ARCHITECTURAL DESIGN ASSOCIATES, P.C.
7501 'O' STREET, SUITE 105
LINCOLN, NE. 68510

January 11, 2016
LINCOLN PUBLIC SCHOOLS
NUTRITION SERVICES – FOOD STORES WAREHOUSE
AND HUMANN ELEMENTARY TEMP. SCHOOL
LINCOLN, NEBRASKA

ADDENDUM #1

This addenda is issued by the Architect to all known bidders before receipt of proposals. Bidders shall acknowledge the receipt of this Addendum on their bid form and all information and instructions given herein shall become a part of the Contract Documents.

GENERAL:

Item No. 1-1: General Items

A. Schedule for review of existing building: LPS will open the existing building at 710 Hill Street for Contractor and Subcontractor review from 9:00 to 10:00 a.m. on the following dates – Tues, Jan 12, Thurs, Jan 14 and Tues, Jan 19.
B. See attached Pre Bid Meeting agenda and sign-in sheets.
    a. Note the Pre Bid clarification that the Portable Classrooms will be occupied by the Owner from the start of construction until the Owner removes the portables in July of 2016.

SPECIFICATIONS:

Item No. 1-2: 00 31 00 – Available Project Information

A. At Section 1.01 'Existing Conditions, item B ' Geotechnical Report', add the following item: "3. See the attached Geotechnical Engineering Report from Alfred Benesch Co. dated September 9, 2015.
B. At Section 1.01 'Existing Conditions, item B ' Geotechnical Report', add the following item: "4. The geotechnical engineering investigation by Alfred Benesch and Co. dated Sept 9, 2015, found 'moist' soils at areas under the proposed addition. On page 7 (of the investigation), section '5.0 Discussion and Recommendation', at item '1. Suitable Floor and Pavement Subgrade Material', the Geotechnical Report addresses methods to minimize the potential swell of moist soils. Note that the Owner has decided to not pursue the soil engineer's recommended remedial work regarding the moist soils under pavement areas. However, all pavement area subgrade is to be worked and tested (including the re-work of unsuitable areas) in accordance with specification section 31 20 00 'Earthmoving'. Also notify the soils engineer of any unforeseen conditions during the work."

Item No. 1-3: 00 72 00 – General Conditions

A. Delete Paragraphs 3.4.8.1, 3.4.8.2, 3.4.8.3 and 3.4.9 and include the attached Exhibits A, B, C, D, and E from Lincoln Public Schools.

Item No. 1-4: 01 10 00 - Summary

A. Refer to section 1.04 'Work by Owner', at item B – 4 add the following note: "Trees and mulch at trees are to be by the Contractor.

Item No. 1-5: 01 23 00 - Alternates

A. Refer to section 1.04 'Schedule of Alternates', at Alternate No. A-1 note that this alternate includes all 'materials' and installation associated with the new EPDM roof system.

Item No. 1-6: 01 40 00 – Quality Requirements

A. At section 1.05 'Testing and Inspection Agencies', add the following item: "B. Testing required for utility, water, storm, sanitary and gas piping shall be paid for by the Contractor'.

Item No. 1-7: 01 45 33 – Code-Required Special Inspections

A. At section 1.06 'Special Inspection Agency', add the following item: "C. Testing for utility, water, storm, sanitary and gas piping will be paid for by the Contractor'.

Item No. 1-8: 03 30 00 – Cast-in-Place Concrete

A. At section 3.10 'Field Quality Control', at item A, add a note that the Owner will hire the independent testing agency.
B. At section 3.05, 'Slab Jointing', at item 'E', add the following: "At sawcut contraction joints at Freezer and Cooler slabs, use a 1/4" thick blade and cut the joint at least one quarter (1/4) the depth of the slab. Note to field verify the joint size and preparation requirements of the joint filler manufacturer. See Section 07 90 05 for joint filler information.

Item No. 1-9: 06 41 00 – Architectural Wood Casework

A. Delete the section 2.09 'Shop Finishing' – and see section 2.07 'Site Finishing' for casework finish.

Item No. 1-10: 07 41 13 – Metal Roof Panels

A. At section 2.01 – 'Manufacturers':
    a. At item B-2, change 'Atlas' to 'Atas International – Field Lock – Double Lok.'
    b. At item B-3, change the Fabral roof type to the 'Power Seam (double lock).
    c. At item B-4, change the AEP Span roof type to 'SpanSeam' (double lock).
    d. At item B-5, change the Berridge Mfr roof type to 'Zee-Lock' (double lock).
B. Refer to section '2.02 – Architectural Metal Roof Panels', at item B-5, regarding panel width, revise the panel width to the manufacturer's standard 16" wide panel.

Item No. 1-11: 07 41 13 – Metal Wall Panels

A. At section 2.01 'Manufacturers':
    a. At item A, add a note that the contact for the specified 'Metl-Span' insulated wall panels is Christopher C. Newcomb, Technical Services Manager, 1-972-353-6340.
    b. At item B, add a note that the contact for the 'Fabral' metal wall panels is Eric McDade at JD Day Co. 816-350-9118 or 913-722-3213.
B. At section 1.07 'Warranty', Add the following: "D. For the insulated metal wall panels, submit Manufacturer's forty (40) year limited warranty on the exterior paint finish for adhesion to the metal substrate and thirty (30) year limited warranty on the exterior paint finish for chalk and fade.
C. At section 2.02 'Manufactured Metal Panels, at item C 'Exterior Insulated Wall Panels at Freezer/Cooler Walls', add the following item: "6. R-Value: 5" thick panels to have the following R-Values – R 36.6 at 75 degrees and R42.6 at 40 degrees.

Item No. 1-12: 07 90 05 – Joint Sealants

A. At section 2.05 'Self-Leveling Sealants', at item B – 8 'Semi-Rigid Self-Leveling Epoxy Joint Filler - Products', delete the 'Dayton Superior Corp.' product and delete the 'Nox-Crete' product and add the following approved products:
    "a. SealBoss – 6500 Quick Fix – Polyurea Joint Filler."
    "b. ChemCo Systems – CCS Grout, Polyurea SWL – Elastomeric Polyurea binder for joint filling."
B. At Section 3.03 'Installation', add the following:
    "I. Freezer and Cooler Concrete Floor Joint Filler: Install freezer and cooler floor contraction and control joint filler as per the manufacturer's current written recommendations. Allow concrete to cure at least 30 days. Install filler only after freezer and cooler have been kept at Owner's final operating temperatures for at least 14 days.

Item No. 1-13: 12 36 61.16 – Solid Surfacing Countertops

A. At section 2.02 'Accessory Materials', Add the following item: "E. Hidden Steel Countertop Support Bracket: 1/2" thick x 12" x 2 1/2" bracket - prefinished black – by 'Centerline Brackets' or equal. Include wood blocking in wall for bracket attachment.
B. At section 3.03 'Installation', at item A, change the countertop support bracket spacing from 48" to 36" O.C.
C. At section 2.01 'Countertop Assemblies', at item B 'Solid Surfacing Products', add the following: "6. Apron: Same Sheet material, with 1/4" radius at exposed edges, with 5 inch apron height.

Item No. 1-14: 32 90 00 – Planting

A. At section 3.05 'Maintenance', at item A 'General', delete the word 'sod'.
B. At section 3.05 'Maintenance', at item A 'General', note that the maintenance period shall be at least 30 days.

Item No. 1-15: 32 13 13 – Concrete Paving

A. At section 1.05 'Quality Control Testing Requirements', at item A, Note that the Owner will employ the independent testing lab for concrete testing.

Item No. 1-16: 33 46 13 – Foundation Drainage

A. Add the attached spec section 'Foundation Drainage – Section 33 46 13'.

DRAWINGS:

Item No. 1-17: Sheet AP1.1

A. At the General Notes, add the following: "AH. The 2 existing roof-top units (noted to remain) can be used to condition the building during the work, provided the Contractor follows LPS's standard protocol for protecting and maintaining mechanical units – including preventative maintenance, filter changes, etc.
B. At the General Notes, add the following: "AJ. The existing concrete parking lot can be used for staging during Phase 1 and Phase 3. Protect the existing parking lot from damage and from oil stains. The unpaved parking lot area north of the Freezer Addition or the new paved parking area south of the Freezer Addition can be used for staging during phase 2. Note that the north parking lot paving is not to be installed until Phase 3. Also note that if the new paved parking area south of the addition is used for staging, it must be turned over to the Owner undamaged, free of oil spots and essentially new in appearance."

Item No. 1-18: Sheet C1.2

A. At General Note 6, delete the portion of the note that says "Inspection during construction shall be paid for by the Owner." And substitute the following: "Inspection during construction for utility piping shall be paid for by the Contractor".
B. At the expansion joint note at the retaining walls south of the dock area, delete the word 'either' and substitute the word 'both'.

Item No. 1-19: Sheet C1.3

A. Delete sheet note No. 1 and add the following note: "1. "The geotechnical engineering investigation by Alfred Benesch and Co. dated Sept 9, 2015, found 'moist' soils at areas under the proposed addition. On page 7 (of the investigation), section '5.0 Discussion and Recommendation', at item '1. Suitable Floor and Pavement Subgrade Material', the Geotechnical Report addresses methods to minimize the potential swell of moist soils. Note that the Owner has decided to not pursue the soil engineer's recommended remedial work regarding the moist soils under pavement areas. However, all pavement area subgrade is to be worked and tested (including the re-work of unsuitable areas) in accordance with specification section 31 20 00 'Earthmoving'. Also notify the soils engineer of any unforeseen conditions during the work."

Item No. 1-20: Sheet C1.5

A. At note 5, add the following clarification: "Trees and mulch at trees is provided and installed by the Contractor.

Item No. 1-21: Sheet C1.8

A. At the 'Site Fence Plan', at the east property line, delete the note saying "INSTALL 8' GATE (2-4' SWINGING)". Also, delete the associated detail indicator 1 on C1.3.

Item No. 1-22: Sheet C2.0

A. At detail 7, at the 'Contraction Joint' and 'Construction Joint' details, add a note that sealant is not required if joints are tooled with a radiused edge. If joints are sawcut, backer rod and polyurethane sealant is required.

Item No. 1-23: Sheet D1.1

A. At 'Phase 1 Mezzanine Demo Plan', add a note 66 to demo the floor at the floor drain in Mech. Room 281P if Alternate M-2 is taken.

Item No. 1-24: **Sheet A1.1**

A. At sheet keynote 10, add the following: "The concrete retaining wall is to be 10'-0" long."

Item No. 1-25: **Sheet A1.2**

A. At 'Phase 1 Mezzanine Plan', add a note 37 to slope the floor at the floor drain in Mech. Room 281P if Alternate M-2 is taken.
B. At Sheet Keynote 37, add a note to patch the metal deck and floor slab at floor drain and to see Structural for deck support and patching requirements.
C. At 'Phase 1 Mezz. Plan', revise the west wall of Mech. Rm 281P to be included in the Base Bid instead of by Alternate M-2 so electrical work can be attached to this wall.

Item No. 1-26: **Sheet A2.2**

A. At the 'Room Finish Key', at 'Carpet 1', add the following note: "The carpet tiles will be loose laid except there will be a water-based spray adhesive installed approximately 1' to 2' wide at the perimeter of each room.

Item No. 1-27: **Sheet A5.1**

A. At detail 5, 'Enlarged South Elevation', add the following note: "Include 3/4" deep chamfered control joints at the south face of the concrete dock wall. Include control joints aligned at each dock door jamb and one at the center of each dock door. .

Item No. 1-28: **Sheet A6.4**

A. At detail 6 'Section at Roof Hatch', add the following note: "Attach the roof ladder to (2) 2x10 solid wood in-wall blocking between the cold formed CSG wall studs (at each ladder attachment point). Include fire rated sealant at wall penetrations."

Item No. 1-29: **Sheet A7.1**

A. At Sheet Keynote No. 34, add the following: "Include 4" tall back-splashes, side-splashes and 5" tall aprons at solid surface countertops in Restrooms 180B and 180G.
B. At Details A1 and A9 'Men's and Women's Restrooms', Add a note to include 2 metal counter support brackets – centered between the lavs. Also include wood blocking in the adjacent walls at each countertop.

Item No. 1-30: **Sheet S1.2**

A. At the 'Mechanical Equipment Suspended from Bar Joists' details, add a note at both details that the Uni-Strut is to be spot welded to the bar joists.
B. At the 'Typical Forklift Charger Platform' detail, add a note that 2 platforms are required – see Architectural plan sheet A1.3 for locations.
C. Add the attached detail AD1-4 'Joist Bridging Replacement' for the replacement of joist bridging where necessary. Also, add the following note: "Note: Bridging must be replaced where duct mains are shown to run up in the joist space, at the stair and ladder to roof location and where bridging conflicts with new construction."
D. At the 'Continuous Footing/Grade Beam Schedule', delete this schedule and substitute the schedule on the attached page AD1-3 from SDG. This schedule adds grade beam GB 2-6C.

Item No. 1-31: **Sheet S2.1**

A. At the east foundation wall of the addition, at the grade beams designated GB1-4, change this designation from GB1-4 to GB1-4A.
B. At the Receiving Area 140, at the 6 dock leveler pits, the south 2 pits show dashed lines. Delete these dashed lines and add a note that all 6 dock lift pits are the same construction – see typical detail A13, S3.1.
C. At the Receiving Area 140, at the on-grade overhead door area, change the grade beam from GB 2-6A to GB 2-6C. See the attached partial plan AD1-2 from SDG.

Item No. 1-32: **Sheet S3.1**

A. At details J1, J4 and J7, note that rigid insulation and concrete mud slab are required under the freezer floor slab but not under the cooler floor slab.

B. At detail A13, 'Typ. Section at Unloading Dock', add the following note: "Include 3/4" deep chamfered

control joints at the south face of the concrete dock wall. Include control joints aligned at each dock door jamb and one at the center of each dock door.

Item No. 1-33: Sheet S3.2

A. At detail A13 'Exterior Stair Detail', note that stringers are to be 'Galv. HSS12x2x3/16 each side of stair.
B. At detail E4 'Bollard Detail', note that rigid insulation and concrete mud slab are required under the freezer floor slab but not under the cooler floor slab.
C. At detail E1 'Typ. Dumpster Ret. Wall', note to include vertical control joints at 10' on center with 3/4" chamfer at each side of control joint on each side of the wall.
D. At detail G10 'Typ. Retaining Wall', delete this detail and substitute the attached detail AD1-1 from SDG. This detail adds control joints, weep holes, drain tile, filter fabric and granular fill. Note that the drain tile is to run the full length of each of the 2 retaining walls and is to tie into the trench drain at the base of the retaining walls.
E. At detail A7 'Exterior Stair Detail', delete the note reading '2" Rigid Insulation Thermal Break'.
F. At detail A13 'Exterior Stair Detail', note that the L3x3x3/16 steel angles are to be galvanized.

See Attached Mechanical and Electrical Addenda items

END OF ADDENDUM NO. 1

ADDENDUM

Date:	01/11/2016	**Project:**	LPS Food Store
To:	David Stirtz Architectural Design Associates 7501 'O' Street, Lincoln, NE 68510 Phone: 402-486-3232 Fax: 402-486-3380	**Project No.:**	15-080
		Addendum No.:	1
		CC:	

This addendum is issued by the Architect/Engineer to all known bidders before receipt of proposals. Bidders shall acknowledge the receipt of this Addendum on their bid form and all information and instructions given herein shall become a part of the Contract Documents.

GENERAL

Prior Approvals – If not specifically called out as OR EQUAL under the specified product the following substitutes are acceptable as long as they meet specification; this is not a formal approval that can only be determined at shop drawing/submittal review stage.

Diffusers, Registers, and Grilles	Nailor
Energy Recovery Unit	Greenheck

CLARIFICATIONS

1. Fire Sprinkler sub-contractor to provide and install double interlock pre-action panel and associated "Protecto" wire in freezer. Electrical sub-contractor shall provide a dedicated 120 v circuit to the Pre-action panel from panel "LPE1". Coordinate location of the Pre-action panel with the Fire Sprinkler sub-contractor and the Architect. Fire Alarm sub-contractor shall monitor the Pre-action panel Trouble and Alarm signals at main Fire Alarm panel.

2. Pentair Thermal/Raychem RaySol-2 freezer frost heave prevention system is an acceptable alternate to the Thermon FLX8-2.

CHANGES TO PROJECT DRAWINGS

All work shall be in accordance with the terms, stipulations, and conditions of the original contract.

Mechanical

1. Sheet M1.1

A. Key Notes 8 been revised as follows:

8. FAN TO BE PROVIDED AND INSTALLED BY CONTRACTOR. FANS SHOWN FOR REFERENCE AND FOR CONTROLS TO CONNECT TO. MOUNT FAN BLADES 24" BELOW STRUCTURE, OWNER TO MAINTAIN 24" CLEAR BELOW FAN BLADES. COORDINATE EXACT LOCATION WITH STRUCTURE AND DO NOT INSTALL FAN BLADES BELOW LIGHTS.

2. **Sheet M1.2**
   - **A. S-1 Elevation** Revise note as follows:
     GENERATOR EXHAUST. TERMINATE PER MANUFACTURERS RECOMMENDATIONS. PROVIDE SIDE WALL THIMBLE AND RAIN CAP AS REQUIRED. PROVIDE SAFE DISTANCE TO AVOID STAINS ON EXTERIOR. TERMINATE AT LEAST 24" AWAY FROM EXTERIOR OF BUILDING.
   - **B. Phase 1 HVAC PLAN- SOUTH**
     Revise note 6 as follows:
     6. INSTALL THERMOSTAT 48" ABOVE FINISHED FLOOR, INLINE WITH SWITCHES ON WALL. PROVIDE LOCKABLE COVER FOR T-STAT IN CLASSROOM 27.
   - **C.** Change Detail 3 Page Number designations to M1.3 rather than M1.5.

3. **Sheet M1.3**
   Change Detail 3 Page Number designations to M1.3 rather than M1.5.

4. **Sheet P1.1**
   Revise notes as follows:
   10. EXPOSED PLUMBING VENT TO BE CAST IRON. EXTEND PIPING UP WALL TO 4" VTR.
   Add note 11
   11. EXTEND VENT PIPE FROM FLOOR SINK TIGHT UP EXISTING CONCRETE WALL TO 4" VTR.

5. **Sheet P1.3 (**see attached revised sheet)
   - **A. Sprinkler Head Notes –** Freezer/Cooler and Dry Storage descriptions have been revised as follows:
     1. FREEZER/COOLER STORAGE DESCRIPTION:
        - PRODUCTS STORED ON WOOD PALLETS WRAPPED IN SHRINK WRAP.
        - PRODUCT INCLUDE:
          - FROZEN MEATS, JUICE, BREADS, FRUIT, PIZZA, MISC. FOOD ITEMS.
          - COOLED CHEESE, YOGURT, JUICE AND MILK.
        - RACKING IS ALL OPEN STEEL/WIRE; NO SOLID SHELVES.
     2. DRY STORAGE DESCRIPTION:
        - PRODUCTS STORED ON WOOD PALLETS WRAPPED IN SHRINK WRAP.
        - PRODUCTS INCLUDE:
          - CLEANING CHEMICAL, CANNED GOODS, FLOUR, MISC. GROCERY ITEMS.
          - GALLON CONTAINERS OF FRYING OIL.
          - PAM AEROSOL COOKING SPRAY.
        - RACKING IS ALL OPEN STEEL/WIRE; NO SOLID SHELVES.
   - **B.** Sprinkler Head Legend revised.
   - **C.** Phase 1, 2 and 3 Plans revised.
   - **D.** Fire Pump Detail revised with double interlock pre-action system added.
   - **E.** Note 3 Additional head guards were added (see Phase 3 plan)

Electrical

1. **Sheet ED1.2**
   - **A. Phase 1 Demo Plan - South**
     1) Existing Telephone Board to be removed in its entirety.
     2) Electrical Contractor to remove existing Disco ball in its entirety. See attached drawing.

2. **Sheet E0.1**
   - **A. Electrical Site Plan**
     Provide connection from New PIV to Fire Alarm System. Verify exact location.

3. **Sheet E1.1**
   - **A. Phase 1-2 Lighting Plan - North**
     1) Provide and install 3 new Emergency light fixtures to north end of building. Fixture type shall be Lithonia # AFN W EXT. See attached drawing.

4. **Sheet E2.1**
   - **A. General Notes**
     1) Revise Note C as follows – "ALL WIRING DEVICES AND CONDUIT MOUNTED ON TEMPORARY WALLS CAN BE SURFACE MOUNTED OR RECESSED – CONTRACTORS OPTION. ALL WIRING DEVICES AND CONDUIT MOUNTED ON PERMANENT WALLS MUST BE RECESSED. WALL TYPES 3 AND 4C ARE TEMPORARY – ALL OTHER WALL TYPES ARE PERMANENT – SEE SHEETS A1.1 AND A1.2 FOR WALL TYPE LOCATIONS."
   - B. **Key Notes**
     1) Revise Note 18 as follows – "EC TO PROVIDE J-BOX FOR DOOR SWITCH ROPE AND ALL ELECTRICAL CONNECTIONS TO SLIDING DOOR STARTER AS REQUIRED BY DOOR MFTR. VERIFY ALL ELECTRICAL REQUIREMENTS WITH DOOR SUPPLIER. FIELD VERIFY PULL ROPE J-BOX LOCATION WITH OWNER."

5. **Sheet E2.2**
   - **A. Phase 1 Electrical Plan - South**
     1) Office 106 – devices located on south wall shall be mounted at 44". See attached drawing.
     2) Main Office 100 – Provide and install 4-plex receptacles and data outlets to "U" shape desk. Coordinate installation with millwork. See attached drawing.
     3) Classroom 27 – Provide Fire Alarm Horn/Strobe to East wall. See attached drawing.
     4) Classroom 27 – Relocate all projector devices to West wall. See attached drawing.
     5) Revise note C as follows – "ALL WIRING DEVICES AND CONDUIT MOUNTED ON TEMPORARY WALLS CAN BE SURFACE MOUNTED OR RECESSED – CONTRACTORS OPTION. ALL WIRING DEVICES AND CONDUIT MOUNTED ON PERMANENT WALLS MUST BE RECESSED. WALL TYPES 3 AND 4C ARE TEMPORARY – ALL OTHER WALL TYPES ARE PERMANENT – SEE SHEETS A1.1 AND A1.2 FOR WALL TYPE LOCATIONS."
   - **B. Phase 1 Mezz. Electrical Plan**
     1) New layout for Electrical panels. See attached drawing.

6. **Sheet E2.3**
   - **A. Key Notes**
     1) Revise note 3 as follows – "EC TO PROVIDE J-BOX FOR DOOR SWITCH ROPE AND ALL ELECTRICAL CONNECTIONS TO SLIDING DOOR STARTER AS REQUIRED BY DOOR MFTR. VERIFY ALL ELECTRICAL REQUIREMENTS WITH DOOR SUPPLIER. FIELD VERIFY PULL ROPE J-BOX LOCATION WITH OWNER."

By: Vishal Khanna

Date: 01/11/2016

Advanced Engineering Systems, Inc. **4630 Antelope Creek Rd #200** **Lincoln, NE 68506** **phone (402) 488-0075** **fax (402) 488-0272**
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Architectural Design Associates

LINCOLN PUBLIC SCHOOLS
FOOD STORES WAREHOUSE AND HUMANN ELEM. TEMP. SCHOOL
LINCOLN, NEBRASKA

PRE-BID CONFERENCE
January 5, 2016

INTRODUCTIONS

Owner's Representatives
Scott Wieskamp / Tim Loseke
Steve DeGarmo / John Burbach
Lincoln Public Schools

Architect
Dick Bergt / David Stirtz
Architectural Design Assoc.

