SECTION 11 40 00

FOODSERVICE EQUIPMENT

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The work covered includes the furnishing of all labor, materials, accessories, and special services necessary to complete the Foodservice Equipment Work as specified herein and where shown and scheduled on the drawings.

B. It is the intent of the Contract Documents for each and every item and/or component to be complete with all necessary devices for the Item and/or component to properly function and perform in a manner equal to the manufacturer's stipulations.

C. The applicable provisions of Division 22 and 26 are a part of this specification; the Contractor shall consult them in detail for instructions pertaining to this work, together with all other Divisions relative hereto.

D. The work shall include, but not be limited to, the following:
1. The purchase and/or fabrication, delivery, unpacking and setting up of all items in the correct locations and make ready for final utility connections.
2. Furnishing Division 26 with all controls for items requiring electrical connections including as hereinafter noted, or shown on the Contract Drawings.
3. Furnishing Division 22 with the control valves, pressure reducing valves, faucets, and specialty fittings as hereinafter noted, or shown on the Contract Drawings.
4. Supervising the mechanical and electrical connections and testing each item for performance, and the replacement of any item, which fails to perform as claimed by the manufacturer.
5. Start-up and Demonstrations are to be conducted in the proper operation and maintenance of each piece of equipment by Manufacturer’s Representative and Equipment Supplier.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. All plumbing, electrical and ventilation work required in connection with this equipment will be done by Contractors under Division 22 and 26 unless specifically called for otherwise in the Item Specifications. The work to be done by these Contractors shall include roughing-in to points indicated on dimensioned utility requirements rough-in plans, mounting of trim items such as faucets, sink wastes, pre-rinse sprays, syphon breakers, and the final connecting from the roughing-in point to the various pieces of equipment requiring such connections, and the supplying of all necessary materials and labor for this work except as hereinafter noted.

B. Refrigeration work shall be done by the Food Service Equipment Supplier as hereinafter listed in the Item Specifications, except for electrical and plumbing

connections to compressors, blower coils, controls, etc. These final connections will be made by Contractors under Divisions 22 and 26. Drain lines from Walk-In Cooler/Freezer blower coils to be furnished and installed by Refrigeration System Installer.

C. All traps, grease traps, line strainers, valves, stops, shut-offs and fittings necessary for equipment specified will be furnished and installed under the Mechanical Contractors under Division 22, unless specifically called for otherwise under each item.

D. All line and disconnect switches, safety cut-offs and fittings, convenience outlets, outlet boxes, wiring, conduit, control panels, fuse boxes or other electrical controls, fittings and connections will be furnished and installed under Electrical Contractors under Division 26. Starting switches are to be provided by the Food Service Equipment Supplier. Those starting switches furnished loose as standardized by Food Service Equipment Manufacturers (other than fabricated items) shall be mounted and wired complete by Contractors under Division 26.

E. Any sleeves or conduit required for installation of refrigeration lines, syrup lines or CO2 tubing will be furnished and installed by Mechanical Contractors under Division 22.

F. Necessary stainless steel seamless exhaust ducts of size and capacity required to operate fixtures specified, together with final approved connection between roughed-in vent openings and the ceiling connection will be furnished and installed by Food Service Equipment Supplier unless otherwise noted in the Itemized Specifications.

G. Ventilating fans and all duct work between same and the exhaust hood duct collars and from same to discharge opening in building will be furnished and installed by Contractors under Division 22.

H. Division 22 Contractor is to see that all plumbing lines are flushed free of foreign matter before connecting to foodservice fixtures.

I. Water inlets shall be located above the positive level to prevent syphoning of liquids into the potable water system. Wherever conditions shall require submerged inlet, a suitable approved type of check valve and vacuum breaker shall be placed on the fixture by the Contractor under Division 22 to form part of same to prevent syphoning. If exposed and design dictates, piping and fittings shall be chrome plated.

J. Contractor under Division 26 shall inter-wire fire protection system, walk-in coolers and freezers, exhaust ventilators, lights, exhaust fans, as required for complete operation as designed, and furnish wall mounted light and exhaust fan switches.

1.3 QUALITY ASSURANCE:

A. Qualification of Suppliers: Commercial foodservice equipment suppliers shall submit satisfactory evidence of compliance with the following qualifications and conditions to be approved.
   1. Successful completion of jobs of comparable scope.

2. Have manufacturer's authorization to distribute and install specified factory items of equipment.
3. Maintain a permanent staff experienced in the installation of foodservice equipment and preparation of professional style shop drawings and brochures.
4. Maintain or have access to fabrication shop meeting all requirements of the section “Qualified Fabricators”.
5. Maintain or have access to a readily available stock of repair and replacement parts, together with authorized service personnel.
6. Operation/Maintenance Manuals: Foodservice equipment supplier shall furnish three (3) bound sets of dimensional prints, data sheets, spare parts lists, and operating instructions for each piece of mechanical equipment. These are to be prepared and submitted to the Consultant for review and approval before demonstration of equipment to the Owner.

7. All brochures shall be bound in hard durable covers bearing the job name and date of submission.

1.4 PLANS AND SPECIFICATIONS

A. Specifications and drawings have been prepared to form the basis for procurement, erection, start-up and adjustment of all equipment in this contract. Plans and specifications shall be considered as mutually explanatory and work required by one, but not by the other, shall be performed as though required by both. Items required by one, but not by the other should be provided as though required by both. Work shall be accomplished as called for in specifications and shown on drawings, so that all items of equipment shall be completely functional for purpose for which they were designed. When there is any discrepancy between drawings and specifications, bidders should seek clarification of any discrepancies from the Architect/Consultant prior to bidding.

1.5 SUBMITTALS:

A. Submittals shall be sent to the General Contractor/Construction Manager for review, coordination and processing completely in Adobe PDF format with one (1) printed copy for the consultant. Submittals shall be complete including all drawings and documentation necessary for a complete review. Partial submittals will not be accepted. This submittal is to be within terms set by Architect and to coincide with job conditions and is to include the following items:
   1. Equipment arrangement plan
   2. Plumbing plan
   3. Electrical plan
   4. Ventilation plan
   5. Special conditions plan
   6. Shop drawings

B. All drawings to be original prepared detailed arrangement plans from Architect’s dimensioned plans (not reproduced from the Food Service Contract Documents) and rough-in plans showing dimensioned locations, sizes, elevations and capacities of all utility services required for each item of equipment. All responsibility for correct voltage, locations, capacities and quantities of all utility services resides with the Food Service Equipment Supplier in the preparation of these submittals.

1. Items A through E above shall be prepared at ¼" to 1'-0" scale.
2. Item F shall be prepared 3/4" to 1'-0" scale with sections at 1-1/2" to 1'-0" scale.

C. It is advised that Foodservice Equipment not be ordered until submittals have been reviewed and stamped by Foodservice Equipment Consultant.

D. Product data brochures complete with:
1. Cover Page listing name of project, Architect, General Contractor/Construction Manager, Food Service Equipment Consultant and Food Service Equipment Supplier and bound in loose-leaf manner such as three ring binder or spiral back brochure.
2. Index of Items.
3. Individual descriptive cover sheet to include Item #, manufacturer, description, accessories and options, finishes, and notes for Architect/Owner to select any color, finish, lettering etc. required. Include color charts if color selection is required.
4. Manufacturer specification sheet complete with dimensions, options, and complete description of utility options and requirements.
5. For custom fabricated items, list name of Qualified Fabricator selected for project.
6. Cover sheet must be included for Items that are Owner or Vendor furnished and Spare Numbers.
7. Buy out items such as walk-in cooler/freezer, exhaust hood, sneeze guards, serving counters, and floor troughs shall be prepared on sheet sizes and in the same manner as custom fabricated equipment.
8. All data shall be submitted in quantities as described in Division 1.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Delivery: Equipment shall be delivered only after the building is weather and vandal safe.

B. Storage: Store equipment in an area convenient to the point of installation in such a way that it can be protected from the weather and job hazards.

C. Protection: Wrapping and protective coverings shall remain on all items until ready for use and in the case of stainless steel items, until installation is complete and the job is ready for cleaning.

D. JURISDICTION TRADE AGREEMENTS AND RESTRICTIONS:
1. Include the work specified, shown or reasonably inferable as part of foodservice equipment. Portions of this work may be sub-contracted to those qualified to do such work, as may be necessary because of jurisdictional trade agreements and restrictions.

1.7 REGULATIONS AND CODES:

A. In addition to complying with applicable laws, statutes, building codes and regulations of local public authorities, comply with the following:
1. National Sanitation Foundation (to bear label)
2. Underwriters' Laboratories, Inc.
3. American Gas Association Laboratories

4. National Fire Protection Association
5. Occupational Safety and Health Act
6. Americans with Disabilities Act
7. Texas Accessibility Standards
8. Current Applicable Building Code
9. Current Applicable Plumbing Code
10. Current Applicable Mechanical Code
11. Current Applicable Electrical Code

1.8 WARRANTIES:

A. Warrantee in writing all equipment and fabrication against defects and workmanship for a period of one (1) year from date of acceptance.

B. Each piece of mechanical equipment shall be listed, together with the authorized service and repair agency, which the Owner should call should malfunctions occur within the one (1) year guarantee period.

C. Refrigeration system compressors shall be CFC free and warranted for five (5) years by the manufacturer. Free refrigeration service, including parts and labor, to be furnished for one (1) year from date of acceptance.

PART 2 – PRODUCTS

2.1 MATERIALS:

A. Refrigeration Systems: Self-contained refrigerators: Whether the units are top mounted or cabinet mounted, they shall be started by Food Service Equipment Supplier and shall be tested for maintenance of temperature.

B. Fractional-horsepower compressors remotely installed within a fabricated closed base body fixture shall be located in a partitioned compartment fitted with a louvered door. The compressor shall be securely anchored to #14 gauge galvanized steel channels positioned 4" above the bottom of the fixture body and fitted with sound absorbing isolation pads.

C. A cord and cap assembly pre-wired to a control switch installed near the front of the compressor compartment shall be provided.

2.2 MOTORS AND HEATING ELEMENTS:

A. Motors: Up to and including 1/2 H.P. shall be wired for 120 volt, single-phase service. Motors larger than 1/2 H.P. shall be wired for 208 volt, single or three phase as indicated.

B. Heating elements having a connected load up to and including 1000 watts shall be wired for 120 or 208 volt, single phase service, or as indicated on the design drawings.
   1. Any heating element larger than 1000 watts or any combination of elements in one fixture totaling more than 1000 watts shall be wired for

208 volt, single or three phase service, as indicated on the design drawings.

2. Fixtures having multiple heating elements may be wired for three (3)-phase service with the load balanced as equally as possible within the fixture.
3. Wiring shall be properly protected in NEMA and UL approved metal enclosures.

C. Switches and Controls:
1. Each motor driven appliance or electrically heated unit shall be equipped with a suitable control switch or starter of a type meeting the requirements of NEMA and UL codes.
2. All controls mounted on vertical surfaces of fixtures shall be set into recessed die stamped stainless cups or other approved indentations.

D. Faucets, Valves and Fittings:
1. All sinks shall be equipped with chromium plated, swing spout faucets equal to T. & S. Brass and Bronze Works, Inc., #B-0231-EE or #B-0290-LL units for splash mounted or #B-0221-EE deck mounted, unless otherwise specified in the Item Specifications.
2. Specialty faucets will be listed under Item Specifications.
3. For all other fittings, refer to Division 22.
4. Comply with ANSI / NSF Standard 61 Requirements.

2.3 METALS AND ALLOYS:

A. Non-corrodible Alloy: Shall be stainless steel, Type #304, U.S. standard gauges as indicated. All exposed surfaces shall have a #4 finish. Surface finish marred by manufacture shall be ground smooth, polished and restored to match original finish.

B. Galvanized Metal: Where galvanized metal is specified, it shall be copper-bearing galvanized iron, Armco, Toncan, or equal, re-rolled for smoothness and used in the largest possible sizes with as few joints as necessary.

C. Hardware and Casters:
1. All hardware shall be of a heavy-duty type, satin finished chromium plated brass, cast or forged or hi-lited stainless steel of uniform design. All hardware shall be a well-known brand, and shall be identified by the manufacturer's name and number for easy replacement of broken or worn parts.
2. Casters on custom-built equipment shall be heavy-duty type, ball bearing, and solid or disc wheel, with grease-proof rubber, neoprene, or polyurethane tire. Wheel shall be 5" diameter, minimum width of tread 1-3/16", minimum capacity per caster 250 pounds, unless otherwise noted.
3. Solid material wheels are to be provided with stainless steel rotating wheel guard.
4. All casters shall have sealed wheel and swivel bearings, polished plated finish and be N.S.F. approved.

D. Tempered Glass:

1. Fully tempered glass to be used in place of other glass products on all manufactured and custom fabricated equipment. All tempered glass to bear the etched logo indicating tempered glass and the manufacturer's number. The manufacturer to meet the requirements of ANSI Z97.1 standard and federal standard CPSC16CFR 1201, as well as state and local codes, safety glazing material where the glazing might reasonably be exposed to human impact. Applicable codes should be checked for specific information and requirements.
2. Handling and installation of tempered glass should receive the same as annealed glass. Careless handling and improper installation sometimes produces edge damage. The tempered glass should be replaced if there is such damage. Tempered glass cannot be cut or modified following heat treatment.
3. Provide a beveled or radius edge around the parameter of the tempered glass to eliminate all sharp areas that may cause injury to a person.

E. Laminated Plastic:
1. Wherever laminated plastic materials are specified for cabinetwork, counter or top facings, they shall be Formica, Parkwood, Nevamar, or approved equal. All material to be veneered with Urea based cement, waterproof and heatproof.
2. Material to be applied directly over ¾" marine grade plywood or close-grained plywood such as solid Mahogany or solid Birch, of selected smooth sanded stock to ensure a smooth ripple-free laminated surface where approved by Consultant.
3. Exposed faces and edges faced with 1/16" material and corresponding back faced with approved backing and balancing sheet material. Top sheet shall be placed on and over finished edge.
4. Rubber based adhesives are not acceptable.
5. Standard Fir plywood is not acceptable.

F. Thermometers:
1. All fabricated refrigerated compartments shall be fitted with dial type thermometers with chrome plated flush bezels. Thermometers shall be adjustable and shall be calibrated after installation.

G. Water Piping:
1. All manufactured and fabricated items having internal or external water piping are to make welded connections or connections using lead free solder except for ice bins which are to be PVC.
2. All exposed supply and drain lines shall be painted with chrome or aluminum paint.

2.4 FABRICATION AND MANUFACTURE:

A. Materials and Workmanship: Unless otherwise specified or shown on drawings, all material shall be new, of best quality, perfect and without flaws. Material shall be delivered and maintained on job in an undamaged condition.

B. Fabrication shall be equal to the standards of manufacture used by all first class equipment manufacturers, performed by qualified, efficient and skilled mechanics of the trades involved.

C. All items of standard equipment shall be the latest model at the time of delivery.

D. All fabricated work shall be the product of one manufacturer of uniform design and finish.

E. Sanitary Construction:
1. All fabricated equipment is to be constructed in strict compliance with the standards of the National Sanitation Foundation as outlined in their bulletin on Food Service Equipment entitled "Standard No. 2" dated October, 1952, and in full compliance with the local and State Public Health Regulations in which the installation is to be made.
2. All fabricated equipment shall bear the seal of approval of the National Sanitation Foundation.

F. Construction Methods:
1. Welding:
   a. Stainless steel shall be arc welded with stainless steel electrodes. Welds shall be non-porous, free of pits and flaws, peened to remove flux and other impurities and ground smooth. Field joints necessary for delivery and assembly are to be solid welded by using the same materials and method as for shop welding. Field welded joints shall be ground smooth without dips and irregularities and finished to match original finish.
2. Bolt, Screw and Rivet Construction:
   a. Wherever bolts are used to fasten trim to the paneling and body of equipment or to secure any exposed sheet metal surface, such bolts shall be of the concealed type.
   b. Stainless steel bolts and screws of the same alloy composition, as the metal to which they are fastened shall be used.
   c. Wherever threads of bolts and screws occur on the inside of fixtures and are either visible or might come in contact with a wiping cloth, such bolt or screw threads shall be capped with a suitable washer and stainless steel or chrome acorn cap nut.
   d. If rivets are used to fasten rear paneling to the body of the fixture, such rivets shall be stainless steel. In no case shall iron rivets be used.

G. Sound deadening:
1. Schnee Butyl-Sealant 1/2" wide rope continuously between all frame members and underside of stainless steel table tops, over shelves and under shelves.
2. Tighten stud-bolts for maximum compression of sealant.

H. Hi-Liting:
1. When hi-lited finish is specifically indicated on Elevations, Details and/or Item Specifications for horizontal edges of stainless steel tops, splashes, raised rolled rims, shelf edges, exposed doors, and handles, the Standard #4 finish shall be ground to #240 grit and shall be polished with compound to ensure mirror finish.

I. Painting:

1. All fixtures, unless made of stainless steel, shall be finished in gray hammertone enamel, glossy and without blemish.
2. All materials shall be of the highest quality, air dried and applied in accordance with manufacturer's directions.
3. Where baked enamel finishes are specified, they shall be oven baked on the fixtures for a minimum of 1-1/2 hours at a minimum temperature of 300 degrees Fahrenheit.

J. Construction:
1. Table Frames:
   a. All tubular stands for open base tables or dishtables shall be constructed of 1-5/8" O.D. stainless steel tubing, with stringers and cross braces of the same material.
   b. All joints between legs and cross braces shall be welded and ground smooth, full 360 degree.
   c. The top end of legs shall be closely fitted into fully enclosed gusset no less than 3" high, Component Hardware Group, Inc., model #A20-0206 stainless steel or approved equal.
   d. Gussets to be fully welded to top hat channel reinforcing members, turned so set screw is not visible from the front.
   e. Crossrails must be supplied to reinforce each leg on all tables not having stainless steel undershelves.
   f. Legs anchored to gussets at top only and without crossrails are not acceptable except in the case of sinks.
2. Feet and Counter Legs:
   a. All tubular legs will be swedged for appearance and close fit to United Show Case model #BF-158, or approved equal, stainless steel bullet shaped foot having a slightly rounded bottom to protect the floor.
   b. Top of feet to be fitted with a male threaded stem to fit into the legs and provide a total adjustment of 2" without threads being exposed.
   c. Bottom of tubular leg to be finished off smoothly to provide a sanitary fitting and prevent the accumulation of grease or other debris at this joint.
   d. Cabinet type fixtures, unless otherwise specified, shall be mounted on 6" high die-stamped sanitary two (2) piece stainless steel counter legs not less than 2-3/4" diameter at top.
   e. The upper part shall be stamped in a neat design with a flared inverted shoulder and shall be welded to a base plate designed for anchoring to the channel braces below cabinet type fixtures.
   f. Counter legs shall have an adjustment of 5” to 7" height.
   g. All legs are to have one (1) piece die-stamped closed 1-3/8" diameter bottoms to ensure sanitation. To be Deering Fabricators, 196 Asa Cash Road, Breman, Georgia 30110 model #DF6HGR or approved equal.
3. Table Tops (Metal):
   a. Metal tabletops shall have all shop seams and corners welded, ground smooth and polished. All back welds to be peened and ground smooth.
   b. All working tops on closed base fixtures shall be reinforced on the underside with a framework of 1-1/2" x 4" x 1-1/2" galvanized hat channels.

c. Cross channel closed end members shall be placed at each pair of legs. One angle or channel runner, running lengthwise, shall be provided below tops up to 30" wide.
d. All tops shall be reinforced so that there will not be any noticeable deflection and all reinforcements shall be stud welded to the underside of the top.
e. No rivets or bolts to be used through tops.
f. Field joints shall be provided in tops where necessary and are to be located for practical construction, consistent with sizes convenient for shipping and accessibility into the building.
g. All metal tops shall be of #14 gauge stainless steel of the quality hereinbefore specified.
h. All metal tops shall be turned down as required by uniform design except where adjacent to walls or other pieces of equipment The wall side shall be turned up a minimum of 8" and back 2-1/2" as required by uniform project design or as otherwise specified.
i. Ends of these splashes shall be closed.

4. Enclosed Bases:
a. All enclosed bases or cabinet bodies shall be of seamless #18 gauge stainless steel construction, enclosed on the ends and sides as required and called for under each particular item.
b. Ends of body to terminate at front or operator's side in a 2" wide mullion, vertical, completely enclosed. All intermediate mullions shall be completely enclosed.
c. The bases shall be reinforced at the top with a framework of 1-1/2" x 1-1/2" x 1/8" galvanized angles, with all corners of said framework mitered and welded solid.
d. Bottom of tabletop shall be reinforced with channels and gussets where necessary. Additional angles and channel cross members shall be provided to reinforce shelves and support tops.
e. Where sinks or other drop-in equipment occur, bottom sides of such equipment shall be reinforced with an angle crosswise of the table.
f. In the case of fixtures fitting against or between walls, the bodies shall be set in 1" or 2" from the wall line, but the tops will extend back to the wall line. This will permit adjustment to wall irregularities.
g. A vertical trim strip of the same material as the body shall be provided at each end of the fixture to close the gap between the back edge of the body and the wall or preferably the end of the body shall extend back to the wall line.
h. All free vertical corners of enclosed bodies shall be rounded on 3/4" radius and all corners against walls and other fixtures to be square.
i. These fixtures shall be fitted with 6" high counter style stainless steel legs as hereinbefore specified.

5. Sliding Doors
a. Sliding doors shall be constructed of #18 gauge stainless steel. These shall be made pan-shaped, of double thickness, and without trim. Sliding doors shall have 3/4" thick sound deadening fiberglass or celotex between the two thicknesses of metal and shall operate on quiet top-hung ball bearing rollers. Bottom edge

of doors shall be square and fitted with a guide groove that rides in a nylon clip at the center point.

b. All doors shall be fitted with stops. Doors shall be fitted with pin tumbler type locks, master keyed to other fabricated items if specified under Item Specifications.

6. Hinged Doors:
   a. All hinged doors for cabinet bodies and enclosed bases shall be constructed of #18 gauge stainless steel. They shall be of double pan construction with sound deadening insulation between the two pans. Doors shall be flush mounted without overlap and shall be fitted with semi-concealed stainless steel hinges or concealed torque-spring self-closing hinge assembly.
7. Drawers:
   a. All drawer bodies shall be die-stamped out of one (1) piece of #18 gauge steel material of the type and in the size called for in the Item Specifications. Each drawer body shall sit loosely in a channel frame so it can be lifted out for cleaning.
   b. All top edges shall be flanged out 1/2".
   c. All interior horizontal corners are rounded on a 1" radius and all interior vertical corners on a 2" radius.
   d. The supporting frame shall be of welded channel, or material called for in Item Specifications. Drawer face shall be welded to frame so that no screws or rivets will be exposed on the face.
   e. The face shall be of #16 gauge stainless steel insulated die-formed with full-length sanitary handle.
   f. Drawer slides to be Component Hardware Group, Inc., model #S52-series heavy-duty stainless steel full extension type and are to be mounted on the channel frame and fitted with ball bearing stainless steel rollers. Slides and frame shall be reinforced such that the drawer will support a dead weight of 200 pounds when fully extended.
   g. Adjustable stops shall be provided for each drawer at the fully opened position.
   h. Drawers on open base tables shall be fully enclosed in #18 gauge steel housing of material as identified in the Item Specifications.
   i. Locks, where required, shall be cylinder lock assembly. No screws, bolts, or fastening devices penetrating the sides of bottom of the drawer body will be permitted.
   j. Drawer constructed similar to Component Hardware Group, Inc. model #S90-0020-N.
8. Undershelves:
   a. Unless otherwise specifically called for to be removable, all open base table undershelves to be #16 gauge stainless steel, notched around table legs and fully welded. All edges to have 1-1/2" straight turn down with 1/2" turn back on 15-degree angle, at bottom edge. Underside of shelf to have #12 gauge galvanized hat channel bracing.
   b. Undershelves specified to be removable shall be #18 gauge stainless steel, built in such a way as to be easily removable, using rolled turn down at front and back and at end section so that shelving will fit perfectly over the tubular frame. At end sections or otherwise where table legs occur, corners at legs are to be notched out to form a perfect fit around legs. At intersections of

shelving, not over 28” long, shelving to run straight down 1” for strength. If required by width, shelves to have additional angle bracing. All outside turn down corners of removable undershelves to have rounded edges.

