SECTION 02050

DEMOLITION

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Demolishing and removing existing structures, equipment and materials only to the extent as required in the execution work detailed in the contract documents.

B. Disposing of demolished materials and equipment.

1.02 UNIT PRICES

A. Measurement for demolition is on a lump sum basis for each contiguous area, including submittal of proposed demolition and removal schedule.

1.03 SUBMITTALS

A. Submittals shall conform to requirements of all provisions and sections within these specifications.

B. Submit proposed methods, equipment, materials and sequence of operations for demolition of structures. Describe coordination for shutting off, capping, and removing

utilities. Plan operations to minimize temporary disruption of utilities to existing facilities or adjacent property.

C. Submit proposed demolition and removal schedule for approval. Notify Owner's Representative in writing at least 72 hours before starting demolition.

D. Submit an approved copy of demolition schedule to Fire Department prior to commencement of demolition operations.

E. Obtain a permit for building demolition, as required.

1.04 OWNERSHIP OF MATERIAL AND EQUIPMENT

A. Materials and equipment designated for reuse or salvage are listed in Section 01010 - Summary of Work. Protect items designated for reuse or salvage from damage during demolition, handling and storage. Restore damaged items to satisfactory condition.

B. Materials and equipment not designated for reuse or salvage become the property of the Contractor.

1.05 STORAGE AND HANDLING

A. Store and protect materials and equipment designated for reuse until time of installation.

B. Deliver and unload items to be salvaged to storage areas indicated on Drawings.

C. Remove equipment and materials not designated for reuse or salvage and all waste and debris resulting from demolition from site. Remove material as work progresses to avoid clutter.

1.06 ENVIRONMENTAL CONTROLS

A. Minimize spread of dust and flying particles. If required by governing regulations, use temporary enclosures and other suitable methods to prevent the spread of dust, dirt and debris.

B. Use appropriate controls to limit noise from demolition to levels designated in local ordinances.

C. Do not use water where it can create dangerous or objectionable conditions, such as localized flooding, erosion, or sedimentation of nearby ditches or streams.

D. Stop demolition and notify Owner's Representative if underground fuel storage tanks, asbestos, PCB's, contaminated soils, or other hazardous materials are encountered.

E. Dispose of removed equipment, materials, waste and debris in a manner conforming to applicable laws and regulations.

PART 2 P R O D U C T S

2.01 EQUIPMENT AND MATERIALS FOR DEMOLITION

A. Use equipment and materials approved under Paragraph 1.03, Submittals.

B. Fires are not permitted.

C. Do not use a "drop hammer" where the potential exists for damage to underground utilities, structures, or adjacent improvements.

PART 3 E X E C U T I O N

3.01 EXAMINATION AND PRE-CONSTRUCTION SUBSURFACE UTILITY INVESTIGATION BY CONTRACTOR TO AVOID CONFLICTS-**NO SEPARATE PAY**

A. Contractor is responsible for Determining Conflicts with Structures, Regulatory Features (Wetlands, protected ecology, and utilities both public and private prior to construction—No Separate Pay.

B. Contractor is responsible for Determining Conflicts with Structures, Regulatory Features (Wetlands, protected ecology, and utilities both public and private prior to construction—No Separate Pay.

C. Owner’s Representative will mark or list existing equipment to remain the property of the Owner.

D. Do not proceed with demolition or removal operations until after the joint inspection and subsequent authorization by Owner’s Representative.

E. The accurate location of all utilities, structures, landscaping, irrigation, etc., as shown is approximate and all may not be shown on the plans, quantified on the bid forms, or detailed in the specifications. Contractor is responsible for confirming the material, size, location and other details of all objects including pipelines, structures, conduits and cables and surface, subsurface and environmental conditions (ex: water depth), etc. The City of Galveston requires the Contractor to pre-locate, pre-verify and pre-investigate all utilities (shown or not shown) before construction of this project by whatever method subject to approval by the owner which includes but is not limited to the following:

i. Utilization of metal detection equipment and probes
ii. Excavation, ex: hydrovac pot holing
iii. Opening manholes to determine the flow line of storm pipes and sanitary sewer
iv. Measuring the depth to valve nut and adding 18” to determine the depth to waterlines
v. Probing to identify sprinklers and services

vi. Subsurface Utility Investigation (SUE) Level A through D survey which includes i thru' v.

F. All investigative work shall be done and all repairs required after investigation shall be accomplished by the contractor (no separate pay).