Structural Engineer
Vance Behrens / Jordan Wagner
Structural Design Group

Mech. / Elec. Engineer
Vishal Khanna
Steve Jensen / Kyle Wilkinson
Advanced Engineering Systems

Civil Engineer
Dan Rosenthal / Nate Burnett
REGA Engineering

DOCUMENTS

1. Plans and Specifications – available through A&D Tech. Drawings & 2 spec. books.
2. Summary of Work - Section 01 11 00.
3. Schedule of Work - Instructions to bidders - Spec Section 00 21 13 & drawings sheet AP1.1
4. Bid Form - Included in Project Manual.
5. Allowances – Section 01 21 00: $50,000 Discovery Allowance.
6. Unit Prices – None.
7. Alternates – Section 01 23 00:
   - A-1: Add EPDM Roofing and delete elastomeric coating at existing roof.
   - M-1: Add Snow-Melt System under slab hydronic piping, sensors and manifold at truck dock ramp.
   - M-2: Add Snow-Melt System work inside the building - piping, boiler, pumps, controls, etc.
8. Bid Date - Thursday, January 21, 2016, @ 2:00 PM at LPS Facilities and Maintenance, 800 South 24th Street, Lincoln, Nebraska 68510
9. Addenda.
10. Insurance and bond information – Section 00 72 00 General Conditions and 00 11 13 Advertisement for Bid.

PROJECT ORGANIZATION

1. Single Combined Contract - Direct to Lincoln Public Schools.

2. Related work by Owner:
   - Mold abatement scheduled to be completed before construction start.
   - Field turf removal from north portion of building before construction start.
   - Fiber optic service to the building.
   - A portion of casework.
   - Paint and vertical sealant at exterior side of existing concrete walls.
   - Projectors and marker boards at Humann Elem. Temp. School.
   - Landscape shrubs, and grasses – (trees and mulch at trees are in the contract).
   - Portion of toilet accessories provided by Owner – installed by Contractor.
   - Salvage – walk-through with Owner prior to starting demolition.

3. Owner Occupancy / Access:
   - Owner will occupy the Phase 1 - Humann Temp School portion of the project from July 8, 2016 until June 7, 2017.
     - Maintain clear egress paths for the school portions of the site.
   - Owner will occupy the Phase 2 - Freezer/Cooler/Receiving portion of the work January 1, 2017 until the end of the project.
     - Maintain clear access for truck access to and from the Freezer/Cooler/Receiving addition and parking areas.

4. Project Schedule:

   Bid Date: Thursday, Jan. 21, 2016
   Project Start: As soon as possible following Owner approval and contract execution.

   Phase 1 – Humann Temp. School:
   Start: As soon as possible.
   Completion: July 8, 2016

   Phase 2 – Freezer/Cooler/Receiving:
   Start: As soon as possible.
   Completion: Jan. 1, 2017

   Phase 3 – Warehouse Area:
   Start: June 7, 2017
   Completion: Sept. 7, 2017

GENERAL INFORMATION

1. Temporary Facilities Section 01 50 00 – Contractor can connect to Owner's power and water.
2. Office / Staging / Trailers.
3. Fencing, Security, Safety, Smoking Prohibited.
4. Architect has applied for the building permit and code review / Owner will pay for Building Permit, Code Review and Impact Fees / Contractor will pay for all other permits, fees, licenses and inspections
5. Site access during bid period: Contact LPS.

MEETING OPEN TO QUESTIONS

SITE TOUR / INSPECTION / QUESTIONS

Architectural Design Associates

LINCOLN PUBLIC SCHOOLS
FOOD STORES WAREHOUSE AND HUMANN ELEM. TEMP. SCHOOL
LINCOLN, NEBRASKA

PRE-BID CONFERENCE
January 5, 2016

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Dan Rosenthal	REGA	402-484-7342	dan@regaengineering.com
John Whitmer	ABC Electric	402-435-3514	johnw@abcelectric.net
Mike Larkins	MC Larkins	402-464-1665	MClarkinsnuac@Yahoo

Exhibit A

LANCASTER COUNTY SCHOOL DISTRICT 0001
A/K/A LINCOLN PUBLIC SCHOOLS

JOB SITE SECURITY REQUIREMENTS

The Lincoln Public Schools – General Conditions of the Contract for Construction provide as follows:

§ 3.4.8 CRIMINAL HISTORY CHECKS

§ 3.4.8.1 Contractor shall obtain all criminal history information regarding its "covered employees", as defined below. Before beginning any Work on the Project, Contractor will provide written certification to the Owner that Contractor has complied with the statutory requirements as of that date. Upon request by Owner, Contractor will provide, in writing: updated certifications and the names and any other requested information regarding covered employees, so that the Owner may obtain criminal history record information on the covered employees. Contractor shall assume all expenses associated with obtaining criminal history record information.

§ 3.4.8.2 Contractor will not assign any "covered employee" with a "disqualifying criminal history", as those terms are defined below, to work on the Project. If Contractor receives information that a covered employee has a reported disqualifying criminal history, then Contractor will immediately remove the covered employee from the Project and notify the Owner in writing within three (3) business days. If the Owner objects to the assignment of any covered employee on the basis of the covered employee's criminal history record information, then Contractor agrees to discontinue using that covered employee to provide services on Owner's Project. If Contractor has taken precautions or imposed conditions to ensure that the employees of Contractor and any subcontractor will not become covered employees, Contractor will ensure that these precautions or conditions continue throughout the time the contracted services are provided.

§ 3.4.8.3 For the purposes of this Section, "covered employees" means employees, agents or subcontractors of Contractor who has or will have continuing duties related to the services to be performed on Owner's Project and has or will have direct contact with Owner's students. The Owner will decide what constitutes direct contact with Owner's students. "Disqualifying criminal history" means any conviction or other criminal history information designated by the Owner, or one of the following offenses, if at the time of the offense, the victim was under 19 years of age or enrolled in a public school: a felony offense under Nebraska Criminal Code Article 3 Offenses Against The Person; an offense for which a defendant is required to register as a sex offender under the Nebraska Sex Offender Registration Act, Neb. Rev. Stat. §§ 29-4001 et seq.; or an equivalent offense under federal law or the laws of another state.

§ 3.4.9 OWNER'S ADDITIONAL REQUIREMENTS RELATED TO CRIMINAL HISTORIES

In addition, Contractor will at least annually obtain criminal history record information that relates to any employee, agent, or subcontractor of the Contractor or a Subcontractor, if the person has or will have duties related to the Project, and the duties are or will be performed on Owner's Project, or at another location where students are likely to be present. Contractor shall assume all expenses associated with the background checks and shall immediately remove any employee, agent or subcontractor who was convicted of a felony or a misdemeanor involving moral turpitude from Owner's property, or, other location where students are likely to be present. Owner shall determine what constitutes "moral turpitude" or a "location where students are likely to be present.

Job-Site Security Protocol:

1. Prior to performing any work or entering on the Project site, all contractors and subcontractors, and suppliers and materialmen shall sign a “Contractor/Supplier Criminal Records Certification,” a copy of which is attached hereto, certifying that such contractor shall not assign to work on the Lincoln Public Schools building project an employee having a criminal record as defined by the School District’s policy, regulations, practices or directives and the general conditions of contract for the Project.

2. Lincoln Public Schools shall establish a school building construction site security protocol which shall include providing all employees of the contractors, employees of sub-contractors to the contractors, and other project related personnel with a “Project” badge or sticker created by Lincoln Public Schools; each badge or sticker shall have a unique identifier number. This unique identifier number must be logged by the Contractor’s Site Superintendent or Project Manager so as to associate each individual’s name and company with the number on the badge. A copy of the log shall be kept at all times in the office of the Contractor’s Site Superintendent and must be submitted to the Lincoln Public Schools Superintendent’s office at the end of each week. If wearing the Contractor-provided “Project” badge is not desirable and will interfere with the work being performed by that individual, the Contractor shall provide a sticker with the necessary information for identification for affected personnel, which shall include the unique number on the identification. This sticker may be affixed to the individual worker’s hard hats. All means of identification other than what is provided by the Contractor must be approved by the Contractor’s on-site Superintendent or Project Manager prior to implementation by the contractor. Identification must be visible at all times. Personnel failing to comply with the job-site security requirements may be required by the Contractor or Lincoln Public Schools’ personnel to leave the job-site.

3. A copy of the list of properly certified works and other personnel authorized to be on the work site shall be provided by each contractor to the Contractor for the Project and kept in the on-site offices.

Exhibit B

LANCASTER COUNTY SCHOOL DISTRICT 0001
A/K/A LINCOLN PUBLIC SCHOOLS

CRIMINAL RECORDS DIRECTIVE

(a) Definitions

1. "Disqualifying criminal history" shall mean any conviction or other criminal history information designated by the Owner, or one of the following offenses, if at the time of the offense, the victim was under 19 years of age or enrolled in a public school: a felony offense under Nebraska Criminal Code Article 3 Offenses Against The Person; an offense for which a defendant is required to register as a sex offender under the Nebraska Sex Offender Registration Act, Neb. Rev. Stat. §§ 29-4001 et seq.; or an equivalent offense under federal law or the laws of another state.

2. "Site of an Awarded Project" shall be defined to include the location of the physical work to be completed on the project where it is expected that minors under the age of 16 will be present on a regular basis during the completion of the contractors' scope work. The Site of an Awarded Project shall not include a Contractor's, Subcontractor's, or Supplier's home office.

(b) To help prevent any individuals or agents who have committed crimes of a serious nature from working at the site of an awarded project, the Contractor shall:

1. Require that each of its employees who are to work at the Site of an Awarded Project to complete the "Criminal Record Disclosure" prior to when the employee is to begin work at the Site of an Awarded Project.

Unless the Contractor has actual or constructive knowledge that an employee omitted information or misrepresented information in completing the Criminal Record Disclosure, the Contractor shall not be liable for damages incurred as a direct or indirect result of such omission or misrepresentation.

2. Include this provision in each of its subcontracts and require that each of its Subcontractors' employees complete the Criminal Record Disclosure prior to when the Subcontractor's employee is to begin work at Site of an Awarded Project.

Unless the Contractor or Subcontractor has actual or constructive knowledge that an employee omitted information or misrepresented information in completing the Criminal Record Disclosure, neither the Contractor nor the Subcontractor shall be liable for damages incurred as a direct or indirect result of such omission or misrepresentation.

3. Include this provision in each of its Supplier agreements where supplies are to be delivered to the Site of an Awarded Project by the Supplier and require that each of such

Suppliers' employees complete the Criminal Record Disclosure prior to when the Supplier's employee is to deliver the supplies to the Site of an Awarded Project.

Unless the Contractor or Supplier has actual or constructive knowledge that an employee omitted information or misrepresented information in completing the Criminal Record Disclosure, neither the Contractor nor the Supplier shall be liable for damages incurred as a direct or indirect result of such omission or misrepresentation.

4. Upon receipt of the names of the questionnaire for each employee, the Contractor, Subcontractor or Supplier shall conduct a search on the Nebraska State Patrol - Sex-Offender Registry website, http://www.nsp.state.ne.us/SOR/find.cfm, to confirm such employee is not listed thereon.

5. In the event that the Contractor, Subcontractor or Supplier or School District determine that an employee as a record of crimes of a serious nature to immediately reassign and remove any individual or agent from the work site who is not in full compliance with the requirements of this paragraph.

Exhibit C

LANCASTER COUNTY SCHOOL DISTRICT 0001
A/K/A LINCOLN PUBLIC SCHOOLS

CRIMINAL RECORD DISCLOSURE

This disclosure must be updated within 7 days of any NEW charges or convictions.

Name _____
Last First Middle

Address _____
Street City State Zip Code

Telephone Number (__)___-_____ Social Security Number _____-_____-_____

I understand the purpose of this document is to disclose to my employer any criminal events in my personal history that may preclude me from working on selected jobsites that contractually prohibit workers with a criminal record of a serious nature. I acknowledge the information provided is true and accurate. It is understood and agreed upon that any misrepresentation by me in this document will be sufficient cause for dismissal.

1. Have you ever been convicted of a felony? ☐ Yes ☐ No
   A conviction will not necessarily disqualify you from your current employment, but it may limit your ability to participate on specific projects. If yes, please attach a separate sheet detailing the nature of offense and terms of sentencing.

2. Have you been charged or convicted of any of the following crimes: (include date of any incident)

   Rape, including statutory rape? ☐ Yes ☐ No
   Sexual assault? ☐ Yes ☐ No
   Sexual conduct of any kind with a minor? ☐ Yes ☐ No
   Abuse of any kind of a minor or child? ☐ Yes ☐ No
   Endangerment of a child or debauching a minor? ☐ Yes ☐ No
   Public indecency? ☐ Yes ☐ No
   Prostitution, pandering, or keeping a place of prostitution? ☐ Yes ☐ No
   Assault or battery? ☐ Yes ☐ No
   Kidnapping, false imprisonment or abduction? ☐ Yes ☐ No
   Child pornography? ☐ Yes ☐ No
   Any offense in which a minor was a victim? ☐ Yes ☐ No

If you answered yes to any of the above, please attach a separate sheet detailing the charge or conviction, including where the charge or conviction occurred, when the events giving rise to the event occurred, and any other information that you would like us to know about the charge or conviction.

3. Are you now, or have you ever been, listed as a Registered Sex Offender in any State?
☐ Yes ☐No

4. Are you currently on probation or work release? ☐ Yes ☐No
If yes, for what charge and how long a duration?: _____
_____

5. On a separate sheet, please identify each city, county, and state in which you have lived for more than three months and the approximate dates in which you lived in each location.

I hereby attest this information and the information attached to be true and accurate.

Signature of Employee _____

Date _____

Exhibit D

LANCASTER COUNTY SCHOOL DISTRICT 0001
A/K/A LINCOLN PUBLIC SCHOOLS

CONTRACTOR/SUBCONTRACTOR/SUPPLIER CRIMINAL RECORDS CERTIFICATION

Our firm hereby certifies and agrees not to knowingly assign or knowingly allow any individual or agent to do any work at the Lincoln Public Schools, or other locations under the Contract entered into between our firm and the Lincoln Public Schools, who has a criminal record of a serious nature as defined by Lincoln Public Schools policy, regulations, practices or directives, and as expressed in the "Lincoln Public Schools – Criminal Records Directive". A list of individual workers complying with this Directive is attached.

Our firm authorizes, gives consent, and agrees to periodically certify same to Lincoln Public Schools. Our firm further authorizes, gives consent, and agrees to cooperate in obtaining any additional authorization or consent necessary, to assure compliance with this requirement, and to immediately reassign and remove any individual or agent from the work site who the firm learns is not in full compliance with the requirements of this Certification.

Dated this ____ day of _____, 201_.

_____
Name of Contract Vendor

By: _____
An Authorized Official

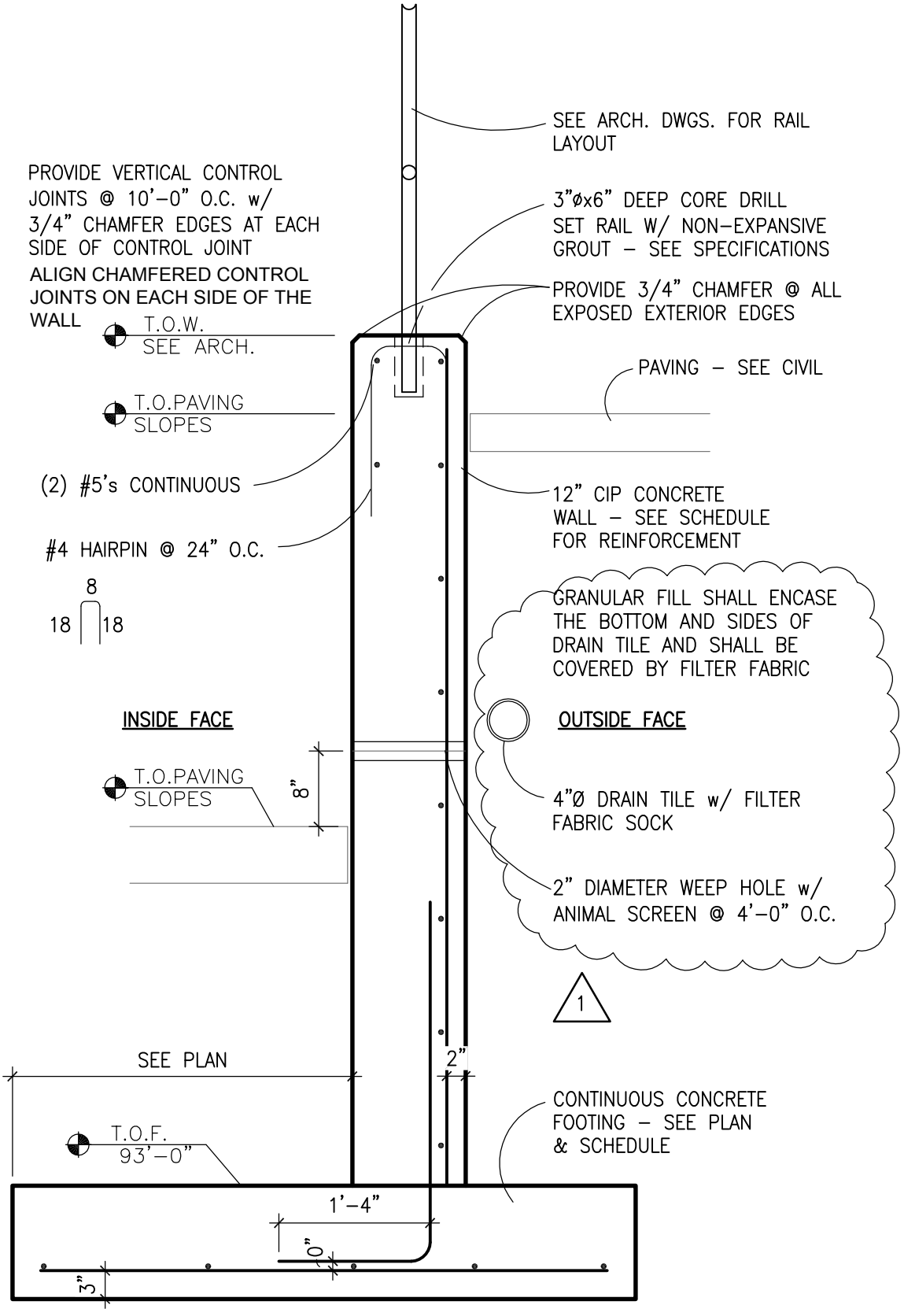
Exhibit E

LANCASTER COUNTY SCHOOL DISTRICT 0001
A/K/A LINCOLN PUBLIC SCHOOLS

CERTIFIED WORKER LIST

Firm Name: _____ Date: _____
Contractor/Subcontractor/Supplier

Worker Name	Years with Firm	General Job Description
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____



– THIS DETAIL REPLACES DETAIL G10/S3.2 OF THE CONSTRUCTION DOCUMENTS

sdg structural[design]group 402-438-7788 www.sdgstructural.com

structural[design]group, inc.
410 S 7th
lincoln, nebraska 68508
402-438-7788
402-438-7790

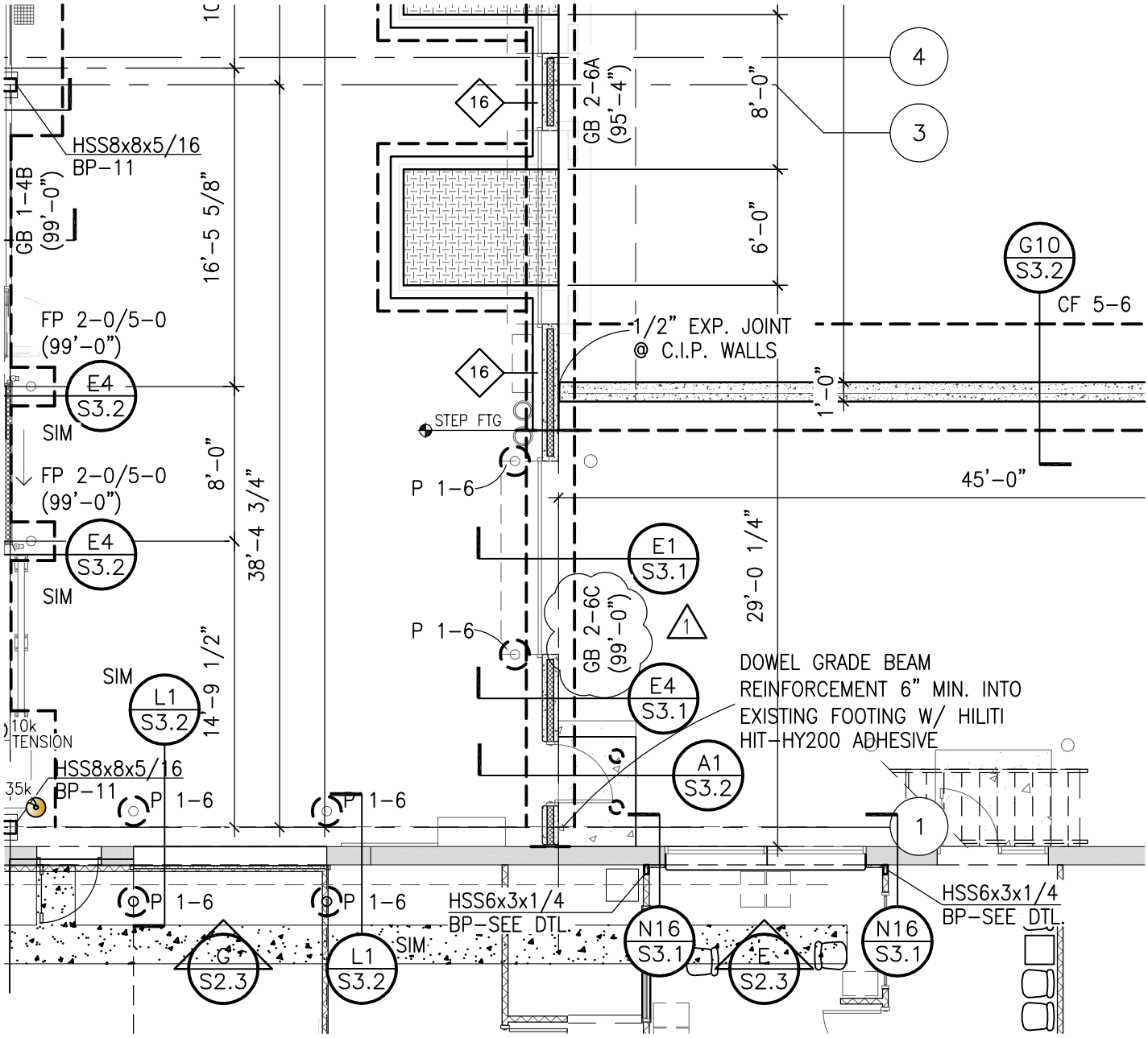
LPS FOOD DISTRIBUTION ADDENDUM #1

RETAINING WALL DETAIL

DATE: 6-Jan-16
PROJECT: sdg 15-116

AD1-1

SCALE: 3/4" = 1' - 0"



– CLOUDED FOOTING TAG CHANGED FROM GB2–6A TO GB 2–6C. SEE SCHEDULE IN ADDENDUM #1 FOR SIZE & REINFORCING

structural[design]group, inc.
410 S 7th
lincoln, nebraska 68508
402-438-7788
402-438-7790

LPS FOOD DISTRIBUTION
ADDENDUM #1

FOOTING TAG REVISION

DATE: 6-Jan-16
PROJECT: sdg 15-116

AD1-2

SCALE: 1/8" = 1' - 0"

CONTINUOUS FOOTING/GRADE BEAM SCHEDULE

MK NO	WIDTH	DEPTH	REINFORCING
CF 3–6	3'–6"	1'–0"	(3) #5's HORIZONTAL
CF 5–6	5'–6"	1'–0"	(5) #5's HORIZONTAL w/ #5 TRANSVERSE @ 12" O.C.
GB 0–8	0'–8"	3'–4"	(1) #4 TOP & BOTTOM W/ #4 VERTS @ 48" O.C.
GB 1–4A	1'–4"	3'–4"	(2) #5's TOP & BOTTOM W/ #4 TIES @ 4'–0" O.C.
GB 1–4B	1'–4"	4'–8"	(2) #5's TOP & BOTTOM W/ #4 TIES @ 4'–0" O.C.
GB 2–0	2'–0"	3'–4"	(4) #5's TOP & BOTTOM W/ #4 TIES @ 4'–0" O.C.
GB 2–6A	2'–6"	3'–4"	(4) #6's TOP & BOTTOM W/ #4 TIES @ 4'–0" O.C.
GB 2–6B	2'–6"	4'–8"	(4) #6's TOP & BOTTOM W/ #4 TIES @ 4'–0" O.C.
1 GB 2–6C	2'–6"	5'–8"	(4) #6's TOP & BOTTOM W/ #4 TIES @ 4'–0" O.C.
GB 3–0	3'–0"	3'–4"	(5) #6's TOP & BOTTOM W/ #4 TIES @ 4'–0" O.C.