9. Interior Shelves:
   a. Removable interior shelves in cabinet bodies, enclosed bases and overhead cabinets, shall be of #18 gauge stainless steel. Such shelves as called for shall be made in removable sections and rest in 1-1/2” x 1-1/2” x 1/8” stainless steel angle frame, having all horizontal corners coved and constructed in full accordance with N.S.F. requirements.
   b. Stationary interior shelves shall have 2" turn-up on back and ends and shall have joint between shelf turn-up and the body sealed and ground smooth to form a one-piece interior free of any crevices. The front edge shall be flanged down 1-1/2" and under 1/2" and finished with "Z" bar forming completely enclosed edge for maximum strength and sanitation. Shelves further braced with longitudinal centered 1-1/2" x 1-1/2" x 1/8" angle.
10. Elevated Shelves:
   a. All elevated shelves shall be of #18 gauge stainless steel. All edges shall be rolled or turned down 1-1/2", except where shelves are adjacent to walls or other fixtures where they shall be coved up 1-1/2". All outside corners of rolled edged shelves shall be spherical. All exposed ends and backs of shelves shall be capped.
   b. Shelves shall be mounted on stainless steel wall brackets of tubular, gusset or angle construction as called for in the item specifications.
   c. Shelves may be mounted on 1" O.D. tubular stainless steel tubing with one upright at each corner of the shelf and in center where necessary. Uprights to be fastened to underside of shelf by means of stud-welded bolts and tabletops with concealed fasteners.
   d. Cantilever supports when called for shall have brackets secured to 1-5/8" O.D. stainless steel tubular standards at the back edge of the fixture. These standards are to be carried through the top and are to be securely anchored to the lower framework. Where indicated on drawings, provide Component Hardware #A16-0206 welded sleeves where standards penetrate backsplashes.
11. Sinks:
   a. All sinks shall be of the size and shape as per plan and constructed of #14 gauge stainless steel. The backs, bottoms and fronts shall be formed on one continuous sheet with the ends welded into place. Partitions for compartment sinks shall be of the same material, electrically welded in place.
   b. Sinks shall have all corners both vertical and horizontal coved on a 3/4" radius electrically welded, ground smooth and polished. Solder in filleted corners will not be acceptable.
   c. Partitions in coved corner sinks shall be of double thickness with a half round 1-1/2" top edge.
   d. Top edges of sinks at front and ends, except where fitted with integral type drainboards, shall be furnished with a 1-1/2" die-formed integral sanitary semi-roll rim.

e. Across the back of all sinks, unless otherwise specified, there shall be a 10" high splash back measured from rolled edge or approximately 12" from working surface, turned back across the top 2", with ends enclosed.
f. Unless otherwise specified, two (2) faucet holes on 8" centers are to be provided over the centerline of partitions between compartments, 2-1/2" down from the top of the splash.
g. Bottom of each compartment shall be pitched or creased to the center drain, and shall be provided with cast brass quick opening drain valve with removable stainless steel strainer equal to Fisher #10707 twist handle drain. Handle to have front stainless steel welded clip support to sink.
h. Sinks shall be mounted on 1-5/8" O.D. stainless steel tubing legs, and fitted with stainless steel bullet shaped adjustable feet. Legs shall be fitted with die-formed enclosed sanitary closed stainless steel gussets welded to the underside of the sink.
i. All freestanding sinks shall be 37" high to the top of the front edge and 47" high to the top of the splash. Sink depth from top of front edge to bottom of tub shall be 14" or as otherwise specified. Lengths and widths given shall be overall.

12. Sink Inserts:
    a. Sink inserts shall be of one (1) piece deep-drawn construction in the size, material and gauge called for in the Item Specifications.
    b. Sinks shall be welded integral with counter tops with no lap between.
    c. Sink will be fitted with a cast brass quick opening drain valve with removable stainless steel strainer as specified or crumb cup drain (Component Hardware #E38-1012) as specified in Item Specifications.
    d. Where sink bowls are exposed, the exterior shall also be polished to a #4 finish.
13. Sink Drainboards:
    a. Sink drainboards shall be constructed of same material as the sinks and shall be welded integral to same.
    b. Drainboards shall have 2-1/2" high rims with die-formed integral rolled edges to match sink edges.
    c. Front, end, and corners shall be coved on 3/4" radius, as called for in sink specifications, electrically welded, ground, and polished smooth. Solder filleting of these corners will not be accepted.
    d. Drainboards shall be pitched approximately 1/8" per foot to properly drain into the sink.
14. Dishtable Tops:
    a. These tops shall be #14 gauge stainless steel with all free edges rolled up 3" and finished with 1-1/2" diameter rolled rim and having rounded corners. Edges of dishtables next to high fixtures or walls shall cove up 10" and roll back 2" on 3/4" radius (or as design dictates).
    b. All tables shall slope, and slope shall be built in maintaining vertical crown where adjustable slope is not possible.
    c. All corners of tops shall be coved on 3/4" radius.
    d. Tables to be braced with 1" x 4" x 1" x #12 gauge galvanized hat channels with stainless steel exposed closed ends, between each pair of legs and down center line of top.

e. Leg gusset to weld to this hat channel and so masked off when sound-deadening material is applied. Gussets to be positioned so that "set-screw" hole is not visible.
f. Where tops fit to and into dish machines, they shall turn down into, extend up to, and fit watertight thereto.
g. On exit side of conveyor machines, tables to be provided with 10" high x 12" long sloping integral splashguard constructed of #14 gauge stainless steel (or as design dictates).
h. Silicon filling of gaps caused by poor fit will not be acceptable.

15. Counter Style Enclosed Units:
a. Where these custom fabricated units occur, framing is to be of 1-1/2" x 1-1/2" x 1/8" galvanized angles.
b. At corners, metal is to be mitered; at other meeting points, metal is to be butted and will conform to the shape of the top and bottom frame metal and then to be solid welded, ground and polished smooth, and repainted as specified.
c. Provide top and bottom framing for each counter food pan, cold pan, coffee urn, ice cream unit, ice bin, dish dispenser, whether a drop-in unit or a cutout for a portable unit.
d. Where plate shelves occur, frame horizontally 8-1/2" back from counter edge or as design dictates, and at bottom of shelf at counter edge.
e. At cut-outs for roll-in equipment, provide top and bottom angles crosswise of the counter 8" above the finished floor.
f. Base of counter shall be as specified with stainless steel interior shelving constructed as specified.
g. Counter shall be mounted on approved stainless steel feet as specified.
h. Top of counter to be of #14 gauge Type #304 stainless steel as called for in these specifications. Metal is to turn down at front and back a full 2" from the top of the top metal or as design dictates.
i. Such units as are to built in, as an integral part of the counter top will be shown in the Item Specifications. Wherever openings occur for roll-in equipment, the sizes of such openings are to be such as will accommodate the portable equipment plus such protective bumpers as will be required.
j. Unless counters are specified with plate shelves, metal on working side of counter is to be turned down flush with the bottom of built-in units and back a minimum of 1-1/2" to cover such structural angles as are required.
k. Front of counter and ends (where exposed) shall be stainless steel, laminated plastic, or other material as required by the Item Specifications.
l. All display glass shelving shall be set into #18 gauge stainless steel formed channels. Top shelves shall be of the same width as the shelf below. All shelves shall be provided with appropriate sneeze or breath guards having stainless steel protective edges.
m. The shelves over bread and or pastry sections shall be glass. (All shelving shall be 1/4" polished plate glass and protected with stainless steel channel edging where specified). The shelves over salad sections shall be glass.

n. The supporting channels for all glass shelving shall have rubber isolation "buttons" secured to framework of supporting angles.
o. Serving shelf over hot food sections and/or bread sections shall be #18 gauge stainless steel with lights for the length of the sections.
p. All display shelving will have lights controlled by switch mounted in base of counter on operator's side. Lights to be of manufacturer and design approved by Consultant and located as design dictates. All lights are to have bulbs covered with plastic shields to meet requirements of local health department.
q. Such changes as are required in this general counter specification are described in the Item Specifications. The counter or counters shall be internally wired complete by the Food Service Equipment Supplier.
r. Electric wiring as required shall be installed in such a way as to meet requirements of the Electrical Code of the job location.
s. Equipment Contractor is cautioned that it will be his responsibility to ascertain requirements of the city and local governing codes that will govern the requirements as described in the specifications:

16. Trim Strips:
a. Trim is not an acceptable substitute for accuracy and neatness. When the Consultant elects to accept a trim strip in lieu of rebuilding an item, it is the responsibility of the Food Service Equipment Supplier to provide same at no cost to the Owner.

PART 3 - EQUIPMENT

3.1 EQUIPMENT

A. Manufacturer's names and model numbers are for establishing standards of quality, size and finish required, representing Owner's preference and basis of bid. Alternate Manufacturer's listed are acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents. Bidders are cautioned to examine the electrical and mechanical Contract Documents plans to determine if equipment other than prime, require changes in utilities, space, etc. If changes are required, the bidder shall pay all Architectural, Engineers and Food Facilities Consultant additional cost of necessary changes to Construction Documents that may occur due to accepted alternate. Equipment is listed hereinafter with same Item numbers as shown on the Contract Drawings:

ITEM #1 <u>REFRIGERATED MILK CABINET:</u> Provide one (1) Traulsen, model RMC58D4*J088 dual sided, forced air refrigerated cabinets, each including:

A. 6" factory mounted adjustable casters, cord and plug.
B. Stainless steel exterior body and doors with adjustable hinges and door latches. Locking mechanism equipped with cylinder locks on each door. Stainless interior with heavy duty dunnage racks.
C. Bottom drain with plug.
D. Forced air design R290 refrigeration system.
E. Three (3) years parts and labor warranty. Five (5) year compressor parts warranty.

ITEM #1A REFRIGERATED MILK CABINET: Future Equipment, Provide utilities only and cap for future use.

ITEM # 2.0 CASHIER COUNTER: Provide two (2) Mod-U-Serve model # MCT-CRSG-MOD*J088, single cashier counter with additional flat top space, including:

A. Stainless steel top, modular design, 1-1/4" stainless steel welded frame construction. Size and configuration per drawings. Tile front panels provided by Mod-U-Serve. Tile panels raised to cover stainless steel mullions.
B. Module at 34" AFF. Trayslide at 30" AFF.
C. 12" wide, Cambria 3cm manufactured stone trayslide with bullnose leading edge. Trayslides on fixed stainless steel welded brackets. Trayslides provided with LED trayslide lights.
D. One (1) stainless steel cash drawer on stainless steel glides with a cylinder lock provided
E. Grommetted holes for P.O.S Cord & Plugs. P.O.S. by others
F. Removable stainless steel CPU shelves
G. Line up locks
H. Module provided with 6" adjustable locking casters and stainless steel Kickplate

ITEM # 2.1 HOT / FROST COUNTER: Provide two (2) Mod-U-Serve model #MCT-HF-MOD*J088, including:

A. Stainless steel top, modular design, 1-1/4" stainless steel welded frame construction. Size and configuration per drawings. Tile front panels provided by Mod-U-Serve. Tile panels raised to cover stainless steel mullions.
B. Module at 30" AFF. Trayslide at 30" AFF.
C. 12" wide, Cambria 3cm manufactured stone trayslide with bullnose leading edge. Trayslides on fixed stainless steel welded brackets. Trayslides provided with LED trayslide lights.
D. One (1) 18" x 26" pan capacity, ½" recessed, mechanically refrigerated sheet pan frost top
E. One (1) 18" x 26" pan capacity, ½" recessed, mechanically heated/refrigerated convertible sheet pan.
F. One (1) Mod-U-Serve single-tier food shield with LED light.
G. Line up locks
H. Module provided with 6" adjustable locking casters and stainless steel Kickplate

ITEM # 2.2 HOT FOOD COUNTER: Provide one (1) Mod-U-Serve model #MCT-H6-MOD*J088, including:

A. Stainless steel top, modular design, 1-1/4" stainless steel welded frame construction. Size and configuration per drawings. Tile front panels provided by Mod-U-Serve. Tile panels raised to cover stainless steel mullions.
B. Module at 34" AFF. Trayslide at 30" AFF.

C. 12" wide, Cambria 3cm manufactured stone trayslide with bullnose leading edge. Trayslides on fixed stainless steel welded brackets. Trayslides provided with LED trayslide lights.
D. Six (6) 12" x 20" pan capacity, individually mechanically heated and refrigerated wells. Unit provided with one (1) cold water fill faucet. Hot/cold wells manifolded with common drain and individual drain valves.
E. One (1) Mod-U-Serve single-tier Elite food shield with LED light and heat strip. Elite guard system provided with an elevated coated wire "clothesline" menu merchandiser, per Dallas ISD specifications
F. Line up locks
G. Module provided with 6" adjustable locking casters and stainless steel Kickplate
H. Kickplate

ITEM # 2.3 CASHIER COUNTER: Future Equipment, Provide utilities only and cap for future use.

ITEM # 2.4 HOT / FROST COUNTER: Future Equipment, Provide utilities only and cap for future use.

ITEM # 2.5 HOT FOOD COUNTER: Future Equipment, Provide utilities only and cap for future use.

ITEM #3 VIDEO MONITOR/MENU BOARD SYSTEM: Not in Foodservice Equipment Contract. To be provided and installed by Owner.

ITEM #4 HAND SINK: Provide four (4) Advance Tabco model #7-PS-70*J088 sinks, each including:

A. Hand sink, wall model with 5" deep bowl, 20 gauge stainless steel construction, wall bracket.
B. 7-3/4" fully welded splash guards on each side.
C. Provide faucet with 4" wrist blade handles.
D. Soap and towel dispenser by Owner, installed by Contractor.
E. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Eagle

ITEM #5 STAINLESS STEEL CORNER GUARD: Provide twenty four (24) custom fabricated corner guards, size and shape as per plan, elevation, sections, details, and general specifications, including:

A. #14 gauge stainless steel construction per detail.
B. Install with approved mastic and seal all exposed edges to wall with clear silicone. Do not use screws or bolts to secure to wall.

ITEM #6 MOBILE PAN RACK: Not in Foodservice Equipment Contract. To be provided and installed by Owner.

ITEM #7 STAINLESS STEEL WALL PANELING: Provide one (1) lot custom fabricated paneling, size and shape as per plan, elevation, sections, details, and general specifications, including:

A. Install from floor to ceiling behind cooking equipment and from top edge of Item #41 Mop Sink to 48" above finished floor.
B. Contain all raw edges in stainless steel trim strips.

ITEM #8 STAINLESS STEEL WALL END CAP: Provide two (2) custom fabricated wall end caps, size and shape as per plan, elevation, sections, details and general specifications, including:

A. To be constructed of 14-gauge stainless steel per detail.
B. Unit shall cover the entire end of wall per plans, elevations and detail 12/QF151

ITEM #9 PASS-THRU REFRIGERATOR: Provide one (1) Traulsen model #RHT132-WPUT*J088 refrigerator, including:

A. Glass, half height doors on the kitchen side and stainless steel, half doors on the serving side. All doors are to be hinged as indicated on plan.
B. Digital thermometer.
C. Twelve sets universal pan guides.
D. Controls on kitchen side.
E. Top mounted electrical connection.
F. Kool Klad option. Plastic laminate selection to be provided by Owner.
G. Stainless steel adjustable legs.
H. Start-up and three (3) year free service, including parts and labor.
I. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Delfield, True or Utility.

ITEM #10 STAINLESS STEEL WALL CAP: Provide one (1) custom fabricated 16 gauge stainless steel wall caps full length of low wall where indicated on drawings and elevations. Provide 2" square drop edge with slight tuck. Butt to ends of walls where applicable with 1" turn up with 3/8" minimum radius. Trim turn up to fit wall thickness and finish

ITEM #11 PASS-THRU HEATED CABINET: Provide one (1) Traulsen model #RHF132W cabinets, each including:

A. Glass, half height doors on the kitchen side and stainless steel, half doors on the serving side. All doors are to be hinged as indicated on plan.
B. Junction box to be top located for electrical connection.
C. Intela-Traul Controller with thermometer on kitchen side and interior light with bulb.
D. Locking hardware, Omit standard shelves and provide universal tray slides for 18" X 26" pans and/or 12" X 20" pans in top and bottom sections-4" Spacing.
E. Mount on 6" high adjustable stainless steel legs.
F. Kool Klad option. Plastic laminate selection to be provided by Owner.
G. One-year parts and labor warranty.
H. Unit to be trimmed out with 18 gauge stainless steel as shown on plans.
I. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Delfield, True or Utility.

ITEM #12 DOUBLE STEAMER: Provide one (1) Groen model SSB-10GF*J088 steamer (total of two compartments), each including:

A. Groen SmartSteam™ Convection Steamer, double-stacked using optional factory stacking kit and mounted on one (1) stainless steel support stand w/bullet feet.
B. Ten (10) 18 x 26 sheet pan or ten (10) 12 x 20 x 2-1/2" pans capacity per compartment,
C. Natrual gas, 100,000 BTU for each boilerless unit with doors hinged per plan and having stainless steel interior and exterior and single water connection.
D. Provide two (2) 3M Model No. SF165 water filtration/scale control system. One (1) for each cavity.
E. One (1) Dormont Model 1675KITBS48, 48" Gas connector kit, ¾" inside diameter, 48" long, with Supr-swivel couplings for each unit complete with one-year parts and labor warranty. Two (2) hose kits total.

ITEM #13 WORK TABLE: Provide one (1) custom fabricated table, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 2" turn down front and sides. Splash to be 8" high at rear.
B. Table to be mounted on 1-5/8" O.D. stainless steel legs and crossrails with stainless #16 gauge stainless steel fully welded undershelves.
C. One (1), #18 gauge stainless steel, 12" wide, table mounted overshelf.
D. Two (2) 20” x 20” x 5” deep stainless steel drawer, enclosed in housing.

ITEM #14 WORK TABLE w/ SINK: Provide one (1) custom fabricated table, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 2" turndown on open sides, and 8” high sidesplash on each side. Left side splash shall be fully capped. Seal side splashes to adjacent wall, and adjacent equipment.
B. Base to be open style 1-5/8" O.D. stainless steel legs and crossrails, with #16 gauge stainless steel fully welded undershelves where shown and adjustable bullet feet.
C. One (1) 18" x 20" x 10" deep sink inset of #14 gauge stainless steel coved construction with lever drain with connected overflow. Stainless steel apron on all exposed side of sink. All drain lines are to be soldered copper pipe. All exposed copper to be painted with aluminum paint.
D. Provide one (1) T. & S. Brass and Bronze Works, Inc., model #B-0221*J088 deck mount swing faucet, with lever handles.
E. Table to have one (1) 20" x 20" x 5" deep all stainless steel tool drawer. enclosed in housing.

ITEM #15 UTILITY FAUCETS w/WALL BRACKET: Provide one (1) custom fabricated stainless steel wall bracket size and shape as per plan, elevation, sections, details and general specifications, including:

A. Provide T&S Brass Special Model No. 43-042-MOD*J088 Assembly with two (2) vacuum breaker hose assemblies. Provide Model B-0100 Spray

Rinse with 68" braided S/S hose and Model B-0102-A Pot Filler with 68" braided S/S hose.

B. Provide T&S Brass model B-0166 hook assemblies.

C. Do not reference T&S detail for bracket construction. Reference detail 15 on sheet QF151 for construction of bracket.

D. All plumbing connections to be copper. All exposed copper to be painted with aluminum paint

ITEM #16 PRESSURE TILT SKILLET: Provide one (1) Electrolux model #587021 (PUET09ECUU), 24 Gallon Electric Tilting Pressure Braising Pan, including:

A. Pressure braising tilting pan with polished chrome nickel plated bottom (316 stainless steel). Thickness of bottom 7/10″ inch plated with 3 mm stainless steel.

B. Lid includes safety mechanism when cooking under pressure. Lid cannot be opened when under pressure for safety.

C. Front mounted, inclined, LED "TOUCH" Control Panel for actual cooking/holding temperature setting and digital display.

D. Timer with digital display.

E. Built in food temperature sensor for precise control of cooking process.

F. Electronic microprocessor control system with digital pre-selection of food cooking temperature, cooking time, starting time and automatic pressure nullification by steam condensation.

G. Electrical operation.

H. Motorized and variable tilting of pan. Pan tilts over 90° for complete emptying/cleaning.

I. Coordinate placement of unit with Item #18, Floor Trough w/ Grate to insure that legs do not rest on grate.

ITEM #17 KETTLE ON STAND: Provide one (1) Groen, model #TDB-40C*J088 kettle, including:

A. Stainless steel self-contained steam jacketed unit, with an electric heated steam source.

B. Kettle shall be of 304 stainless steel, one-piece construction. Interior of kettle shall be polished to a 180 emery grit finish. Exterior of kettle shall be finished to a bright high buff finish.

C. Controls shall include a thermostat, built-in contactor, pressure gauge, front mounted water sight glass and heating indicator lamp.

D. Safety tilt-cut-off, pressure relief valve, high limit pressure switch and low water cut-off.

E. Lift off cover and kettle brush kit.

F. Provide model #TS/10S-2 equipment stand with drain drawer. Indirect drain to be connected by Plumbing Contractor.

G. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Vulcan or Cleveland

ITEM #18 FLOOR TROUGH WITH GRATE: Provide one (1) IMC Teddy model # ASFT*J088 Floor Trough, including:

A. Anti-spill design, size and shape per plan constructed of #14 gauge 18-8 type #304 stainless steel, fully welded, coved-corner construction.

B. Trough will be fitted with stainless steel waste cup with removable basket for 3½" waste pipe.
C. Provide Manchester Associates model #FRP, cut to size and shape as per plan, (sections not to exceed 18" in length), 1-1/2 square mesh grating, stainless steel grate color. Contact information Mr. Steve Manchester, 214-357-3978. Chemgrate heavy duty model FS series removable grates are an acceptable alternate.
D. To be provided by KEC., installed by G.C. KEC to verify and coordinate with site conditions and general contractor. Verify with the pour path and placements of item #16, Tilt Skillet **All troughs are to be flush with finished floor, reference details on drawings for installation.**
E. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Kelley Products, BSI or Advance Tabco.

ITEM #19 2 BURNER INDUCTION RANGE w/ SINK: Provide one (1) custom fabricated assembly, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 1" radius on outside corners and 8" high splash on rear with closed stainless steel rear splash.
B. Table to be mounted on 1-5/8" O.D. stainless steel legs and crossrails. Having shelving fully welded #16 gauge stainless steel.
C. One (1) 12" x 20" x 10" deep sink insert of #14 gauge stainless steel coved construction with T. & S. Brass and Bronze Works, Inc., deck style # B-0220-EE-060X*J088 faucet having a swing spout. Sink to have lever drain with connected overflow. All drain lines are to be soldered copper pipe. All exposed copper to be painted with aluminum paint. Stainless steel apron under entire table top encasing sink and controls for Induction top per elevations and details.
D. One (1) CookTek model MCD-3502F*J088 double HOB cooktop. Install controls in apron of table as detailed and specified.

ITEM #20 WORK TABLE: Provide one (1) custom fabricated table, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 2" turndown on open sides, and 8" high sidesplash on each side. Right side splash shall be fully capped. Seal side splashes to adjacent wall, and adjacent equipment.
B. Base to be open style 1-5/8" O.D. stainless steel legs and crossrails, with #16 gauge stainless steel fully welded undershelves where shown and adjustable bullet feet.
C. Table to have two (2) 20" x 20" x 5" deep all stainless steel tool drawer. enclosed in housing.
D. Provide unit with two (2) prewired D.C.O. receptacle, per details and plans so final connection by Electrician is all that is needed.

