

SECTION 02221 - BUILDING DEMOLITION

1.1 SUMMARY

A. This Section includes the following:

1. Demolition and removal of buildings and structures.
2. Demolition and removal of site improvements adjacent to a building or structure to be demolished.
3. [**Abandoning in place**] [**Removing**] below-grade construction.

B. Disconnecting, capping or sealing, and [**abandoning in place**] [**removing**] site utilities. Remove existing elements if removal is necessary to accommodate the new design or as identified in Section C of the RFP. These elements include, but are not limited to:

1. Foundation walls and footings.
2. Concrete slabs on grade.
3. Pavements and curbs. Manholes and covers.
4. Curb inlets and catch basins.
5. Underground storage tanks.
6. Underground petroleum products piping.
7. Fences and gates.
8. Utility meters and other equipment and exposed piping.
9. Creosote-treated wood utility poles.
10. All abandoned pipes, ducts, and conduits, whether above or below ground.
11. Relocate existing construction and utilities designated to remain as required for the design.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged.

1. Remove and Salvage: Detach items from existing construction and deliver them to OBO[**ready for reuse**].

B. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged.

1.3 SUBMITTALS

A. Proposed [**Environmental-Protection**] [**Dust-Control**] [**and**] [**Noise-Control**] Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.

- B. Submit spreadsheet listing all FE/BR products in the building. Submit spreadsheet through the COR to the Regional Security Officer (RSO) who will provide direction if the FE/BR products are to be salvaged and turned over to the government or disposed of.
- C. Schedule of Building Demolition Activities: Indicate the following:
 - 1. Detailed sequence of demolition and removal work, with starting and ending dates for each activity.
 - 2. Interruption of utility services.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Locations of temporary protection and means of egress, including for other tenants affected by building demolition operations.
 - a. Coordination of OBO's continuing occupancy of adjacent buildings and partial use of premises.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements:

- 1. Health Hazards:
 - a. Whenever construction operations could result in worker contact with hazardous materials, follow recommendations of an American Board of Industrial Hygiene Certified Industrial Hygienist (CIH) employed by Contractor.
 - b. Existing Asbestos and Asbestos-Containing Materials: Comply with 29 CFR 1926.1101; complete removal is required.
 - c. Existing Lead-Based Paint: Comply with 29 CFR 1926.62; either removal or recoating is acceptable.
- 2. Pollution Control:
 - a. Underground Storage Tank Removal: Comply with 40 CFR 280.70 and applicable state and local regulations, including all responsibilities of the OBO, including emptying, closure, and removal of tank, and removal of all contaminated soil found.
 - 1) Surplus tank contents, including petroleum products and toxic liquids, may not be disposed of on site.
 - 2) OBO will accept surplus tank contents if delivered in containers to location in same city to be determined.

1.5 PROJECT CONDITIONS

A. Buildings to be demolished will be vacated and their use discontinued before start of Work.

- 1. OBO assumes no responsibility for buildings and structures to be demolished.

- B. Storage or sale of removed items or materials on-site is not permitted.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of building demolition required.
- B. Review Project Record Documents of existing construction provided by OBO. OBO does not guarantee that existing conditions are the same as those indicated in Project Record Documents.
- C. Inventory and record the condition of items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements are encountered, investigate and measure the nature and extent of the element.
- E. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.
- F. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.2 PREPARATION

- A. Refrigerant: Remove and store refrigerant according to 40 CFR 82.
- B. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving buildings and structures to be demolished.
 - 1. Arrange to shut off indicated utilities with utility companies.
 - 2. If utility services are required to be removed, relocated, or abandoned, before proceeding with building demolition provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
 - 3. Cut off pipe or conduit a minimum of 610 mm below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
- C. 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.
 - 1. Strengthen or add new supports when required during progress of demolition.

D. Removed and Salvaged Items: Comply with the following:

1. Clean salvaged items of dirt and demolition debris.
2. Pack or crate items after cleaning. Identify contents of containers.
 - a. Store items in a secure area until delivery to OBO.
 - b. Transport items to OBO's storage area [**on-site**] [**off-site**] [**designated by OBO**] [**indicated on Drawings**].
3. Protect items from damage during transport and storage.