1 – ADDED LINE FOR GRADE BEAM GB 2–6C TO SCHEDULE

structural[design]group, inc.
410 S 7th
lincoln, nebraska 68508
402-438-7788
402-438-7790

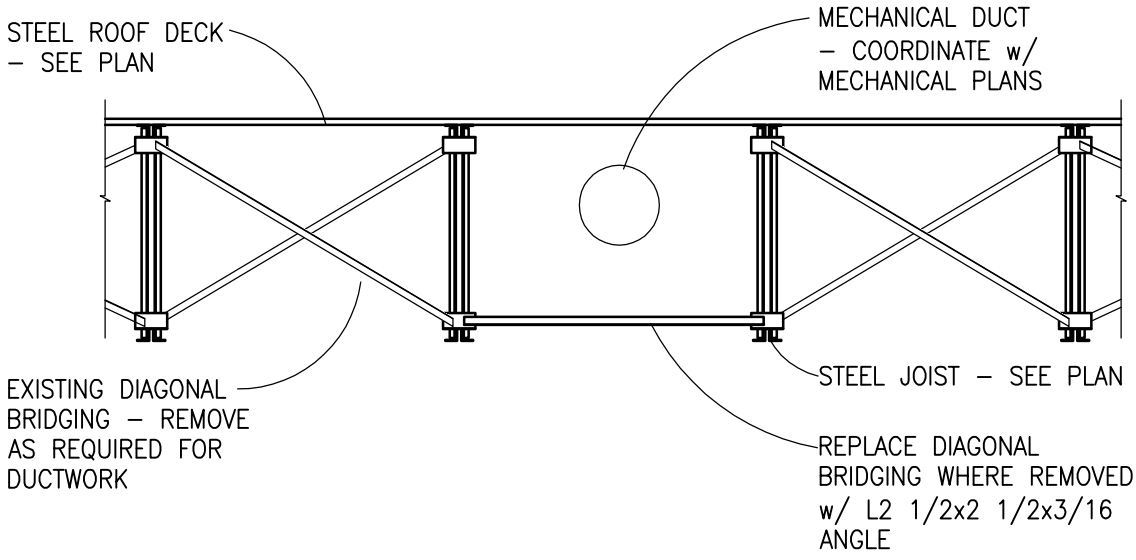
LPS FOOD DISTRIBUTION
ADDENDUM #1

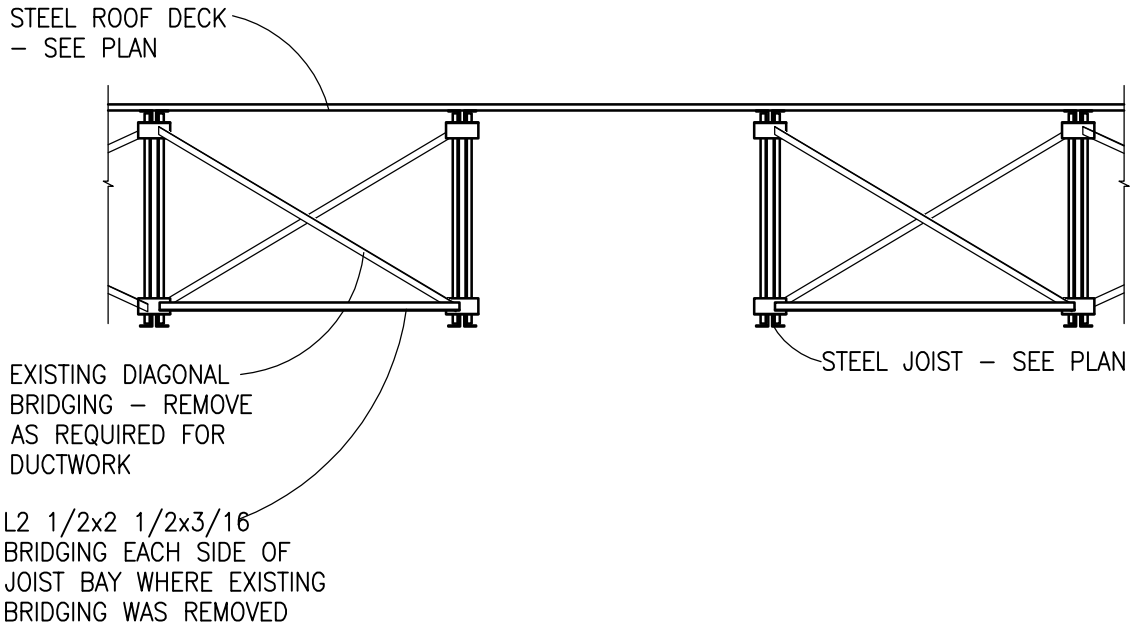
GRADE BEAM SCHEDULE

DATE: 6-Jan-16
PROJECT: sdg 15-116

AD1-3

SCALE: -





1 EXISTING JOIST BRIDGING REPLACEMENT DETAILS

SCALE: 3/4" = 1' – 0"

NOTE: BRIDGING MUST BE REPLACED WHERE DUCT MAINS ARE SHOWN TO RUN UP IN THE JOIST SPACE, AT THE STAIR AND LADDER TO ROOF LOCATION AND WHERE BRIDGING CONFLICTS WITH NEW CONSTRUCTION - FIELD VERIFY.

sdg structural[design]group 402-438-7788 www.sdgstructural.com

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410 S 7th
lincoln, nebraska 68508
402-438-7788
402-438-7790

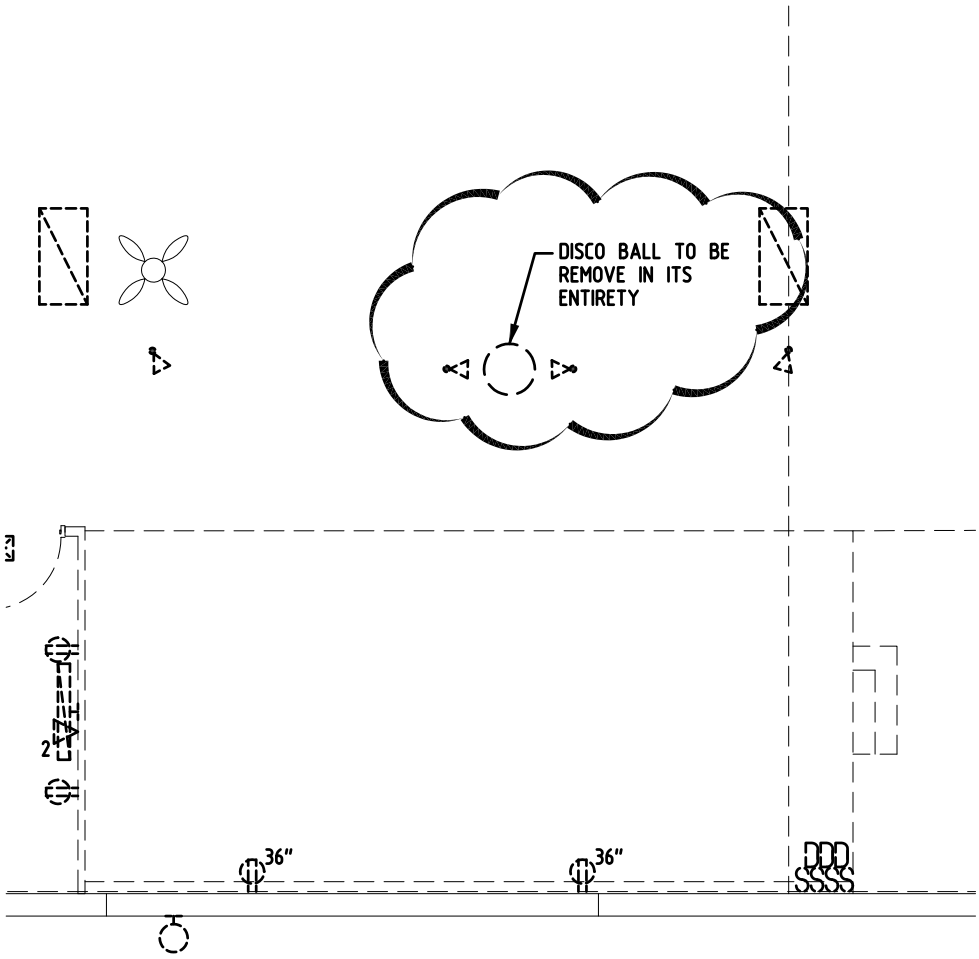
LPS FOOD DISTRIBUTION
ADDENDUM #1

JOIST BRIDING REPLACEMENT

DATE: 6-Jan-16
PROJECT: sdg 15-116

AD1-4

SCALE: -



PHASE 1 DEMO KEPLAN - SOUTH

SCALE: 1/8" = 1'-0"

4630 Antelope Creek Rd Ste 200
P: 402-488-0075 / F: 402-488-0272

www.a-e-sys.com

620 N. 129th Street, Omaha, NE 68154
P: 402-504-3885 / F: 402-504-4598

ADVANCED ENGINEERING SYSTEMS

PROJECT: LPS NUTRITION SERVICES-FOOD STORES WAREHOUSE - HUMANN ELEMENTARY TEMP. SCHOOL

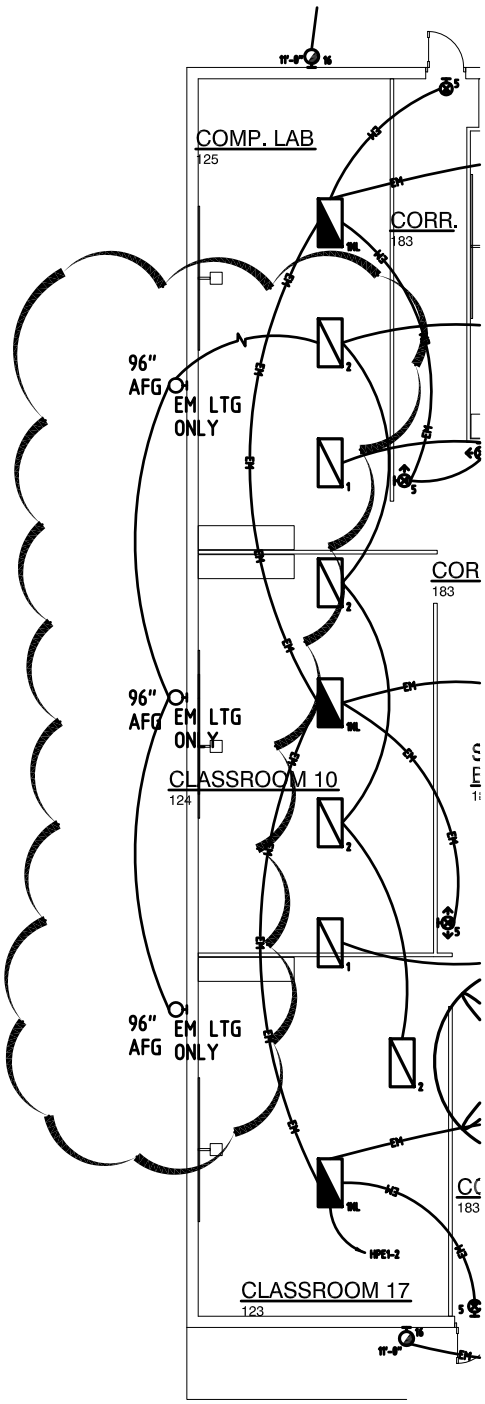
PROJECT #: 15-080

DATE: 01/11/2016

ADDENDUM: #001

SHEET: ED1.2

NUMBER: 1 of 1



PHASE 1-2 LIGHTING KEY PLAN - NORTH

SCALE: 1/16" = 1'-0"

4630 Antelope Creek Rd Ste 200
P: 402-488-0075 / F: 402-488-0272

www.a-e-sys.com

620 N. 129th Street, Omaha, NE 68154
P: 402-504-3885 / F: 402-504-4598

ADVANCED ENGINEERING SYSTEMS

PROJECT: LPS NUTRITION SERVICES-FOOD STORES WAREHOUSE - HUMANN ELEMENTARY TEMP. SCHOOL

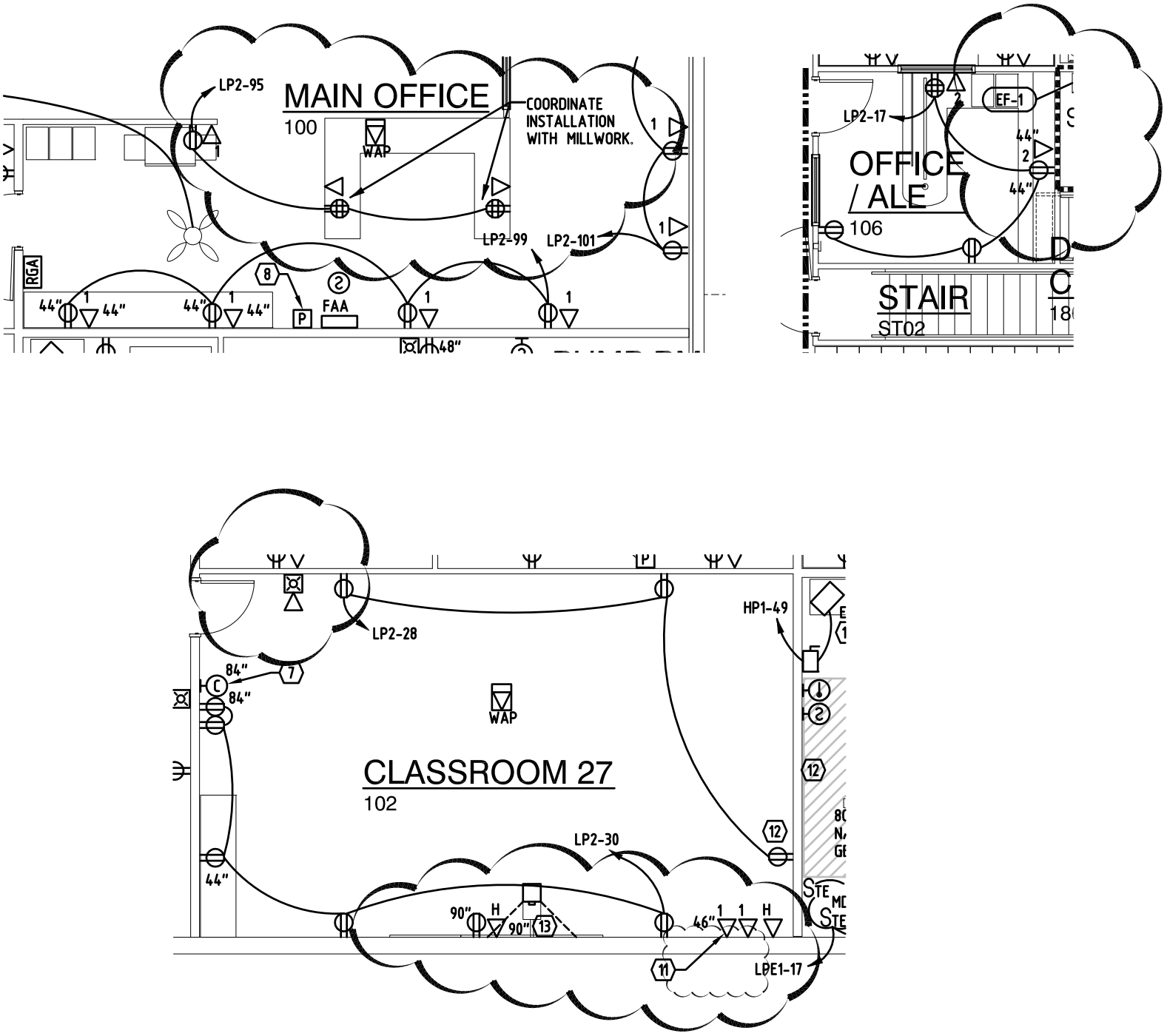
PROJECT #: 15-080

DATE: 01/11/2016

ADDENDUM: #001

SHEET: E1.1

NUMBER: 1 of 1



PHASE 1 ELECTRICAL KEPLAN - SOUTH

SCALE: 1/8" = 1'-0"

4630 Antelope Creek Rd Ste 200
P: 402-488-0075 / F: 402-488-0272

www.a-e-sys.com

620 N. 129th Street, Omaha, NE 68154
P: 402-504-3885 / F: 402-504-4598

ADVANCED ENGINEERING SYSTEMS

PROJECT: LPS NUTRITION SERVICES-FOOD STORES WAREHOUSE - HUMANN ELEMENTARY TEMP. SCHOOL

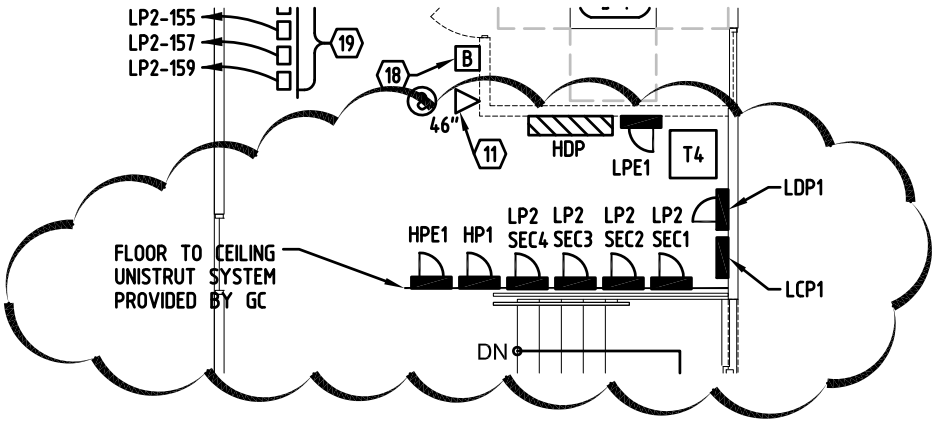
PROJECT #: 15-080

DATE: 01/11/2016

ADDENDUM: #001

SHEET: E2.2

NUMBER: 1 of 2



PHASE 1 MEZZ. ELECTRICAL PLAN

SCALE: 1/8" = 1'-0"

4630 Antelope Creek Rd Ste 200
P: 402-488-0075 / F: 402-488-0272

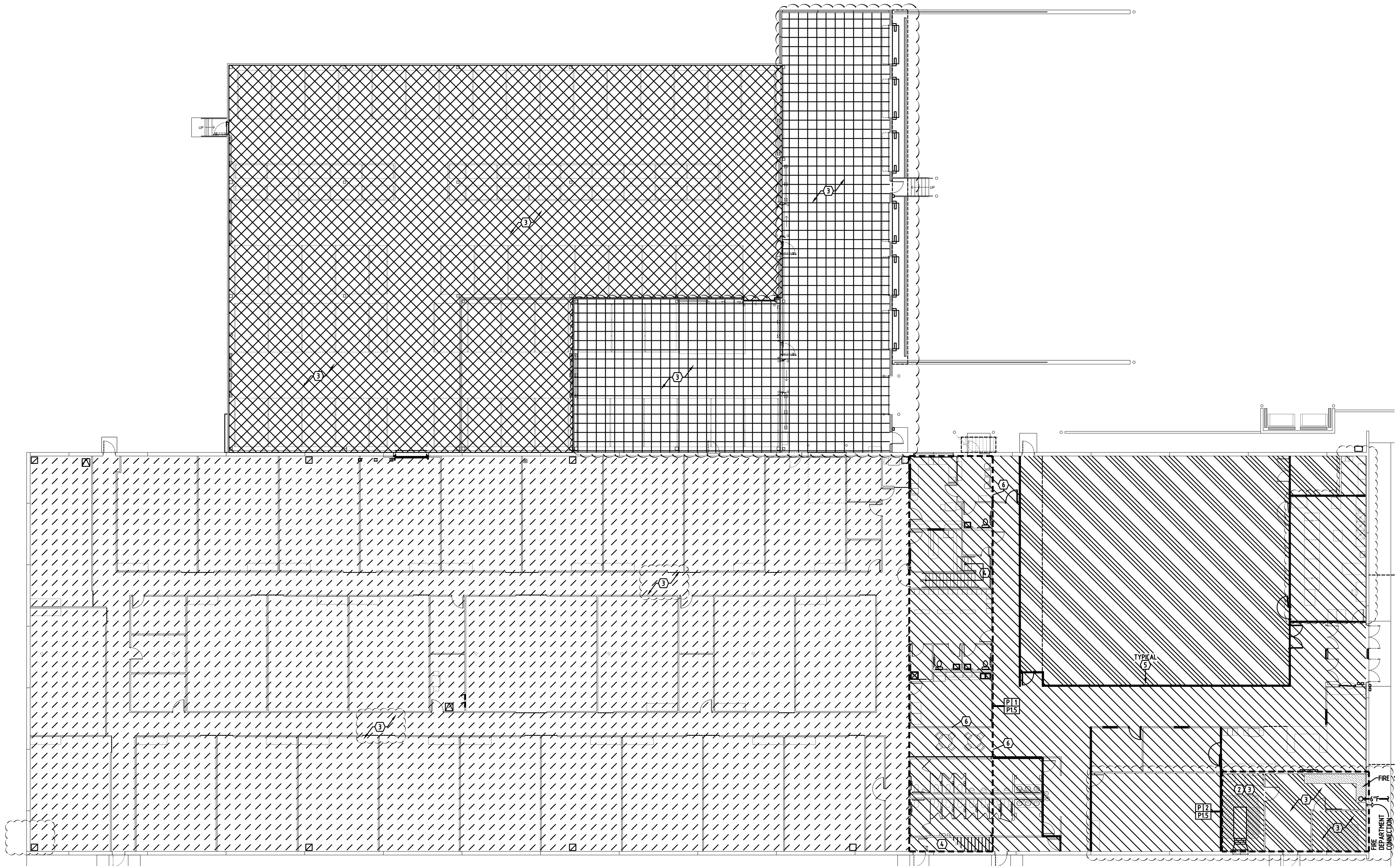
www.a-e-sys.com

620 N. 129th Street, Omaha, NE 68154
P: 402-504-3885 / F: 402-504-4598

ADVANCED ENGINEERING SYSTEMS

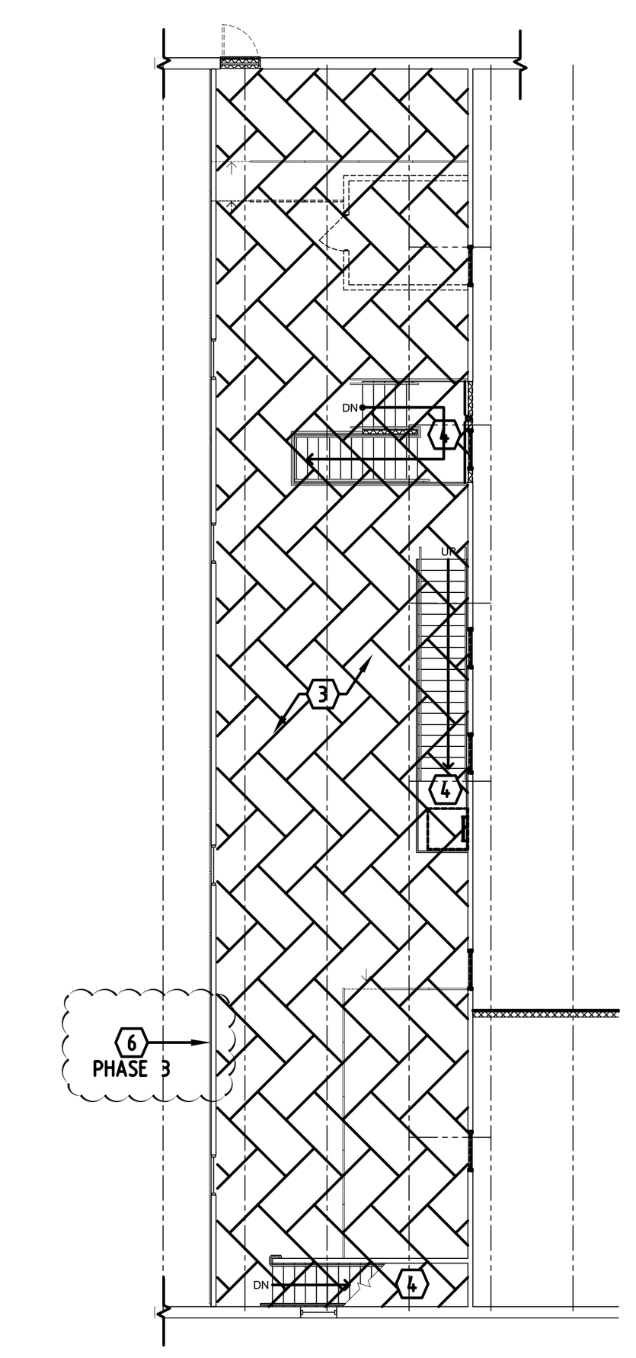
PROJECT: LPS NUTRITION SERVICES-FOOD STORES WAREHOUSE - HUMANN ELEMENTARY TEMP. SCHOOL
PROJECT #: 15-080
DATE: 01/11/2016
ADDENDUM: #001