ITEM #21 PASS-THRU HEATED CABINET: Provide one (1) Traulsen model #RHF132W cabinets, each including:

A. Glass, half height doors on the kitchen side and stainless steel, half doors on the serving side. All doors are to be hinged as indicated on plan.

B. Junction box to be top located for electrical connection.
C. Intela-Traul Controller with thermometer on kitchen side and interior light with bulb.
D. Locking hardware, Omit standard shelves and provide universal tray slides for 18" X 26" pans and/or 12" X 20" pans in top and bottom sections-4" Spacing.
E. Mount on 6" high adjustable stainless steel legs.
F. Kool Klad option. Plastic laminate selection to be provided by Owner.
G. One-year parts and labor warranty.
H. Unit to be trimmed out with 18 gauge stainless steel as shown on plans.
I. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Delfield, True or Utility.

ITEM #21A PASS-THRU HEATED CABINET: Future Equipment, Provide utilities only and cap for future use.

ITEM #22 DOUBLE CONVECTION OVEN: Provide one (1) Blodgett model #DFG-200*J088 "Double" oven, including:

A. Six (6) racks per oven cavity.
B. Fan Delay / Pulse Plus
C. Stainless steel fronts, sides, tops and enclosed backs. Porcelain interiors.
D. Under hood flue diverter kit.
E. Electric continuous sounding buzzer with timers.
F. Doors to have dual pane thermal windows.
G. Casters with brakes.
H. Two (2) T&S Brass #HG-4D-48SK 48" flexible gas disconnect hoses to Plumber for installation. One (1) hose per section. DO NOT MANIFOLD OVENS.

ITEM #23 PASS-THRU REFRIGERATOR: Provide one (1) Traulsen model #RHT132-WPUT*J088 refrigerator, including:

A. Glass, half height doors on the kitchen side and stainless steel, half doors on the serving side. All doors are to be hinged as indicated on plan.
B. Digital thermometer.
C. Twelve sets universal pan guides.
D. Controls on kitchen side.
E. Top mounted electrical connection.
F. Kool Klad option. Plastic laminate selection to be provided by Owner.
G. Stainless steel adjustable legs.
H. Start-up and three (3) year free service, including parts and labor.
I. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Delfield, True or Utility.

ITEM #23A PASS-THRU REFRIGERATOR: Future Equipment, Provide utilities only and cap for future use.

ITEM #24 EXHAUST HOOD W/FIRE PROTECTION SYSTEM: Provide one (1) LOT Avtec Eco-Arch model # EA2*J088 ventilator, including:

A. Unit shall be 25'-4" wide x 66" deep x 30" tall, and shall be broken where the column resides, per drawings. K.E.C. shall verify size and shape per plan, elevations, sections and details. Entire unit shall be constructed of 18 gauge 304 stainless steel with a No. 4 finish having a three inch rear air space. Top of the canopy to be constructed to incorporate the exclusive Avtec aerodynamic arch. Unit is constructed using the standing seam method for optimum strength. All external seams and joints to be welded and liquid tight, all exposed welds to be ground and polished. Continuous capture areas without transverse interior partitions. Double walled stainless steel end panels.

B. Connecting ductwork above ceiling to be by the Mechanical Contractor to connection collars of the stainless steel exhaust plenums and supply air plenums built into ventilators. Final connection to ducts to be made in an approved manner by the HVAC Contractor. Ventilators to have adjustable make-up air damper which must remain accessible for adjustment.

C. Grease extraction is accomplished by way of a front located high velocity exhaust slot running the full length at the top of the hood trough grease filters with full length concealed grease trough pitched to a removable grease cup. Grease filters are removable though exhaust plenum access doors. Provide #18 gauge stainless steel (Type #304) filter rack with model 1616L low volume filter modules. Return air to be model PBB, make-up air plenum running full length of hood.

D. Finished backs where exposed and horizontal trim between hoods where applicable. #18 gauge stainless steel (Type #304) filler panels to ceiling wherever required.

E. UL listed LED lights (with bulbs by Kitchen Equipment Supplier), pre-wired to final connection point (junction box) on top of hood. See Electrical Requirements Plan for quantity of lights.

F. 1/2" diameter steel hanger rods attached to factory, pre-drilled hanger brackets to be by Kitchen Equipment Supplier, but they are to be anchored to supporting structure (or slab) by the General Contractor in the locations required by exhaust hood shop details.

G. Provide U.L. approved wet chemical hood and duct fire extinguishing system in hood with one (1) year warranty on the cylinder and hardware. Provide nozzles where required for surface protection of equipment and entire system to be in compliance with NFPA pamphlet #96, U.L. Standard #300 and local governing code authorities.

H. A manual fire pull station shall be included by the fire protection installer and installed by Electrician, per coordination, and with the approval from local governing code authorities in the path of egress. The fire pull station location is to be coordinated by the Kitchen Equipment Supplier and inter-wiring shall be done by the Electrician. All exposed fire control piping to be chrome plated and all hood penetrations are to be sealed with U.L. listed stainless steel penetration fittings. Also, provide one (1) type "K" hand extinguisher for the kitchen area with mounting bracket and locate in accordance with local code.

I. Provide fire dampers in supply air collars and fire blanket if required by local code.

J. Provide one (1) per hood section ASTS-90 heat sensor per IMC 2006.

K. Provide #18 gauge stainless steel (Type #304) filler panels to ceiling wherever required

L. One year parts and labor warranty.
M. Manufacturer to check out system after installation to verify actual exhaust and supply air quantities and certify that performance is as designed and provide written report.
N. Note: Provide one continuous front panel across hood, or filler panel, to make it look like one exhaust hood, across the gap where the column resides.

ITEM #25 DOUBLE CONVECTION OVEN: Provide one (1) Blodgett model #Zephaire 100-G Double*J088 “Double” oven, including:

A. Five (5) racks per oven cavity.
B. Solid state infinite controls, sepearte dials for timer and thermostat.
C. Stainless steel fronts, sides, tops and enclosed backs. Porcelain interiors.
D. Electric continuous sounding buzzer with timers.
E. Doors to have dual pane thermal windows.
F. Casters with brakes.
G. Two (2) T&S Brass #HG-4D-48SK 48" flexible gas disconnect hoses to Plumber for installation. One (1) hose per section. DO NOT MANIFOLD OVENS.

ITEM #26 MANUAL CAN OPENER: Not in Foodservice Equipment Contract. To be provided and installed by Owner.

ITEM #27 MOBILE PROOFER/HEATED CABINET: Provide one (1) Food Warming Equipment Company model # PHU-12*J088 cabinet, each including:

A. Full Perimeter Bumper. 5” diameter polyurethane tired casters with Chrome plated, welded steel disc hub. Two (2) swivel casters with brakes and two (2) fixed casters on rear. Casters equipped with Zerk grease fittings.
B. Push/pull handles.
C. Universal adjustable tray slides on 3” centers. Humidity pan. Drip trough with removable pan.
D. Door to be hinged per plan.
E. Cord and plug.
F. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Cres-cor, Wittco or Piper Products

ITEM #28 FLOOR TROUGH W/GRATE: Provide one (1) IMC Teddy Model SFT*J088, including:

A. Provide IMC Teddy SFT “Shallow” floor trough to be constructed of 14-gauge 18-8 type #304 stainless steel with fully welded and coved-corners that have been smooth polished, size and shape per plans.
B. Built-in pitch toward waste, and includes anchor straps for securing within floor
C. Unit to be fitted with stainless steel wasted cup with removable stainless steel basket for up to 3" waste pipe.

D. Provide Manchester Associates model #FRP, cut to size and shape as per plan, **(sections not to exceed 18" in length)**, 1-1/2 square mesh grating, stainless steel grate color. Contact information Mr. Steve Manchester, 214-357-3978. Chemgrate heavy duty model FS series removable grates are an acceptable alternate.

E. To be provided by KEC., installed by G.C. KEC to verify and coordinate with site conditions and general contractor. Verify clearance with Item #29, Ice Machine. **All troughs are to be flush with finished floor, reference details on drawings for installation.**

F. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Kelley Products, BSI or Advance Tabco.

ITEM #29 ICE MACHINE WITH BIN: Provide one (1) Manitowoc model #IYT-0500A*J088, Indigo Series Ice Cube Machine mounted on bin as indicated below, including:

A. Modular, half-dice machine with production capacity of 440 pounds of ice per 24 hour period at 90 degree air and 70 degree water.
B. Condenser to be air-cooled.
C. Machine to use R-404A CFC-free refrigerant.
D. Energy and water usage per 100 pounds of ice as rated by ARI not to exceed 4.58 KWH and 20.0 gallons.
E. Unit to include optional Bin Level Control.
F. One (1) Manitowoc, model No. D-570 Ice Bin. Omit standard legs and mount on adjustable stainless steel legs.
G. Three (3) year parts and labor warranty on ice machine, five (5) year parts and labor warranty on the evaporator and five (5) year parts, three (3) year labor warranty on the compressor.
H. Optional Luminice Growth Inhibitor and bin level control.
I. Everpure, InsurIce 2000 single with one (1) model #K-10 coarse filter. Provide one (1) six pack of replacement cartridges for each filter and deliver to Dallas I.S.D. Foodservice Department.

ITEM #30 SPARE NUMBER

ITEM #31 WORK TABLE: Provide one (1) custom fabricated table, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 2" turn down front and sides. Splash to be 8" high at rear.
B. Table to be mounted on 1-5/8" O.D. stainless steel legs and crossrails with stainless #16 gauge stainless steel fully welded undershelves.
C. One (1), #18 gauge stainless steel, 12" wide, table mounted overshelf.
D. One (1) 20" x 20" x 5" deep stainless steel drawer, enclosed in housing.

ITEM #32 WORK TABLE w/2 COMPARTMENT SINK: Provide one (1) custom fabricated table, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 2" turndown on open sides having 1" radius on outside corners. 8" high backsplash on rear. ¾" Marine front and open ends.
B. Base to be open style 1-5/8" O.D. stainless steel legs and crossrails, with #16 gauge stainless steel fully welded undershelves where shown and adjustable bullet feet.
C. Two (2) 18" x 20" x 10" deep sink insets of #14 gauge stainless steel coved construction with lever drains with connected overflow. Stainless steel apron on all exposed side of sinks. All drain lines are to be soldered copper pipe. All exposed copper to be painted with aluminum paint.
D. Provide one (1) T.&S. Brass and Bronze Works, Inc., model #B-0133*J088 pre-rinse spray with model #B-0156-ADF swing faucet, model #B-0109 wall bracket and model #B-0970-FEZ, in-line vacuum breaker.
E. Two (2) #18 gauge stainless steel 12" wide overshelf, with rear and ends coved up and capped, mounted on each side of the sink per elevations and details. Flat area to be provided on backsplash with fully welded, inverted gussets for of overshelf supports.
F. Table to have one (1) 20" x 20" x 6" deep all stainless steel tool drawer enclosed In #18 gauge stainless steel common housing.
G. Unit to have pad for can opener located as per plans and details.

ITEM #33 SPARE NUMBER

ITEM #34 STORAGE SHELVING: Not in Foodservice Equipment Contract. To be provided and installed by Owner.

ITEM #35 STORAGE SHELVING: Not in Foodservice Equipment Contract. To be provided and installed by Owner.

ITEM #36 PAPER STORAGE SHELVING: Not in Foodservice Equipment Contract. To be provided and installed by Owner.

ITEM #37 SPARE NUMBER

ITEM #38 SPARE NUMBER

ITEM #39 MOP & BROOM HOLDER: Provide two (2) Carlisle model #4073100*J088 holder. Provide and install at 70" A.F.F with stainless steel bolts. Kitchen Equipment Contractor is to coordinate any wall backing required.
A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Rubbermaid

ITEM #40 SPARE NUMBER

ITEM #41 MOP SINK: Provide one (1) IMC/TEDDY model #FS-L*J088 unit, including:

A. Provide and install one (1) T & S Brass model #B-0665-BSTP faucet. K.E.C. to verify the need for wall backing required for faucet support bracket and provide adequate information to the Contractor to properly facilitate the entire installation of the unit.
B. Provide and install optional, model FL48, wall flashing and seal at all adjacent surfaces with clear silicone.

C. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Advance/Tabco

ITEM #42 STACKED WASHER & DRYER: Provide one (1) Whirlpool model #WFW5605MW0, high efficiency, super capacity washer in the color white, And Whirlpool model #WED5605MW0 Dryer. including water hoses, cord with plug and dryer vent kit and stacking kit. Set unit in place per plans and make final connections to utilities per manufacturer's specifications.

Note: Model number given are current for reference only. Models at the time of delivery shall be the current models.

ITEM #43 SPARE NUMBER

ITEM #44 UTILITY CART: Not in Foodservice Equipment Contract. To be provided and installed by Owner.

ITEM #45 FIRE PROTECTION SYSTEM: Provide one (1) lot fully functional system by Ansul or approved equal including the following:

A. 304 stainless steel cabinet enclosure with doors to be mounted in the in the kitchen area as indicated on drawings.

B. Provide U.L. listed, automatic, wet chemical hood and duct fire suppression system for kitchen ventilator with one (1) year warranty on the cylinder and hardware. System to include hood, duct and surface protection in compliance with NFPA 96, State and Local codes, and to be completely installed by a factory authorized, licensed mechanic. The contractor shall furnish mechanical gas valve to the Plumbing Contractor for installation as required for fire fuel shut-off. In addition, the system shall be equipped with electrical micro switches for inter-wiring with fire/fuel shut-off shunt trip breakers or contactors in the electrical supply for all equipment served by the suppression system, micro switches are to be provided for interconnection by the alarm contractor. A manual fire pull station shall be included per details on drawings and located by fire protection installer. Fire protection equipment installer shall qualify the location for all pull stations shown on drawings in the path of egress to meet with local code by the local authority having jurisdiction. Installation shall be completed by Kitchen Equipment Supplier except for inter-wiring, which shall be done by Electrician. All exposed fire control piping to be chrome plated and all hood penetrations sealed with U.L. listed stainless steel penetration fittings.

C. All chemical piping shall be Schedule 40, black pipe, chrome or stainless steel. Where piping penetrates hood capture area, exhaust duct and plenum, UL listed grease tight seals or liquid tight welded fittings shall be used. In addition, all exposed piping shall have tight fitting, sealed, chrome plated sleeves or fittings where exposed. All cable where used shall be contained within electrical "EMT" or conduit. Further, all piping or conduit shall be installed within walls or above ceilings wherever possible.

D. The purveying contractor shall be responsible for providing a complete and working system having the appropriate quantity of full chemical cylinders for the system, surface mounting the systems on the wall where

appropriate, properly testing the system, providing the proper certification to the State Fire Marshal's office.

E. Provide one (1) type "K" hand extinguishers per fire system, per code for each system with mounting bracket and locate in accordance with local code.

ITEM #46 SPARE NUMBER

ITEM #47 MOBILE DISH DRYING RACK: Provide two (2) Intermetro Corporation model #PR48VX3*J088 mobile drying rack, including:

A. MetroMax® Mobile Drying Rack Unit, 4 tier, includes (2) drop-ins and (1) cutting board/tray drying rack, built in Microban® antimicrobial product protection
B. 5" diameter heavy duty, N.S.F. approved polyurethane tired swivel casters. Brakes on two (2) casters.
C. Rotating, non-marking neoprene bumpers with stainless steel hubs, mounted just above the casters

ITEM #48 POT AND PAN COLLECTOR W/SPRAY RINSE FAUCET: Provide one (1) Salvajor model P914*J088, Scrapping, Pre-Flushing and Food Waste Collecting System with one (1) additional scrap basket and fully weld into Item #49, Powersoak 3 Compartment Sink per plans.

A. Provide one (1) T. & S. Brass and Bronze Works, Inc., model #B-0133*J088 pre-rinse spray with model #B-0156-ADF swing faucet, model #B-0109 wall bracket and model #B-0970-FEZ, in-line vacuum breaker.

ITEM #49 POWERSOAK 3 COMPARTMENT SINK: Provide one (1) Metcraft, PowerSoak model # PS-G3-LRG-JBZ-34LM*J088 sink unit, including:

Description:

A. Unit length and work flow per plans x 34.5" Front to Back as follows.
B. Backsplash to be 12" Over All Height – 10.5" Vertical with 45 Degree Angle to Wall w/ 1 ½" turn up.
C. Backsplash to run full length of back of unit. Soiled Drain Board with Pot/Pan Collector Collar (Collar by Others) Welded Integral.
D. Soiled Drain Board plus end splash, per plans.
E. Clean Drain Board plus end splash, per plans.
F. Wash Tank shall be 60" L to R, 28 ¾" I.D. Front to Back by 21" Deep, with Removable Sheet Pan Racks.
G. Rinse Sink shall be 24" L to R X 14" Deep.
H. Sanitizer Sink shall be 24" L to R X 14" Deep.
I. All tanks, 14 gauge, 304 S/S
J. System conforms to ANSI/NSF Standard 2 with all welds to be Heliarc (TIG) welds
K. Includes (3) Component Hardware #DBN-9100-PS, 1 ½ " IPS Rear Exit Ball Valve Drains (With Overflows for Rinse and Sanitize), (2) T&S #B-0290-PS 3/4" High Flow Faucet to Fill Wash, Rinse & Sanitizer Bowl. Also Includes (1) Utensil Basket and PS-200 Control Package.

Wash Tank:

L. Low Profile Wash jets spaced every 6" flush along the back wall of wash tank & above the wash pump intake.
M. SST Wash Pump Intake to run full length of the rear of the tank below wash jets.
N. SST Wash Pump Housing fully self-draining with no use on drain line or valve.
O. (1) - Utensil Basket powered by one dedicated wash jet.
P. Dual liquid high & low water level sensors.
Q. Bottom of wash tank to be creased to facilitate draining.
R. 3 HP Wash Pump Motor with S/S impeller, pump housing and wash manifold.
S. A 7000 watt wash tank heater. Maintain wash tank temperature at 115˚ +/- ½ ˚ F.
T. Chemical injection point pre-drilled at factory.
U. Wash Tank to have ¼" Plate S/S hooks welded to the rear of the tank with dimples on front channel enabling optional Sheet Pan Racking System to be installed where sheet pans are loaded and stand vertically from the front to the back of the wash tank.

Sanitizer Tank:

V. Chemical sanitizer injection point pre-drilled at factory.
W. Dual liquid high & low water level sensors.

PS- 200 Control Panel:

X. Four hour wash timer.
Y. Low voltage power is supplied to all operator controls and sensors.
Z. Operator controls - Green (ON) / Red (OFF) buttons.
AA. Automatically monitors and regulates the wash water temp.
BB. Monitors high and low liquid levels in both the wash tank and sanitizer tank.
CC. Meets UL 50, category 4X specifications.
DD. Wash Cycle to Shut Off for 10 minutes then Run for 5 minutes until manually shut off.
EE. Wash Tank Temperature not to drop below 115˚ +/- ½ ˚ F when running.
FF. Sanitizer Tank in Normal Wash Mode to Shut-Down System if not drained & refilled GG. every programmable 2-4 Hour period to insure proper sanitation.

Field Joint:

GG. Provisions for (1) JBZ Non-welded Field Joint.

Warranty:

HH. Three Year Parts and Labor from Date of Shipping.

Options:

II. Dual Peristaltic Pump Chemical Dispenser Integrally wired to Control Panel
JJ. Unit shall include over shelf with pot rack, length per drawing.
KK. Stationary undershelf located under soiled & clean drain boards, per plans.
LL. Removable Sheet Pan Racks for wash tank.

ITEM #50 SPARE NUMBER

ITEM #51 WALK-IN COOLER/FREEZER COMPARTMENT: Provide one (1), two (2) compartment pre-fabricated ThermoKool factory installed complete working assembly, including:

A. Special sized, 4" thick sections assembled as indicated on drawings, 8'-6" high above finished floor. Corner and "T" panels shall be matching one-piece construction including 1/2" minimum radius at all inside vertical corners. Assemble using standard cam fasteners and sealed with PVC double bubble gasket at interior and exterior of panel edges.
   1. Interior face of wall panels shall be clad with stucco white aluminum.
   2. Interior face of ceiling panels shall be clad with 0.040" smooth white finish.
   3. Exterior exposed face of wall panels shall be clad with stucco white aluminum and having 1/8" aluminum treadplate to 48" above finished floor.
   4. Exterior unexposed face of panels shall be clad with 0.40" smooth aluminum finish.
   5. Trim to walls and ceiling where required, with same material as exposed exterior, using hidden fasteners per detail on drawings. Pop rivets will not be accepted.
   6. Integrated bumper rail in cooler compartment per plan.

B. Doors shall be 36" x 80" high with heated triple pane view ports. Exterior to match exterior finish and interior to match interior finish. Metal joints to be welded, ground, and polished. Interior and exterior jamb guards of 1/8" aluminum tread plate 48" high. Interior and exterior kickplates of 1/8" tread plate 48" high. Cooler and Freezer doors to be provided with 120 volt dedicated circuit heater cable around parameter including heated threshold. Provide three (3) chrome-plated hinges, (one springloaded) latch with interior safety release and cylinder lock. Doors to have Kason model #1094 heavy-duty door closers. Provide Berner Artic swinging door assembly on both cooler and freezer door.

C. Walk-in compartments to be provided with factory floors and interior ramps as shown on plans and details. When coved base comprised of the specified flooring material is not provided, K.E.C. shall provide and install New Age aluminum coved base at all interior and exterior walls where they meet the finished floor. All coved base is to be installed with approved mastic and all sealed to all adjacent surfaces with clear silicone.

D. Provide Kason, model 1809LED, L.E.D. vapor proof lights located in each compartment (See Electrical Requirements Plan for quantity). Provide two (2) factory installed Modularm model #75LC multi-monitors located as per drawings mounted at 54" A.F.F. on the strike side of each door complete with model IP-1 timed lighting and panic alarm control modules with illuminated push buttons mounted at 48" A.F.F. on the strike side of the door on the interior of each compartment with flush mounted dial thermometers above the Modularm modules for back-up. Also provide model MD-1 motion detectors at 88" A.F.F. above the door on the interor of each compartment to automate light control functions. All conduit is to be imbedded in vault walls and/or ceiling panels. Exposed conduit will NOT be accepted. Extend conduit to J-Box located on top of ceiling.

1. Factory mount in head section, electrically heated vacuum pressure relief vent, dedicated circuit. Kason model #1832 (or approved equal) flush mounted. Mount away from direct air stream of coil.
2. Furnish sufficient quantity of 3/8" and/or ½" diameter nylon threaded rods with stainless steel nuts and washers to support refrigeration coils.
3. Furnish sufficient quantity of 5-inch diameter stainless steel escutcheon plates to dress off utility penetrations by other trades.
4. 5" Dial thermometers (or equal size), flush mounted for back up.

E. PVC plastic conduit between interior and exterior of vaults. Pre-wire door defrosters to top of Cooler/Freezer vaults for final connection by the Electrician.

F. Delivery and erection of assembly shall be preformed by a Factory approved and supplied installer ONLY. Kitchen Equipment Contractor must submit a list to the Foodservice Consultant of qualified installers for approval by the owner previous to installation of vaults. Manufacturer to check the finished work of the Electrician and Refrigeration Installer, in particular the vault wall penetration and sealing of light fixtures.

G. Provide one (1) year free service including parts, labor and a minimum of ten (10) year warranty on walk-in panels.

H. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: American Panel Corporation, Imperial Brown, Masterbilt or ThermalRite.

ITEM #52 DUNNAGE RACK: Provide four (4) New Age Industrial model #2009*J088 including:

A. Heavy duty all welded aluminum dunnage rack.
B. 2500 pound capacity each.
C. 12" above finished floor.
D. Lifetime guarantee against rust and corrosion. Five year guarantee againstmaterial defects and workmanship.
E. A specific product manufactured by any of the following listed manufacturers is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Win-holt

ITEM #53 WALK-IN COOLER/FREEZER SHELVING: Not in Foodservice Equipment Contract. To be provided and installed by Owner.