G. Contractor agrees to be fully responsible for any and all damages, increase in cost, or delays in schedule for change in their construction scope including any and all damages which might be caused by their failure to exactly locate and preserve all utilities.

H. Contractor shall be responsible for contacting all utility companies through an "811 Call Before You Dig" at least 14 calendar days prior to construction in area of known and unknown utilities which may not be shown on the plans.

I. If the contractor requests the City Staff to assist with locating utilities, structures or other surface and below ground features, the City will invoice the contactor for such services, and this cost will be deducted from the contractor's pay estimates.

J. Above ground utility information may be obtained by standard land surveying methods. Underground utility locations may be determined by conventional survey methods, newer technologies, or by Subsurface Utility Evaluation (SUE). The SUE process combines surveying and geophysics to accurately identify, characterize, and map underground utilities. To avoid construction issues and delays that create cost overruns, the contractor should AVOID, MITIGATE, or ADJUST for project utility conflicts. Early design and planning phases should include subsurface site characterization of various geologic, environmental, and utility features.

Responsible Party. Contractor (No Separate Pay)

K. Locate existing utilities. This task involves physically locating, marking, and surveying the physical features of utilities. If utility maps are not available, knowledge and survey of the aboveground structure types can indicate the complexity.

This task identifies utilities specifically and determines elevations as well as horizontal positions. Examples might include manhole covers, gas pipes, overhead lines, and fiber-optic cables. There are standard location methods and newer technologies used for underground utility locating survey, such as subsurface utility evaluation (SUE), metal detection (MD), ground-penetrating radar (GPR), and electromagnetic line location (EMLL). Topographic surveys may be adequate for project locations with few underground utilities (i.e., in rural areas).

Undocumented utilities may have been installed without a record of their location. EMLL or GPR should be used to mark locations on the ground followed by invasive potholing or excavation to determine the utility type. GPR can detect

non-metallic targets without tracer wire. SUE is a non-destructive utility investigation to accurately locate, identify, and map underground utilities.

Responsible Party. Contractor (No Separate Pay)

Subtasks.

- Locate, log, and survey visible features of utilities.
- To confirm and survey locations of strategic subsurface features, it may be necessary to "pothole" or excavate down to the utility after using MD, GPR, or EMLL.
- Mark and label locations of subsurface utilities on the ground with stakes, laths, or other means.
- Survey utility locations.
- Manhole covers and other obstructions may need to be adjusted for resurfacing projects.

Critical Sequencing.

- To avoid costly conflicts utility location data needs to be collected before beginning construction.
- Utility data is needed before establishing final alignments of the roadway and related features (e.g., storm drains, utilities, and other excavation work) to avoid these conflicts and eliminate construction delays or service outage..

Authority.

- Utilities Code Chapter 251 - Underground Facility Damage Prevention and Safety

L. Subsurface Utility Evaluation (SUE). Contractors should be competent and knowledgeable, experienced, insured, timely, and have the equipment and financial capacity to provide the service prior to construction and at no cost to the City (No Separate Pay). Major activities involved in SUE are:

- **Designating:** Surface geophysical techniques to determine the existence and horizontal position of subsurface utilities. Above ground surface markers (stakes, flags, etc.) or on the ground surface marking (paint) mark the location.

- **Locating**: Process of exposing precise horizontal and vertical position, size, and configuration of subsurface utilities.
- **Data Management**: Process of locating, surveying, and designating information and transferring it into project GIS files, plans, or CAD system.
- **Conflict Analysis**: Using a conflict matrix to do an evaluation and compare designating information with proposed plans to inform all stakeholders of potential conflicts, possible resolutions, and costs to resolve.
- **Quality Level D (QL-D).** The most basic level of information. It comes from existing utility records or oral recollections. Its usefulness should be confined to project planning and route selection activities.
- **Quality Level C (QL-C).** It involves surveying visible aboveground utility facilities, such as manholes, valve boxes, posts, etc., and correlating this information to Quality Level D. Its usefulness should be confined to rural projects where utilities are not prevalent, or are not too expensive to repair or relocate.
- **Quality Level B (QL-B).** Using appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. This two-dimensional horizontal mapping information is usually sufficient to accomplish preliminary utility conflict elimination preliminary goals which needs to be further confirmed. Decisions can be made on where to place storm drainage systems and other design features in order to avoid conflicts with existing utilities. Slight adjustments in the design can produce substantial cost savings by eliminating utility relocations.
- **Quality Level A (QL-A).** Precise vertical and horizontal location of subsurface utilities obtained by exposure and subsequent measurement, usually at a specific point. Information provides the highest level of accuracy presently available. When surveyed and mapped, precise plan and profile information is available for use in making final design decisions. The use of nondestructive digging equipment, particularly vacuum excavation, eliminates damage to underground utility facilities traditionally caused by backhoes.