SHEET: E2.2
NUMBER: 2 of 2



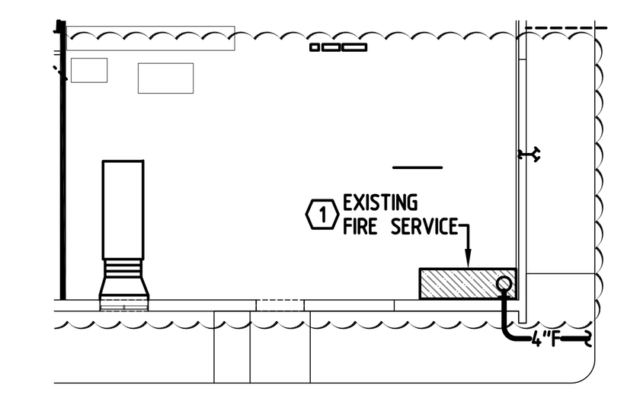
J. HUMANN TEMPORARY SCHOOL / FREEZER ADDITION FIRE PLAN - PHASE 1 AND 2

SCALE: 1/16" = 1'-0"



P1 / P1.5 MEZZ. PLAN PHASE 1

SCALE: NONE



P2 / P1.5 DEMOLITION PLAN

SCALE: NONE

SHEET NOTES

KEY NOTE SYMBOL = (#)

GENERAL NOTES

A. EXTEND EXISTING FIRE PROTECTION SYSTEM INTO ALL NEW AND RENOVATED AREAS. NEW PORTION OF FIRE PROTECTION SYSTEM SHALL BE INSTALLED INCLUDING ALL LABOR, MATERIALS, EQUIPMENT AND OTHER NECESSARY PERFORMANCES.

B. THE ENTIRE SPRINKLER SYSTEM MUST MUST BE DESIGNED AND HYDRAULICALLY CALCULATED FOR SIZE BY A MINIMUM N.I.C.E.T. LEVEL 3 FIRE SPRINKLER LAYOUT TECHNICIAN, COMPLY WITH NFPA 13 & 24 AND MUST BE APPROVED BY STATE AND LOCAL AUTHORITY HAVING JURISDICTION BEFORE SUBMITTALS ARE SENT. ALL TESTING MUST BE WITNESSED BY ALL APPLICABLE AUTHORITIES.

C. A SYSTEM RATED FOR THE APPROPRIATE OCCUPANCY SHALL BE INSTALLED IN THE SPACE. THE NEW SYSTEM SHALL BE AN ADDITION FROM THE EXISTING FIRE SPRINKLER SYSTEM IN THE BUILDING. ALL AREAS OF THE SPACE MUST BE COVERED. EACH SYSTEM SHALL COVER NO MORE THAN 52,000 SQUARE FEET OF COVERAGE.

D. ALL ELECTRIC WATER FLOW SWITCHES TO BE WIRED BY OTHERS TO THE FIRE ALARM PANEL.

E. ALL PIPING SHALL BE TESTED IN ACCORDANCE WITH ASTM A-135, A-795, OR ASTM F441 DEPENDING ON PIPING INSTALLED.

F. ALL SPRINKLER HEADS IN CEILINGS TO BE CENTERED IN THE CEILING PAD WHERE POSSIBLE. ALL SPRINKLER HEADS IN CEILINGS MUST HAVE MATCHING ESCUTCHEONS. IN AREAS WITHOUT CEILINGS, SPRINKLER HEADS SHALL BE CENTERED IN THE OPEN SPACE BETWEEN THE STRUCTURE. FLEXIBLE CONNECTIONS ARE ACCEPTABLE ABOVE CEILINGS IF ALLOWED BY LOCAL CODE.

G. PROVIDE WIRE HEAD GUARDS IN ALL MECHANICAL, ELECTRICAL, JANITORS AND STORAGE ROOMS/CLOSETS ON ALL HEADS.

H. ALL DRAINS TO TERMINATE ON THE EXTERIOR OF THE BUILDING. COORDINATE EXACT LOCATION WITH OWNER / ENGINEER.

I. COORDINATE ROUTING OF ALL PIPING AND LOCATION OF HEADS WITH OTHER TRADES (MECHANICAL, HVAC, ELECTRICAL, GENERAL) PRIOR TO INSTALLATION. ALL PIPING IN OPEN SPACES WITH OUT CEILINGS SHALL BE INSTALLED AS HIGH POSSIBLE IN JOIST SPACES.

J. THE CONTRACTOR SHALL PROVIDE AND INSTALL NEW SUPPORTS AND HANGERS FOR ALL EXISTING PIPING, CABLING AND WIRING (HIGH AND LOW VOLTAGE) AS NECESSARY TO PREVENT DAMAGE TO EXISTING MATERIALS AND/OR REMOVE EXISTING MATERIALS. THIS INCLUDES RE-SUPPORTING ANYTHING THAT IS SUPPORTED BY ANY ITEM SCHEDULED TO BE REMOVED. ANY DAMAGE TO THE EXISTING SYSTEMS TO REMAIN MUST BE REPAIRED AND TESTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

K. CONTRACTOR IS RESPONSIBLE FOR ALL TRANSITIONS, ELBOWS, OFFSETS IN PIPE TO MAKE SYSTEMS FIT WITHIN SPACE AND STRUCTURE PROVIDED.

L. CITY WATER TEST DONE: 11/16/2015

FLOW HYDRANT:	RESIDUAL HYDRANT:
HYDRANT 311-7TH & HILL, 8"MAIN	HYDRANT 312-6TH & HILL, 8"MAIN
STATIC PRESSURE: 108 PSI	STATIC PRESSURE: 108 PSI
DIA. OF OUTLET: 2-1/2"	RESIDUAL PRESSURE: 88 PSI
FLOW: 1405 GPM	

KEY NOTES

1. LOCATION OF EXISTING FIRE SERVICE. REMOVE FIRE SERVICE PER CITY STANDARDS, COORDINATE PHASING WITH GENERAL CONTRACTOR.
2. GENERATOR ROOM SHALL HAVE DRY SPRINKLER HEADS WITH NO WET PIPING IN THE ROOM.
3. PROVIDE PROTECTIVE HEAD GUARDS ON ALL SPRINKLER HEADS IN THIS ROOM.
4. STORAGE ROOM UNDER STAIRS/RAMP TO BE SPRINKLED.
5. FULL HEIGHT WALL TO STRUCTURE. COORDINATE WITH ARCHITECTURAL PLANS.
6. FIRE SPRINKLER PIPING TO BE ADJUSTED WITH ADDITION AND REMOVAL OF WALLS.

SPRINKLER HEAD LEGEND

AREA PATTERN	AREA DESCRIPTION	SET TEMP °F	SPRINKLER HEAD FINISH	SPRINKLER HEAD TYPE	WET/DRY	OCCUPANCY / USAGE	NOTES
	EXISTING AREA ALREADY PROTECTED UNDER PREVIOUS PHASE	-	-	-	-	-	-
	OPEN TO STRUCTURE (NO CEILING)	155°	BRASS	UPRIGHT	WET	PARTIAL HEIGHT WALLS, SCHOOL	MODIFY EXISTING SPRINKLER SYSTEM AS REQUIRED.
	LAY-IN GRID & GYP. CEILING (SEE ARCH. PLANS)	155°	PAINTED WHITE	SEMI-RECESSED PENDENT WITH ESCUTCHEONS	WET	SCHOOL / OFFICE TYPE USAGE	MODIFY EXISTING SPRINKLER SYSTEM AS REQUIRED.
	OPEN TO STRUCTURE (NO CEILING)	155°	BRASS	UPRIGHT	DRY DOUBLE INTERLOCK PRE-ACTION	FREEZER STORAGE	SEE FREEZER/COOLER DESCRIPTION FOR FURTHER DETAIL. NOTE 1
	OPEN TO STRUCTURE (NO CEILING)	155°	BRASS	UPRIGHT	DRY	COOLER STORAGE	SEE FREEZER/COOLER DESCRIPTION FOR FURTHER DETAIL. NOTE 1
	OPEN TO STRUCTURE (NO CEILING)	155°	BRASS	UPRIGHT	WET	SCHOOL / OFFICE TYPE USAGE	MODIFY EXISTING SPRINKLER SYSTEM AS REQUIRED.
	OPEN TO STRUCTURE (NO CEILING)	153°	BRASS	UPRIGHT	WET	DRY STORAGE	SEE DRY STORAGE DESCRIPTION FOR FURTHER DETAIL. NOTE 2. REPLACE/REWORK EXISTING SYSTEM AS REQUIRED.

SPRINKLER HEAD NOTES

- CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SECTIONS FOR TYPICAL BUILDING SECTIONS SHOWING RACKING, WAREHOUSE SPACE, FREEZER/COOLER AREAS & OFFICE/CLASSROOM AREAS.

1. FREEZER/COOLER SOTRAGE DESCRIPTION:
   - PRODUCT STORED ON WOOD PALLETS WRAPPED IN SHRINK WRAP.
   - PRODUCT INCLUDES:
     - CLEANING CHEMICALS, CANNED GOODS, FLOUR, MISC. GROCERY ITEMS.
     - GALLON CONTAINERS OF FRYING OIL.
     - PAM AEROSOL COOKING SPRAY.
   - RACKING IS ALL OPEN STEEL/WIRE, NO SOLID SHELVES.
2. DRY STORAGE DESCRIPTION:
   - PRODUCT STORED ON WOOD PALLETS WRAPPED IN SHRINK WRAP.
   - PRODUCT INCLUDES:
     - FROZEN MEATS, JUICE, BREADS, FRUIT, PIZZA, MISC. FOOD ITEMS.
     - COOLED CHEESE, YOGURT, JUICE, MILK.
   - RACKING IS ALL OPEN STEEL/WIRE, ,NO SOLID SHELVES.

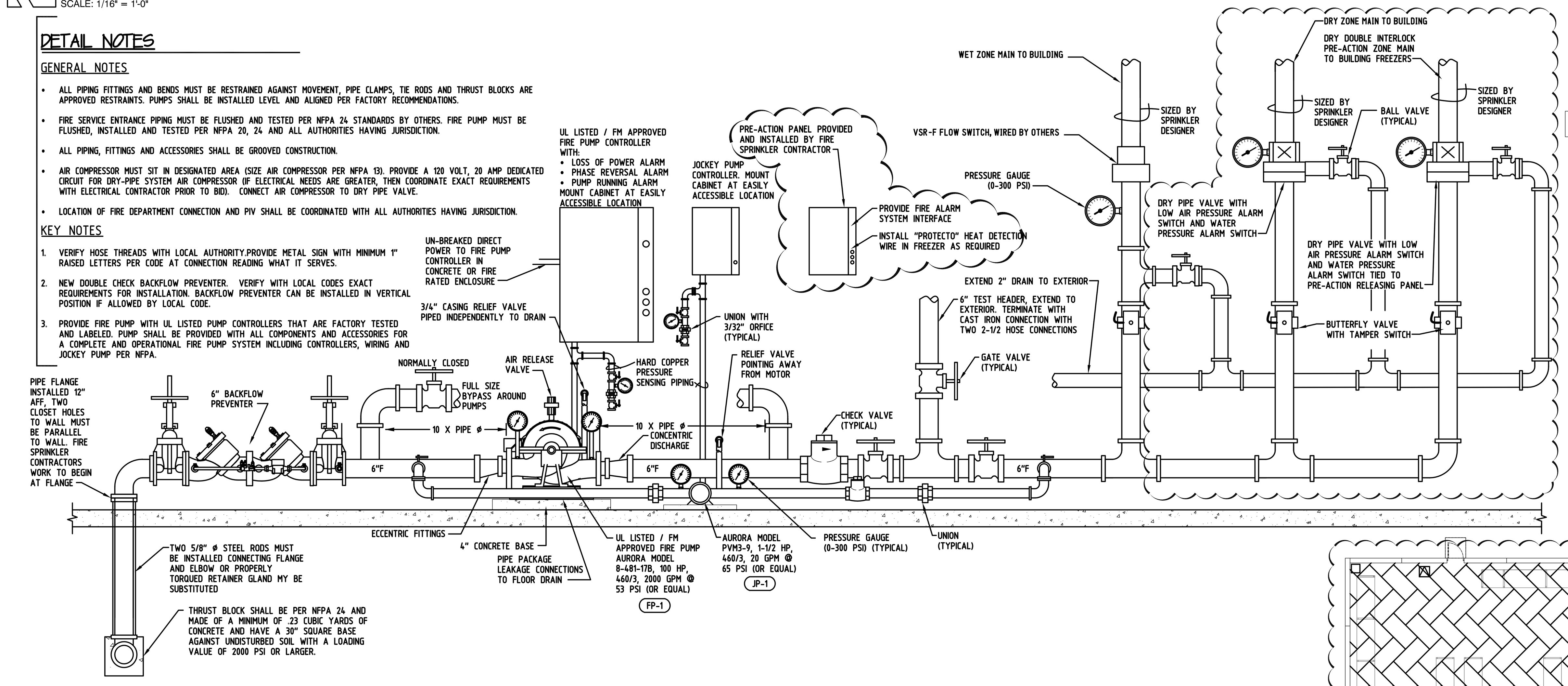
DETAIL NOTES

GENERAL NOTES

- ALL PIPING FITTINGS AND BENDS MUST BE RESTRAINED AGAINST MOVEMENT, PIPE CLAMPS, TIE RODS AND THRUST BLOCKS ARE APPROVED RESTRAINTS. PUMPS SHALL BE INSTALLED LEVEL AND ALIGNED PER FACTORY RECOMMENDATIONS.
- FIRE SERVICE ENTRANCE PIPING MUST BE FLUSHED AND TESTED PER NFPA 24 STANDARDS BY OTHERS. FIRE PUMP MUST BE FLUSHED, INSTALLED AND TESTED PER NFPA 20, 24 AND ALL AUTHORITIES HAVING JURISDICTION.
- ALL PIPING, FITTINGS AND ACCESSORIES SHALL BE GROOVED CONSTRUCTION.
- AIR COMPRESSOR MUST SIT IN DESIGNATED AREA (SIZE AIR COMPRESSOR PER NFPA 13). PROVIDE A 120 VOLT, 20 AMP DEDICATED CIRCUIT FOR DRY-PIPE SYSTEM AIR COMPRESSOR (IF ELECTRICAL NEEDS ARE GREATER, THEN COORDINATE EXACT REQUIREMENTS WITH ELECTRICAL CONTRACTOR PRIOR TO BID). CONNECT AIR COMPRESSOR TO DRY PIPE VALVE.
- LOCATION OF FIRE DEPARTMENT CONNECTION AND PIV SHALL BE COORDINATED WITH ALL AUTHORITIES HAVING JURISDICTION.

KEY NOTES

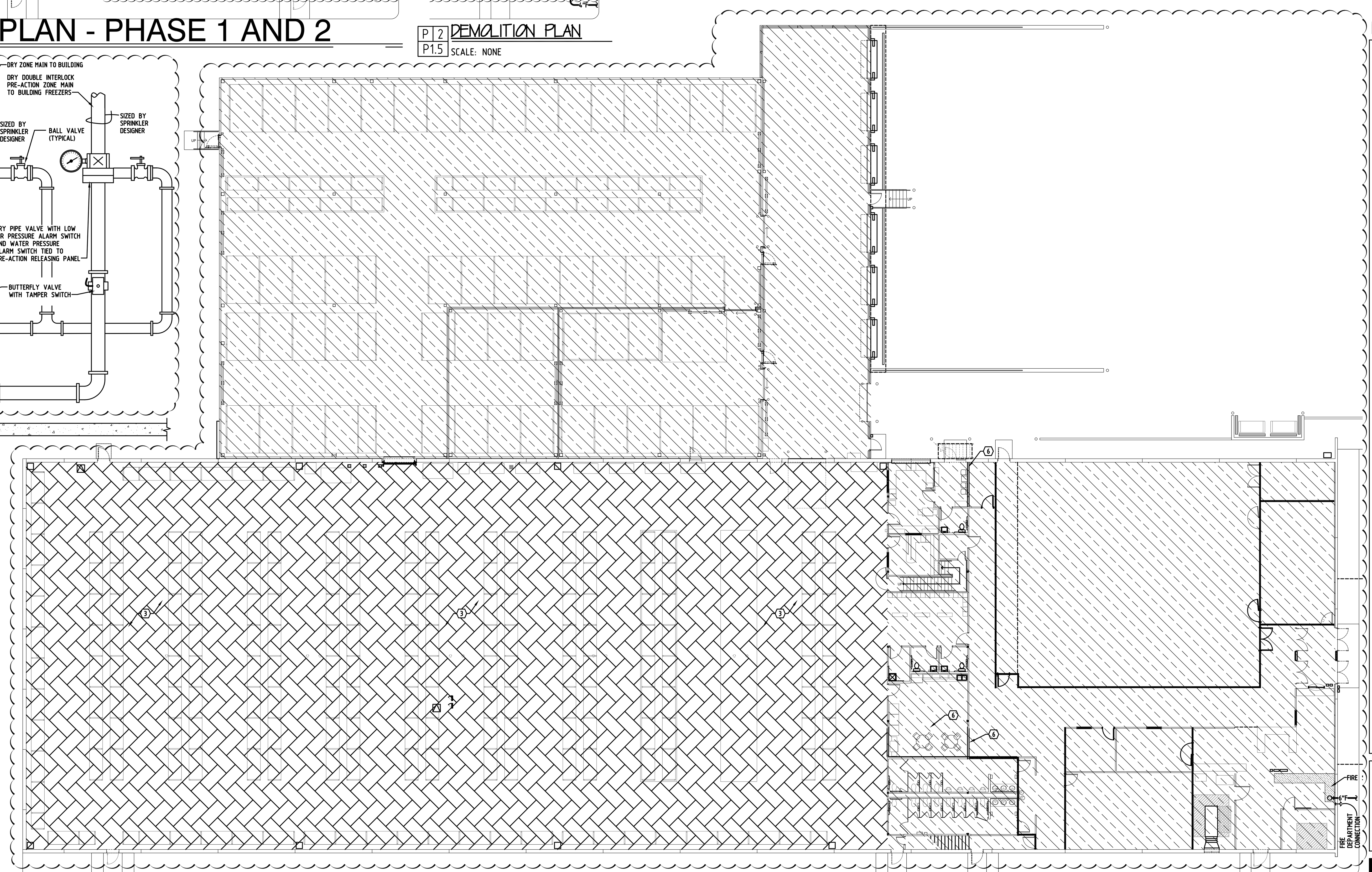
1. VERIFY HOSE THREADS WITH LOCAL AUTHORITY.PROVIDE METAL SIGN WITH MINIMUM 1" RAISED LETTERS PER CODE AT CONNECTION READING WHAT IT SERVES.
2. NEW DOUBLE CHECK BACKFLOW PREVENTER. VERIFY WITH LOCAL CODES EXACT REQUIREMENTS FOR INSTALLATION. BACKFLOW PREVENTER CAN BE INSTALLED IN VERTICAL POSITION IF ALLOWED BY LOCAL CODE.
3. PROVIDE FIRE PUMP WITH UL LISTED PUMP CONTROLLERS THAT ARE FACTORY TESTED AND LABELED. PUMP SHALL BE PROVIDED WITH ALL COMPONENTS AND ACCESSORIES FOR A COMPLETE AND OPERATIONAL FIRE PUMP SYSTEM INCLUDING CONTROLLERS, WIRING AND JOCKEY PUMP PER NFPA.



D1 / P1.5 FIRE PUMP DETAIL

SCALE: NONE

SEE BUILDING AND RACKING SECTIONS ON ARCHITECTURAL SHEETS



LPS FOOD STORAGE WAREHOUSE - PHASE 3

SCALE: 1/16" = 1'-0"

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Architectural Design Associates
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7501 'O' Street
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LPS Nutrition Services - Food Stores Warehouse

Humann Elementary Temp. School
710 Hill Street
Lincoln, Nebraska LPS Bid No. 8371

Project number 15-076
Date 12-21-2015
Revisions

SECTION 33 46 13

FOUNDATION DRAINAGE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Exterior subdrainage systems at retaining walls.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 31 Section “Earth Moving” for excavating, trenching and backfilling.

1.03 SUBMITTALS

A. General: Submit electronic (PDF) format submittals according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data: For drainage piping and connections.