ITEM #54 REMOTE REFRIGERATION SYSTEM: Provide two (2) complete Refrigerated Design Technologies remote refrigeration systems model ZS1-01Z-CT3-AST*J088 outdoor refrigeration systems having the following features:

A. RDT Remote Refrigeration Systems to install one (1) RDT model #KLP316LE coil with 208 volt, 1 phase defroster and fan motors in freezer. Freezer coil to be controlled and demand defrosted by RDT "Eco-Smart" controller. RDT Remote Refrigeration Systems cooled condensing unit model #YF15K4E with 208 volt, 3 phase, scroll compressor to be connected to freezer coil from roof location.
B. RDT Remote Refrigeration Systems to install one (1) RDT model #KTM215MA coil with 120 volt, 1 phase fan motors in cooler. air cooled

condensing unit model #YB14KSE with 208 volt, 3 phase, scroll compressor to be connected to cooler coil from roof location.

C. Pre-wired controls and pre-piped refrigeration accessories. Stainless steel exterior weather removable housing. At each evaporator, Kitchen Equipment Supplier is to provide electrical disconnect on interior of vaults. Plumber to provide a tee fitting with cleanout plug and brass union fitting on each evaporator. Do not reduce fittings at drain pan connection. Compressors to have crankcase heaters, main power fused disconnects and winter controls, including fan cycling switches.

D. Size each circuit to balance condensing units and connect to condensing units and coils. Pressure stabilizing valve and by-pass manifold on each refrigeration circuit.

E. Electronic defrost controls on freezer compressor. Walk-ins are to be running and adjusted a minimum of 24 hours prior to the loading of product. Freezer shall be cooled down in stages over 12-hour period. First 6 hour stage to 32° F., then 6 hours to 0° F., finally to –10° F.

F. Type "K" or Type "L" copper refrigerant lines with brazed silver solder joint fittings as required by application. Run refrigerant lines from condensing units to coil penetrations in top of vaults. All to be neat and of highest caliber workmanship. Seal all penetrations as detailed on drawings to seal air out. See escutcheon and penetration details.

G. R-448A refrigerant charge for freezer and cooler.

H. Armstrong Armaflex 1" insulation to prevent condensation on all refrigeration lines. All joints to be taped and glue sealed. No slit tubing to be used. Fiberglass insulation to be provided if lines are run in air return plenums or if required by local codes. Armstrong Armaflex line insulation on exterior of buildings to be covered with ITW Pabco/Childers (or equal) Aluminum Roll Jacketing manufactured from alloys 3105 and 3003, conforming to ASTM B-209 designation with a minimum thickness of .016". This is to help prevent deterioration due to sun exposure.

I. Type "L" supported hard copper drain lines with brazed silver solder joints sized as per plan from drain pans below coils to drains, as per plans, furnished and run by Refrigeration System Installer. Provide "Tee" fittings with cleanout plug and brass union fitting on each evaporator. Do not reduce fittings at drain pan connection. Paint all exposed interior drain lines using "All-Weather" aluminum paint. Exterior exposed lines and "P" trap to be chromed. Drain line from freezer coil shall be wrapped with "EZ" heat cable of length as required, provided and installed by Refrigeration Systems Installer and final electrical connection Electrical Contractor.

J. Electrical Contractor shall wire through defrost control between condensing units and coils and heater cables in freezer. He will connect all light and power connections to controls, motors and lights from rough-in connecting locations on top of vaults. No conduit shall be run on interior of vaults except that required for connection. Electrician to seal all conduit interiors with DuroLast, Caulk Parasealant 626 sealant or equal after wires are run, to seal out air.

K. RDT Refrigeration Company to check the work of the Electrician and Plumber, in particular the vault wall penetrations and light fixture sealing, and provide one (1) year free service, including parts and labor on refrigeration system and five (5) year warranty on condensing units.

L. Refrigeration system shall be installed by factory experienced mechanics subject to approval of Consultant.

M. System must be installed by the same Factory supplied Installer as Item No. 51, Walk-In Cooler/Freezer.

ITEM #55 DRY STORAGE SHELVING: Not in Foodservice Equipment Contract. To be provided and installed by Owner.

ITEM #56 DUNNAGE RACK: Provide one (1) New Age Industrial model #2009*J088 including:

A. Heavy duty all welded aluminum dunnage rack.
B. 2500 pound capacity each.
C. 12” above finished floor.
D. Lifetime guarantee against rust and corrosion. Five year guarantee against material defects and workmanship.
E. A specific product manufactured by any of the following listed manufacturers is
acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Win-holt

ITEM #57 FLY FAN: Provide one (1) Mars model #STD248-1UA*J088 Fly Fan, including:

A. To be controlled by Electrician installed door operated Micro switch furnished with fan.
B. Door micro switch
C. One ½ H.P. motor
D. Verify indoor or outdoor installation.
E. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Berner

PART 4 – EXECUTION

4.1 INSPECTION:

A. Before beginning the installation of foodservice equipment, the spaces and existing conditions shall be examined by the foodservice equipment supplier and any discovered deficiencies or discrepancies noted shall be reported to the Architect in writing.

B. Beginning installation shall constitute acceptance of the area.

4.2 PREPARATION:

A. Foodservice equipment drawings are diagrammatic and intended to show layout, arrangement, mechanical and electrical requirements.

B. Make and check all measurements at the building before beginning fabrication. Coordinate measurements and dimensions with rough-in and space requirements.

4.3 INSTALLATION:

A. Equipment shall be uncrated, fully assembled and set level in position for final connections. Parts shipped loose but required for connection shall be properly tagged and shall be accompanied by the necessary installation instructions.

B. Provide a competent, experienced foreman to supervise installation and final connections.

C. Division 22 shall clean and flush all supply and drain lines before final connections.

D. Water inlets shall be located above the positive water level. Where conditions require submerged inlets, fixtures shall be equipped with vacuum breaker and approved check valve by Division 22.

4.4 REMOTE REFRIGERATION SYSTEMS:

A. The systems as indicated shall be complete and shall include all necessary labor to make a first-class installation. Contractor shall provide all necessary expansion valves, hand shut-off valves, dryers, sight glasses, thermostats, solenoid valves, high and low pressure controls, heat exchangers, line vibration eliminators and tubing. Provide schematic of proposed hookup to Consultant prior to installation for approval.

B. Heat exchangers are to be furnished and installed for all direct installations. Crankcase heaters to be provided in compressors for outside installation.

C. Furnish and install at each unit a liquid and suction line shut-off valve as closely as practical to the equipment. Install in each system a pump down valve take-off connection.

D. Expansion valves shall be thermostatic type, adjustable super-heat. Backpressure regulating valves shall be used on multi-plexed systems.

E. All refrigerant lines shall be type "L" hard copper tubing as required by approved installation practices. Where conduits are provided by others, the tubing shall be soft copper pulled through this conduit. For exposed areas, hard copper tubing shall be run in such a manner as to not subject it to undue damage. All refrigerant lines in pipe sleeves, or conduits shall be effectively caulked at ends to prevent entrance of water or vermin. All lines not in conduit shall be insulated with Armstrong Armaflex foamed plastic 1" insulation, which is to be taped and glued at joints. No slit insulation will be accepted. All refrigerant piping shall be joined by use of Sil-Foz high temperature silver solder with proper fittings.

F. Finish exposed refrigerant lines within refrigerated compartments with Benjamin Moore “All Weather Aluminum” #137000 paint.

G. Armstrong Armaflex line insulation on exterior of buildings to be finished with two (2) coats of Armaflex finish "UV" resistant paint. This is to help prevent deterioration due to sun exposure.

H. Sizing of liquid and suction lines shall be according to ACRMA standards. All systems shall be subjected to a 20" vacuum for a period of 24 hours with no

regain. Support all suspended lines with adjustable hangers 6'-0" o.c. maximum.

I. Contractor shall provide CFC free refrigerant and oil, charge the system and run an operational check of three (3) days duration and provide oil separators in all instances where the condensing units are located above the refrigerating coil. Warranty shall be as hereinbefore described.

4.5 FIELD QUALITY CONTROL:

A. Inspection: Provide access to shop fabrication areas during regular working hours to facilitate inspection of the equipment, during construction, by the Architect or his authorized representative. Errors found during these inspections shall be corrected to the extent required within the scope of the plans, specifications and reviewed drawings.

1. Testing: After completion of final connections, thoroughly test all equipment for proper operation.
2. Repair or replace any equipment producing objectionable noise.
3. Finishes marred during installation shall be repaired to the Consultant's satisfaction or replaced.
4. Start-up and Demonstration: Provide a start-up and operating demonstration of all equipment at a time of Owner's convenience.
5. Arrange for the demonstration to be held in the presence of authorized representatives of the Architect and the Owner.
6. Demonstrations to be conducted by Manufacturer’s Representative and Equipment Supplier in the proper operation and maintenance of the equipment.
7. One (1) copy of Operation and Maintenance Manuals as outlined in section marked “Quality Assurance” to be delivered to the Kitchen Manager at the time of demonstration for use on-site.
8. Foodservice Equipment Supplier is to furnish to the Owner, Architect and Foodservice Equipment Consultant confirmation of demonstration and delivery of Operation and Maintenance Manuals in the form of “A Letter” including a “Receipt” for the Manual and a copy of “Sign-In” Sheet signed by all Demonstrators and Attendees.

4.6 ADJUST AND CLEAN:

A. Upon completion of installation and tests, remove all protective coverings and clean and service all equipment.

B. Make and check final adjustments required for proper operation of the equipment.

C. Cleanup: Clean up all debris by the work of this section, keeping the premises clean and neat at all times.

4.7 QUALIFIED KITCHEN SUPPLIERS:

A. Kitchen and food serving equipment shall be furnished, installed, and guaranteed by one of the following named kitchen suppliers:

1. Amundsen Commercial Kitchens, Mr. Cary Amundsen, 1740 W. Main Street, Oklahoma City, Oklahoma 73106 405/236-5961, E-mail: Cary@afeok.com

2. Bargreen-Ellingson, LLC., Mr. Dustin Kennedy, 2521 East Loop 820 North, Bldg. 13, Fort Worth, Texas 76118, 817/732-6200, FAX 817/732-6210, E-mail: d.kennedy@bargreen.com

3. Edward Don & Co., Mr. Scott Jost, 36 W. Beauregard, Ste. 504, San Angelo, Texas, 76903, 325/658-5878, FAX 325/658-7920, E-mail: scottjost@don.com

4. Jean's Restaurant Supply, Mr. Bobak Mostaghasi, 426 South Staples, Corpus Christi, Texas 78401 361/884-9800, FAX 361/888-7602, Cell 361/549-7818, E-mail: bobak@jeansrestaurantsupply.com

5. Kirby Restaurant Supply, Mr. Billy Anderson, 809 S. Eastman Road, Longview, Texas 75602, 903/757-2723, FAX 903/757-9519, E-mail: michaelp@kirbyrestaurantsup.com

6. Kommercial Kitchens, Mr. Terry Woodard, 1100 Freeway Blvd., Rose City, Texas 77622, 800/962-1555, FAX 409/769-8800, E-mail: Shannon@kommercialkitchens.com

7. Kitchen Resources, Mr. Bill Youngblood or Mike Mattar, 806 W Harrison,Harlingen,Texas 78550, 956-423-2491, FAX 956-423-3088

8. Lafayette Restaurant Supply, Inc., Mr. Scott Spurlock, 1103 Hugh Wallis Road S., Lafayette, LA 70508 337/235-4534, FAX 337/234-1803, E-mail: scott@lafrest.com

9. LoneStar Restaurant Supply, Inc., 8131 I-35N, Austin, Texas, 78753, 512/633-3446, FAX 512/467-9757

10. Mission Restaurant Supply Company, Mr. Bruce Walker, 6509 North Lamar Street, Austin, Texas, 78752, 512/389-1705, FAX 512/389-1746, E-mail: brucew@missionrs.com

11. Pasco Brokerage, Inc., Ms. Kathryn Hollon or Ms. Emily Hart, 6465 Chase Oaks Blvd., Plano, Texas 75023, 972/596-3350, FAX 972/596-2817 E-mail: kathollon@pascoinc.net or ehart@pascoinc.net

12. Stafford-Smith, Inc., Mr. Mark Burden, 13370 Branch View Lane, Suite 160, Farmers Branch, TX 75234, 972/800-5269, email: mburden@staffordsmith.com

13. Supreme Fixtures Co., Inc. Mr. Tim Hampel, 11470 Hillguard Rd., Dallas, TX 75243, 501/455-2552, FAX 501/455-0802 email: tim@supremefixture.com

14. Texas Metal Equipment Company, Mr. Stephen Trawnik, 8704 Royal Lane, Irving, Texas 75063, 214/446-7206, FAX 214/446-7209, E-mail: strawnik@txmetalequip.com

15. Waco Hotel Supply Company, Inc., Shaleen Tillman, 308 Lake Air Drive, Waco, Texas 76714-7933, 254/772-8600, FAX 254/772-1158, E-mail: whsc@advanceone.net

4.8 QUALIFIED FABRICATORS:

A. All fabricated Items described in the specifications, other than by the catalog numbers shall be manufactured by an N.S.F. approved Foodservice Equipment Fabricator who has the plant, personnel and engineering facilities to properly design, detail and produce high quality foodservice equipment. All fabrication shall have N.S.F. labels and be by one (1) manufacturer and be of uniform design and finish.

B. The Foodservice Equipment Contractor shall, if requested, submit a list of at least three (3) comparably-sized projects for which the intended Foodservice Equipment Fabricator has furnished custom fabricated equipment.

END OF SECTION 11 40 00

Path-of-Construction Asbestos Survey Report

Harry Stone Montessori School

4747 Veterans Drive

Dallas, Texas

August 16, 2024 | Project Number: 94237070

Prepared for:

DALLAS INDEPENDENT SCHOOL DISTRICT

Dallas Independent School District (DISD)
9400 North Central Expressway, Suite 800
Dallas, Texas 75231

Terracon
Explore with us

8901 John Carpenter Freeway, Suite 100
Dallas, Texas 75247
P (214) 630-1010
F (214) 630-7070

Nationwide
Terracon.com

- Facilities
- Environmental
- Geotechnical
- Materials

8901 John Carpenter Freeway, Suite 100
Dallas, Texas 75247
P (214) 630-1010
F (214) 630-7070
Terracon.com

August 16, 2024

Dallas Independent School District (DISD)
9400 North Central Expressway, Suite 800
Dallas, TX 75231

Attn: Mr. Chris Leija, AIA, NCARB
Project Manager
P: (214) 223-2420
E: C101272@dallasisd.org

RE: Path-of-Construction Asbestos Survey Report
Harry Stone Montessori School
4747 Veterans Drive
Dallas, Texas
Terracon Project No. 94237070

Mr. Leija:

The purpose of this report is to present the results of an asbestos survey conducted at the referenced project site. Terracon Consultants (Terracon) performed this survey on January 19, 2024, February 26, 2024, July 22 and 26, 2024, and August 5 and 14, 2024 in general accordance with the Professional Services Contract between DISD and Terracon dated July 1, 2021 and Purchase Order No. 915938 dated April 13, 2023.

Terracon appreciates the opportunity to partner with you on this project. If you have any questions regarding this report, please contact the undersigned at (214) 630-1010.

Sincerely,
Terracon

David A. Acosta
Assistant Project Manager
TDSHS License No. 10-5740

Roger Beahm Jr., REM, AIC
Principal
Asbestos Department Manager
TDSHS License No. 10-5675

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1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted a path-of-construction asbestos survey in the proposed renovation areas at the Harry Stone Montessori School (formally R.L. Thornton Elementary School) located at 4747 Veterans Drive in Dallas, Texas. A team of Texas Department of State Health Services (TDSHS) licensed asbestos inspectors conducted the survey January 19, 2024, February 26, 2024, July 22 and 26, 2024, and August 5 and 14, 2024. The survey was conducted in general accordance with the Professional Services Contract between DISD and Terracon dated July 1, 2021 and Purchase Order No. 915508 dated April 12, 2023. Terracon surveyed interior and exterior components associated with the proposed renovations and visually identified and documented homogeneous areas of suspect asbestos-containing material (ACM). Although reasonable effort was made to survey accessible suspect materials, additional suspect but unsampled materials could be in walls, voids, or other concealed areas.

No previous surveys were provided to Terracon for review. Therefore, it is unknown if previously identified ACM has been reported for this DISD school facility.

Although reasonable effort was made to survey accessible suspect materials, additional suspect but unsampled materials could be in walls, voids, or other concealed areas.

1.1 Project Objective

The objective of the survey was to identify the presence and location of accessible friable and nonfriable asbestos-containing material (ACM) present in the proposed renovation areas of the school. The Client provided Terracon with a proposed scope of renovation work at the time of the survey; the referenced proposed scope of work is attached in Appendix E. According to the Project Scope for ORG #212 Harry Stone Montessori School, prepared by Mr. Matthew Ford of McKissack and McKissack, the scope of the renovations includes the following:

- Security Vestibule (Storefront Doors & Administration Area Updates)
- New entrance canopy
- General Access Control Electronic Security Updates
- Replace fire alarm system
- New front entrance canopy
- Repair and replace damaged concrete sidewalks
- Kitchen upgrades
- Roof repairs

- New HVAC units and HVAC mechanical upgrades
- Repair exterior sealants and new paint
- Mechanical and HVAC upgrades
- Repairs to gymnasium floors
- New markerboards
- Plumbing repairs

The Texas Asbestos Health Protection Rules (TAHPR) and EPA regulation 40 CFR 61, Subpart M, the National Emission Standards for Hazardous Air Pollutants (NESHAP) require that an asbestos survey be performed prior to renovation or demolition activities.

The Occupational Safety and Health Administration (OSHA) Asbestos standard for the construction industry (29 CFR 1926.1101) regulates workplace exposure to asbestos, classifies construction and maintenance activities which could disturb ACM and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

2.0 BUILDING DESCRIPTION

Building Description and Information	
Building	Two-story building constructed on a pier and beam foundation.
Structure Type	Education building.
Total Area	77,787 square feet (SF).
Building Use	Education build-out with classrooms, offices, restrooms, lobbies, gym, cafeteria, kitchen, auditorium, hallways, storage rooms/closets, and mechanical rooms.
Roof	Built-up roofing materials.
Exterior	Unfinished brick.
Interior Walls	Textured drywall, textured plaster, textured brick veneer, CMU, and multi-sized ceramic tiles.
Interior Ceilings	2' x 2' lay-in ceiling tile system suspended from the metal deck, textured plaster, textured drywall, and exposed metal deck.
Interior Floors	Carpet, 12" x 12" floor tile, and multi-sized ceramic tile.
Inaccessible Areas/Materials	Areas/materials behind mirrors in the restrooms were not assessed due to the destructive nature of sampling. Areas and materials not scheduled to be impacted by the proposed renovations were excluded from the scope of the survey.
Additional Information	Spray-on fireproofing was not observed on the metal deck.

3.0 FIELD ACTIVITIES

Terracon mobilized Mr. David Acosta, a TDSHS licensed asbestos consultant (License No. 60-2152) and Mr. Michael Mendoza, a TDSHS licensed asbestos inspector (License No. 60-0350), to conduct the asbestos survey in general accordance with the sample collection protocols established in EPA regulation 40 CFR 763, the Asbestos Hazard Emergency Response Act (AHERA). Copies of licenses are attached in Appendix F. The following sections present a summary of survey activities.

3.1 Visual Assessment

Our survey activities began with visual observation in the proposed renovation areas of the school to identify homogeneous areas of suspect ACM. A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color, texture, and date of application; building materials identified as concrete, glass, wood, masonry, metal, or rubber were not considered suspect ACM. The assessment was conducted throughout visually accessible areas of the building.

Terracon assessed multiple areas above the drywall and lay-in ceiling systems, where possible, but did not observe additional suspect materials. Access to areas above the ceiling was limited and the potential exists for additional suspect ACM to be present in these inaccessible areas.

Terracon lifted floor coverings in several areas in the building but did not observe additional floor coverings/layers except; as Terracon could not assess beneath all floor coverings in all areas, there may be isolated areas of additional suspect material present beneath existing covering.

Terracon observed mirrors in the restrooms. The mirrors in the restrooms appeared to be affixed with adhesive mastic but was unable to access this mastic without forcibly removing the mirror panels, potentially damaging the panels, and creating a safety hazard for building occupants. Pending sampling and laboratory analysis to rebut the presence of asbestos, this mastic must be assumed ACM pending sampling and laboratory analysis to rebut the presence of asbestos.

Terracon observed multiple ceramic and porcelain tiles with grout throughout the renovation areas that appeared to be affixed with thinset but was unable to access this thinset without forcibly removing the ceramic tile, potentially damaging the tile, and creating a safety hazard for building occupants. The suspect thinset must be assumed ACM pending sampling and laboratory analysis to rebut the presence of asbestos.

Terracon observed additional suspect materials present within the renovation areas which were not scheduled to be impacted by the renovations; therefore, those materials were not included in the scope of this survey. If the scope of the renovation expands to include additional materials than are identified in Appendix A, these materials must be assumed ACM, pending sampling and laboratory analysis to rebut the presence of asbestos.

3.2 Physical Assessment

Terracon conducted a physical assessment of each HA of suspect ACM to assess the friability and condition of the materials. EPA defines a friable material as a material which, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Terracon assessed friability by physically touching suspect ACM.

3.3 Sample Collection

Based on results of the visual observation, Terracon collected random bulk samples from each HA of suspect ACM observed in general accordance with AHERA sampling protocols. Sample team members collected bulk samples using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

Terracon collected eighty (80) bulk samples from fourteen (15) HAs of suspect ACM. Appendix B presents a summary of suspect ACM samples collected.

3.4 Sample Analysis

Terracon delivered suspect ACM samples under proper chain of custody to Cates Laboratories of Dallas, Texas, a National Voluntary Laboratory Accreditation Program accredited (Lab No. 200569-0) and TDSHS licensed (License No. 30-0287) laboratory, for analysis by Polarized Light Microscopy (PLM) with dispersion staining techniques per EPA Method 600/R-93/116. The percentage of asbestos where applicable, was determined by microscopic visual estimation.

4.0 REGULATORY OVERVIEW

Title 25, Part 1, Chapter 296, the TAHPR, regulates asbestos fiber emission and asbestos waste disposal practices for public buildings. The TAHPR also require the identification and classification of existing asbestos-containing building materials prior to demolition or

renovation activity. Under TAHPR, asbestos containing building materials are classified as either friable or nonfriable ACM containing 1% or more asbestos. Friable materials are those that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure.

The TAHPR require that any asbestos-related activity be performed by TDSHS licensed individuals. An asbestos related activity consists of the disturbance (whether intentional or unintentional), removal, encapsulation, or enclosure of asbestos, including preparations or final clearance activities, the performance of asbestos surveys, the development of management plans and response actions, asbestos project design, the collection or analysis of asbestos samples, monitoring for airborne asbestos, bidding for a contract for any of these activities, or any other activity required to be licensed under TAHPR.

The TAHPR require abatement in public buildings be performed by a TDSHS licensed asbestos abatement contractor in accordance with a project design prepared by a TDSHS licensed asbestos consultant. In addition, a TDSHS licensed asbestos consultant agency must perform third party air monitoring during the abatement activities.

The TAHPR require that written notification be submitted before beginning renovation projects which include the disturbance of any quantity of ACM in a public or commercial building or facility, and before the demolition of a building or facility, even when no asbestos is present. This written notification must be provided to the TDSHS at least 10 working days prior to the commencement of asbestos abatement or demolition activities.

40 CFR Part 61 Subpart M, the asbestos NESHAP, regulates asbestos fiber emission and asbestos waste disposal practices for commercial buildings and facilities. The NESHAP requires the identification and classification of existing asbestos containing building materials prior to demolition or renovation activity. Under NESHAP, building materials containing >1% asbestos are classified as either friable, Category I nonfriable or Category II nonfriable ACM. Friable materials are those that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure. Category I nonfriable ACM includes packing, gaskets, resilient floor coverings and asphalt roofing products. Category II nonfriable ACM are any nonfriable materials other than those classified as Category I materials.

