements of Specification Section No. 02222, the backfill material shall be walked into place using the largest piece of tracked machinery which is practical within the space available until there is no more noticeable compaction. The backfill material shall be placed in 8-in. to 24-in. lifts depending on the size of the equipment.
  6. Within a depth of 2-ft. below the pavement subgrade, placement and compaction of the backfill material shall be as required by Specification Section No. 02222.
  7. The backfill material shall be placed in such a manner as to prevent the formation of voids between the backfill material and existing walls and floors slabs. If required, the Contractor may partially or fully remove existing interior walls or slabs for the placement of the backfill material. If such removals reduce the capacity of the walls or floor slabs to act as supports for the basement walls, the Contractor shall compensate for the reduction by placing steel bracing, or some other means of support, as approved by the Owner.
  8. When it is not possible to place and compact backfill material flush to the underside of the existing slabs, as approved by the Owner, the void space shall be filled with grout prior to backfilling proceeding above the floor slab.
  9. Prior to commencing the deconstruction of the Building and the backfilling of the basement, the Contractor shall submit for the Owner's approval, plans and calculations signed by a licensed engineer in the State of New York with a minimum of 5 years applicable experience, detailing when and how the basement will be backfilled. At a minimum the submittal shall address the following items.
    - a. The determination of the point in the deconstruction schedule when backfilling of the basement is required.
    - b. The method for placing and compacting backfill within the basement to avoid the formation of voids, including the product and method for pumping grout if required.
    - c. Details for partially or fully removing existing basement walls and slabs. If such removals reduce the structural support for the basement walls, include details for how supplemental structural support will be provided.
  10. All excavation and backfilling required outside of the basement limits shall be performed in accordance with Specification Section No. 02222.
- D. Existing Utilities: Demolish existing utilities and below-grade utility structures to within 5 feet outside the property line as coordinated with utility owners. Abandon utilities outside this area.

### 3.6 SITE RESTORATION (See Specification Section 02222.)

- A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building Deconstruction operations with **satisfactory soil materials, recycled pulverized concrete or recycled pulverized masonry** according to backfill requirements in Division 2 Section "Earthwork."

- B. Site Grading: Once filled, the site shall be graded to drain to the East, West, and South Curbs. Backfill of the Building Footprint will slope towards the North Plaza Area. Provide a smooth transition between adjacent existing grades and new grades.

### 3.7 PROTECTION OF ADJACENT FACILITIES

- A. Adequately protect adjacent facilities from Deconstruction operations.

### 3.8 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove Deconstruction waste materials from Project site and provide all manifest documentation. See Division 1 Section "Deconstruction Waste Management" for recycling and disposal of Deconstruction waste. (See Specification Section 01524).
- B. Remove Deconstruction waste materials from Project site and legally dispose of them in accordance with all Legal Requirements at properly permitted facilities. .
  - 1. Do not allow demolished materials to accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- C. Do not burn demolished materials.

#### **D. Removal of Deconstruction Debris**

- 1. The Contractor shall continuously remove excess materials either for recycling or debris, such that no accumulation of debris is being created on site. Stockpiling of debris materials on site will not be allowed.
- 2. The Contractor hereby acknowledges ownership of all materials removed from the site and is fully responsible for their proper disposal. Contractor is further responsible for all costs associated with transportation and legal disposal or recycling.
- 3. The Deconstruction Contractor is advised that trucking and hauling along the Local Streets and adjacent road systems must be minimized.
- 4. Vermin Control: Employ a certified, licensed exterminator and treat the entire area of building Deconstruction and removal in accordance with governing health regulations for rodent and insect control. These efforts shall be maintained throughout the entire contract. The Contractor shall develop a schedule that adequately addresses these concerns, and that prompt action must be taken when a problem occurs. All incidents beyond the normal treatment must be reported.

### 3.9 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building Deconstruction operations.

END OF SECTION 02221