PART 2 - PRODUCTS

2.01 PIPING MATERIALS

A. Refer to the "Piping Applications" Article in Part 3 for applications of pipe, fitting, and joining materials.

2.02 PERFORATED-WALL PIPES AND FITTINGS

A. Perforated PE Pipe and Fittings: ASTM F 405 or AASHTO M 252, Type CP; corrugated, for coupled joints.

1. Couplings: Manufacturer's standard, band type - AASHTO M 252, corrugated, band type, matching tubing and fittings.

B. Perforated PVC Sewer Pipe and Fittings: ASTM D 2729, bell-and-spigot ends, for loose joints.

2.03 SPECIAL PIPE COUPLINGS

A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined and corrosion-resistant metal tension band and tightening mechanism on each end.

1. Unshielded Flexible Couplings: Elastomeric sleeve with stainless-steel shear ring and corrosion-resistant metal tension band and tightening mechanism on each end.

2. Shielded Flexible Couplings: ASTM C 1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant metal tension band and tightening mechanism on each end.

2.04 SOIL MATERIALS

A. Backfill, drainage course, impervious fill, and satisfactory soil materials are specified in Division 31 Sections "Earth Moving".

2.05 GEOTEXTILE FILTER FABRICS

A. Description: Fabric of PP or polyester fibers or combination of both, with flow rate range from 110 to 330 gpm/sq. ft. when tested according to ASTM D 4491.

1. Structure Type: Nonwoven, needle-punched continuous filament or woven, monofilament or multifilament.
2. Style: Flat Sheet and Sock.

PART 3 - EXECUTION

3.01 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Division 31 Sections "Earth Moving" and "Trenching and Backfilling".

3.02 PIPING APPLICATIONS

A. Underground Subdrainage Piping:

1. Perforated PE pipe and fittings, couplings, and coupled joints.
2. Perforated PVC sewer pipe and fittings for loose, bell-and-spigot joints.

B. Header Piping, if required:

1. PE drainage tubing and fittings, couplings, and coupled joints.
2. PVC sewer pipe and fittings, couplings, and coupled joints.

3.03 FOUNDATION DRAINAGE INSTALLATION

A. Place impervious fill on subgrade adjacent to bottom of footing and compact to dimensions indicated, but not less than 6 inches deep and 12 inches wide after concrete footing forms have been removed.

B. Encase pipe with sock-style geotextile filter fabric before installing pipe. Connect sock sections with tape.

C. Install drainage piping as indicated in Part 3 "Piping Installation" Article for foundation subdrainage.

D. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.

E. After satisfactory testing, cover drainage piping to width of at least 6 inches on side away from footing and to 18" above top of pipe.

F. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

G. Place initial backfill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Final backfill to finish elevations and slope away from building.

3.04 PIPING INSTALLATION

A. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing in filtering material. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions and other requirements indicated.

1. Foundation Subdrainage: Install piping pitched down in direction of flow, at a minimum slope of 0.5 percent and with a minimum cover of 36 inches, unless otherwise indicated.
2. Lay perforated pipe with perforations down.
3. Excavate recesses in trench bottom for bell ends of pipe. Lay pipe with bells facing upslope and with spigot end entered fully into adjacent bell.

B. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.

C. Install PE piping according to ASTM D 2321.

D. Install PVC piping according to ASTM D 2321.

3.05 PIPE JOINT CONSTRUCTION

A. Join PE pipe, tubing, and fittings with couplings for soil-tight joints according to AASHTO's "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4, "Joint Properties."

B. Join perforated, PE pipe and fittings with couplings for soil-tight joints according to AASHTO's "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4, "Joint Properties"; or according to ASTM D 2321.

C. Join PVC pipe and fittings according to ASTM D 3034 with elastomeric seal gaskets according to ASTM D 2321.

D. Join perforated PVC pipe and fittings according to ASTM D 2729, with loose bell-and-spigot joints.

E. Special Pipe Couplings: Join piping made of different materials and dimensions with special couplings made for this application. Use couplings that are compatible with and fit materials and dimensions of both pipes.

3.06 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect low elevations of foundation subdrainage to trench drain as shown on Drawings.

3.07 FIELD QUALITY CONTROL

A. Testing: After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

3.08 CLEANING

A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

END OF SECTION 33 46 13

GEOTECHNICAL ENGINEERING REPORT

LPS Food Stores Warehouse

710 Hill Street
Lincoln, NE

PREPARED FOR

Lincoln Public Schools
c/o Archictectural Design Associates
7501 “O” Street, Suite 105
Lincoln, NE 68510

September 9, 2015

benesch
engineers · scientists · planners

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September 9, 2015

Mr. David Stirtz
Architectural Design Associates, PC
7501 "O" Street, Suite 105
Lincoln, NE 68510

REFERENCE: Geotechnical Engineering Report
Lincoln Public Schools Food Stores Warehouse
710 Hill Street
Lincoln, NE

Dear Mr. Stirtz:

Alfred Benesch & Company (Benesch) is pleased to submit the enclosed report that summarizes the findings of a geotechnical engineering study and provides recommendations related to the design and construction of the foundation and pavement for the referenced project.

If any questions arise concerning this report or if additional information is needed about soil conditions at this site, please contact Benesch for assistance.

Respectfully yours,

Brandon L. Desh, P.E.
Project Manager

Enclosures

Orig. & 2 Bound Copies: Architectural Design Associates
Electronic Copy: Structural Design Group

TABLE OF CONTENTS

APPENDIX C. BORING LOGS

APPENDIX D. CRITERIA USED FOR SOIL CLASSIFICATION

APPENDIX E. CONSOLIDATION TEST REPORT

1.0 EXECUTIVE SUMMARY

PROJECT OVERVIEW

Lincoln Public Schools and Architectural Design Associates has indicated that the proposed project will consist of the following:

Structure Type:	120-ft by 125-ft, one-story, slab-on-grade, metal-framed cooler/freezer addition to a 36,760 square foot existing building. The addition will include an insulated slab on grade with shallow grade beam footings. The existing structure consists of tilt-up concrete walls, a flat roof, partial mezzanine, concrete slab on grade floor and shallow continuous footings. Site development will include a concrete pavement parking lot and truck access area.
Type of Foundation(s) Being Considered:	Shallow Footings and Grade Beams
Estimated Maximum Column Load:	48.0 k (Dead Load) + 48.0 k (Live Load)
Estimated Maximum Wall Load:	2.0 k/ft (Dead Load) + 2.0 k/ft (Live Load)
Estimated Maximum Floor Load:	8.0 k Fork Truck with 3.5 k payload (existing): 8.0 k Rack Post Loads (new): 12.0 k Rack Post Loads
Exterior Pavement Traffic (H-20 Loading):	Four 5-axle trucks per day Three 3-axle trucks per day Twenty-one 2-axle trucks per day
Finished Floor Elevations:	First Floor: 100.00 feet
Bottom of Footing Elevations:	Exterior Frost Depth: 96.67 feet Interior (Estimated): 98.0 feet
Estimated Fill Height:	1 to 2 feet

1 kip = 1,000 lbf

FACTORS AFFECTING SITE PREPARATION

- Unsuitable floor and pavement subgrade materials extend to a depth of 0.5 feet from existing grade in the proposed addition area.
- Low-moisture-content (moist) soils were encountered to depths of 1.0 to 3.3 feet from existing grade in the proposed addition area. These soils could cause up to 0.25 inches of floor heave if they get wetter.

- Some of the onsite soils in the proposed addition area are moist and will required wetting prior to use as fill.

FACTORS AFFECTING FOUNDATION AND BUILDING DESIGN

- Suitable natural foundation material was encountered in the proposed addition area at elevations of 94.8 to 93.4 feet (3.3 to 4.5 feet below existing grade).
- Existing foundations are present in the vicinity of the proposed building area and could be affected by new footing loads.
- The floor slab subgrade soils sampled within the existing building (borings B-8 and B-10) were found to be suitable for support of the existing floor slab. A recommended vertical modulus of subgrade reaction and compressive strength properties of existing concrete floor slab is provided below for use in structural design/check of existing and proposed floor slabs to support of racking and fork lift loads.

RECOMMENDED PAVEMENT SECTIONS

Layer	Thickness
Portland Cement Concrete (PCC) Pavement	8 inches
Asphalt Concrete (AC) Pavement	8 inches

2.0 SUBSURFACE EXPLORATION

A program of Dutch friction-cone soundings, test borings, cores, and soil sampling was performed at the project site from August 17th through the 21st, 2015. Seven (7) Dutch friction-cone soundings were made at the site for the proposed addition. The results of the soundings were used to determine the depths for obtaining undisturbed soil samples from an exploratory boring made immediately adjacent to each sounding. Seven (7) exploratory borings were taken to depths of 10 to 20 feet below the existing grade to establish the general subsurface conditions of the area under consideration for the proposed addition (B-1 through B-5) and new driveway pavement area (B-6 and B-7). In addition, four (4) core samples (B-8 through B-11) were taken on the existing concrete slab-on-grade in the proposed 'Dry Storage' area within the existing building. At two (2) of the core locations (B-8 and B-10), subgrade samples were collected for additional laboratory testing.

The Dutch friction-cone soundings were performed with a mechanical penetrometer in accordance with ASTM D 3441, Standard Method for Deep, Quasi-Static, Cone, and Friction Cone Penetration Tests of Soil. The plot of the data from this test identifies the relative positions and thicknesses of hard and soft layers of soil.

The borings were made in accordance with ASTM D 1452, Standard Practice for Soil Investigation and Sampling by Auger Borings. A machine-driven, continuous-flight auger having a diameter of 6 inches was used to advance the holes for thin-walled tube sampling. The bore holes were stable and casing was not required.

The concrete core samples were completed and tested in accordance with ASTM C42, Standard Test Method for Obtaining and Testing Drilled Cores.

Undisturbed soil samples were recovered for visual observation and laboratory testing in accordance with ASTM D 1587, Standard Method for Thin-Walled Tube Sampling of Soil, utilizing an open-tube sampler having an outside diameter of 3.0 inches.

The vicinity map and the boring location plan are presented in Appendix A. The penetration diagrams (see Appendix B) present the results of the Dutch friction-cone soundings. The boring logs (see Appendix C) present the data obtained in the subsurface exploration. The logs include the surface elevations, the approximate depths and elevations of major changes in the character of the subsurface materials, visual descriptions of the materials in accordance with the criteria presented in Appendix D, groundwater data, and the locations of undisturbed samples of soil.

The locations of the soundings and borings for the new addition and pavement area were determined by tape measurements taken from the northeast corner of the existing building. The locations of the core sample borings inside the existing building were measured in from the nearest building walls. Elevations (approximate) at all the sounding and boring locations were determined by survey with reference to the existing building's floor slab. The elevation of this benchmark was arbitrarily assigned a value of 100.00 feet. Water level readings were made in the auger borings at times and under conditions stated on the boring logs.

3.0 LABORATORY ANALYSES

The undisturbed soil samples obtained during the subsurface exploration were examined in the laboratory by a member of Benesch's professional engineering staff to supplement the field identification. Standard tests were performed on selected samples to determine the engineering properties of the foundation materials.

The moisture contents and dry unit weights of selected undisturbed soil samples were determined in the laboratory. These test results are presented in the boring logs opposite the respective sample locations. The moisture contents were determined in accordance with either ASTM D 4643, Standard Test Method for Determination of Water (Moisture) Content of Soil by the Microwave Oven Method, or ASTM D 2216, Standard Test Method for Determination of Water (Moisture) Content of Soil and Rock by Mass. The dry unit weights were determined in accordance with the Displacement Method of the Corps of Engineers, EM1110-2-1906, Appendix II, Unit Weights, Void Ratio, Porosity, and Degree of Saturation. These data correlate with the strength and compressibility of the soil. High moisture content and low density usually indicate low strength and high compressibility.

The unconfined compressive strengths of several undisturbed samples were estimated in the laboratory with a calibrated hand penetrometer. These strengths are presented on the boring logs and are estimates only. Actual values are generally lower than the estimated values indicated on the boring logs.

The compressibility of an undisturbed sample of alluvial lean clay was determined in accordance with ASTM D 2435, Standard Test Method for One-Dimensional Consolidation Properties of Soils, except that time-rate readings were not obtained. The data from the consolidation test can be used to develop an estimate of the maximum amount of settlement of the proposed addition. A brief summary of the test data is presented in Table 1, and the complete test report is presented in Appendix E.

TABLE 1
CONSOLIDATION TEST DATA

Boring No.	Depth, ft.	Initial Void Ratio	Overburden Pressure, tons/ft^2	Preconsolidation Pressure, tons/ft^2	Compression Index	Recompression Index
3	9.2-9.7	0.91	0.57	1.4	0.28	0.02

The compressive strengths of concrete core samples taken from the existing building floor slab were determined in accordance with ASTM C42, Standard Test Method for Obtaining and Testing Drilled Cores. The data from the compressive strength tests can be used to develop an estimate of the strength of existing concrete. A summary of the test data is presented in Table 2.

TABLE 2
COMPRESSIVE STRENGTH OF CONCRETE CORES TEST DATA

Boring No.	Diameter, in.	Height, in.	Compressive Strength, psi
B-8	3.63	6.40	9,910
B-9	3.62	5.55*	10,346
B-10	3.64	6.13	9,436
B-11	3.65	5.67	10,363

*Rebar observed 3.4 inches from top of core

4.0 GEOLOGY AND SITE CONDITIONS

The project lies in the Dissected Till Plains section of Nebraska, a part of the Central Lowland province of the Interior Plains physiographic division[1].

The project site is located in Lincoln, Nebraska on alluvial bottomlands. The bottomlands are a flood plain setting consisting of relatively deep deposits of alluvium. Soils generally consist of silty and clayey alluvium near the surface overlying sandy and gravelly alluvium. The site has been previously graded as evidenced by the existing fill encountered at the boring locations.

The subsurface materials encountered at the boring locations are briefly described below in descending order of occurrence. Detailed descriptions are provided in the boring logs, which are presented in Appendix C.

SOIL ZONE	DESCRIPTION
Fill	Lean to fat clay, medium to high plasticity, moist to wet, stiff to very stiff. Traces of industrial cinders, wood fragments, and rubble were encountered at a couple of the borings.
Topsoil	Lean clay, medium plasticity, wet, medium stiff to stiff, friable.
Subsoil	Lean to fat clay, medium to high plasticity, wet, medium to very stiff.
Alluvium	Lean to fat clay, sandy lean clay, clayey sand, and silty sand, medium to high plasticity, the fine grained material was soft to stiff, the course grained material was medium dense.

Groundwater was encountered at elevations ranging from 88.4 to 87.3 feet (10 to 10.5 feet below existing grade). The water table could be expected to fluctuate several feet depending on surface drainage, rainfall, lawn watering, vegetation, temperature, and other factors.

[1] Physiographic Provinces of North America, Map by A. K. Lobeck, 1948; The Geographical Press; Columbia University, New York

5.0 DISCUSSION AND RECOMMENDATIONS

Four basic requirements for a satisfactory foundation of a structure are as follows:

A. The base of the foundation must be located below the depth to which the soil is subject to frost action and seasonal volume change caused by alternate wetting and drying.
B. The foundation (including the earth beneath it) must be stable or safe from failure.
C. The foundation must not settle or deflect enough to disfigure or damage the structure.
D. The foundation structure must be properly located with respect to any future influence that could adversely affect its performance.

The following recommendations for design and construction of the foundation for the proposed addition are based upon site conditions, the engineering properties of the subsurface materials, and the requirements of the proposed structure.

1. SUITABLE FLOOR AND PAVEMENT SUBGRADE MATERIAL

The project site will be filled approximately 1 to 2 feet above existing grade for the new addition. The upper 0.5 foot of existing soils in the addition area should not be used to support the new floor slab, new pavement structure, or new fill. The remaining existing fill and underlying natural soils may be left in the building addition area and areas to be paved if these soils are "wet" and prove stable under a loaded dump truck or similar piece of equipment. By Benesch's definition, a "wet" cohesive soil contains sufficient moisture to be rolled into a 1/8-inch-diameter thread without crumbling. A "moist" cohesive soil would crumble when being rolled to form a 1/8-inch-diameter thread.

At the time of the exploration, the existing clay fill in the proposed addition area was moist at B-1, B-2, B-4, and B-5 from the 1.0 to 3.1 feet below existing grade. The moist clay fill has slight volume-change potential and will swell as its moisture content increases. The estimated heave of a new floor slab, new pavement structure, or non-load-bearing footing is 0.25 inches as the moist soil becomes wetter. The magnitude of potential heave is difficult to estimate and should only be used as a rough approximation. To minimize the potential swell, any moist soil should be (a) removed and replaced with controlled earth fill, or (b) reworked to conform to the moisture content and compaction recommendations presented in Table 7. Controlled earth fill is defined as earth fill that is designed, compacted, and tested in accordance with generally accepted good practice and placed with observation by the Geotechnical Engineer. Table 3 presents the locations of the moist soils at each boring location in the proposed addition and new pavement areas requiring remediation to eliminate potential swell.

TABLE 3
LOCATION OF MOIST SOILS

Boring No.	Elevation, ft	Depth Below Existing Grade, ft
B-1	96.8-94.5	1.0-3.3
B-2	97.4-96.1	1.7-3.0
B-3	*	*
B-4	97.9-96.9	0.0-1.0
B-5	99.0-95.9	0.0-3.1
B-6	*	*
B-7	*	*

*Moist soils not encountered

The floor subgrade soils sampled within the existing building **(**borings B-8 and B-10) were found to be well compacted lean clay fill suitable for support of the existing floor slab. A recommended vertical modulus of subgrade reaction is provided in Recommendation 6 below and the compressive strength properties of the existing concrete slab are shown in Table 2 above for use in structural design/check of existing and proposed floor slabs for support of racking and fork lift loads.

2. SUITABLE FOUNDATION MATERIAL

The existing fill and topsoil are not considered suitable foundation material for the proposed addition. The underlying natural subsoil and alluvial soils are considered suitable foundation material. The minimum depth at each boring location in the proposed addition area to suitable natural foundation material for column footings and footings supporting load-bearing walls is presented in Table 4.

TABLE 4
LOCATION OF SUITABLE NATURAL FOUNDATION MATERIAL

Boring No.	Elevation, ft	Depth Below Existing Grade, ft
1	94.5	3.3
2	94.6	4.5
3	94.8	3.6
4	93.4	4.5
5	94.0	5.0

The bottoms of a normal-depth interior and exterior footings for proposed addition would be seated as much as 4.6 feet and 3.3 feet above the upper surface of suitable foundation material, respectively. The suggested alternative foundation plans are as follows (see Recommendation 7 for further details on each alternative):

A. **Deep Footings.** Seat column footings and footings supporting load-bearing walls on the firm natural materials located at or below the depths shown in Table 4, which would require lowering some interior and exterior footings as much as 4.6 and 3.3 feet, respectively, below normal footing depths. Footings supporting non-load-bearing walls could be seated at normal depths on the soils that are considered suitable floor subgrade material (refer to Recommendation 1).

B. **Undercut along Footing Lines.** Remove or rework the unsuitable foundation materials located along the load-bearing footing lines and seat all footings at conventional depths in either controlled earth fill or firm natural materials.

C. **Undercut the Entire Building Area.** Remove or rework the unsuitable foundation materials located within the entire building addition area and seat all footings at normal depths in either controlled earth fill or firm natural materials.

3. MINIMUM DEPTH OF FOOTINGS

The bottoms of all exterior footings should be placed at a minimum depth of 40 inches below finished grade to provide reasonable protection against frost action and seasonal volume change. In addition, the bottom of a proposed footing should be constructed so that either (a) the elevation of the proposed footing and an existing footing are the same or (b) the horizontal distance between the nearest edge of the proposed footing and nearest edge of the existing footing is equal to or greater than the difference in elevation between the footings.

4. ALLOWABLE BEARING PRESSURE

The allowable net bearing pressure on the natural materials located at or below the depths shown in Table 4 or on controlled earth fill is 2,000 lbf/ft^2. The net bearing pressure is the contact pressure at the base of the foundation in excess of the pressure at the same level due to the surrounding surcharge. The surcharge pressure is equal to the total weight of a column of soil that extends from the lowest immediately adjacent ground surface to the bottom of the foundation divided by the soil column's area.

5. SETTLEMENT

Settlement of the proposed addition is expected to be less than 1 inch total and less than ½ inch differential in 25 feet if the new fill materials are properly placed (see Recommendation 12) and the recommendations in this report are carried out.

6. VERTICAL MODULUS OF SUBGRADE REACTION

The suggested value of the vertical modulus of subgrade reaction to be used in the design of footings, floor, and pavement structure for the proposed addition and the soils encountered within the existing building is 75 lbf/in^3.

7. PREPARATION OF THE BUILDING AREA AND AREAS TO BE PAVED

Brief descriptions of the following alternatives are provided in Recommendation 2.

Alternative A. ***(Deep Footings)***

All vegetation and the upper 0.5 feet of existing soils should be removed from the building addition area and areas to be paved. If the estimated heave presented in Recommendation 1 is considered excessive, all moist soils should be (a) removed and replaced, or (b) reworked. Thereafter, the exposed ground located in areas that have been "cut" to the proposed subgrade elevations and areas to be filled should be proofrolled with a loaded dump truck or similar piece of equipment (in the presence of the Geotechnical Engineer) to locate unstable materials. Any unstable material should be either removed and replaced with controlled earth fill or reworked to conform to the moisture content and compaction recommendations presented in Table 7.

The Geotechnical Engineer should observe the building addition area and areas to be paved to verify that all unsuitable and unstable soils have been stabilized. Upon approval of the site by the Geotechnical Engineer, any exposed ground surface that has not been previously reworked should be scarified to a minimum depth of 6 inches and reworked to conform to the moisture content and compaction recommendations presented in Table 7. Areas to be filled should then be raised to the desired elevation with controlled earth fill.

Immediately prior to placement of the pavement structure, the subgrade in cut and fill sections should be scarified to a minimum depth of 6 inches and reworked to a uniform condition conforming to the moisture content and compaction recommendations presented in Table 7.

The footing excavations should extend into the suitable natural foundation materials located at or below the depths presented in Table 4. The Geotechnical Engineer should observe the foundation excavations to verify that the footings will be seated in suitable natural foundation material.

Alternative B. ***(Undercut Along Footing Lines)***

Preparation of the building addition area and areas to be paved should be the same as in Alternative A. In addition, all unsuitable foundation soils (located above the depth presented in Table 4) along load-bearing footing lines should be either removed and replaced with controlled earth fill or reworked to conform to the moisture content and compaction recommendations presented in Table 7.

If the unsuitable foundation materials will be removed and replaced with controlled earth fill or reworked, the bottoms of the trench excavations should extend beyond the edges of the proposed footings a minimum horizontal distance of 3.0 feet or two-thirds the distance between the bottom-of-footing elevation and the surface of the suitable natural foundation material, whichever is greater. However, the excavations should not encroach on the foundation soils of existing footings, which are defined as soils located inside a line drawn downward and outward from the outside edge of the existing footing on a slope of 1.0 horizontal to 1.0 vertical. The sides of the excavation should be sloped to permit the controlled earth fill to be placed against the sides of the excavations to the recommended degree of compaction.

If the unsuitable foundations materials will be removed and replaced with lean concrete, the excavations do not need to extend beyond the edges of the proposed footings. Lean concrete, also referred to as flowable fill, is defined as a lower strength, self-consolidating concrete material that has a minimum compressive strength of 100 psi.

The Geotechnical Engineer should observe the building addition area and areas to be paved to verify conformance to the above recommendations. Upon approval of the building addition area and areas to be paved by the

Geotechnical Engineer, the site should be filled to the desired elevations with controlled earth fill. Footings can then be constructed at conventional depths, seated within either controlled earth fill or suitable natural foundation soils. The Geotechnical Engineer should observe the foundation excavation to verify that the footings will be seated in suitable foundation materials.