Friable ACM, Category I and II nonfriable ACM in poor condition, that have become friable, or which will be subject to drilling, sanding, grinding, cutting, or abrading and which could be crushed or pulverized during anticipated renovation or demolition activities are considered regulated ACM (RACM).

The NESHAP requires that written notification be submitted before beginning renovation projects which include the disturbance of greater than 160 square feet, 260 linear feet, or 35 cubic feet of RACM in any building or facility, or before the demolition of any building or facility, even when no asbestos is present. This written notification must be provided to the

TDSHS at least 10 working days prior to the commencement of asbestos abatement or demolition activities.

29 CFR 1926.1101, the Occupational Safety and Health Administration (OSHA) Asbestos standard for the construction industry, regulates workplace exposure to asbestos. The OSHA standard classifies construction and maintenance activities which could disturb ACM and specifies work practices and precautions employers must follow when engaging in each class of regulated work. The OSHA standard also requires employee exposure to airborne asbestos fibers be maintained below the Permissible Exposure Limit (PEL) of 0.1 asbestos fibers per cubic centimeter (f/cc) of air as an 8-hour Time Weighted Average (TWA).

5.0 FINDINGS AND RECOMMENDATIONS

Terracon performed a pre-renovation asbestos survey for the BOND 2020 planned renovations, based on a Project Scope for ORG #212 Harry Stone Montessori School, prepared by Mr. Matthew Ford of McKissack and McKissack. Laboratory analysis identified asbestos in the following materials. Appendix A provides additional information pertaining to assumed asbestos-containing materials. Appendix B presents a summary of suspect ACM samples collected. The laboratory analytical reports are included as Appendix C:

- Exterior storefront door/window frame sealant
- Plaster wall with painted gritty texture
- Painted CMU Block wall and mortar
- Mirror mastic (Assumed ACM)
- Ceramic & Porcelain wall and floor tiles with associated grout and mastic and/or thinset (Assumed ACM)

Appendix A provides additional information pertaining to the confirmed asbestos-containing materials; Appendix B presents a summary of suspect materials sampled; and the laboratory analytical reports are included as Appendix C.

Terracon assessed multiple areas above the drywall and lay-in ceiling systems, where possible, but did not observe additional suspect materials. Access to areas above the ceiling was limited and the potential exists for additional suspect ACM to be present in these inaccessible areas.

Terracon lifted floor coverings in several areas in the building but did not observe additional floor coverings/layers except; as Terracon could not assess beneath all floor coverings in all areas, there may be isolated areas of additional suspect material present beneath existing covering.

Terracon observed mirrors restrooms throughout the campus. The restroom mirrors appeared to be affixed mechanically and/or with adhesive mastic, but Terracon was unable to access these mastics without forcibly removing the mirror panels, potentially damaging the panels, and creating a safety hazard for building occupants. Pending sampling and laboratory analysis to rebut the presence of asbestos, the mirror mastics must be assumed ACM.

Terracon observed multiple ceramic and porcelain tiles with grout throughout the renovation areas that appeared to be affixed with thinset but was unable to access this thinset without forcibly removing the ceramic tile, potentially damaging the tile, and creating a safety hazard for building occupants. The suspect thinset must be assumed ACM pending sampling and laboratory analysis to rebut the presence of asbestos.

Terracon observed additional suspect materials present within the renovation areas which were not scheduled to be impacted by the renovations; therefore, those materials were not included in the scope of this survey. If the scope of the renovation expands to include additional materials than are identified in Appendix A, these materials must be assumed ACM, pending sampling and laboratory analysis to rebut the presence of asbestos.

If scheduled to be impacted, the TAHPR requires identified ACM to be removed by a TDSHS licensed asbestos abatement contractor in accordance with a project design prepared by a TDSHS licensed asbestos consultant prior to demolition of the structure. In addition, a TDSHS licensed asbestos consultant agency must perform third party air monitoring during the abatement activities.

The TAHPR and NESHAP require that written notification be submitted before beginning renovation or demolition projects which include the disturbance of any RACM in a building or facility, or before the demolition of a building or facility, even when no asbestos is present. This written notification must be provided to the TDSHS at least 10 working days prior to the commencement of asbestos abatement or demolition activities. These activities must be performed in accordance with the current TDSHS, EPA, and OSHA guidelines.

OSHA 29 CFR 1926.1101 regulates workplace exposure to asbestos, classifies construction and maintenance activities which could disturb ACM, and specifies work practices and precautions employers must follow when engaging in each class of regulated work. The OSHA standard also requires employee exposure to airborne asbestos fibers be maintained below the PEL of 0.1 f/cc of air as an 8-hour TWA.

6.0 GENERAL COMMENTS

Terracon conduced this asbestos survey in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions, and recommendations expressed in this report are based on conditions observed during our inspection of the subject property. The information contained in this report is relevant to the dates on which this inspection was performed and should not be relied upon to represent conditions later.

This report has been prepared on behalf of and exclusively for use by Client for specific application to their project as discussed. This report is not a bidding document. Contractors, consultants, or others reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.

APPENDIX A
CONFIRMED MATERIALS CONTAINING ASBESTOS
Harry Stone Montessori School
4747 Veterans Drive, Dallas, Texas
Terracon Project No. 94237070

Terracon – Bond 2020 Asbestos Survey					
Homog. Area	**Material**	**Location (Area)**	**Friability**	**Assessed Condition**	**Estimated Quantity**
M5	Storefront door/window frame sealant (exterior side)	Front main entrance doors	Category II Nonfriable	Good	Approximately 30 Linear Feet
W2	Painted gritty texture on plaster wall	Throughout 1st floor of original 1957 construction portion of the school which include, the administrative office arears, auditorium, cafeteria, library, and associated corridors, halls, and restrooms	Category II Nonfriable	Good	Approximately 25,000 Square Feet
W3	Painted filler/texture on CMU block wall and mortar	Gymnasium 1 & Gymnasium 1 Locker Room & P.E. Office (1957 construction)	Category II Nonfriable	Good	Approximately 1,600 Square Feet
M6	Mirror mastic (Assumed ACM)	Restrooms throughout the campus	Category II Nonfriable	Good	Approximately 60 Square Feet
M7	Ceramic & Porcelain wall and floor tiles with associated grout and mastic and/or thinset (Assumed ACM)	Kitchen, restrooms and water fountain areas	Category II Nonfriable	Good	Approximately 4,000 Square Feet

APPENDIX B
ASBESTOS SURVEY SAMPLE SUMMARY
Harry Stone Montessori School
4747 Veterans Drive, Dallas, Texas
Terracon Project No. 94237070

Sample Number	Material	Material Location	Asbestos Containing
01, 02, 03	Exterior concrete sidewalk	Exterior perimeter of school	No
04, 05, 06	Exterior concrete sidewalk sealant (black)	Exterior perimeter of school	No
07, 08, 09	Exterior brick & mortar	Exterior building finish	No
10, 11, 12	Exterior cement/plaster soffit	Existing Front entrance canopy	No
13, 14, 15	Exterior concrete sidewalk sealant (gray)	Exterior perimeter of school	No
16, 17, 18	Exterior building expansion joint sealant	Exterior of building finish	No
19, 20, 21	**Storefront door/window frame sealant (exterior side)**	**Front main entrance doors**	**Yes**
22, 23, 24	12" x 12" Cream w/ maroon specs floor tile & associated black mastic	Throughout corridors	No
25, 26, 27	2' x 2' Lay-in acoustical ceiling tile (white w/ pin holes)	Throughout school	No
28, 29, 30, 31, 32, 33, 34, **49, 50, 51, 52, 53,** 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66	**Painted gritty texture on plaster wall**	**Throughout 1st floor of original 1957 construction portion of the school which include, the administrative office arears, auditorium, cafeteria, library, and associated corridors, halls, and restrooms**	**Yes**
37, 67, 68, 69, 70,	**Painted filler/texture on CMU block wall and mortar**	**Gymnasium 1 & Gymnasium 1 Locker Room & P.E. Office (1957 construction)**	**Yes**
38, 39, 40, 82, 83, 84	Drywall ceiling w/ smooth painted texture	All restrooms	No
41, 42, 43, 44, 45, 46, 47	Painted gritty texture on plaster wall	Throughout 2nd Floor	No
35, 71, 72, 73, 74	Painted filler/texture on CMU block wall and mortar	Auditorium Stage Area (1957 construction)	No
36, 75, 76, 77, 78, 79, 80, 81	Painted filler/texture on CMU block wall and mortar	Gymnasium 2 and adjacent corridor (1978 construction)	No
01, 02, 03	Roofing material	Entire facility	No

APPENDIX C
ASBESTOS ANALYTICAL LABORATORY REPORT

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: Terracon
Project (Line 1): DISD - Harry Stone E.S. - 2020 Bond Renovation
Project (Line 2): 4747 Veterans Dr, Dallas, TX
Project No: 94237070
Identification: Asbestos, Bulk Sample Analysis
Test Method: Polarized Light Microscopy/Dispersion Staining (PLM/DS)
EPA Method 600/R-93/116

Lab Job No.: PLM-36039
Set No.: 51645, 54307, 54381
Report Date: 8/15/2024
Sample Date: 1/19/2024 - 7/26/2024
Version: R3

On 1/26/2024, 7/22/2024, 7/26/2024, sixty-two (62) bulk samples were submitted by Mr. David Acosta, a representative of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL1224221	01	Exterior Concrete Sidewalk - East Front Elevation Main Entrance Walkway	None Detected
CL1224222	02	Exterior Concrete Sidewalk - East Front Elevation Main Entrance Walkway	None Detected
CL1224223	03	Exterior Concrete Sidewalk - East Front Elevation Main Entrance Walkway	None Detected
CL1224224	04	Exterior Concrete Sidewalk Sealant (black) - East Front Elevation Main Entrance Walkway	None Detected
CL1224225	05	Exterior Concrete Sidewalk Sealant (black) - East Front Elevation Main Entrance Walkway	None Detected
CL1224226	06	Exterior Concrete Sidewalk Sealant (black) - East Front Elevation Main Entrance Walkway	None Detected
CL1224227	07	Exterior Brick & Mortar - East Exterior Side of Building at Main Entrance	None Detected - Brick None Detected - Mortar
CL1224228	08	Exterior Brick & Mortar - East Exterior Side of Building at Main Entrance	None Detected - Brick None Detected - Mortar
CL1224229	09	Exterior Brick & Mortar - East Exterior Side of Building at Main Entrance	None Detected - Brick None Detected - Mortar
CL1224230	10	Exterior Cement/Plaster Soffit - East Exterior Side of Building at Main Entrance	None Detected - Paint Texture None Detected - Plaster
CL1224231	11	Exterior Cement/Plaster Soffit - East Exterior Side of Building at Main Entrance	None Detected - Paint Texture None Detected - Plaster
CL1224232	12	Exterior Cement/Plaster Soffit - East Exterior Side of Building at Main Entrance	None Detected - Paint Texture None Detected - Plaster
CL1224233	13	Exterior Concrete Sidewalk Sealant (grey) - East Front Elevation Main Entrance Walkway	None Detected
CL1224234	14	Exterior Concrete Sidewalk Sealant (grey) - East Front Elevation Main Entrance Walkway	None Detected

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client:	Terracon	Lab Job No.:	PLM-36039
Project (Line 1):	DISD - Harry Stone E.S. - 2020 Bond Renovation	Set No.:	51645, 54307, 54381
Project (Line 2):	4747 Veterans Dr, Dallas, TX	Report Date:	8/15/2024
Project No:	94237070	Sample Date:	1/19/2024 - 7/26/2024
Identification:	Asbestos, Bulk Sample Analysis	Version:	R3
Test Method:	Polarized Light Microscopy/Dispersion Staining (PLM/DS) EPA Method 600/R-93/116		

On 1/26/2024, 7/22/2024, 7/26/2024, sixty-two (62) bulk samples were submitted by Mr. David Acosta, a representative of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL1224235	15	Exterior Concrete Sidewalk Sealant (grey) - East Front Elevation Main Entrance Walkway	None Detected
CL1224236	16	Exterior Building Expansion Joint Sealant - East Side of Building below Classroom, Windows	None Detected
CL1224237	17	Exterior Building Expansion Joint Sealant - East Side of Building below Auditorium Windows	None Detected
CL1224238	18	Exterior Building Expansion Joint Sealant - East Side of Building below Office Windows	None Detected
CL1224239	19	Storefront Door/Window Frame Sealant (exterior side)- Front Entrance	3% Chrysotile
CL1224240	20	Storefront Door/Window Frame Sealant (exterior side)- Front Entrance	3% Chrysotile
CL1224241	21	Storefront Door/Window Frame Sealant (exterior side)- Front Entrance	3% Chrysotile
CL1224242	22	12" X 12" Cream w/Maroon Specs Floor Tile & associated Black Mastic - 1st-3rd Grades Vestibule	None Detected - Floor Tile None Detected - Black Mastic
CL1224243	23	12" X 12" Cream w/Maroon Specs Floor Tile & associated Black Mastic - East North-South Hall at North Exit	None Detected - Floor Tile None Detected - Black Mastic
CL1224244	24	12" X 12" Cream w/Maroon Specs Floor Tile & associated Black Mastic - East North-South Hall at South Exit	None Detected - Floor Tile None Detected - Black Mastic
CL1224245	25	2' X 2' Lay-In acoustical Ceiling Tile (white w/pinholes) - 2nd Floor 4th-6th Grade Hall at CR 203	None Detected
CL1224246	26	2' X 2' Lay-In acoustical Ceiling Tile (white w/pinholes) - 1st Floor Small East-West Hall to Courtyard	None Detected
CL1224247	27	2' X 2' Lay-In acoustical Ceiling Tile (white w/pinholes) - East North-South Hall at CR 102	None Detected
CL1224248	28	Painted Gritty Texture on Plaster Wall - North Wall above Ceiling Grid of 1st-3rd Grades East-West Hall at East Entrance Vestibule	None Detected - Paint Texture 1 2% Chrysotile - Paint Texture 2 None Detected - Plaster

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: Terracon
Project (Line 1): DISD - Harry Stone E.S. - 2020 Bond Renovation
Project (Line 2): 4747 Veterans Dr, Dallas, TX
Project No: 94237070
Identification: Asbestos, Bulk Sample Analysis
Test Method: Polarized Light Microscopy/Dispersion Staining (PLM/DS)
EPA Method 600/R-93/116

Lab Job No.: PLM-36039
Set No.: 51645, 54307, 54381
Report Date: 8/15/2024
Sample Date: 1/19/2024 - 7/26/2024
Version: R3

On 1/26/2024, 7/22/2024, 7/26/2024, sixty-two (62) bulk samples were submitted by Mr. David Acosta, a representative of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL1224249	29	Painted Gritty Texture on Plaster Wall - North Wall above Ceiling Grid in 1st Floor Small East-West Hall to Courtyard	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster
CL1224250	30	Painted Gritty Texture on Plaster Wall - North Wall above Ceiling Grid in the East North-South Hall at CR102	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster
CL1224251	31	Painted Gritty Texture on Plaster Wall - East Wall above the Ceiling Grid in the East North-South Hall at Cafeteria	None Detected - Paint Layer None Detected - Plaster
CL1224252	32	Painted Gritty Texture on Plaster Wall - East Wall above the Ceiling Grid in the East North-South Hall at Stage Door	None Detected - Paint Texture 1 None Detected - Paint Texture 2 None Detected - Plaster
CL1224253	33	Painted Gritty Texture on Plaster Wall - South Wall above the Ceiling Grid in the 1st-3rd Grades East-West Hall at CR 105	None Detected - Paint Texture 1 None Detected - Paint Texture 2 None Detected - Plaster
CL1224254	34	Painted Gritty Texture on Plaster Wall - South Wall above the Ceiling Grid in the 1st-3rd Grades East-West Hall at CR 108	None Detected - Paint Layer None Detected - Plaster
CL1224255	35	Painted Filler/Texture on CMU Block Wall & Mortar - Auditorium at Stage	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1224256	36	Painted Filler/Texture on CMU Block Wall & Mortar - West Wall in West North-South Hall outside Gym II	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1224257	37	Painted Filler/Texture on CMU Block Wall & Mortar - Gym I Locker Room South Wall	<1% Chrysotile - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1224258	38	Drywall Ceiling w/Smooth Painted Texture - 1st-3rd Grades East-West Hall in Girls Restroom	None Detected - Paint Texture None Detected - Joint Tape None Detected - Joint Compound None Detected - Paper None Detected - Wallboard Material

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: Terracon
Project (Line 1): DISD - Harry Stone E.S. - 2020 Bond Renovation
Project (Line 2): 4747 Veterans Dr, Dallas, TX
Project No: 94237070
Identification: Asbestos, Bulk Sample Analysis
Test Method: Polarized Light Microscopy/Dispersion Staining (PLM/DS)
EPA Method 600/R-93/116

Lab Job No.: PLM-36039
Set No.: 51645, 54307, 54381
Report Date: 8/15/2024
Sample Date: 1/19/2024 - 7/26/2024
Version: R3

On 1/26/2024, 7/22/2024, 7/26/2024, sixty-two (62) bulk samples were submitted by Mr. David Acosta, a representative of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL1224259	39	Drywall Ceiling w/Smooth Painted Texture - 1st-3rd Grades East-West Hall in Boys Restroom	None Detected - Paint Texture None Detected - Joint Tape None Detected - Joint Compound None Detected - Paper None Detected - Wallboard Material
CL1224260	40	Drywall Ceiling w/Smooth Painted Texture - West North-South Hall Adult Restroom	None Detected - Paint Layer None Detected - Paper None Detected - Wallboard Material
CL1224261	41	Painted Gritty Texture on Plaster Wall - South Wall on 2nd Floor 4th-6th Grade Hall at Boys Restroom	None Detected - Paint Layer None Detected - Plaster Topcoat None Detected - Plaster
CL1224262	42	Painted Gritty Texture on Plaster Wall - North Wall above the Ceiling Grid on the 2nd Floor 4th-6th Grade Hall at CR 201	None Detected - Paint Texture None Detected - Plaster Topcoat None Detected - Plaster
CL1224263	43	Painted Gritty Texture on Plaster Wall - North Wall above the Ceiling Grid on the 2nd Floor 4th-6th Grade Hall at CR 201	None Detected - Paint Layer None Detected - Plaster
CL1224264	44	Painted Gritty Texture on Plaster Wall - North Wall above the Ceiling Grid on the 2nd Floor 4th-6th Grade Hall at CR 205	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster
CL1224265	45	Painted Gritty Texture on Plaster Wall - South Wall above the Ceiling Grid on the 2nd Floor 4th-6th Grade Hall at CR 206	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster
CL1224266	46	Painted Gritty Texture on Plaster Wall - South Wall above the Ceiling Grid on the 2nd Floor 4th-6th Grade Hall at the Girls Restroom	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster
CL1224267	47	Painted Gritty Texture on Plaster Wall - North Wall above the Ceiling Grid on the 2nd Floor 4th-6th Grade Hall at Stairs	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster
CL1277586	48	Painted Gritty Texture on Plaster Wall - 2nd Floor Stair Landing East Wall	None Detected - Paint Texture None Detected - Plaster Topcoat None Detected - Plaster

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: Terracon
Project (Line 1): DISD - Harry Stone E.S. - 2020 Bond Renovation
Project (Line 2): 4747 Veterans Dr, Dallas, TX
Project No: 94237070
Identification: Asbestos, Bulk Sample Analysis
Test Method: Polarized Light Microscopy/Dispersion Staining (PLM/DS)
EPA Method 600/R-93/116

Lab Job No.: PLM-36039
Set No.: 51645, 54307, 54381
Report Date: 8/15/2024
Sample Date: 1/19/2024 - 7/26/2024
Version: R3

On 1/26/2024, 7/22/2024, 7/26/2024, sixty-two (62) bulk samples were submitted by Mr. David Acosta, a representative of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL1277587	49	Painted Gritty Texture on Plaster Wall - East-West Hall North below Fire Pull Handle at Entrance	None Detected - Paint Texture 1 3% Chrysotile - Paint Texture 2 None Detected - Plaster Topcoat None Detected - Plaster
CL1277588	50	Painted Gritty Texture on Plaster Wall - East-West Hall South Wall below Telephone/IT Wall Jack	None Detected - Paint Texture 1 3% Chrysotile - Paint Texture 2 None Detected - Plaster Topcoat None Detected - Plaster
CL1277589	51	Painted Gritty Texture on Plaster Wall - East-West Hall North Wall below Display Case	None Detected - Paint Texture 1 3% Chrysotile - Paint Texture 2 None Detected - Plaster Topcoat None Detected - Plaster
CL1277590	52	Painted Gritty Texture on Plaster Wall - East-West Hall North Wall at Wall-mounted TV	None Detected - Paint Texture 1 3% Chrysotile - Paint Texture 2 None Detected - Plaster Topcoat None Detected - Plaster
CL1277591	53	Painted Gritty Texture on Plaster Wall - North-South Hall East Wall at East-West/North-South Hall Intersection	None Detected - Paint Texture 1 3% Chrysotile - Paint Texture 2 None Detected - Plaster Topcoat None Detected - Plaster
CL1277592	54	Painted Gritty Texture on Plaster Wall - North-South Hall West Wall at Workroom Door	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster Topcoat None Detected - Plaster
CL1277593	55	Painted Gritty Texture on Plaster Wall - North-South Hall West Wall at Custodial Closet	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster Topcoat None Detected - Plaster
CL1277594	56	Painted Gritty Texture on Plaster Wall - North-South Hall East Wall at Water Fountain	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster Topcoat None Detected - Plaster

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client:	Terracon	Lab Job No.:	PLM-36039
Project (Line 1):	DISD - Harry Stone E.S. - 2020 Bond Renovation	Set No.:	51645, 54307, 54381
Project (Line 2):	4747 Veterans Dr, Dallas, TX	Report Date:	8/15/2024
Project No:	94237070	Sample Date:	1/19/2024 - 7/26/2024
Identification:	Asbestos, Bulk Sample Analysis	Version:	R3
Test Method:	Polarized Light Microscopy/Dispersion Staining (PLM/DS) EPA Method 600/R-93/116		

On 1/26/2024, 7/22/2024, 7/26/2024, sixty-two (62) bulk samples were submitted by Mr. David Acosta, a representative of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL1277595	57	Painted Gritty Texture on Plaster Wall - Small East-West Hall North Wall at North-South Hall Intersection	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster Topcoat None Detected - Plaster
CL1279322	58	Painted Gritty Texture on Plaster Wall - Principal's Office, South Wall	None Detected - Paint Layer None Detected - Plaster
CL1279323	59	Painted Gritty Texture on Plaster Wall - Principal's Office, West Wall	None Detected - Paint Layer None Detected - Plaster
CL1279324	60	Painted Gritty Texture on Plaster Wall - Principal's Office, North Wall	None Detected - Paint Layer None Detected - Plaster
CL1279325	61	Painted Gritty Texture on Plaster Wall - Principal's Office, East Wall	None Detected - Paint Texture None Detected - Plaster
CL1279326	62	Painted Gritty Texture on Plaster Wall - North-South Hall, East Wall outside Principal's Office	None Detected - Paint Texture None Detected - Plaster

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client:	Terracon	Lab Job No.:	PLM-36039
Project (Line 1):	DISD - Harry Stone E.S. - 2020 Bond Renovation	Set No.:	51645, 54307, 54381
Project (Line 2):	4747 Veterans Dr, Dallas, TX	Report Date:	8/15/2024
Project No:	94237070	Sample Date:	1/19/2024 - 7/26/2024
Identification:	Asbestos, Bulk Sample Analysis	Version:	R3
Test Method:	Polarized Light Microscopy/Dispersion Staining (PLM/DS) EPA Method 600/R-93/116		

On 1/26/2024, 7/22/2024, 7/26/2024, sixty-two (62) bulk samples were submitted by Mr. David Acosta, a representative of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein.