3.3 PROTECTION

A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations.

1. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during demolition. When permitted by OBO, items may be removed to a suitable, protected storage location during demolition [**and cleaned**] and reinstalled in their original locations after demolition operations are complete.

B. Existing Utilities: Maintain utility services indicated to remain and protect them against damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by OBO and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to OBO and to authorities having jurisdiction.
3. Provide at least 72 hours' notice to OBO if shutdown of service is required during changeover.

C. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways and as indicated.

1. Protect existing site improvements, appurtenances, and landscaping to remain.
2. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
3. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
4. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
5. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
6. Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise from occupied portions of adjacent buildings.

3.4 DEMOLITION

- A. Demolish indicated existing [**buildings and structures**] [**and**] [**site improvements**] 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 [**fire watch and**] portable fire-suppression devices during flame-cutting operations.
 2. Maintain adequate ventilation when using cutting torches.
 3. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- B. Engineering Surveys: Perform surveys as the Work progresses to detect hazards that may result from building demolition activities.
- C. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from OBO 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. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.
- E. Remove debris from elevated portions 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 or dust generation.
- F. Concrete: Cut concrete full depth at junctures with construction indicated to remain, using power-driven saw, then remove concrete between saw cuts.
- G. Masonry: Cut masonry at junctures with construction indicated to remain, using power-driven saw, then remove masonry between saw cuts.
- H. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished at junctures with construction indicated to remain, then break up and remove.

1. Structural Steel: Dismantle field connections without bending or damaging steel members. Do not use flame-cutting torches unless otherwise authorized by OBO through the COR.
 2. Transport steel trusses and joists as whole units without dismantling them further.
- I. Carpet[**and Pad**]: Remove in large pieces and roll tightly after removing demolition debris, trash, adhesive, and tack strips.
- J. Building Components: Remove [metal gratings] [metal ladders] [doors] [windows] [door hardware] [cabinets] [mirrors] [chalkboards and marker boards] [tackboards] [toilet accessories] [plumbing fixtures] [and] [light fixtures].
- K. Equipment: Disconnect equipment at nearest fitting connection to services, complete with service valves. Remove as whole units, complete with controls.
- L. Below-Grade Construction: Abandon foundation walls and other below-grade construction. Cut below-grade construction flush with grade.
- M. Below-Grade Construction: Demolish foundation walls and other below-grade construction that is within **1.5 m** outside of footprint indicated for new construction. Abandon below-grade construction outside this area.
1. Remove below-grade construction, including basements, foundation walls, and footings, [completely] [to at least **150 mm** below grade] [to at least **300 mm** below grade] [to depths indicated].
- N. Below-Grade Construction: Demolish foundation walls and other below-grade construction.
1. Remove below-grade construction, including basements, foundation walls, and footings, [completely] [to at least **150 mm** below grade] [to at least **300 mm** below grade] [to depths indicated].
- O. Existing Utilities: Abandon existing utilities and below-grade utility structures. Cut utilities flush with grade.
- P. Existing Utilities: Demolish existing utilities and below-grade utility structures that are within **1.5 m** outside of footprint indicated for new construction. Abandon utilities outside this area.
1. Fill abandoned utility structures with satisfactory soil materials according to backfill requirements in Division 2 Section "Earthwork."
- Q. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures.
- R. Explosives: Use of explosives is not permitted.
- S. Forced Entry and Ballistic Resistant (FE/BR) products: FE/BR products in the building shall be either turned over to the RSO or disposed of in accordance with RSO's instructions, as directed by the RSO through the COR.

3.5 SITE RESTORATION

- A. Below-Grade Areas: Rough grade below-grade areas ready for further excavation or new construction.
- B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.6 REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by building demolition operations.
- B. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- C. Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain OBO's property, remove demolished materials from Project site and legally dispose of them.
 - 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.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off OBO's property and legally dispose of them.

3.8 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

END OF SECTION 02221