Alternative C. *(Undercut the Entire Building Area)*

The areas to be paved should be prepared as in Alternative A. In addition, all unsuitable foundation materials in the building addition area (located above the depths presented in Table 4) should be either removed and replaced with controlled earth fill or reworked to conform to the moisture content and compaction recommendations presented in Table 7. The removal or reworking of these materials should extend beyond the outside edges of the proposed footings a minimum horizontal distance of 3.0 feet or two-thirds the distance between the bottom-of-footing elevation and the surface of the suitable natural foundation material, whichever is greater. However, the excavations should not encroach on the foundation soils of existing footings, which are defined as soils located inside a line drawn downward and outward from the outside edge of the existing footing on a slope of 1.0 horizontal to 1.0 vertical. The sides of the excavation should be sloped to permit the controlled earth fill to be placed against the sides of the excavations to the recommended degree of compaction.

The Geotechnical Engineer should observe the building addition area and areas to be paved to verify conformance to the above recommendations. Upon approval of these areas by the Geotechnical Engineer, the site should be filled to the desired elevation with controlled earth fill. Footings can then be constructed at conventional depths, seated within either controlled earth fill or suitable natural foundation soils. The Geotechnical Engineer should observe the foundation excavation to verify that the footings will be seated in suitable foundation materials.

8. OSHA EXCAVATION REQUIREMENTS

Excavations that will be occupied by personnel should be made in accordance with the Occupational Safety and Health Administration (OSHA) Construction Standards-29 CFR Part 1926, Subpart P-Excavations as published in the Federal Register, Vol. 54, 209, Tuesday, October 31, 1989, Rules and Regulations. OSHA states that a soil should be reclassified if the properties, factors, or conditions affecting the soil's classification change in any way. Sheet piling and/or shoring will be necessary if the sides of the excavations cannot be sloped to meet OSHA regulations.

9. LATERAL EARTH PRESSURE AND RETAINING WALL DESIGN

Any retaining wall should be designed to withstand the pressure from the backfill. The pressure exerted by the backfill against the walls should be computed on the basis of the equivalent-fluid theory, by which the lateral pressure is considered to be caused by a fluid having a unit weight such that the total pressure of the soil and the so-called equivalent fluid are the same. The equivalent fluid unit weights of the various recommended backfill materials, placed in accordance with Recommendation 13, are shown in Table 5. For the portion of the wall backfilled with sandy soil, in order for the equivalent fluid unit weights of sandy soils to be applicable, the sand should occupy the area presented in Figure 1. The clay cap (if needed) will not significantly affect the magnitude of lateral pressures on the wall if the clay cap comprises less than 20% of the total soil column in-front or behind the wall, and as such the clay soil can be assumed to have the same properties as the granular materials below. The active and passive fluid weights are based on the assumption that the ground surface is level in front and behind walls.

TABLE 5
RECOMMENDED LATERAL EARTH PRESSURE PROPERTIES

Soil Type	Equivalent-Fluid Unit Weight (lbf/ft³)						Wet Unit Weight (lbf/ft³)	Base Friction Coefficient
	Unsaturated			Saturated (Includes Hydrostatic Pressures)				
	Active	At Rest	Passive	Active	At Rest	Passive		
Clays and Silts	50	70	240	75	85	140	120	0.35[1]
Silty and Clayey Sands[2]	35	55	280	75	85	155	125	0.45
Sand[3]	30	50	300	75	85	170	115	0.55

[1]Base friction resistance should also be evaluated for adhesion. Recommended adhesional friction is 500 lbf/ft².
[2]More than 10% silt and clay.
[3]Less than 10% silt and clay.

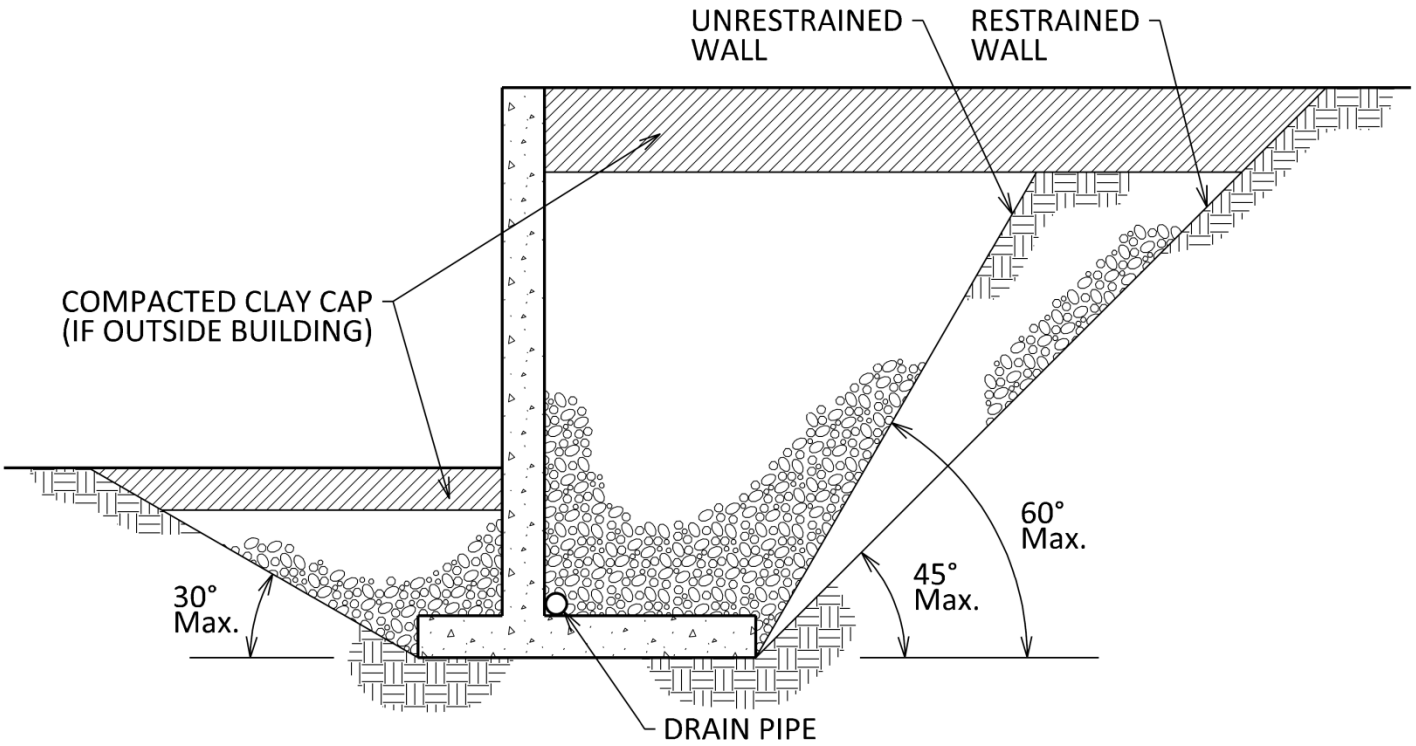


FIGURE 1. REQUIRED AREA FOR SAND PLACED IN FRONT AND BEHIND BASEMENT AND RETAINING WALLS

It should be noted that the active fluid weights in Table 5 are based on the assumption that the ground level behind the wall is level. If the ground level behind the wall is sloped, the equivalent fluid unit weights for the active condition are shown in Table 6.

TABLE 6
RECOMMENDED ACTIVE EQUIVALENT FLUID UNIT WEIGHT FOR SLOPED BACKFILL

Soil Type	Backfill Slope					
	4:1		3:1		2:1	
	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Saturated
Clay and Silts	60	80	70	85	105	115
Silty and Clay Sands	40	75	45	80	55	85
Sand	35	75	40	75	45	80

In calculating the passive-earth-pressure resistance, the upper 40 inches (from finished grade) should not be assumed to contribute resistance against horizontal movement if exposed to frost action or seasonal moisture/volume change of the soil. The suggested equivalent-fluid unit weight for calculating the passive-earth-pressure resistance is shown in Table 5.

Additional resistance to horizontal movement will be provided by frictional resistance between the base of the footing and the foundation soil. The recommended base friction coefficients are shown in Table 5. In order to assume the higher base friction coefficients for the granular soils, the granular soils should extend to a depth of at least 1.0 times the foundation width below the bottom of foundation. For clays and silts, the base friction might be controlled by either the undrained shear strength of the foundation soil (adhesional friction) or the drained friction angle of the foundation soil (friction coefficient). The adhesional friction is independent of the footing load, and as such, might control for design of heavily loaded footings. The minimum (dead) load on the footing should be used with the friction coefficient to calculate drained frictional resistance. The lesser of either the undrained or drained frictional resistance should be used for design. If a keyed retaining wall foundation is being considered to increase sliding resistance, Benesch should be contacted for further recommendations.

The backfill above a retaining wall footing will help resist overturning of the wall. Wet unit weights shown in Table 5 should be used in calculating the weights of backfill above a retaining-wall footing. A minimum factor of safety of 1.5 should be applied to the overall retaining-wall design. The maximum soil pressure beneath a retaining-wall footing should not exceed the bearing pressure presented in Recommendation 4.

10. FOUNDATION AND RETAINING-WALL DRAINS

A drainage system (consisting of a slotted drainpipe encased in granular filter material) should be installed behind any retaining wall to intercept surface water that might enter the backfill. The 4-inch-diameter drainpipes (with 1/8-in. slots) should be backfilled with fine aggregate for State of Nebraska "47B" concrete (hereinafter referred to as "sand-gravel"). The pipes should have a minimum of 4 inches of sand-gravel encasing the bottoms and sides, and the sand-gravel should extend to within 2 feet of finished grade. It is recommended that the last 2 feet of backfill consist of compacted clay, especially when located outside the proposed building.

The drains should discharge (a) into a sump from which the water can be pumped to a positive outfall, such as a drainage ditch, swale or storm sewer, or (b) by gravity to the low areas. An alternative to encasing the pipes with sand-gravel would be to wrap the lines with a geotextile. Fine sand could then be used in lieu of the sand-gravel. Any granular backfill placed outside the proposed building should be capped with at least 2 feet of clay.

11. PROTECTIVE SLOPES AROUND THE BUILDING

The site should be graded in a manner that will divert water away from the building. The protective slopes around the building should meet the following requirements:

A. Slope downward from the building to lower areas or drainage swales.
B. Minimum horizontal length of 10 feet, minimum vertical fall of 6 inches (5 percent).
C. Minimum gradient (beyond 10 feet from building):
    1. Impervious surface; 1/8 inch per foot (1 percent).
    2. Pervious surface; 1/4 inch per foot (2 percent).

12. TYPES OF SOILS TO BE USED AS FILL AND BACKFILL

Controlled earth fill placed within the building area and areas to be paved should be constructed of inorganic CL[2], ML[3], SM[4], and/or SC[5] materials (all with a liquid limit less than 50 and a plasticity index less than 30). The existing lean clay fill and natural lean clay subsoil and alluvium encountered at the project site are considered suitable for use as fill within the building area and areas to be paved. It should be noted, however, that some of the existing lean clay fill soils are low in moisture content and will require the addition of water to achieve a moisture content necessary for proper placement.

The materials used as fill and backfill outside the building area and areas to be paved may consist of CL, ML, SM, SC, and/or CH (fat clay, fat clay with sand, and/or sandy fat clay). Proposed fill and backfill materials should be subject to approval by the Geotechnical Engineer. Representative samples of the proposed fill and backfill materials should be submitted to the Geotechnical Engineer at least five days prior to placement so the necessary laboratory tests can be performed.

13. PLACEMENT OF FILL AND BACKFILL

The suggested basis for controlling the placement of fill and backfill on the site, excluding free-draining granular materials, are the "optimum moisture content" and "maximum dry density" as determined by ASTM D 698, Procedure A, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using **Standard Effort** (12,400 ft-lbf/ft^3) (600 kN-m/m^3). The recommended acceptable values of moisture content and degree of compaction are given in Table 7.

[2] Lean clay, lean clay with sand and sandy lean clay.
[3] Silt, silt with sand and sandy silt.
[4] Silty sand.
[5] Clayey sand.

TABLE 7
COMPACTION RECOMMENDATIONS FOR CONTROLLED EARTH FILL AND BACKFILL

Location	Soil Type	Minimum Moisture Content	Minimum Compaction*
Below top-of-interior-footing elevation in the building area.	Glacial Till	Optimum	95%
	Silts and Lean Clays	2% Below Optimum	95%
	Silty and Clayey Sands	**	98%
From 0.0 to 1.0 foot below pavement subgrade elevation outside the building area.	Glacial Till	Optimum	100%
	Silts and Lean Clays	2% Below Optimum	100%
	Silty and Clayey Sands	**	100%
(a) Above top-of-interior-footing elevation in the building area and (b) greater than 1.0 foot below pavement subgrade elevation outside the building area.	Glacial Till	Optimum	95%
	Silts and Lean Clays	2% Below Optimum	95%
	Silty and Clayey Sands	**	95%
Backfill of footings and utility trenches outside the building area and outside of areas to be paved.	Silts and Clays	2% Below Optimum	92%

*Percent of Maximum Dry Density (ASTM D 698, Procedure A)
**Moisture as necessary to obtain density (near Optimum)

Clean free-draining sand used as backfill should be consolidated by means of a vibratory compactor to at least 55% "relative density", as determined in accordance with ASTM D 4253 (Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table) and D 4254 (Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculations of Relative Density).

13. RECOMMENDATIONS FOR PAVEMENT DESIGN

Traffic Characterization

Truck traffic in the parking lot and the entrance driveway primarily consists of delivery trucks. Lincoln Public Schools indicated that the operations will include four 5-axle trucks, three 3-axle trucks, and twenty-one 2-axle trucks daily with H-20 loading conditions.

Pavement Design

A pavement thickness design was performed using the Portland Cement Association (PCA) Design Method. Using the assumptions listed in Table 8 and the traffic characterization shown above, the required Portland cement concrete (PCC) thickness was calculated to be 8 inches.

TABLE 8
ASSUMPTIONS USED IN PCA THICKNESS DETERMINATION OF PCC PAVEMENT

Design Factor	Assumed Value
Design Life	20 years
Concrete Compressive Strength	3,500 psi
Concrete Modulus of Rupture	550 psi
Modulus of Subgrade Reaction	75 pci

A pavement thickness design was performed using the Asphalt Institute Design Method. Using the assumptions listed in Table 9 and traffic characterization shown above, the required asphalt concrete thickness was calculated to be 8 inches.

TABLE 9
ASSUMPTIONS USED IN ASPHALT INSTITUTE THICKNESS DETERMINATION OF AC PAVEMENT

Design Factor	Assumed Value
Design Life	20 years
Subgrade Resilient Modulus	6,500 psi

14. GRADING OBSERVATION

Observation and frequent testing by the Geotechnical Engineering Firm during compaction of fill and backfill are necessary to verify proper moisture content and degree of compaction. A professional opinion should be obtained from the Geotechnical Engineer that the site has been properly prepared, that all footings will be seated on suitable foundation materials, and that all fill, backfill, and subgrade materials conform to the moisture content and compaction recommendations presented above. If these testing and observation services are not performed, the allowable bearing pressure stated in Recommendation 4 might be invalid. As the Geotechnical Engineer for this project, Benesch has interpreted the results of the subsurface exploration and laboratory tests to arrive at the recommendations presented in this report. Consequently, Benesch is in the best position to relate actual observed conditions to those assumed for this report and to provide revised recommendations if differences are found during grading operations and construction of the foundation for the referenced project.

15. SUBGRADE OBSERVATION

The floor subgrade, pavement subgrade and foundation materials should be observed by the Geotechnical Engineer immediately prior to placement of the concrete or paving components. Severe changes in the condition of these materials can occur after initial preparation as the result of rain, drying, freezing, and construction activities. Any subgrade or foundation material that becomes disturbed, desiccated, or does not conform to the moisture content and compaction recommendations previously presented should either be removed and replaced or reworked to meet these recommendations.

16. APPLICABILITY OF RECOMMENDATIONS

The recommendations presented in this report are based in part upon Benesch's analyses of the data from the Dutch friction-cone soundings and soil borings. The penetration diagrams, boring logs, and related information depict subsurface conditions only at the specific sounding and boring locations and at the time of the subsurface exploration. Soil conditions might differ between the soundings and exploratory borings and might change with the passage of time. The nature and extent of any variations between the sounding and boring locations or of any changes in soil conditions (e.g., drying of soil) might not become evident until grading operations and construction of the foundation for the referenced project have begun. If variations and changes in the soil conditions then appear, it will be necessary to re-evaluate the recommendations stated in this report.

6.0 CONCLUSIONS

Benesch concludes, on the basis of the findings of the subsurface exploration at the project site and the evaluation of the engineering properties of samples of the foundation materials, that the proposed addition can be supported by spread footings seated on either firm natural materials or controlled earth fill. Satisfactory performance of the addition is to be expected if the foregoing recommendations are carried out.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices for exclusive use by Lincoln Public Schools and Architectural Design Associates for specific application to the proposed Food Stores Warehouse Addition. The recommendations of this report are not valid for any other purpose.

Benesch should be contacted if any questions arise concerning this report or if changes in the nature, design or location of the structure are planned. If any such changes are made, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed by Benesch and the conclusions of this report are modified or verified in writing. This report shall not be reproduced, except in full, without the written approval of Alfred Benesch & Company.

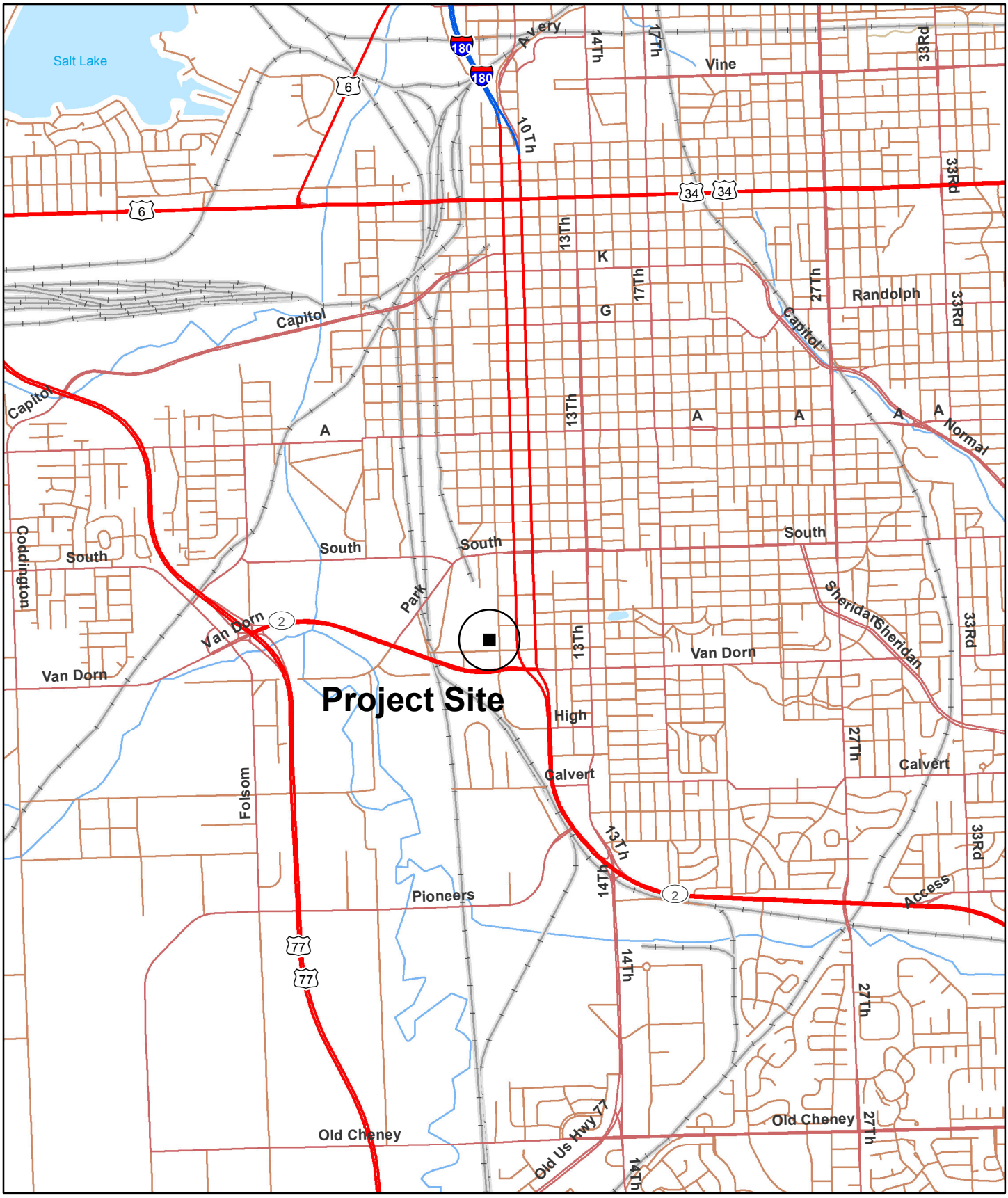
Prepared By:

Taylor C. Reinsch

Reviewed By:

Brandon L. Desh, P.E.