STATEMENT OF LABORATORY ACCREDITATION

The samples were analyzed in general accordance with the procedures outlined in the U.S. EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples as found in 40 CFR, Part 763, Subpart E, Appendix E (formerly Subpart F, Appendix A), or the current U.S. EPA method (EPA Method 600/R-93/116) for the analysis of asbestos in building materials, by polarized light microscopy. The results of each bulk sample relate only to the material tested and the results shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Specific questions concerning bulk sample results shall be directed to the Laboratory Director.

Analyst: Curtis Grigg, John R. Cates

Laboratory Director: John R. Cates, P.G.

Approved Signatory:

NVLAP®

TESTING
NVLAP LAB CODE 200569-0

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: Terracon
Project (Line 1): DISD - Harry Stone E.S. - 2020 Bond Renovation
Project (Line 2): 4747 Veterans Dr., Dallas, TX
Project No: 94237070
Identification: Asbestos, Bulk Sample Analysis
Test Method: Polarized Light Microscopy/Dispersion Staining (PLM/DS)
EPA Method 600/R-93/116

Lab Job No.: PLM-36039
Set No.: 54517
Report Date: 8/6/2024
Sample Date: 8/5/2024

On 8/5/2024, nineteen (19) bulk samples were submitted by Mr. David Acosta of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL1281986	63	W6, Painted Gritty Texture of Plaster Wall - North-South Hall, East Wall at Hall Intersection	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster
CL1281987	64	W6, Painted Gritty Texture of Plaster Wall - North-South Hall, East Wall below 3rd Bulletin Board	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster
CL1281988	65	W6, Painted Gritty Texture of Plaster Wall - North-South Hall, East Wall, North Side of Auditorium Door	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster
CL1281989	66	W6, Painted Gritty Texture of Plaster Wall - North-South Hall, East Wall North Side of Ele. Room Door	None Detected - Paint Texture None Detected - Paint Layer None Detected - Plaster
CL1281990	67	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - South Side, Shower Wall (high)	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1281991	68	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - East Locker Room Wall	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1281992	69	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - West Locker Room Wall	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1281993	70	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - South Side of Shower Wall (low)	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1281994	71	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - Auditorium, Stage Left (low)	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1281995	72	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - Auditorium, Stage Right (high)	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: Terracon
Project (Line 1): DISD - Harry Stone E.S. - 2020 Bond Renovation
Project (Line 2): 4747 Veterans Dr., Dallas, TX
Project No: 94237070
Identification: Asbestos, Bulk Sample Analysis
Test Method: Polarized Light Microscopy/Dispersion Staining (PLM/DS)
EPA Method 600/R-93/116

Lab Job No.: PLM-36039
Set No.: 54517
Report Date: 8/6/2024
Sample Date: 8/5/2024

On 8/5/2024, nineteen (19) bulk samples were submitted by Mr. David Acosta of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL1281996	73	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - Auditorium, Stage Right (low)	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1281997	74	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - Stage Right East	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1281998	75	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - North-South Hall at Gym 2 Door, East Side	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1281999	76	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - North-South Hall at Gym 2 Door, West Side	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1282000	77	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - North-South Hall, West Wall	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1282001	78	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - Gym 2, North Side, East Wall	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1282002	79	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - Gym 2, South Side, East Wall	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1282003	80	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - Gym 2, North Side, West Wall	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar
CL1282004	81	W7, Painted Filler/Texture on CMU Block Wall w/Mortar - Gym 2, South Side, West Wall	None Detected - Filler/Texture None Detected - CMU Block None Detected - Mortar

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client:	Terracon	Lab Job No.:	PLM-36039
Project (Line 1):	DISD - Harry Stone E.S. - 2020 Bond Renovation	Set No.:	54517
Project (Line 2):	4747 Veterans Dr., Dallas, TX	Report Date:	8/6/2024
Project No:	94237070	Sample Date:	8/5/2024
Identification:	Asbestos, Bulk Sample Analysis		
Test Method:	Polarized Light Microscopy/Dispersion Staining (PLM/DS) EPA Method 600/R-93/116		

On 8/5/2024, nineteen (19) bulk samples were submitted by Mr. David Acosta of Terracon for asbestos analysis by PLM/DS.
Copies of the lab data sheets are attached; additional information may be found therein.

STATEMENT OF LABORATORY ACCREDITATION

The samples were analyzed in general accordance with the procedures outlined in the U.S. EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples as found in 40 CFR, Part 763, Subpart E, Appendix E (formerly Subpart F, Appendix A), or the current U.S. EPA method (EPA Method 600/R-93/116) for the analysis of asbestos in building materials, by polarized light microscopy. The results of each bulk sample relate only to the material tested and the results shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Specific questions concerning bulk sample results shall be directed to the Laboratory Director.

Analyst: Curtis Grigg

Laboratory Director: John R. Cates, P.G.

Approved Signatory:

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TESTING
NVLAP LAB CODE 200569-0

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: Terracon
Project (Line 1): DISD - Harry Stone Montessori School
Project (Line 2): 4747 Veterans Dr, Dallas, TX
Project No: 94237070
Identification: Asbestos, Bulk Sample Analysis
Test Method: Polarized Light Microscopy/Dispersion Staining (PLM/DS)
EPA Method 600/R-93/116

Lab Job No.: PLM-36039
Set No.: 54650
Report Date: 8/14/2024
Sample Date: 8/14/2024

On 8/14/2024, one (1) bulk sample was submitted by a representative of Terracon for asbestos analysis by PLM/DS.
Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL1284863	82	Drywall Ceiling w/Painted Smooth Texture - Adult Restroom	None Detected - Paint Texture None Detected - Paper None Detected - Wallboard Material

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client:	Terracon	Lab Job No.:	PLM-36039
Project (Line 1):	DISD - Harry Stone Montessori School	Set No.:	54650
Project (Line 2):	4747 Veterans Dr, Dallas, TX	Report Date:	8/14/2024
Project No:	94237070	Sample Date:	8/14/2024
Identification:	Asbestos, Bulk Sample Analysis		
Test Method:	Polarized Light Microscopy/Dispersion Staining (PLM/DS) EPA Method 600/R-93/116		

On 8/14/2024, one (1) bulk sample was submitted by a representative of Terracon for asbestos analysis by PLM/DS.
Copies of the lab data sheets are attached; additional information may be found therein.

STATEMENT OF LABORATORY ACCREDITATION

The samples were analyzed in general accordance with the procedures outlined in the U.S. EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples as found in 40 CFR, Part 763, Subpart E, Appendix E (formerly Subpart F, Appendix A), or the current U.S. EPA method (EPA Method 600/R-93/116) for the analysis of asbestos in building materials, by polarized light microscopy. The results of each bulk sample relate only to the material tested and the results shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Specific questions concerning bulk sample results shall be directed to the Laboratory Director.

Analyst: John R. Cates

Laboratory Director: John R. Cates, P.G.

Approved Signatory:

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NVLAP LAB CODE 200569-0

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: Terracon
Project (Line 1): DISD - Harry Stone - Supplemental Sampling
Project (Line 2): 4747 Veterans Dr, Dallas, TX
Project No: 94237070
Identification: Asbestos, Bulk Sample Analysis
Test Method: Polarized Light Microscopy/Dispersion Staining (PLM/DS)
EPA Method 600/R-93/116

Lab Job No.: PLM-36039
Set No.: 54675
Report Date: 8/15/2024
Sample Date: 8/15/2024

On 8/15/2024, two (2) bulk samples were submitted by Mr. David Acosta of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL1285221	83	Drywall Ceiling w/Smooth Painted Texture - Adults Restroom	None Detected - Paint Texture None Detected - Joint Tape None Detected - Joint Compound None Detected - Paper None Detected - Wallboard Material
CL1285222	84	Drywall Ceiling w/Smooth Painted Texture - Girls Restroom	None Detected - Paint Texture None Detected - Joint Tape None Detected - Joint Compound None Detected - Paper None Detected - Wallboard Material

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client:	Terracon	Lab Job No.:	PLM-36039
Project (Line 1):	DISD - Harry Stone - Supplemental Sampling	Set No.:	54675
Project (Line 2):	4747 Veterans Dr, Dallas, TX	Report Date:	8/15/2024
Project No:	94237070	Sample Date:	8/15/2024
Identification:	Asbestos, Bulk Sample Analysis		
Test Method:	Polarized Light Microscopy/Dispersion Staining (PLM/DS) EPA Method 600/R-93/116		

On 8/15/2024, two (2) bulk samples were submitted by Mr. David Acosta of Terracon for asbestos analysis by PLM/DS.
Copies of the lab data sheets are attached; additional information may be found therein.

STATEMENT OF LABORATORY ACCREDITATION

The samples were analyzed in general accordance with the procedures outlined in the U.S. EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples as found in 40 CFR, Part 763, Subpart E, Appendix E (formerly Subpart F, Appendix A), or the current U.S. EPA method (EPA Method 600/R-93/116) for the analysis of asbestos in building materials, by polarized light microscopy. The results of each bulk sample relate only to the material tested and the results shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Specific questions concerning bulk sample results shall be directed to the Laboratory Director.

Analyst: John R. Cates

Laboratory Director: John R. Cates, P.G.

Approved Signatory:

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NVLAP LAB CODE 200569-0

APPENDIX D
LICENSES

Texas Department of State Health Services

TERRACON CONSULTANTS INC

is certified to perform as an

Asbestos Consultant Agency

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1954 and Title 12, Texas Administrative Code, Chapter 295 relating to Texas Asbestos Health Protection, as long as this license is not suspended or revoked.

License Number: 100157

Expiration Date: 11/30/2024

Jennifer Shuford, MD, MPH,
Commissioner of Health

Control Number: 97529

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

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Texas Department of State Health Services

CATES LABORATORIES INC

is certified to perform as an

Asbestos Laboratory

PCM, PLM

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1954 and Title 12, Texas Administrative Code, Chapter 295 relating to Texas Asbestos Health Protection, as long as this license is not suspended or revoked

License Number: 300287

Expiration Date: 04/07/2025

Control Number: 96696

Jennifer Shuford, MD, MPH,
Commissioner of Health

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

SEE BACK

United States Department of Commerce
National Institute of Standards and Technology

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Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200569-0

Cates Laboratories, Inc.

Dallas, TX

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2023-04-01 through 2024-03-31
Effective Dates

For the National Voluntary Laboratory Accreditation Program

terracon

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Cates Laboratories, Inc.
1339 Motor Circle
Dallas, TX 75207
Mr. John R. Cates
Phone: 214-920-5006 Fax: 1-972-767-0167
Email: jrcates@cateslab.com
http://www.cateslab.com

ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 200569-0**

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116, Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

United States Department of Commerce
National Institute of Standards and Technology

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Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200569-0

Cates Laboratories, Inc.
Dallas, TX

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Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-04-01 through 2025-03-31
Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 200569-0**

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

Effective 2024-04-01 through 2025-03-31

Texas Department of State Health Services

Asbestos Individual Consultant

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Expiration Date: 13-Feb-2024

SECTION 01 93 00
GEOTECHNICAL REPORT

GEOTECHNICAL EXPLORATION

RENOVATION
HARRY STONE MONTESSORI SCHOOL
4747 Veterans Drive
Dallas, Texas
ALPHA Report No. G231117
July 5, 2023

Prepared for:

DALLAS ISD
9400 N. Central Expressway, 8th Floor
Dallas, Texas 75231
Attention: Matthew Ford

Prepared By:

ALPHA TESTING
A Universal Engineering Sciences Company

ALPHA TESTING
A Universal Engineering Sciences Company

Geotechnical
Construction Materials
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July 5, 2023

Dallas ISD
9400 N. Central Expressway, 8th Floor
Dallas, Texas 75231

Attention: Matthew Ford

Re: Geotechnical Exploration
Renovation
Harry Stone Montessori School
4747 Veterans Drive
Dallas, Texas
ALPHA Report No. G231117

Attached is the report of the geotechnical exploration performed for the referenced project. This study was authorized using Purchase Order No. 923476 dated May 15, 2023, and performed in accordance with ALPHA Proposal No. 96137-rev1 dated April 20, 2023.

This report contains results of field explorations and laboratory testing and an engineering interpretation of these with respect to available project characteristics. The results and analyses were used to develop recommendations to aid design and construction of foundations and pavement.

ALPHA TESTING, LLC. appreciates the opportunity to be of service on this project. If we can be of further assistance, such as providing materials testing services during construction, please contact our office.

Sincerely,

ALPHA TESTING, LLC.

Shokoofeh (Faye) Golkhari, P.E.
Senior Geotechnical Engineer

STATE OF TEXAS
SHOKOOFEH GOLKHARI BAGHERNI
134230
LICENSED
PROFESSIONAL ENGINEER
7/5/23

David E. Schledorn, P.E.
Senior Geotechnical Engineer

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ALPHA REPORT NO. G231117

1.0 PURPOSE AND SCOPE

The purpose of this geotechnical exploration is for ALPHA TESTING, LLC. (ALPHA) to evaluate for the Client some of the physical and engineering properties of subsurface materials at selected locations on the subject site with respect to formulation of appropriate geotechnical design parameters for the proposed construction. The field exploration was accomplished by securing subsurface samples from widely spaced test borings performed across the expanse of the site. Engineering analyses were performed from results of the field exploration and results of laboratory tests performed on representative samples.

Also included are general comments pertaining to reasonably anticipated construction problems and recommendations concerning earthwork and quality control testing during construction. This information can be used to evaluate subsurface conditions and to aid in ascertaining construction meets project specifications.

Recommendations provided in this report were developed from information obtained in test borings depicting subsurface conditions only at the specific boring locations and at the particular time designated on the logs. Subsurface conditions at other locations may differ from those observed at the boring locations, and subsurface conditions at boring locations may vary at different times of the year. The scope of work may not fully define the variability of subsurface materials and conditions that are present on the site.

The nature and extent of variations between borings may not become evident until construction. If significant variations then appear evident, our office should be contacted to re-evaluate our recommendations after performing on-site observations and possibly other tests.

2.0 PROJECT CHARACTERISTICS

The project site is Harry Stone Montessori School located at 4747 Veterans Drive in Dallas, Texas. A site plan illustrating the general outline of the property is provided as Figure 1, the Boring Location Plan, in the Appendix. At the time of the field exploration, existing portland cement concrete (PCC) drives and parking areas were present south of the existing building in the area of the planned cafeteria and new paving. At the east side of the property, grassy areas with sidewalks were present in the area of the planned canopy/vestibule and marquee. Scattered trees were present on the entire site. Cursory visual observations indicate the area for the planned construction is relatively flat.

Present plans provide for the construction of a new marquee, canopy/vestibule, cafeteria expansion, drives, parking areas and play area. It is anticipated the marquee will be supported with a drilled and underreamed pier foundation system. The canopy/vestibule and cafeteria expansion are anticipated to be supported utilizing a drilled, straight-shaft pier foundation system. Site grading information was not available at the time of this study. We have assumed cuts and fills of 2 ft or less will be required to establish grades for the structures. Pavement for the proposed drives, parking area and play area will consist of portland cement concrete (PCC).

3.0 FIELD EXPLORATION

Subsurface conditions on the site were explored by drilling four (4) test borings in general accordance with ASTM D 420 using standard rotary drilling equipment. Details of drilling and

sampling operations are briefly summarized in Methods of Field Exploration, Section A-1 of the Appendix. The approximate location of each test boring is shown on the Boring Location Plan, Figure 1, enclosed in the Appendix.

TABLE A
Boring Locations and Depths

Structure/Feature	Boring Numbers	Boring Depth
Marquee	1	30 ft
Canopy/Vestibule	2	30 ft
Cafeteria Expansion	3	30 ft
Pavement and Drives	4	5 ft

Subsurface types encountered during the field exploration are presented on Log of Boring sheets included in the Appendix. The boring logs contain our Field Technician's and Engineer's interpretation of conditions believed to exist between actual samples retrieved. Therefore, these boring logs contain both factual and interpretive information. Lines delineating subsurface strata on the boring logs are approximate and the actual transition between strata may be gradual.

4.0 LABORATORY TESTS

Selected samples of the subsurface materials were tested in the laboratory to evaluate their engineering properties as a basis in providing recommendations for foundation design and earthwork construction. A brief description of testing procedures used in the laboratory can be found in Methods of Laboratory Testing, Section B-1 of the Appendix. Individual test results are presented on Log of Boring sheets or on summary data sheets also enclosed in the Appendix.

5.0 GENERAL SUBSURFACE CONDITIONS

Based on the Geological Atlas of Texas from the Texas Bureau of Economic Geology, published by the University of Texas at Austin, and our experience, the project site is located on the Austin Chalk (limestone) formation. The Austin Chalk generally consists of massive gray unweathered shaly limestone, overlain by tan weathered shaly limestone. Near-surface residual soils associated with the Austin Chalk generally consist of high plasticity clays and/or moderate plasticity calcareous clays.

Concrete about 3 inches in thickness followed by 3 inches of base material was present at the surface of Boring 4.

Within the 30-ft maximum depth explored on the site, subsurface materials consist generally of clay overlying shaly limestone. Borings 1 and 4 were terminated in clay soils at depths of about 30 ft and 5 ft, respectively. Tan shaly limestone was encountered at depths of about 16 to 20 ft below existing grade at the Borings 2 and 3. Gray shaly limestone was then encountered below the tan shaly limestone in Borings 2 and 3 at depths of about 23 to 27 ft and extended to the termination depth of 30 ft. More detailed stratigraphic information is presented on the Log of Boring sheets included in the Appendix.

During the field exploration, groundwater was encountered at a depth of about 18 feet on drilling tools and in the open borehole upon completion of drilling Boring 1. Free groundwater was not encountered in the remaining borings. These groundwater observations provide an indication of the groundwater conditions present at the time the borings were drilled. Most of the materials encountered in the borings are considered relatively impermeable and are anticipated to have a relatively slow response to water movement. Therefore, several days of observation would be required to evaluate actual groundwater levels within the depths explored. Also, the groundwater level at the subject site is anticipated to fluctuate seasonally depending on the amount of rainfall, prevailing weather conditions, and subsurface drainage characteristics.

It is common to encounter shallow seasonal groundwater in the clayey matrix, at the soil/rock (shaly limestone) interface, and from fractures in the rock, particularly during or after periods of precipitation. If more detailed groundwater information is required, monitoring wells or piezometers can be installed.

Further details concerning subsurface materials and conditions encountered can be obtained from the Log of Boring sheets provided in the Appendix.

6.0 DESIGN RECOMMENDATIONS

The following design recommendations were developed on the basis of the previously described Project Characteristics (Section 2.0) and General Subsurface Conditions (Section 5.0). If project criteria should change, including structure locations on the site, our office should conduct a review to determine if modifications to the recommendations are required. Further, it is recommended our office be provided with a copy of the final plans and specifications for review prior to construction.

The design criteria given in this report were developed assuming the floor slabs for the vestibule and cafeteria expansion and at-grade slabs for the canopy structure are constructed within 2 ft of existing grade. Design recommendations are based on using on-site soil or similar imported fill with a plasticity index (PI) of 35 or less. Further cutting and filling on the site other than assumed and/or the use of higher PI soils might require modifications to the recommendations provided in this report. It is recommended our office be contacted once final grades are established to determine if modifications to the recommendations in this report are necessary.

Differential movements can occur between the existing structure and the proposed canopy/vestibule and cafeteria additions. Methods should be implemented to allow for possible differential performance between the foundation/floor slab systems of the existing structure and the additions. Preventative measures should also be taken in order not to damage the integrity of the existing foundation/floor slab system, pavement and flatwork during construction of the additions.

6.1 Drilled and Underreamed Pier Foundations - Marquee

Based on the information obtained from the borings, the marquee could be supported using a system of drilled and underreamed piers. Drilled and underreamed piers can generally be used for structures with column loads of less than about 150 to 200 kips. Drilled and underreamed piers should bear in the clayey soils at a depth of about 18 ft below final grade.

Test piers should be performed prior to construction outside the marquee area to verify constructability of the underreams. If underream collapse occurs during test pier drilling, we should be contacted for further recommendations. Some field adjustments in the depth of the underreamed piers may still be required in some areas to maintain the bottom of the piers above groundwater seepage (see Boring 1) and caving soils encountered near the bearing depth. Adjustments in the depths of the piers should be observed in the field by ALPHA personnel. In the event drilled and underreamed piers cannot be installed due to the presence of groundwater and/or caving soils, an alternate pier system such as drilled straight-shaft piers (discussed in Section 6.2) or helical piers should be considered. Our office should be contacted if alternative pier recommendations are desired.

Drilled and underreamed piers bearing in native clayey soils at a depth of at least 18 ft below the final grade can be dimensioned using a net allowable end-bearing pressure of 3.5 ksf with no skin friction component of resistance. The bearing pressure contains a factor of safety of at least three (3) considering a general bearing capacity failure. Normal elastic settlement of piers under loading is estimated to be less than about 1 inch.

Each pier should be designed with sufficient full-length reinforcing steel to resist the uplift pressure (soil-to-pier adhesion) due to potential soil swell along the shaft from post construction heave and other uplift forces applied by structural loadings. The magnitude of uplift adhesion due to soil swell along the pier shaft cannot be defined accurately and can vary according to the actual in-place moisture content of the soils during construction. It is estimated this uplift adhesion will not exceed about 1.8 ksf. This soil adhesion is approximated to act uniformly over the portion of the shaft situated within 10 ft of finished exterior grades.

For underreamed shafts, the uplift force due to swelling of active clays should be resisted by the underreamed portion. The underreamed portion should be at least two and not exceeding three times the diameter of the shaft. The minimum clear spacing between edges of adjacent piers should be at least one underream diameter, based on the larger underream.

L-Pile design parameters provided in Table B in Section 6.2 may be used for drilled and underreamed piers.

6.2 Drilled, Straight-Shaft Pier Foundations – Canopy/Vestibule and Cafeteria Expansion

The canopy/vestibule and cafeteria expansion could be supported using a system of drilled, straight-shaft piers bearing in the tan shaly limestone. Tan shaly limestone was encountered at depths of about 16 to 20 ft below existing grade at Borings 2 and 3 performed for the canopy/vestibule and cafeteria expansion. The piers should bear at least 3 ft into the underlying tan shaly limestone. Deeper penetrations will be required to develop skin friction and/or uplift resistance.

Piers bearing at least 3 ft below the surface of the tan shaly limestone can be dimensioned using a net allowable end-bearing pressure of 25.0 ksf and skin friction (in compression) of 3.8 ksf. The skin friction component should be applied only to the portion of the shaft located below the minimum penetration depth of 3 ft and the portion below any temporary casing, if used. The bearing capacity contains a factor of safety of at least 3 considering a general bearing capacity failure and the skin friction values have a factor of safety of at least 2. Normal elastic settlement of piers under loading is estimated at less than about 1 inch. Gray shaly limestone might be

encountered below the tan shaly limestone in the drilled shaft excavations. The gray shaly limestone has greater load carrying capacity than the overlying tan shaly limestone and the design values presented for tan shaly limestone are suitable for drilled piers that encounter gray shaly limestone.

The minimum clear spacing between piers should be at least two (2) pier shaft diameters (based on the larger diameter pier) to develop the full load carrying capacity from skin friction. Closer spacing will result in reduced skin friction resistance. The skin friction will vary linearly from the full value at a clear spacing of 2 diameters to 50 percent of the design value with no clear spacing.

Each pier should be designed with sufficient full-length reinforcing steel and a sufficient embedment into the shaly limestone to resist the uplift pressure (soil-to-pier adhesion) due to potential soil swell along the shaft from post construction heave and other uplift forces applied by structural loadings. The magnitude of uplift adhesion due to soil swell along the pier shaft cannot be defined accurately and can vary according to the actual in-place moisture content of the soils during construction. It is estimated this uplift adhesion will not exceed about 1.8 ksf. If subgrade improvement as described in Section 6.4 is implemented in the building pad areas, an uplift adhesion of 1.0 ksf can be used for design. This soil adhesion is approximated to act uniformly over the portion of the shaft situated within 10 ft of finished exterior grades. The uplift adhesion due to soil swell can be neglected over the portion of the shaft in contact with shaly limestone and non-expansive material.