3.02 PROTECTION OF PERSONS AND PROPERTY

A. Provide safe working conditions for employees throughout demolition and removal operations. Observe safety requirements for work below grade.

B. Maintain safe access to adjacent property and buildings. Do not obstruct roadways, sidewalks or passageways adjacent to the work.

C. Perform demolition in a manner to prevent damage to adjacent property. Repair damage to City property, public right of way or adjacent property and facilities at no cost to the owner.

D. The Contractor shall be responsible for safety and integrity of adjacent structures and shall be liable for any damage due to movement or settlement. Provide proper framing and shoring necessary for support. Cease operations if an adjacent structure appears to be endangered. Resume demolition only after proper protective measures have been taken.

E. Erect and maintain enclosures, barriers, warning lights, and other required protective devices.

F. To minimize the inconvenience to the public and to maintain better quality control, the total of all demolition, construction and testing activities cannot exceed 2-lanes in one direction (includes parking lane) for a total length of one-thousand (1,000) linear feet or three City Blocks in length, whichever is less. This aforementioned length, shall be completed in its entirety and all services restored including access to driveways, sidewalks and ADA ramps, roads, etc., prior to work commending on the next section.

3.03 UTILITY SERVICES

A. Follow rules and regulations of authorities or companies having jurisdiction over communications, pipelines, and electrical distribution services.

B. Notify and coordinate with utility company and adjacent building occupants when temporary interruption of utility service is necessary.

3.04 DISPOSAL

A. Remove from the site all items contained in or upon the structure not designated for reuse or salvage. Conform to requirements of Section 01500 - Temporary Facilities and Controls or Section 01564 - Waste Material Disposal.

B. Follow method of disposal as required by regulatory agencies.

3.05 MECHANICAL WORK ITEMS

A. Mechanical removals consist of dismantling and removing existing piping, pumps, motors, water tanks, equipment and other appurtenances. It includes cutting, capping, and plugging required to restore use of existing utilities.

B. Remove existing process, water, chemical, gas, fuel oil and other piping not required for new work. Take out piping to the limits shown or to a point where it will not interfere with the new work. Piping not indicated to be removed or which does not interfere with new work shall be removed to the nearest solid support, capped, and the remainder left in place. Purge chemical and fuel lines and tanks. Verify that such lines are safe prior to removal or capping.

C. Where piping that is to be removed passes through existing walls, cut and cap piping on each side of the wall. Use cap appropriate for pipe material to be capped. Provide fire-rated sealant for walls classified as fire-rated.

D. When underground piping, which is not located in the public right-of-way, is to be altered or removed, cap the remaining piping. Abandoned underground piping may be left in place unless it interferes with new work or is shown or specified to be removed. For piping to be abandoned, fill with sand, pressure grout or other approved method and plug with concrete or brick masonry bulkhead unless otherwise approved by the Owner.

E. Remove waste and vent piping to points shown. Plug pipe and cleanouts and plugs. Where vent stacks pass through an existing roof that is to remain, remove the stack and

patch the hole in the roof, making it watertight. Comply with requirements of existing roof installer so as to maintain roof warranty.

F. Conform to applicable codes when making any changes to plumbing and heating systems.

3.06 ELECTRICAL WORK ITEMS

A. Electrical removals consist of disconnecting and removing existing switchgear, distribution switchboards, control panels, bus duct, conduits and wires, panelboards, lighting fixtures, and miscellaneous electrical equipment.

B. Remove existing electrical equipment and fixtures to prevent damage to allow continued operation of existing systems and to maintain the integrity of the grounding systems.

C. Remove poles and metering equipment, if designated for removal on the Drawings. Coordinate electrical removals with the power company, as necessary. Verify that power is properly de-energized and disconnected.

D. Where shown or otherwise required, remove wiring in underground duct systems. Verify function of wiring before disconnecting and removing. Plug ducts which are not to be reused at entry to buildings.

E. Changes to electrical systems shall conform to applicable codes.

END OF SECTION