APPENDIX A. VICINITY MAP AND BORING LOCATION PLAN



N
W E
S

0 1,500 3,000 6,000 Feet

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LPS Food Stores Warehouse
710Hill Street
Lincoln, Nebraska

Vicinity Map
Figure A-1

N
W E
S

0 30 60 120 Feet

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LPS Food Stores Warehouse
710Hill Street
Lincoln, Nebraska

Boring Location Plan
Figure A-2

APPENDIX B. DUTCH FRICTION-CONE PENETRATION DIAGRAMS

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PENETRATION DIAGRAM OF FRICTION CONE PENETROMETER

ASTM D3441

Project Name: **LPS Nutrition Warehouse**
Project Location: **710 Hill St. Lincoln Nebraska**
Project Number: **00111262.00**

Sounding No: **S-1**
Location: **B-1**
Surface Elevation: **97.8** **feet**

Date: **8/20/2015**
Tested By: **CL**
Recorded By: **TT**

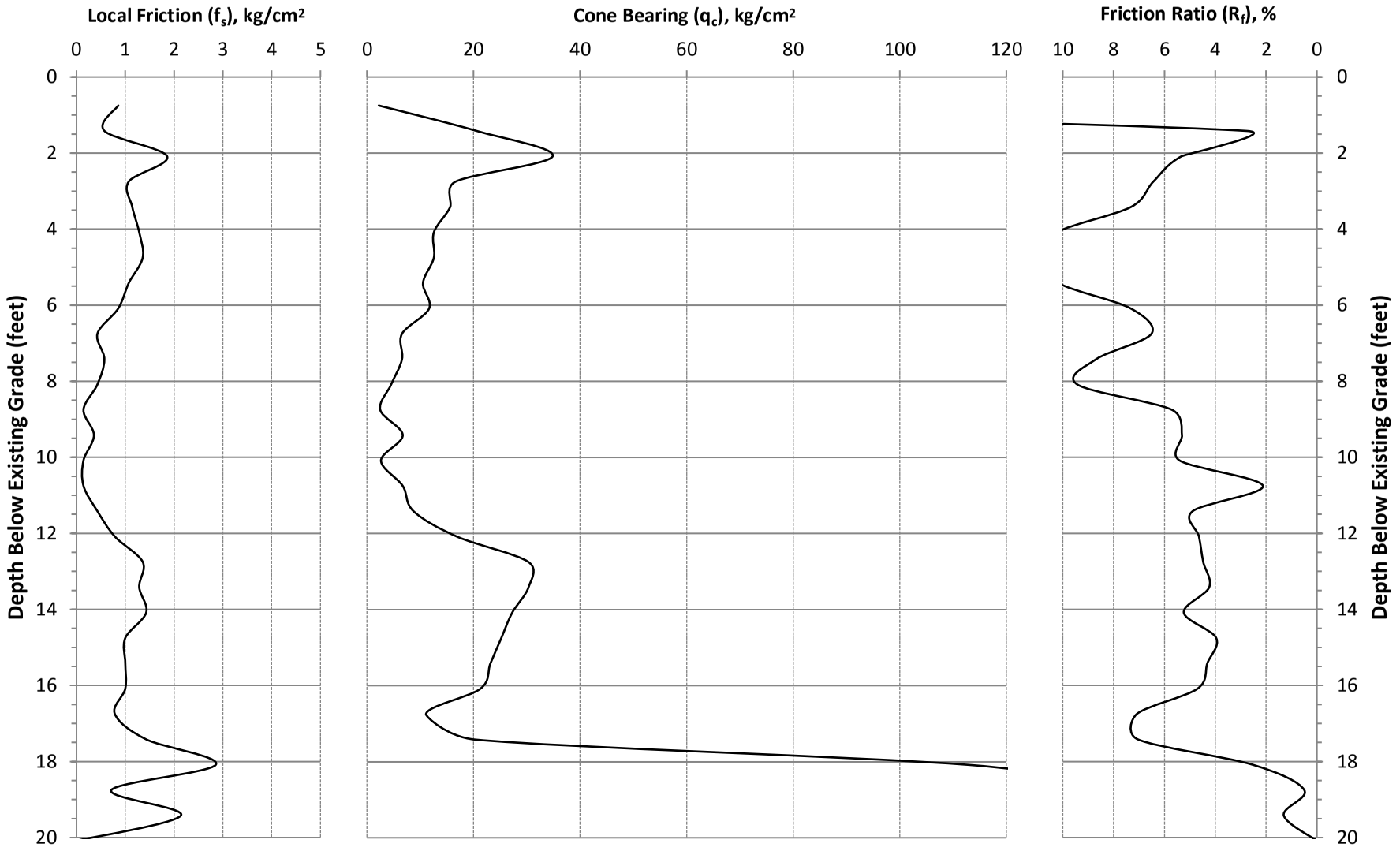

Figure a

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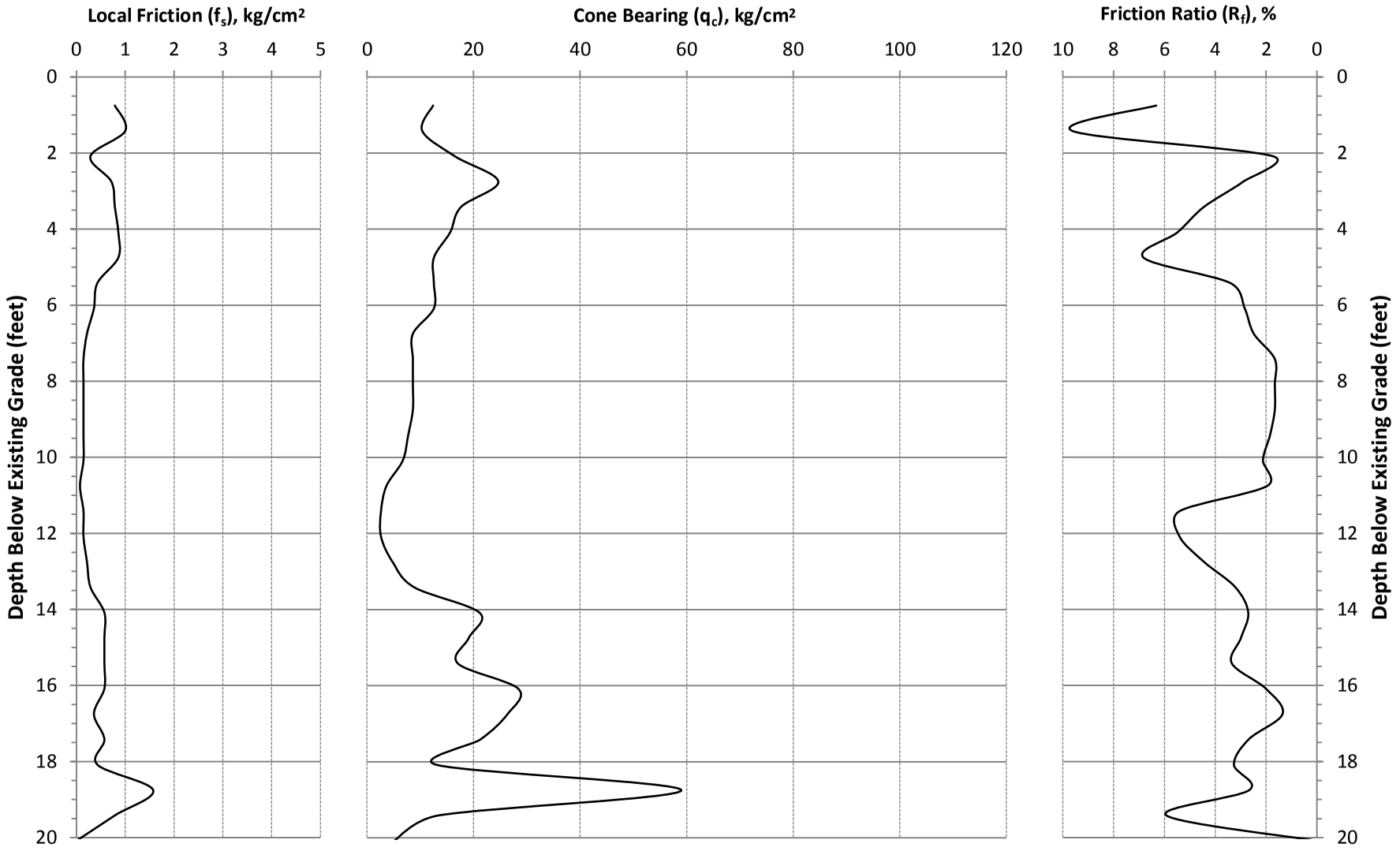
ASTM D3441

Project Name: **LPS Nutrition Warehouse**
Project Location: **710 Hill St. Lincoln Nebraska**
Project Number: **00111262.00**

Sounding No: **S-2**
Location: **B-2**
Surface Elevation: **99.1** **feet**

Date: **8/20/2015**
Tested By: **CL**
Recorded By: **TT**



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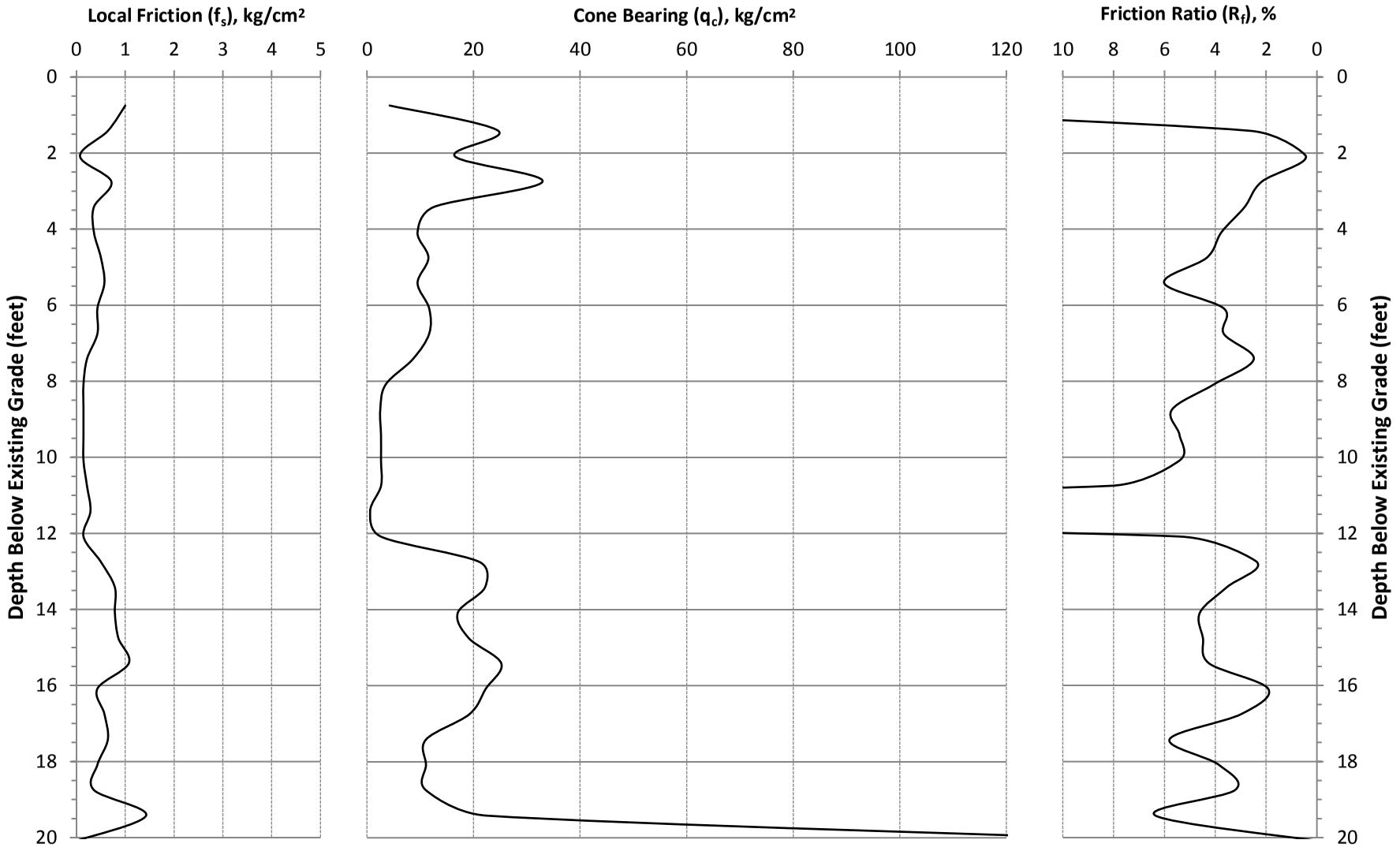
ASTM D3441

Project Name: **LPS Nutrition Warehouse**
Project Location: **710 Hill St. Lincoln Nebraska**
Project Number: **00111262.00**

Sounding No: **S-3**
Location: **B-3**
Surface Elevation: **98.4** **feet**

Date: **8/20/2015**
Tested By: **CL**
Recorded By: **TT**



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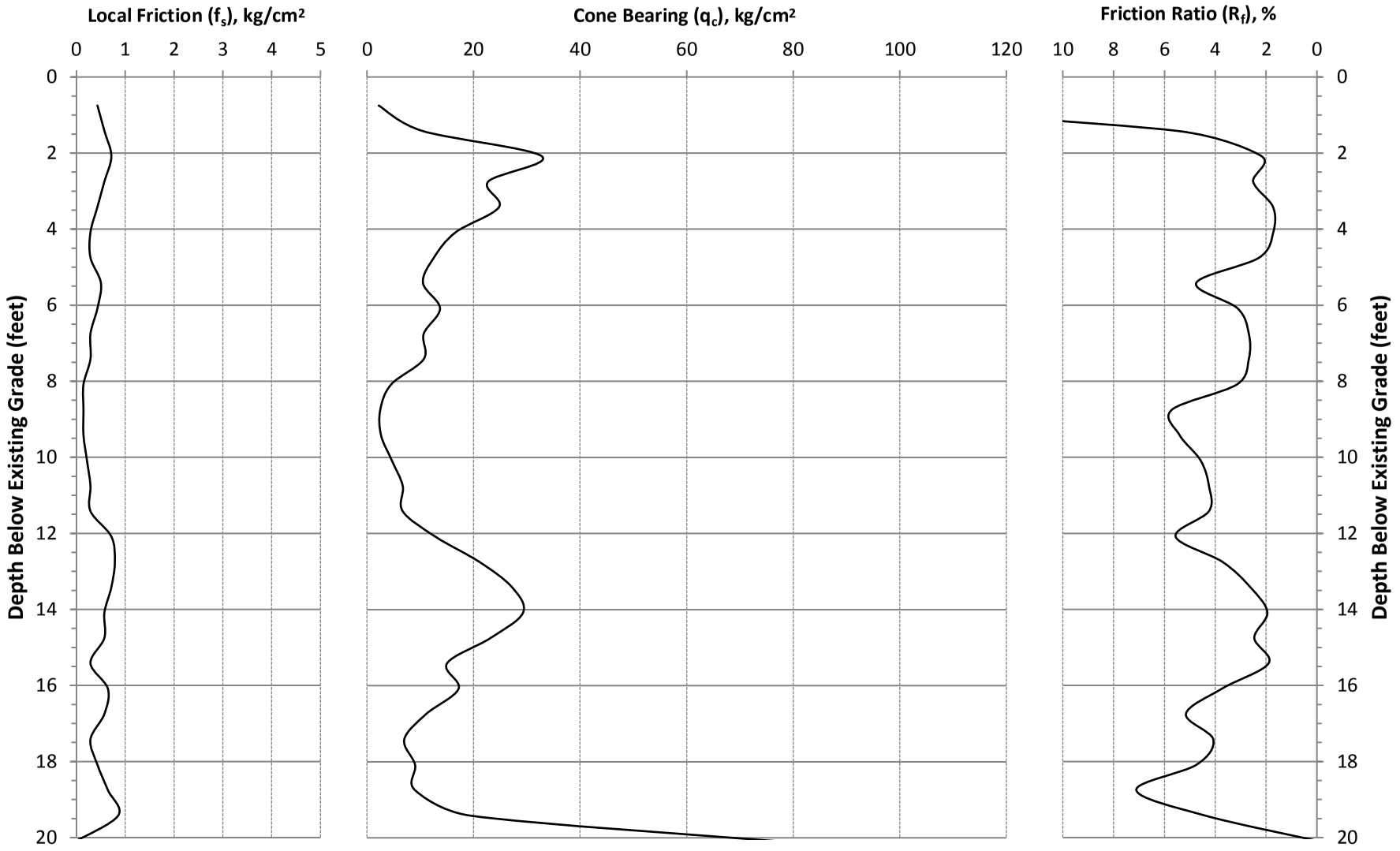
ASTM D3441

Project Name: **LPS Nutrition Warehouse**
Project Location: **710 Hill St. Lincoln Nebraska**
Project Number: **00111262.00**

Sounding No: **S-4**
Location: **B-4**
Surface Elevation: **97.9** **feet**

Date: **8/20/2015**
Tested By: **CL**
Recorded By: **TT**



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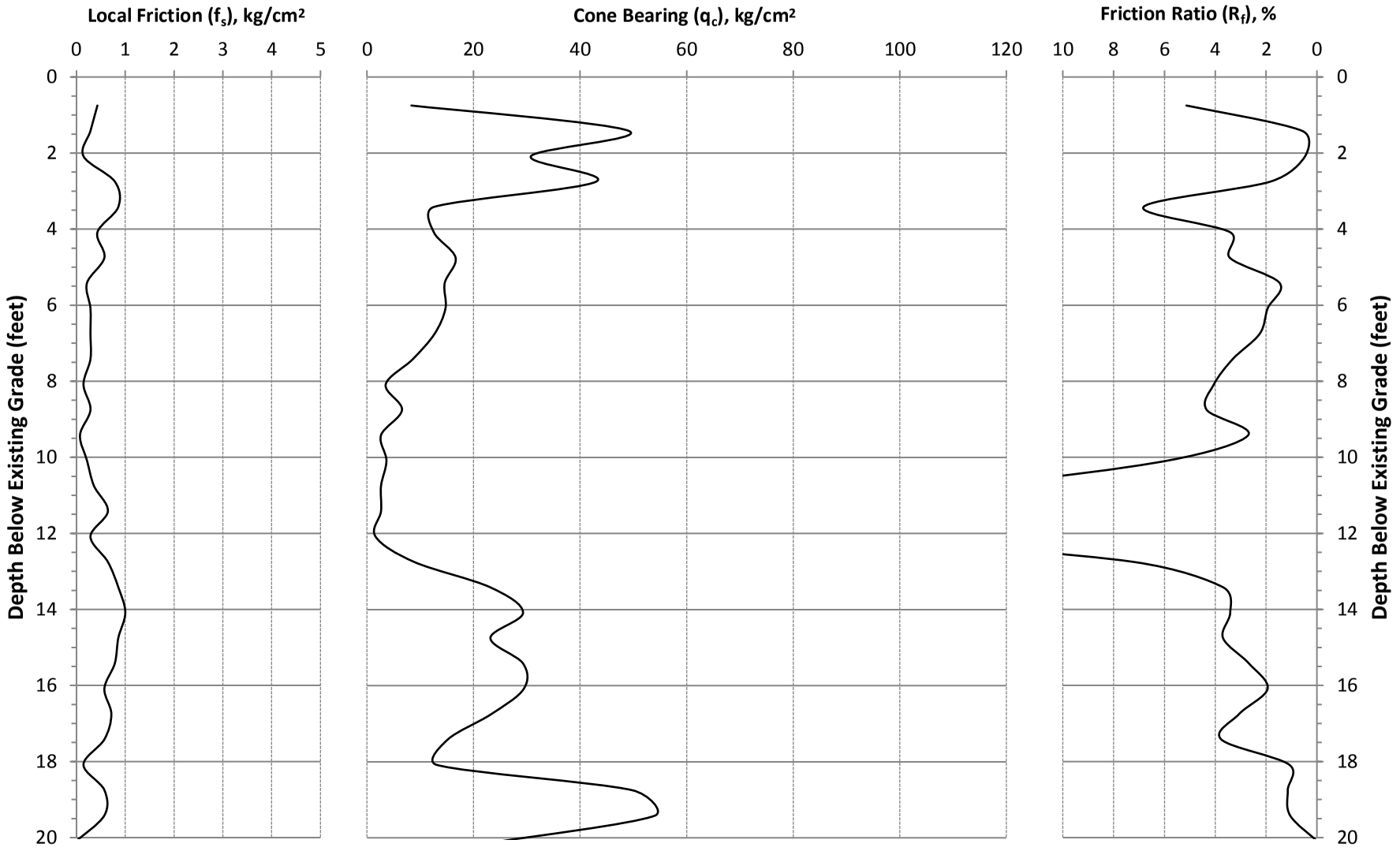
Project Name: **LPS Nutrition Warehouse**
Project Location: **710 Hill St. Lincoln Nebraska**
Project Number: **00111262.00**

Sounding No: **S-5**
Location: **B-5**
Surface Elevation: **99** **feet**

Date: **8/20/2015**
Tested By: **CL**
Recorded By: **TT**



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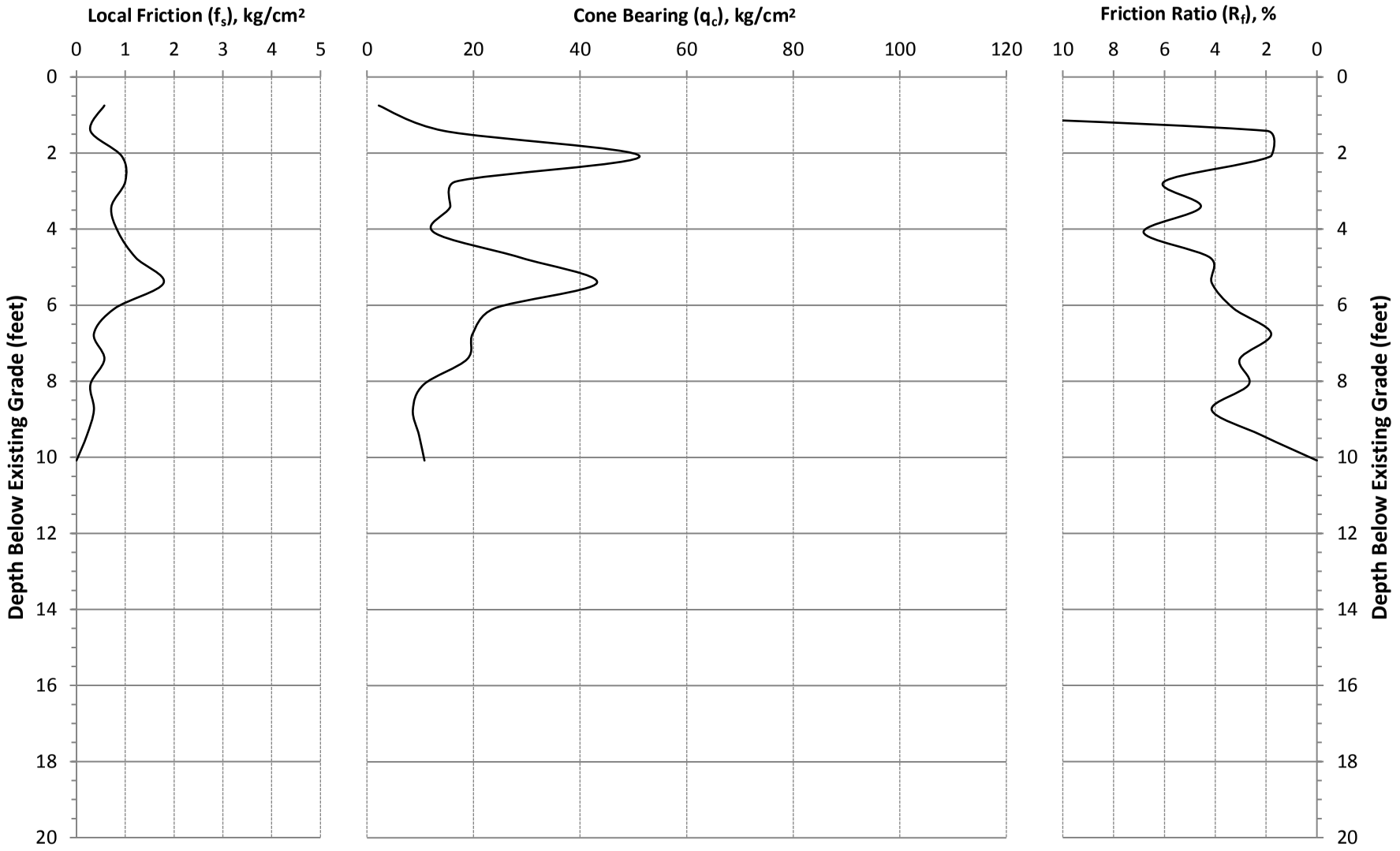
Project Name: **LPS Nutrition Warehouse**
Project Location: **710 Hill St. Lincoln Nebraska**
Project Number: **00111262.00**

Sounding No: **S-6**
Location: **B-6**
Surface Elevation: **99** **feet**

Date: **8/20/2015**
Tested By: **CL**
Recorded By: **TT**



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PENETRATION DIAGRAM OF FRICTION CONE PENETROMETER

ASTM D3441

Project Name: **LPS Nutrition Warehouse**
Project Location: **710 Hill St. Lincoln Nebraska**
Project Number: **00111262.00**