The uplift resistance of each pier can be computed using an allowable skin friction value of 3.0 ksf acting uniformly over the portion of the shaft bearing in the tan shaly limestone. The top 3 ft of tan shaly limestone should be neglected in computing the uplift resistance of each pier. In addition, uplift resistance should be neglected for any portion of shaly limestone above temporary casing. This uplift resistance value has a factor of safety of at least 2.

Lateral analysis for drilled piers constructed at the site can be performed using the following design parameters (L-Pile) provided for the site soils in Table B. The lateral resistance of the top portion of the pier shafts (the portion within 6 ft of final grade) should be neglected due to disturbance and potential soil shrinkage.

TABLE B Design Parameters For L-PILE		
Material	**Native Clayey Soils**[1]	**Tan Shaly Limestone**
L-Pile p-y Model	Stiff clay	Weak rock
Effective Unit Weight (γ), pci	0.069	0.078
Undrained Cohesion (c), psi	10.0	-
Rock Uniaxial Compressive Strength (q_u), psi	-	200
Rock Mass Modulus (E_r), psi	-	20,000
Rock Quality Designation (RQD)[2], %	-	50-70
Rock Strain Factor (k_{rm})	-	0.0001

[1] The upper 6 ft of soil should be neglected due soil disturbance and seasonal moisture changes.
[2] Rock Quality Designation (RQD) is based on our area experience and the results of the field exploration.

6.3 Grade Beams and Pier Caps

All grade beams connecting piers and pier caps should be formed and not cast in earthen trenches. A minimum void space of 8 inches should be provided between the bottom of grade beams/ pier caps and the underlying soils. Commercially available cardboard box forms (cartons) are made for this purpose. The cardboard cartons should extend the full length and width of the grade beams and pier caps. Prior to concrete placement, cartons should be inspected to verify they are firm, properly placed, and capable of supporting wet concrete. Some type of permanent soil retainer, such as pre-cast concrete panels, must be provided to prevent soils adjacent to grade beams and pier caps from sloughing into the void space. Additionally, backfill soils (on-site clay soils used for general fill) placed adjacent to grade beams and pier caps must be compacted as outlined in Section 7.3.

6.4 Floor System for Pier-Supported Structures – Vestibule and Cafeteria Expansion

Considering the subsurface conditions encountered at this site and methods used to estimate the potential vertical rise of the soil, the floor slabs for the proposed vestibule and cafeteria expansion building could experience soil-related movements of about 3 to 4 inches if constructed within 2 ft of existing grade.

These potential movements were estimated using results of absorption swell tests, in general accordance with methods outlined by Texas Department of Transportation (TxDOT) Test Method Tex-124-E and engineering judgment and experience. Estimated movements were calculated assuming the moisture content of the in-situ soil within the normal zone of seasonal moisture content change varies between a "dry" condition and a "wet" condition as defined by Tex-124-E. Also, it was assumed a 1 psi surcharge load from the slab acts on the subgrade soils. Movements

exceeding those predicted could occur if positive drainage of surface water is not maintained or if soils are subject to an outside water source, such as leakage from a utility line or subsurface moisture migration from off-site locations.

In view of these potential seasonal movements, the most positive floor system for the vestibule and cafeteria expansion is a slab suspended completely above the existing highly expansive soils. A 12-inch void space should be provided between the bottom of the slab and top surface of the underlying expansive clays. Utilities and other fixtures below the building should be suspended from the floor and isolated from the active clay soils, and a minimum 8-inch void space should also be provided below the bottom of the utility or fixture. Cardboard carton forms or a deeper crawl space can be used to create the minimum void space. A ventilated crawl space is preferred. Provisions should be made for (a) adequate drainage of the under-floor space and (b) differential movement of utility lines, including areas where the utility penetrates through the grade beam and/or where the utility penetrates below grade areas.

If some floor slab movement is tolerable (about 1 inch), the concrete slabs can be designed to bear uniformly on improved soils. It is estimated the installation of 2 ft of non-expansive fill overlying either 10 ft of moisture-conditioned clays or 10 ft of chemical injected clays should reduce potential slab movements to about 1 inch. Moisture conditioning and chemical injection are discussed in Sections 6.4.1 and 6.4.2. Non-expansive fill (select fill and flexible base) is described in Section 7.3. In choosing this method of floor slab movement reduction, the Owner is accepting some post construction seasonal movement of the floor slab (about 1 inch).

Some of the clayey soils encountered at this site were very hard and relatively dry which may cause obstruction to the injection rods. This may preclude the use of chemical injection as methods of subgrade treatment. It is recommended a test section be performed prior to committing to chemical injection to verify it can be utilized.

If a soil-supported floor slab is utilized for the planned building, consideration should be given to a "floating" (fully ground supported, and not structurally connected to walls or foundations) floor slab. This can reduce the risk of cracking and displacement of the floor slab due to differential movements between the slab and foundations. A floor slab doweled into perimeter grade beams can develop a plastic hinge (crack) parallel to and approximately 5 to 10 ft inside the building perimeter. Differential movements can still occur between the grade beam and a “floating” floor slab. The structural engineer should determine the need for connections between the slab and structural elements and determine if control joints to limit cracking are needed. A properly designed and constructed moisture barrier should be placed between the slab and subgrade soils to retard moisture migration through the slab.

6.4.1 Subgrade Improvement Utilizing Moisture-Conditioned Soil

Installation of moisture-conditioned clays will require relatively deep excavations adjacent to existing structures, flatwork and pavement. Care must be taken to shore the existing structures to prevent them from being undermined during subgrade improvement as described herein.

Movement of the floor slab could be reduced to about 1 inch by placing at least 2 ft of non-expansive fill (select fill or flexible base) between the bottom of the slab and the top surface of 10 ft of moisture-conditioned on-site clay soils.

Moisture-conditioning consists of over-excavating the site soils, then processing and compacting the specified minimum thickness of soil at a *"target"* moisture content approximated to be at least 5 percentage points above the material's optimum moisture content as determined by the standard Proctor method (ASTM D 698). The moisture-conditioned soil should be placed in 8-in thick loose lifts and compacted to a dry density of 93 to 97 percent of standard Proctor maximum dry density. Moisture conditioning of the on-site soil should extend throughout the entire building pad area, under all adjoining flatwork and at least 5 ft beyond the perimeter of the building. In entrance areas, the moisture conditioning process should extend at least 10 ft beyond the perimeter of the building. However, non-expansive fill material should not extend beyond the building limits. If flatwork or paving is not planned adjacent to the structure (i.e. above the moisture-conditioned soils that extend beyond the building perimeter), a moisture barrier consisting of a minimum of 10-mil plastic sheeting with 8 to 12 inches of soil cover should be provided above the moisture conditioned soils. Moisture-conditioned soils should be maintained in a moist condition prior to placement of the required thickness of select, non-expansive material, plastic sheeting or flatwork.

The resulting estimated potential seasonal movement (about 1 inch) was calculated assuming the moisture content of the moisture-conditioned soil varies between the *"target"* moisture content and the "wet" condition, while the deeper undisturbed in-situ soil within the normal zone of seasonal moisture content change varies between the "dry" condition and the "wet" condition as defined by methods outlined in Texas Department of Transportation Test Method Tex-124-E.

It is the intent of the moisture-conditioning process described herein to reduce the swell potential of the moisture-conditioned soil to 1 percent or less. Additional laboratory tests (i.e., standard Proctors tests, absorption swell tests, etc.) should be conducted during construction to verify the *"target"* moisture content for moisture-conditioning (estimated at 5 percentage points above the material's standard Proctor optimum moisture content) is sufficient to reduce the swell potential of the processed soil to 1 percent or less. In addition, it is recommended samples of the moisture-conditioned material be routinely obtained during construction to verify the swell of the improved material is 1 percent or less.

Installation of moisture-conditioned clays should be monitored and tested on a full-time basis by a representative of ALPHA, to verify the soils tested were placed with the proper lift thickness, moisture content, and degree of compaction.

6.4.2 Subgrade Improvement Utilizing Chemical Injection

Installation of 10 ft of chemical injection in conjunction with placement of 2 ft of non-expansive material should reduce potential floor slab movements to about 1 inch. Improvement procedures are discussed below. Non-expansive material can consist of select fill or flexible base as described in Section 7.3.

Following site grading to allow for placement of at least 2 ft of non-expansive material, the exposed subgrade of the building pad should be chemically injected to a depth of 10 ft below the bottom of the non-expansive fill.

The chemical injection should extend throughout the entire building pad area, under all adjoining flatwork and at least 5 ft beyond the perimeter of the building. In entrance areas, chemical injection should extend at least 10 ft beyond the perimeter of the building.

The non-expansive material should not extend beyond the building limits. If flatwork or paving is not planned adjacent to the structure (i.e. above the injected soils), a moisture barrier consisting of a minimum of 10-mil plastic sheeting with 8 to 12 inches of soil cover should be provided above the chemically injected soils that extend beyond the building limits. Chemically injected soils should be maintained in a moist condition prior to placement of the required thickness of non-expansive material, plastic sheeting or flatwork. Chemical injection is performed by injecting the clayey soils with a proprietary chemical specifically formulated for long-term reduction of shrink-swell capacity in expansive clayey soils. ***The Client should obtain appropriate documentation from the manufacturer indicating the chemical is environmentally safe, long lasting and the injection process will not affect adjacent existing structures.*** The injection contractor should provide references, and references should be obtained and verified. Also, chemical injection proposals should only be considered from injection contractors whose chemicals and processes have been shown to be effective through studies at major U.S. research universities. The chemical injection contractor should provide assurances that the chemical injection process will not affect adjacent existing structures.

Performance of post-injection swell testing and moisture content determinations should be employed as final acceptance criteria in engineering analysis to examine accomplishment of intended objectives of the injection treatment. Moisture content and swell samples should be taken at 1-foot intervals to the total depth injected from a minimum of one (1) test boring per each 5,000 sf of injected area (minimum two borings per injected area). A minimum of three (3) swell tests should be performed for each 10-ft boring drilled to evaluate the 10-ft injection. Maximum benefit of these movement reduction procedures can be achieved by employing ALPHA to observe, monitor and test the entire process.

Satisfactory completion of the injection process is achieved when the desired moisture content and abatement of swell in the injected subgrade clay soils are reached. Acceptance criteria for injection should be based upon obtaining an average swell of 1 percent or less in the injected zone. Performance of post-injection swell testing and moisture content determinations should be employed as final acceptance criteria in engineering analysis to examine accomplishment of intended objectives of the injection treatment.

6.5 Potential Seasonal Movements for Canopy and Flatwork/Pavement

Based on the current available information, concrete flatwork is planned below the proposed canopy. Flatwork, pavement, and any other soil-supported structural elements could experience soil-related movements on the order of 3 to 4 inches if constructed within 2 ft of existing grade as discussed in Section 6.4. If this level of movement is not acceptable, flatwork could be supported on drilled pier foundations as discussed in Sections 6.1 and 6.2. As an alternative, subgrade improvements consisting of moisture conditioning or chemical injection as discussed in Sections 6.4.1 and 6.4.2 could be considered for reduction in soil movements in any areas where post-construction movements would be critical.

6.6 Seismic Considerations

The Site Class for seismic design is based on several factors that include soil profile (soil or rock), shear wave velocity, and strength, averaged over a depth of 100 ft. Since our borings did not extend to 100-foot depths, we based our determinations on the assumption that the subsurface materials below the bottom of the borings were similar to those encountered at the termination depth of the borings. Based on Section 1613.2.2 of the 2018 International Building Code and Table 20.3-1 in the 2010 ASCE-7, we recommend using Site Class C (very dense soil and soft rock) for seismic design at this site.

6.7 Area Pavement

The soil subgrade should be properly prepared as discussed in Section 7.1 after removal of existing pavement and prior to new pavement placement.

Clayey soils encountered near the existing ground surface at the borings or similar material placed as engineered fill will probably constitute the subgrade for most parking and drive areas. Therefore, it is recommended these materials be improved prior to construction of portland cement concrete (PCC) pavement. To permit correlation between information from test borings and actual subgrade conditions exposed during construction, a qualified Geotechnical Engineer should be retained to provide subgrade monitoring and testing during construction. If there is any change in project criteria, the recommendations contained in this report should be reviewed by our office.

Calculations used to determine the required pavement thickness are based only on the physical and engineering properties of the materials used and conventional thickness determination procedures. Pavement joining buildings should be constructed with a curb and the joint between the building and curb should be sealed. Related civil design factors such as subgrade drainage, shoulder support, cross-sectional configurations, surface elevations, reinforcing steel, joint design and environmental factors will significantly affect the service life and must be included in preparation of the construction drawings and specifications, but all were not included in the scope of this study. Normal periodic maintenance will be required for all pavement to achieve the design life of the pavement system.

Please note, the recommended pavement sections provided in Table C are considered the minimum necessary to provide satisfactory performance based on the expected traffic loading. In some cases, City minimum standards for pavement section construction may exceed those in Table C.

6.7.1 Pavement Subgrade Preparation

According to the project civil engineer, lime treatment of the pavement subgrade is not planned below the play area. Additionally, lime treatment of the pavement subgrade is not necessary for pavements subjected *exclusively* to passenger vehicle traffic, although lime treatment in these areas would be generally beneficial to the long-term performance of the pavement and improve constructability. Prior to construction of pavement on untreated clay subgrade soil, the exposed subgrade should be scarified to a depth of at least 6 inches and compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698) and within the range of 0 to +3 percentage points of the material's optimum moisture content.

Lime treatment of the clay pavement subgrade is recommended in drive lanes, fire lanes, bus lanes, dumpster areas and areas subjected to truck traffic. For estimating purposes, the exposed surface of the pavement subgrade soil should be scarified to a depth of 6 inches and mixed with a minimum of 7 percent hydrated lime (by dry soil weight) in conformance with TxDOT Item 260. Assuming an in-place unit weight of 100 pcf for the pavement subgrade soils, this percentage of lime equates to about 32 lbs of lime per sq yard of treated subgrade. The actual amount of lime required should be confirmed by additional laboratory tests prior to construction.

Lime treatment should extend at least 1 ft beyond the edge of the pavement to reduce effects of seasonal shrinking and swelling upon the extreme edges of pavement. The soil-lime mixture should be compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698) and within the range of 0 to +4 percentage points of the mixture's optimum moisture content.

Lime treatment of the pavement subgrade soil will not prevent normal seasonal movement of the underlying untreated materials. Pavement and other flatwork will have the same potential for movement as slabs constructed directly on the existing clayey soils (see Section 6.4).

Good perimeter surface drainage with a minimum slope of 2 percent away from the pavement is recommended. The use of sand as a leveling course below pavement supported on expansive clays should be avoided. Normal maintenance of pavement should be expected over the life of the structures.

6.7.2 Portland Cement Concrete (PCC) Pavement Section

Following subgrade improvement as recommended in Section 6.7.1, PCC (reinforced) pavement sections are recommended in Table C.

TABLE C
Recommended PCC Pavement Sections

Paving Areas and/or Type	Subgrade Thickness, Inches	PCC Thickness, Inches
Parking Areas Subjected Exclusively to Passenger Vehicle Traffic and Play Area	Scarified and Compacted, 6	5
Drive Lanes, Fire Lanes, Bus Lanes, Areas Subject to Light Volume Truck Traffic	Lime Modified, 6	6
Dumpster Traffic Areas, Areas subject to Moderate Volume Truck Traffic	Lime Modified, 6	7

It is planned to use PCC with a minimum compressive strength of 4,000 psi at 28 days (4,500 psi if hand finished) in the play area. Portland cement concrete should have a minimum compressive strength of 3,000 psi at 28 days in parking areas subjected exclusively to passenger vehicle traffic. Portland cement concrete should have a minimum compressive strength of 3,500 psi at 28 days for the drive lanes, fire lanes, bus lanes and truck areas. Concrete should be designed with 4.5±1.5 percent entrained air. Joints in

concrete paving should not exceed 15 ft. Reinforcing steel should consist of No. 3 bars placed at 18 inches on-center in two directions.

Alternatively, lime modification of the pavement subgrade could be eliminated by increasing the PCC thickness in the pavement sections presented in Table C by 1 inch. Prior to construction of pavement on untreated clay subgrade soil, the exposed subgrade should be scarified to a depth of at least 6 inches and compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698) and within the range of 0 to +3 percentage points of the material's optimum moisture content.

6.8 Drainage and Other Considerations

Adequate drainage should be provided to reduce seasonal variations in the moisture content of foundation soils. All pavement and sidewalks within 5 ft of the structures should be sloped away from the structures to prevent ponding of water around the foundations. Final grades within 5 ft of the structures should be adjusted to slope away from the structure at a minimum slope of 2 percent. **Maintaining positive surface drainage throughout the life of the structures is essential.**

In areas with pavement, sidewalks or other flatwork adjacent to the structures, a positive seal must be maintained between the structures and the flatwork to minimize seepage of water into the underlying supporting soils. Post-construction movement of pavement and other flatwork is common. Normal maintenance should include examination of all joints in paving and sidewalks, etc. as well as resealing where necessary.

Several factors relate to civil and architectural design and/or maintenance, which can significantly affect future movements of the foundation and pavement slab systems:

- Preferably, a complete system of gutters and downspouts should carry runoff water a minimum of 5 feet from the completed structure or into a closed drainage system.

- Large trees and shrubs should not be allowed closer to the foundations than a horizontal distance equal to roughly their mature height due to their significant moisture demand upon maturing.

- Moisture conditions should be maintained "constant" around the edge of the slabs. Ponding of water in planters, in unpaved areas, and around joints in paving and sidewalks can cause slab movements beyond those predicted in this report.

- Planter box structures placed adjacent to the structure should be provided with a means to assure concentrations of water are not available to the subsoil stratigraphy.

- The root systems from any existing trees at this site will have dried and desiccated the surrounding clay soils, resulting in soil with near-maximum swell potential. Clay soils surrounding tree root mats within the structure areas or areas to be covered with grade slabs (including, but not limited to, pavement, sidewalks, patios and equipment pads) should be removed to a depth of at least 3 ft or 1 ft below the root ball, whichever is deeper, or to the

top of shaly limestone. The resulting excavation should be backfilled with engineered fill as described in Section 7.3.

Trench backfill for utilities should be properly placed and compacted as outlined in Section 7.4 and in accordance with requirements of local municipal standards. Since granular bedding backfill is used for most utility lines, the backfilled trench should not become a conduit and allow access for surface or subsurface water to travel toward the structures. Concrete cut-off collars or clay plugs should be provided where utility lines cross building lines to prevent water from traveling in the trench backfill and entering beneath the structures.

7.0 GENERAL CONSTRUCTION PROCEDURES AND RECOMMENDATIONS

Variations in subsurface conditions could be encountered during construction. To permit correlation between test boring data and actual subsurface conditions encountered during construction, it is recommended a registered Professional Engineering firm be retained to observe construction procedures and materials.

Some construction problems, particularly degree or magnitude, cannot be anticipated until the course of construction. The recommendations offered in the following paragraphs are intended not to limit or preclude other conceivable solutions, but rather to provide our observations based on our experience and understanding of the project characteristics and subsurface conditions encountered in the borings.

7.1 Site Preparation and Grading

Site preparation for the proposed project should include removing any existing site improvements (i.e. pavements, flatwork, foundation walls, utilities), vegetation, topsoil, and any other unsuitable surface materials from the areas of construction. Existing foundation elements should be removed or cut off at least 1 foot below finished grade or 1 foot below the new structural elements, whichever is deeper. Abandoned utility lines should be either removed or positively sealed to prevent possible water seepage into subgrade soils. Any soil disturbed due to removal of the existing site improvements should be re-compacted in accordance with recommendations provided in Section 7.3 as applicable.

All areas supporting floor slabs, , flatwork, pavement, play areas and areas to receive fill should be properly prepared.

- After completion of the necessary stripping, clearing, and excavating and prior to placing any required fill, the exposed soil subgrade should be carefully evaluated by probing and testing. Any undesirable material (organic material, wet, soft, or loose soil) still in place should be removed.

- The exposed soil subgrade should be further evaluated by proof-rolling with a heavy pneumatic tired roller, loaded dump truck or similar equipment weighing approximately 20 tons to check for pockets of soft or loose material hidden beneath a thin crust of possibly better soil.

- Proof-rolling procedures should be observed routinely by a Professional Engineer, or his designated representative. Any undesirable material (organic material, wet, soft, or loose soil) exposed during the proof-roll should be removed and replaced with well-compacted material as outlined in Section 7.3.

- Prior to placement of any fill, the exposed soil subgrade should then be scarified to a minimum depth of 6 inches and recompacted as outlined in Section 7.3.

If fill is to be placed on existing slopes (natural or constructed) steeper than six horizontal to one vertical (6:1), the fill materials should be benched into the existing slopes in such a manner as to provide a minimum bench-key width of five (5) ft. This should provide a good contact between the existing soils and fill materials, reduce potential sliding planes, and allow relatively horizontal lift placements.

Slope stability analysis of embankments (natural or constructed) was not within the scope of this study.

The contractor is responsible for designing any excavation slopes, temporary sheeting or shoring. Design of these structures should include any imposed surface surcharges. Construction site safety is the sole responsibility of the contractor, who shall also be solely responsible for the means, methods and sequencing of construction operations. The contractor should also be aware that slope height, slope inclination or excavation depths (including utility trench excavations) should in no case exceed those specified in local, state and/or federal safety regulations, such as OSHA Health and Safety Standard for Excavations, 29 CFR Part 1926, or successor regulations. Stockpiles should be placed well away from the edge of the excavation and their heights should be controlled so they do not surcharge the sides of the excavation. Surface drainage should be carefully controlled to prevent flow of water over the slopes and/or into the excavations. Construction slopes should be closely observed for signs of mass movement, including tension cracks near the crest or bulging at the toe. If potential stability problems are observed, a geotechnical engineer should be contacted immediately. Shoring, bracing or underpinning required for the project (if any) should be designed by a professional engineer registered in the State of Texas.

Due to the nature of the clayey soils found near the surface at the borings, traffic of heavy equipment (including heavy compaction equipment) may create pumping and general deterioration of shallow soils. Therefore, some construction difficulties should be anticipated during periods when these soils are saturated.

7.2 Foundation Excavations

All foundation excavations should be properly monitored to verify loose, soft, or otherwise undesirable materials are removed and foundations will bear on satisfactory material. Soil exposed in the base of all foundation excavations should be protected against detrimental change in condition, such as surface sloughing, side disturbance, rain, or excessive drying.

Surface runoff should be drained away from excavations and not allowed to pond in the bottom of the excavation. Concrete for foundations should be placed as soon as practical after the excavation is made. That is, the exposed foundation soils should not be allowed to become excessively dry or wet before placement of concrete. Drilled piers should be excavated and concrete placed the same day.

Prolonged exposure of the bearing surface to air or water will result in changes in strength and compressibility of the bearing stratum. Therefore, if delays occur, straight shaft drilled piers should be slightly widened and deepened to provide a fresh penetration surface, or a new (deeper) full penetration should be provided. Excavations for drilled and underreamed pier foundations should be slightly deepened and cleaned in order to provide a fresh bearing surface.

All pier shafts should have a diameter of at least 1.5 ft to facilitate clean-out of the base and proper monitoring. Concrete placed in pier holes should be in accordance with the design specifications. Concrete placed in piers should have a minimum slump of 5 inches (but not greater than 7 inches) to avoid potential honey-combing.

Observations during pier drilling should include, but not necessarily be limited to, the following items:

- Verification of proper bearing strata and consistency of subsurface stratification with regard to boring logs,
- Confirmation the minimum required penetration into the bearing strata is achieved,
- Complete removal of cuttings from bottom of pier holes,
- Proper handling of any observed water seepage and sloughing of subsurface materials,
- No more than 2 inches of standing water should be permitted in the bottom of pier holes prior to placing concrete, and
- Verification of pier diameter and steel reinforcement.

Drilled, Straight-Shaft Piers

Groundwater was encountered not encountered in Borings 2 and 3 in the areas of the planned canopy/vestibule and cafeteria expansion; however, groundwater was encountered at a depth of 18 ft in Boring 1 in the vicinity of the planned marquee. From our experience, shallow groundwater seepage could be encountered during pier installation, and the risk of encountering seepage is increased during or after periods of precipitation. Temporary casing should be anticipated to control groundwater seepage that could occur in the clayey matrix or near the interface of the overburden soil and rock (shaly limestone), or from fractures in the soil and rock. Casing should be seated in the overburden soil or shaly limestone below the depth of seepage, and all water and loosened material should be removed from the cased excavation before starting the design penetration. As casing is extracted, care should be taken to maintain a positive head of plastic concrete and minimize the potential for intrusion of water seepage. It is recommended a separate bid item be provided for casing on the contractors' bid schedule.

Groundwater can also occur within fractures in the bearing stratum for drilled, straight-shaft piers and this may require extending the casing and deepening the piers. From our experience with similar soil and rock conditions, sometimes groundwater cannot be controlled by the use of casing, and underwater placement of pier concrete may be required. Special mix designs are usually required for tremied or pumped concrete. Proper concreting procedures should include placement of concrete from the bottom to the top of the pier using a sealed tremie or pumped concrete. The tremie should be maintained at least 5 feet into the wet concrete during placement. It is recommended a separate bid item be provided for casing and underwater concrete placement on the contractor's bid schedule. Pier drilling contractors experienced in similar soil and groundwater conditions should be utilized for this project.

ALPHA should be contacted for further evaluations and recommendations if caving soils and/or groundwater seepage is encountered during straight shaft pier installation.

Drilled and Underreamed Piers

Free groundwater was encountered in Boring 1 at a depth of about 18 ft below the ground surface during our field exploration in the area of the planned marquee. Groundwater was not encountered in the remaining borings. From our experience, groundwater seepage could be encountered during pier installation. The risk of encountering groundwater seepage is increased during or after periods of precipitation. Some field adjustments in the depth of the piers may be required in some areas to maintain the bottom of the piers above groundwater seepage. Adjustments in the depths of the piers should be observed in the field by ALPHA personnel. Also, the clay soils encountered at the boring locations are prone to collapse during construction of the underreamed portion of the pier foundation. Immediate placement of concrete after constructing the underream and/or the use of submersible pumps may be adequate to control underream collapse and/or groundwater seepage. *Test piers should be performed just prior to construction to verify constructability of the underreams.* The test piers should be performed just outside the marquee area. Temporary casing may be useful for controlling groundwater seepage or caving that could occur in the clay soils. As casing is extracted, care should be taken to maintain a positive head of plastic concrete and minimize the potential for intrusion of groundwater seepage. It is recommended a separate bid item be provided for casing on the contractors' bid schedule.

ALPHA should be contacted for further review and evaluation if groundwater seepage and/or underream collapse occurs during pier installation. As an alternative to underreamed, helical piers or drilled straight shaft piers could be considered.

7.3 Fill Compaction

Select Fill (Non-Expansive Fill): Select fill used as non-expansive fill should have a liquid limit less than 35, a plasticity index (PI) not less than 4 nor greater than 15. Select fill should not contain deleterious material and debris. Select fill should be compacted to a dry density of at least 95 percent of standard Proctor maximum dry density (ASTM D 698) and within the range of -1 to +3 percentage points of the material's optimum moisture content. The plasticity index and liquid limit of material used as select fill should be verified during fill placement using laboratory tests. Atterberg limits tests to verify the select fill shall be performed at a frequency of at least one test per 2 ft of thickness per 5,000 sf. Atterberg limits shall be staggered between various lifts within each 5,000 sf.

Flexible Base Material (Non-Expansive Fill): Flexible base material used as non-expansive fill for the building pad area should meet the requirements of TxDOT Standard Specifications Item 247, Type A or D, Grade 1-2. The material should be compacted to a minimum 95 percent of standard Proctor maximum dry density (ASTM D 698) and within -2 to +3 percentage points of the material's optimum moisture content.

The following recommendations pertain to fill soils placed for general site grading as follows:

- *Outside* the designated building pad areas *if* moisture conditioning will be used as the method for subgrade improvement. Where moisture conditioning is utilized for subgrade improvement, all fill within the designated building pad areas, plus at least 5 ft and 10 ft outside the limits of the building pad areas, should meet the requirements of Section 6.4.1.

- For general grading *including* building areas *if* chemical injection will be used as the method for subgrade improvement.

Clay soils used for general fill with a plasticity index equal to or greater than 25 should be compacted to a dry density between 93 and 98 percent of standard Proctor maximum dry density (ASTM D 698). The compacted moisture content of the clays during placement should be within the range of +2 to +6 percentage points of the material's optimum moisture.

Clay soils used for general fill with a plasticity index less than 25 should be compacted to a dry density of at least 95 percent of standard Proctor maximum dry density (ASTM D 698). The compacted moisture content of the clays during placement should be within the range of -1 to +3 percentage points of the material's optimum moisture.

In cases where mass fills are more than 10 ft deep, the fill/backfill below 10 ft should be compacted to at least 100 percent of standard Proctor maximum dry density (ASTM D 698) and within –2 to +2 percentage points of the material's optimum moisture content. The portion of the fill/backfill shallower than 10 ft should be compacted as previously outlined.

Clay fill should be processed and the largest particle or clod should be less than 6 inches prior to compaction.

Compaction should be accomplished by placing fill in about 8-inch thick loose lifts and compacting each lift to at least the specified minimum dry density. Field density and moisture content tests should be performed on each lift.

Even if fill is properly compacted, fills in excess of about 10 ft are still subject to settlements over time of up to about 1 to 2 percent of the total fill thickness. This should be considered when designing areas with deep fill and retaining wall backfills.

7.4 Utilities

In cases where utility lines are more than 10 ft deep, the fill/backfill below 10 ft should be compacted to at least 100 percent of standard Proctor maximum dry density (ASTM D 698) and within –2 to +2 percentage points of the material's optimum moisture content. The portion of the fill/backfill shallower than 10 ft should be compacted as previously outlined. Density tests should be performed on each lift (maximum 12-inch thick) and should be performed as the trench is being backfilled.

Even if fill is properly compacted, fills in excess of about 10 ft are still subject to settlements over time of up to about 1 to 2 percent of the total fill thickness. This should be considered when designing pavements, flatwork and other structures over utility lines or other areas with deep fill. If this potential for settlement is not acceptable, it may be necessary to backfill areas below 10 ft using flexible base material or low strength flowable fill. We should be contacted for further evaluation and recommendations.

If utility trenches or other excavations extend to or beyond a depth of 5 ft below construction grade, the contractor or others shall be required to develop an excavation safety plan to protect personnel entering the excavation or excavation vicinity. The collection of specific geotechnical data and the development of such a plan, which could include designs for sloping and benching or various types of temporary shoring, is beyond the scope of this study. Any such designs and safety plans shall be developed in accordance with current OSHA guidelines and other applicable industry standards.

7.5 Groundwater

Free groundwater was encountered at a depth of about 18 feet on drilling tools and in the open boreholes upon completion of drilling Boring 1. From our experience, shallow groundwater seepage may be encountered during excavation at this site for utilities, foundations, and other general excavations. The risk of seepage increases with depth of excavation and during or after periods of precipitation. Standard sump pits and pumping may be adequate to control seepage on a local basis. Where sump pits and pumping are not capable of controlling seepage, supplemental dewatering measures (such as, but not limited to, submersible pump in slotted casings and well-points) may be required.

In any areas where significant cuts are made to establish final grades at the site, attention should be given to possible seasonal water seepage that could occur through natural cracks and fissures in the newly exposed stratigraphy. Seasonal seepage could also occur where shaly limestone is at or near final grade. Subsurface drains may be required in these areas to intercept seasonal groundwater seepage. The need for these or other de-watering devices should be carefully addressed during construction. Our office could be contacted to visually observe the final grade to evaluate the need for such drains.

8.0 LIMITATIONS

Professional services provided in this geotechnical exploration were performed, findings obtained, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. The scope of services provided herein does not include an environmental assessment of the site or investigation for the presence or absence of hazardous materials in the soil, surface water or groundwater. ALPHA, upon written request, can be retained to provide these services.

ALPHA is not responsible for conclusions, opinions or recommendations made by others based on this data. Information contained in this report is intended for the exclusive use of the Client (and their designated design representatives), and is related solely to design of the specific structures outlined in Section 2.0. No party other than the Client (and their designated design representatives) shall use or rely upon this report in any manner whatsoever unless such party shall have obtained ALPHA's written acceptance of such intended use. Any such third party using this report after obtaining ALPHA's written acceptance shall be bound by the limitations and limitations of liability contained herein, including ALPHA's liability being limited to the fee paid to it for this report. Recommendations presented in this report should not be used for design of any other structures except those specifically described in this report. In all areas of this report in which ALPHA may provide additional services if requested to do so in writing, it is presumed that such requests have not been made if not evidenced by a written document accepted by ALPHA. Further, subsurface conditions can change with passage of time. Recommendations contained herein are not considered applicable for an extended period of time after the completion date of this report. It is recommended our office be contacted for a review of the contents of this report for construction commencing more than one (1) year after completion of this report. Non-compliance with any of these requirements by the Client or anyone else shall release ALPHA from any liability resulting from the use of, or reliance upon, this report.

Recommendations provided in this report are based on our understanding of information provided by the Client about characteristics of the project. If the Client notes any deviation from the facts about project characteristics, our office should be contacted immediately since this may materially alter the recommendations. Further, ALPHA is not responsible for damages resulting from workmanship of designers or contractors. It is recommended the Owner retain qualified personnel, such as a Geotechnical Engineering firm, to verify construction is performed in accordance with plans and specifications.

APPENDIX

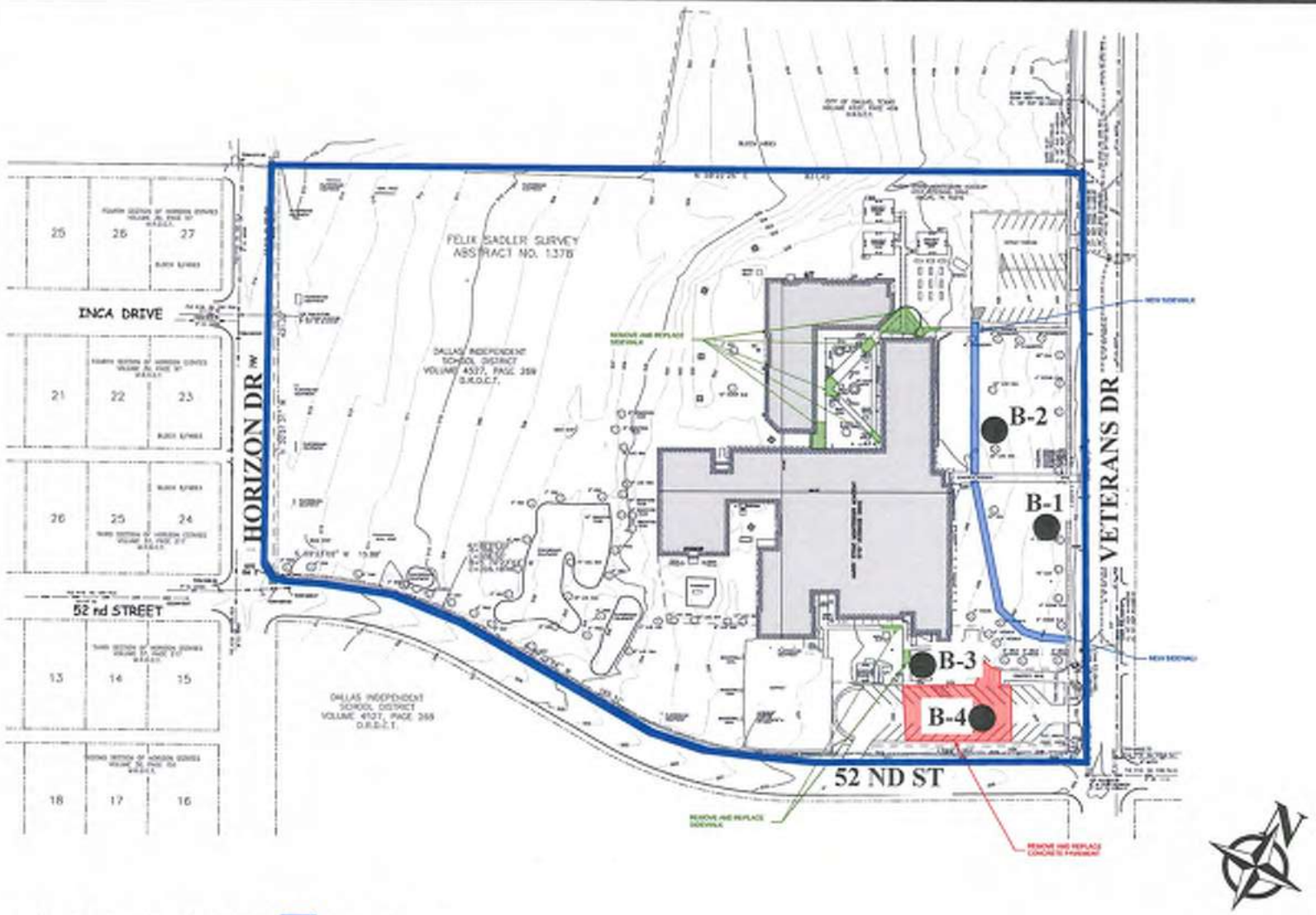
A-1 METHODS OF FIELD EXPLORATION

Using standard rotary drilling equipment, four (4) test borings were performed for this geotechnical exploration at the approximate locations shown on the Boring Location Plan, Figure 1. The borings were located in the field using a handheld GPS device or by pacing/taping and estimating right angles from landmarks which could be identified in the field and as shown on the site plan provided during this study. The locations of the test borings shown on the Boring Location Plan are considered accurate only to the degree implied by the methods used to define them.

Relatively undisturbed samples of the cohesive subsurface materials were obtained by hydraulically pressing 3-inch O.D. thin-wall sampling tubes into the underlying soils at selected depths (ASTM D 1587). These samples were removed from the sampling tubes in the field and examined visually. One representative portion of each sample was sealed in a plastic bag for use in future visual examinations and possible testing in the laboratory.

The Texas Cone Penetration (TCP) test was used to assess the apparent in-place strength characteristics of the rock type materials. The TCP test consists of a 3-inch diameter steel cone driven by a 170-pound hammer dropped 24 inches (340 ft-pounds of energy) and is the basis for TxDOT strength correlations. Depending on the resistance (strength) of the materials, either the number of blows of the hammer required to provide 12 inches of penetration, or the inches of penetration of the cone due to 100 blows of the hammer are recorded on the field logs and are shown on the Log of Boring sheets as “TX Cone” (reference: TxDOT Test Method TEX 132-E).

Logs of all borings are included in the Appendix. The logs show visual descriptions of subsurface strata encountered using the Unified Soil Classification System. Sampling information, pertinent field data, and field observations are also included. Samples not consumed by testing will be retained in our laboratory for at least 14 days and then discarded unless the Client requests otherwise.



● **Approximate Boring Locations** □ **Study Area**

Geotechnical Exploration
Renovation - Harry Stone Montessori School (ORG 212)
4747 Veterans Drive
Dallas, Texas
ALPHA Report No. G231117

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Boring Location Plan
Figure 1

B-1 METHODS OF LABORATORY TESTING

Representative samples were examined and classified by a qualified member of the Geotechnical Division and the boring logs were edited as necessary. To aid in classifying the subsurface materials and to determine the general engineering characteristics, natural moisture content tests (ASTM D 2216), Atterberg-limit tests (ASTM D 4318) and dry unit weight determinations were performed on selected samples. In addition, unconfined compression (ASTM D 2166) and pocket-penetrometer tests were conducted on selected soil samples to evaluate the soil shear strength. Results of all laboratory tests previously described are provided on the accompanying Log of Boring sheets.

In addition to the Atterberg-limit tests, the expansive properties of the clay soils were further analyzed by absorption swell tests (ASTM D 4546). The swell test is performed by placing a selected sample in a consolidation machine and applying either the approximate current or expected overburden pressure and then allowing the sample to absorb water. When the sample exhibits very little tendency for further expansion, the height increase is recorded and the percent swell and total moisture gain calculated. Results of the absorption swell tests are provided on the Log of Boring sheets.

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BORING NO.: 1 (Sheet 1 of 1)

PROJECT NO.: G231117

Client: Dallas ISD - Bond Program
Project: Renovation - Harry Stone Montessori School (ORG 212)
Start Date: 5/24/2023 **End Date:** 5/24/2023
Drilling Method: CONTINUOUS FLIGHT AUGER

Location: Dallas, Texas
Surface Elevation:
West:
North:
Hammer Drop (lbs / in): 170 / 24

GROUND WATER OBSERVATIONS
On Rods (ft): 18
After Drilling (ft): 18
After ____ Hours (ft):

Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Sample Type	Recovery % RQD	TX Cone or Std. Pen. (blows/ft, in)	Pocket Penetrometer (tsf)	Unconfined Comp. Strength (tsf)	% Passing No. 200 Sieve	Unit Dry Weight (pcf)	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Swell, %
		Brown CLAY with calcareous nodules				4.0								
						4.5+				24	60	23	37	1.3
		4.0												
5		Tan CLAY with calcareous deposits				4.5+				16				
						4.5+				24				
						4.5+				19	47	19	28	0.0
10														
						4.5+	4.1		115	16				
15		▼												
						2.0	1.6		107	22				
20														
						4.5+								
25														
						4.5+								
30		30.0												
		TEST BORING TERMINATED AT 30 FT												

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BORING NO.: 2 Sheet 1 of 1

PROJECT NO.: G231117

Client: Dallas ISD - Bond Program
Project: Renovation - Harry Stone Montessori School (ORG 212)
Start Date: 5/24/2023 **End Date:** 5/24/2023
Drilling Method: CONTINUOUS FLIGHT AUGER

Location: Dallas, Texas
Surface Elevation:
West:
North:
Hammer Drop (lbs / in): 170 / 24

GROUND WATER OBSERVATIONS
On Rods (ft): NONE
After Drilling (ft): DRY
After ____ Hours (ft):

Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Sample Type	Recovery % RQD	TX Cone or Std. Pen. (blows/ft, in)	Pocket Penetrometer (tsf)	Unconfined Comp. Strength (tsf)	% Passing No. 200 Sieve	Unit Dry Weight (pcf)	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Swell, %
		Brown CLAY with calcareous nodules				2.5								
						3.25	1.9		90	31				
		4.0												
5		Tan CLAY with calcareous deposits				4.5+				18	47	19	28	0.0
						4.5+				18				
10						4.5+				18				
		13.0												
15		Tan and Light Gray CLAY with calcareous deposits				4.5+				22				
20		20.0				4.5+				19				
		Tan SHALY LIMESTONE												
25					100/ 0.5"									
		27.0												
		Gray SHALY LIMESTONE												
30		30.0			100/ 0.5"									
		TEST BORING TERMINATED AT 30 FT												

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BORING NO.: 3
Sheet 1 of 1
PROJECT NO.: G231117

Client: Dallas ISD - Bond Program
Project: Renovation - Harry Stone Montessori School (ORG 212)
Start Date: 5/24/2023 **End Date:** 5/24/2023
Drilling Method: CONTINUOUS FLIGHT AUGER

Location: Dallas, Texas
Surface Elevation:
West:
North:
Hammer Drop (lbs / in): 170 / 24

GROUND WATER OBSERVATIONS
On Rods (ft): NONE
After Drilling (ft): DRY
After ____ Hours (ft):

Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Sample Type	Recovery % RQD	TX Cone or Std. Pen. (blows/ft, in)	Pocket Penetrometer (tsf)	Unconfined Comp. Strength (tsf)	% Passing No. 200 Sieve	Unit Dry Weight (pcf)	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Swell, %
5		Brown CLAY with calcareous nodules				4.5+								
						4.0				27	70	26	44	
		5.0				3.25				27				
10		Tan CLAY with calcareous deposits				4.5+				17	47	18	29	0.0
						4.25				18				
		13.0												
15		Tan and Light Gray CLAY with calcareous deposits				4.5+				16				
		16.0												
20		Tan SHALY LIMESTONE			100/ 0.75"									
		23.0												
25		Gray SHALY LIMESTONE			100/ 0.75"									
30		30.0			100/ 0.5"									
		TEST BORING TERMINATED AT 30 FT												

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BORING NO.: 4 (Sheet 1 of 1)
PROJECT NO.: G231117

Client: Dallas ISD - Bond Program
Project: Renovation - Harry Stone Montessori School (ORG 212)
Start Date: 5/24/2023 **End Date:** 5/24/2023
Drilling Method: CONTINUOUS FLIGHT AUGER

Location: Dallas, Texas
Surface Elevation:
West:
North:
Hammer Drop (lbs / in):

GROUND WATER OBSERVATIONS
On Rods (ft): NONE
After Drilling (ft): DRY
After ____ Hours (ft):

Depth, feet	Graphic Log	MATERIAL DESCRIPTION		Sample Type	Recovery % RQD	TX Cone or Std. Pen. (blows/ft, in)	Pocket Penetrometer (tsf)	Unconfined Comp. Strength (tsf)	% Passing No. 200 Sieve	Unit Dry Weight (pcf)	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Swell, %
		3" CONCRETE / 3" BASE MATERIAL	0.5												
		Brown CLAY with calcareous nodules					2.5				35				
							3.0	1.6		93	29	67	24	43	
			4.0												
5		Tan CLAY with calcareous deposits	5.0				4.5+				22				
		TEST BORING TERMINATED AT 5 FT													
10															
15															
20															
25															
30															

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KEY TO SOIL SYMBOLS AND CLASSIFICATIONS

SOIL & ROCK SYMBOLS

- (CH), High Plasticity CLAY
- (CL), Low Plasticity CLAY
- (SC), CLAYEY SAND
- (SP), Poorly Graded SAND
- (SW), Well Graded SAND
- (SM), SILTY SAND
- (ML), SILT
- (MH), Elastic SILT
- LIMESTONE
- SHALE / MARL
- SANDSTONE
- (GP), Poorly Graded GRAVEL
- (GW), Well Graded GRAVEL
- (GC), CLAYEY GRAVEL
- (GM), SILTY GRAVEL
- (OL), ORGANIC SILT
- (OH), ORGANIC CLAY
- FILL

SAMPLING SYMBOLS

- SHELBY TUBE (3" OD except where noted otherwise)
- SPLIT SPOON (2" OD except where noted otherwise)
- AUGER SAMPLE
- TEXAS CONE PENETRATION
- ROCK CORE (2" ID except where noted otherwise)

RELATIVE DENSITY OF COHESIONLESS SOILS (blows/ft)

VERY LOOSE	0 TO 4
LOOSE	5 TO 10
MEDIUM	11 TO 30
DENSE	31 TO 50
VERY DENSE	OVER 50

SHEAR STRENGTH OF COHESIVE SOILS (tsf)

VERY SOFT	LESS THAN 0.25
SOFT	0.25 TO 0.50
FIRM	0.50 TO 1.00
STIFF	1.00 TO 2.00
VERY STIFF	2.00 TO 4.00
HARD	OVER 4.00

RELATIVE DEGREE OF PLASTICITY (PI)

LOW	4 TO 15
MEDIUM	16 TO 25
HIGH	26 TO 35
VERY HIGH	OVER 35

RELATIVE PROPORTIONS (%)

TRACE	1 TO 10
LITTLE	11 TO 20
SOME	21 TO 35
AND	36 TO 50

PARTICLE SIZE IDENTIFICATION (DIAMETER)

BOULDERS	8.0" OR LARGER
COBBLES	3.0" TO 8.0"
COARSE GRAVEL	0.75" TO 3.0"
FINE GRAVEL	5.0 mm TO 3.0"
COURSE SAND	2.0 mm TO 5.0 mm
MEDIUM SAND	0.4 mm TO 5.0 mm
FINE SAND	0.07 mm TO 0.4 mm
SILT	0.002 mm TO 0.07 mm
CLAY	LESS THAN 0.002 mm