Sounding No: **S-7**
Location: **B-7**
Surface Elevation: **98.7** **feet**

Date: **8/20/2015**
Tested By: **CL**
Recorded By: **TT**

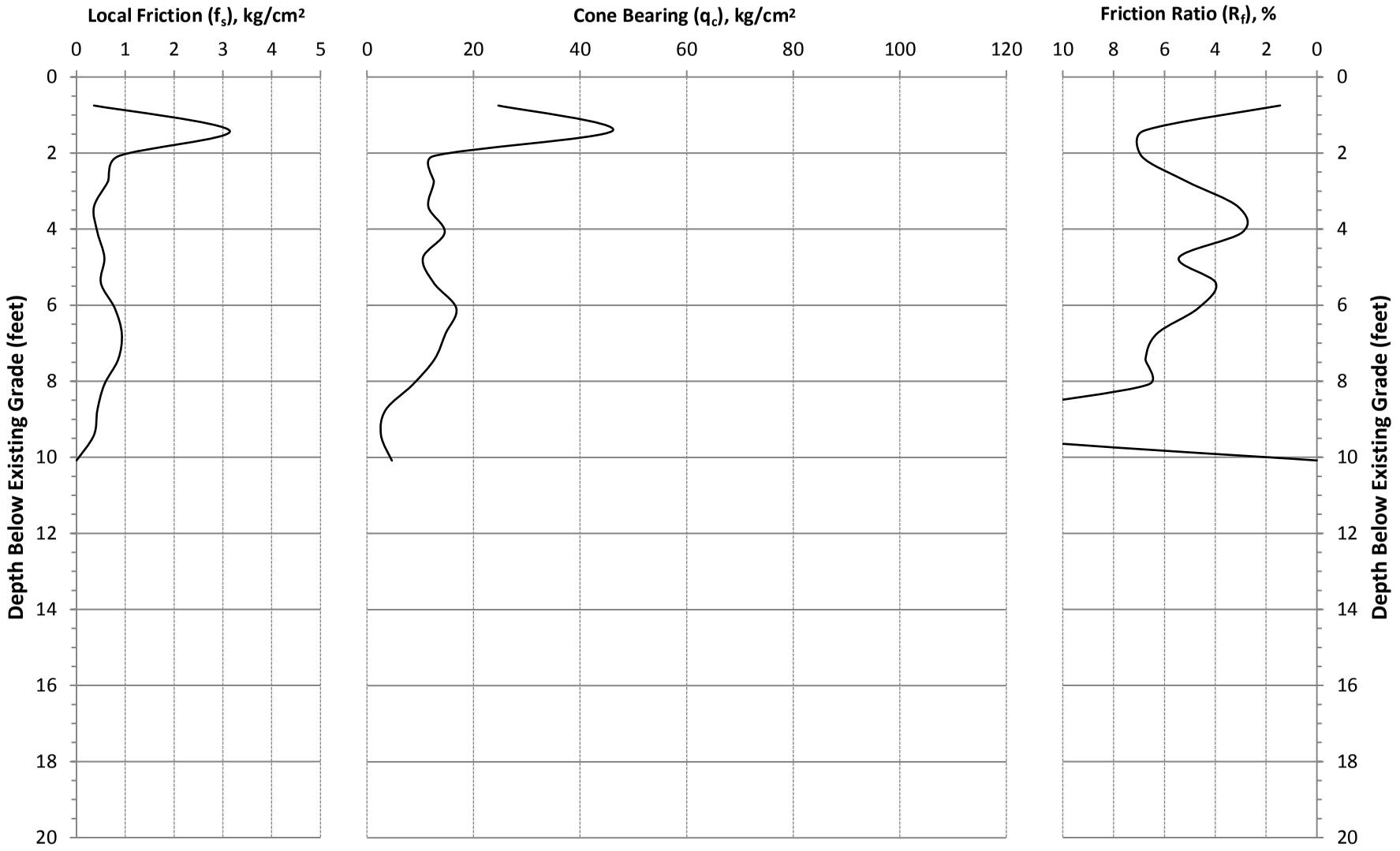

Figure a

APPENDIX C. BORING LOGS

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PROJECT: LPS Storage Warehouse

LOCATION: 710 Hill St
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: CME 75HT / Straight Auger
CREW: CL & TT

BORING LOG

BORING No.: B-01

SHEET 1 of 1

DATE: 8-20-2015

WATER LEVELS ▼ 17.5 IAD ▼ 10.5 on 8-21-2015

ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	qu (tsf)	DRY DENSITY (*pcf*)	MOISTURE (%)	DEPTH (feet)
97.8	0.0		CH - FAT CLAY; 0-5% fine gravel; 5-15% fine to coarse sand; high plasticity; light olive brown with dark grayish brown and very dark gray; wet; stiff. (Fill)					0.0
96.8	1.0		CH - Same as above except moist; very stiff. (Fill)		4.5+*	106.5	17.3	
95.8	2.0		CL - LEAN CLAY; 0-5% fine sand; medium plasticity; very dark brown; moist. (Fill)	11				
95.3	2.5		CL - LEAN CLAY; 0-5% fine to coarse sand; medium plasticity; very dark gray with very dark grayish brown; moist to wet; very stiff. (Fill)		4.5+*	105.6	17.5	2.5
94.5	3.3		CL - LEAN CLAY; medium plasticity; dark grayish brown mottled with gray and dark yellowish red; wet; medium stiff. (Alluvium)		4.4*			
91.3	6.5		CL - LEAN CLAY; medium plasticity; dark grayish brown mottled with dark reddish brown and black; wet; soft to medium stiff. (Alluvium)					5.0
89.8	8.0		CL - Same as above except soft. (Alluvium)		0.9*			7.5
				12	0.75*	92.3	27.8	
					0.8*			
87.3	10.5	▼			0.5*			10.0
			CL - LEAN CLAY; medium plasticity; brown mottled with dark reddish brown and gray; saturated; medium stiff. (Alluvium)					
86.3	11.5		CL - Same as above except stiff. (Alluvium)					
85.3	12.5		CL/CH - LEAN TO FAT CLAY; medium plasticity; dark brown mottled with grayish brown; saturated; stiff to very stiff. (Alluvium)					12.5
82.8	15.0		CL - LEAN CLAY; 5-15% fine sand; medium plasticity; gray mottled with brown; saturated; stiff. (Alluvium)					15.0
81.8	16.0		CL - Same as above except medium stiff. (Alluvium)					
80.8	17.0	▼	CL - SANDY LEAN CLAY; 35-45% fine sand; medium plasticity; dark grayish brown; saturated; very stiff. (Alluvium)					17.5
77.8	20.0		Boring Terminated at: 20.0ft					20.0

* Unconfined compressive strength was estimated using a calibrated hand penetrometer.

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

Figure C

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PROJECT: LPS Storage Warehouse

LOCATION: 710 Hill St
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: CME 75HT / Straight Auger
CREW: CL & TT

BORING LOG

BORING No.: B-02

SHEET 1 of 1

DATE: 8-20-2015

WATER LEVELS ▼ 17.6 IAD ▼ 10.7 on 8-21-2015

ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	qu (tsf)	DRY DENSITY (*pcf*)	MOISTURE (%)	DEPTH (feet)
99.1	0.0		CL - LEAN CLAY with Sand; 0-5% fine gravel; 20-30% fine to coarse sand; medium plasticity; light olive brown with dark reddish brown , black, dark grayish brown and brown; wet; stiff. (Fill)		1.7*			0.0
97.4	1.7		CL - LEAN CLAY; 5-15% fine to coarse sand; medium plasticity; very dark grayish brown with very dark gray; moist; stiff. (Fill)	21	4.4* 4.5+*	106.4	15.6	2.5
96.1	3.0		CL - Same as above except wet. (Fill)					
94.6	4.5		CL - LEAN CLAY; medium plasticity; very dark grayish brown with dark grayish brown; wet; medium stiff. (Alluvium)					5.0
92.6	6.5		CL - LEAN CLAY; 0-5% fine sand; medium plasticity; dark brown slightly mottled with yellowish red; wet; medium stiff. (Alluvium)		0.8*			7.5
89.1	10.0		CL - LEAN CLAY; medium plasticity; very dark grayish brown slightly mottled with black; very wet; soft. (Alluvium)					10.0
88.4	10.7		CL - Same as above except saturated. (Alluvium)		1.0*			
				22	1.0* 0.9*	88.0	31.9	
86.1	13.0		CL - LEAN CLAY; medium plasticity; very dark grayish brown with dark grayish brown; saturated; stiff; with silt seams. (Alluvium)		1.0* 0.75*			12.5
84.1	15.0		CL/CH - LEAN TO FAT CLAY; 5-15% fine sand; medium to high plasticity; dark grayish brown mottled with gray and dark yellowish red; saturated; stiff. (Alluvium)					15.0
80.6	18.5		SC - CLAYEY SAND; 40-50% fine sand; 50-60% fines, medium plasticity; grayish brown; saturated; medium stiff; with sandy clay seams. (Alluvium)					17.5
79.1	20.0		Boring Terminated at: 20.0ft					20.0

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

* Unconfined compressive strength was estimated using a calibrated hand penetrometer.

Figure C

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PROJECT: LPS Storage Warehouse

LOCATION: 710 Hill St
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: CME 75HT / Straight Auger
CREW: CL & TT

BORING LOG

BORING No.: B-03

SHEET 1 of 1

DATE: 8-20-2015

WATER LEVELS ▼ 16.8 IAD ▼ 10.0 on 8-21-2015

ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	qu (tsf)	DRY DENSITY (pcf)	MOISTURE (%)	DEPTH (feet)
98.4	0.0		CH - FAT CLAY with Sand; 0-5% fine gravel; 15-25% fine to coarse sand; high plasticity; very dark grayish brown with light yellowish brown , yellowish red and white; wet; stiff. (Fill)					0.0
96.9	1.5		CL - LEAN CLAY; medium plasticity; very dark grayish brown; moist to wet; stiff to very stiff. (Fill)		19.5*			2.5
95.4	3.0		CL - LEAN CLAY; medium plasticity; very dark gray; wet; medium stiff. (Topsoil)		3.9*	88.7	21	
94.8	3.6				3.5*			
94.3	4.1		CL - LEAN CLAY; medium plasticity; very dark grayish brown heavily mottled with dark grayish brown and dark reddish brown slightly mottled with black; wet; medium stiff. (Subsoil)	31	3.75*	102.1	21.7	
93.4	5.0		CH - FAT CLAY; high plasticity; dark grayish brown heavily mottled with very dark grayish brown and dark reddish brown slightly mottled with black; wet; medium stiff. (Subsoil)		3.6*			5.0
			CL - LEAN CLAY; medium plasticity; dark brown with dark grayish brown slightly mottled with black; wet; medium stiff. (Alluvium)					
90.9	7.5		CL - LEAN CLAY; medium plasticity; very dark grayish brown heavily mottled with dark reddish brown and black; wet; soft. (Alluvium)		1.5*			7.5
				32	1.4*			
					0.75*			
					0.4*	87.9	31.2	
88.4	10.0	▼			0.6*			10.0
			CL - Same as above except saturated. (Alluvium)					
85.4	13.0		CL - LEAN CLAY; 5-15% fine to medium sand; medium plasticity; very dark brown; saturated; stiff. (Alluvium)					12.5
84.4	14.0		CL - LEAN CLAY with Sand; 15-25% fine to medium sand; medium plasticity; very dark brown; saturated; stiff. (Alluvium)					
83.4	15.0		CH - FAT CLAY; 5-15% fine to medium sand; high plasticity; very dark brown mottled with dark yellowish red , gray and black; saturated; stiff. (Alluvium)					15.0
81.9	16.5	▼	CL - LEAN CLAY; 0-5% fine sand; medium plasticity; grayish brown slightly mottled with dark yellowish red and black; saturated; medium stiff. (Alluvium)					17.5
79.4	19.0		CL - LEAN CLAY with Sand; 20-30% fine sand; medium plasticity; dark gray; saturated; stiff; with silty sand seams. (Alluvium)					
78.4	20.0		Boring Terminated at: 20.0ft					20.0

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

* Unconfined compressive strength was estimated using a calibrated hand penetrometer.

Figure C

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PROJECT: LPS Storage Warehouse

LOCATION: 710 Hill St
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: CME 75HT / Straight Auger
CREW: CL & TT

BORING LOG

BORING No.: B-04

SHEET 1 of 1

DATE: 8-20-2015

WATER LEVELS ▼ 14.8 IAD ▼ 10.3 on 8-21-2015

ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	qu (tsf)	DRY DENSITY (*pcf*)	MOISTURE (%)	DEPTH (feet)
97.9	0.0		CH - FAT CLAY with Sand; 0-5% fine gravel; 15-25% fine to coarse sand; high plasticity; yellowish brown with yellowish red , black and white; moist; stiff. (Fill)					0.0
96.9	1.0		CL - LEAN CLAY; 0-5% fine gravel; 5-15% fine to coarse sand; medium plasticity; very dark grayish brown with very dark grayish brown , black and white; moist to wet; stiff; with few wood fragments. (Fill)					2.5
93.4	4.5		CH - FAT CLAY; high plasticity; very dark grayish brown mottled with dark reddish brown and black; wet; medium stiff. (Subsoil)					5.0
91.4	6.5		CL - LEAN CLAY; medium plasticity; dark brown mottled with dark yellowish red and gray; wet; medium stiff. (Alluvium)					7.5
89.9	8.0		CL - LEAN CLAY; medium plasticity; very dark grayish brown heavily mottled with dark reddish brown and black; very wet; soft. (Alluvium)	41	1.5* 1.2* 0.9* 0.7*	93.1	25.5	
87.6	10.3		▼ CH - FAT CLAY; high plasticity; dark grayish brown mottled with dark reddish brown , brownish gray and black; saturated; stiff. (Alluvium)					10.0
86.4	11.5		CH - FAT CLAY; high plasticity; dark grayish brown mottled with dark reddish brown , brownish gray and black; saturated; stiff. (Alluvium)					
84.9	13.0		CL - LEAN CLAY; 0-5% fine sand; medium plasticity; grayish brown mottled with yellowish red slightly mottled with black; saturated; stiff. (Alluvium)					12.5
			▼					15.0
81.4	16.5		CL - Same as above except medium stiff. (Alluvium)		0.75*	91.2	30.4	
80.3	17.6		CL - LEAN CLAY with Sand; 20-30% fine sand; medium plasticity; grayish brown; saturated; medium stiff; with few thin silty sand seams. (Alluvium)	42	1.25* 1.5* 1.4* 1.6*			17.5
77.9	20.0		Boring Terminated at: 20.0ft					20.0

* Unconfined compressive strength was estimated using a calibrated hand penetrometer.

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

Figure C

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PROJECT: LPS Storage Warehouse

LOCATION: 710 Hill St
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: CME 75HT / Straight Auger
CREW: CL & TT

BORING LOG

BORING No.: B-05

SHEET 1 of 1

DATE: 8-20-2015

WATER LEVELS ▼ 16.8 IAD ▼ 11.2 on 8-21-2015

ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	qu (tsf)	DRY DENSITY (*pcf*)	MOISTURE (%)	DEPTH (feet)
99.0	0.0		CL/CH - LEAN TO FAT CLAY with Sand; 20-30% fine to coarse sand; medium to high plasticity; light olive brown with yellowish red and white; moist; very stiff. (Fill)					0.0
97.0	2.0							
96.5	2.5		CL - LEAN CLAY; 0-5% fine gravel; 5-15% fine to coarse sand; medium plasticity; light olive brown with olive brown , very dark gray and brown; moist to wet; very stiff. (Fill)					2.5
95.9	3.1		CL - LEAN CLAY with Sand; 0-5% fine to coarse gravel; 20-30% fine to coarse sand; medium plasticity; very dark grayish brown with black; moist to wet; very stiff; with 10-15% industrial cinders; trace of brick. (Fill)	51		97.6	16	
95.5	3.5		CL - LEAN CLAY; 0-5% fine gravel; 5-15% fine to coarse sand; medium plasticity; very dark gray; wet; very stiff. (Fill)		4.4*			
			CL - LEAN CLAY; medium plasticity; very dark gray; wet; stiff. (Topsoil)					
94.0	5.0		CL/CH - LEAN TO FAT CLAY; medium to high plasticity; dark brown mottled with dark yellowish red and black; wet; stiff. (Subsoil)					5.0
92.0	7.0		CL - LEAN CLAY; medium plasticity; very dark grayish brown; wet; medium stiff; Same as above except wet to very wet; medium stiff. (Alluvium). (Alluvium)					7.5
91.0	8.0		CL - LEAN CLAY; medium plasticity; very dark grayish brown mottled with dark reddish brown and black; very wet; soft to medium stiff. (Alluvium)	52	1.25* 1.5* 1.2* 0.9*	94.5	26.2	
87.8	11.2	▼						10.0
87.0	12.0		CL - Same as above except saturated. (Alluvium)					
86.0	13.0		CL - LEAN CLAY; medium plasticity; very dark grayish brown; saturated; medium stiff to stiff. (Alluvium)					12.5
84.0	15.0		CH - FAT CLAY; 5-15% fine to medium sand; high plasticity; very dark grayish brown mottled with dark reddish brown and black; saturated; stiff. (Alluvium)					15.0
81.5	17.5	▼	CH - FAT CLAY; 5-15% fine to medium sand; high plasticity; grayish brown mottled with dark reddish brown and black; saturated; stiff. (Alluvium)					17.5
80.5	18.5		CL - LEAN CLAY; 0-5% fine sand; medium plasticity; grayish brown; saturated; medium stiff to stiff. (Alluvium)					
79.0	20.0		SM - SILTY SAND; 50-60% fine to medium sand; 40-50% fines, low plasticity; grayish brown; saturated; medium dense; with clay seams. (Alluvium)					20.0
			Boring Terminated at: 20.0ft					

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

* Unconfined compressive strength was estimated using a calibrated hand penetrometer.

Figure C

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PROJECT: LPS Storage Warehouse

LOCATION: 710 Hill St
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: CME 75HT / Straight Auger
CREW: CL & TT

BORING LOG

BORING No.: B-06

SHEET 1 of 1

DATE: 8-20-2015

WATER LEVELS ▽ Groundwater was not encountered

ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	qu (tsf)	DRY DENSITY (pcf)	MOISTURE (%)	SAND CONTENT (%)	DEPTH (feet)
99.0	0.0								0.0
98.5	0.5		CL - LEAN CLAY; 0-5% fine gravel; 5-15% fine to coarse sand; medium plasticity; dark brown with very dark gray; wet; very stiff. (Fill)		2.7*				
			CL - LEAN CLAY with Sand; 0-5% fine gravel; 20-30% fine to coarse sand; medium plasticity; dark yellowish brown with dark brown , olive brown and brown;			110.6	16	26	
97.5	1.5		wet; very stiff. (Fill)	61	4.5+*				
			CL - Same as above except with clean, fine sand lenses. (Fill)						
96.7	2.3				4.25*				
			CL - LEAN CLAY with Sand; 0-5% fine gravel; 15-25% fine to coarse sand; medium plasticity; light olive brown with very dark gray and yellowish brown; wet;						2.5
96.0	3.0		very stiff. (Fill)		4.5 +*				
			CL - LEAN CLAY; 5-15% fine to coarse sand; medium plasticity; very dark grayish brown with black , yellowish brown and white; wet; stiff. (Fill)						
94.0	5.0		CL - LEAN CLAY; 5-15% fine to coarse sand; medium plasticity; very dark grayish brown; wet; very stiff. (Topsoil)						5.0
93.0	6.0		CL/CH - LEAN TO FAT CLAY; medium to high plasticity; brown mottled with dark reddish brown and black; wet; stiff to very stiff. (Subsoil)						7.5
90.5	8.5		CL - LEAN CLAY; medium plasticity; dark brown mottled with dark reddish brown and black; wet to very wet; stiff. (Alluvium)						
89.0	10.0		Boring Terminated at: 10.0ft						10.0
									12.5
									15.0
									17.5
									20.0

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

* Unconfined compressive strength was estimated using a calibrated hand penetrometer.

Figure C

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PROJECT: LPS Storage Warehouse

LOCATION: 710 Hill St
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: CME 75HT / Straight Auger
CREW: CL & TT

BORING LOG

BORING No.: B-07

SHEET 1 of 1

DATE: 8-20-2015

WATER LEVELS ▽ Groundwater was not encountered

ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	qu (tsf)	DRY DENSITY (*pcf*)	MOISTURE (%)	DEPTH (feet)
98.7	0.0		GW-GM - WELL-GRADED GRAVEL with Silt and Sand; 50-60% fine to coarse gravel; 35-45% fine to coarse sand; 5-15% fines, low plasticity; grayish brown; moist; loose. (Fill)					0.0
98.2	0.5		CL - LEAN CLAY; 5-15% fine to coarse sand; medium plasticity; very dark gray; wet; very stiff; trace of industrial cinders. (Fill)	71	4.2* 3.4*	97.6	22.8	
96.2	2.5		CL - LEAN CLAY; medium plasticity; black; wet; stiff; friable. (Topsoil)					2.5
93.7	5.0		CH - FAT CLAY; 0-5% fine sand; high plasticity; brown slightly mottled with dark reddish brown and black; wet; stiff. (Subsoil)					5.0
90.7	8.0		CL - LEAN CLAY; medium plasticity; very dark grayish brown; very wet; medium stiff; Same as above except very wet. (Alluvium). (Alluvium)					7.5
88.7	10.0		Boring Terminated at: 10.0ft					10.0
								12.5
								15.0
								17.5
								20.0

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

* Unconfined compressive strength was estimated using a calibrated hand penetrometer.

Figure C

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PROJECT: LPS Storage Warehouse

LOCATION: 18.8' from E wall & 17.6' from N wall
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: Hand Auger / Hand Auger
CREW: TT

WATER LEVELS

BORING LOG

BORING No.: B-08

SHEET 1 of 1

DATE: 8-17-2015

ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	qu (tsf)	DRY DENSITY (pcf)	MOISTURE (%)	DEPTH (feet)
100.0	0.0		CONCRETE; 6.4" - thick; Compressive Strength - 9,910 psi					0.0
99.5	0.5		SP-SM - POORLY GRADED SAND with Silt; 85-95% fine to coarse sand; 5-15% fines, nonplastic; light gray; moist. (Aggregate)					
99.3	0.7		CL - LEAN CLAY; 0-10% fine sand; gray with grayish brown; wet; medium stiff to stiff. (Fill)	81	4.5+*	107.1	16.2	
99.1	0.9		CL - LEAN CLAY; 10-20% fine sand; dark brown with yellowish brown; moist to wet; very stiff. (Fill)		4.5+*			2.5
97.8	2.2		CL - LEAN CLAY; 5-15% fine to medium sand; dark brown with olive gray; wet; very stiff. (Fill)					
96.5	3.5		Boring Terminated at: 3.5ft					5.0
								7.5
								10.0
								12.5
								15.0
								17.5
								20.0

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

* Unconfined compressive strength was estimated using a calibrated hand penetrometer.

Figure C

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PROJECT: LPS Storage Warehouse

LOCATION: 87.2' from N wall & 30.2' from E wall
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: Electric Core Machine
CREW: TT

BORING LOG

BORING No.: B-09

SHEET 1 of 1

DATE: 8-17-2015

WATER LEVELS

ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	DEPTH (feet)
100.0	0.0		CONCRETE; 5.6" - thick; Compressive Strength - 10,346 psi		0.0
99.5	0.5		SP-SM - POORLY GRADED SAND with Silt; 85-95% fine to coarse sand; 5-15% fines, nonplastic; light gray; moist. (Aggregate)		
99.3	0.8		Boring Terminated at: 0.8ft		
					2.5
					5.0
					7.5
					10.0
					12.5
					15.0
					17.5
					20.0

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

Figure C

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PROJECT: LPS Storage Warehouse

LOCATION: 11.2' from W wall & 100.4' from N wall
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: Hand Auger / Hand Auger
CREW: TT

WATER LEVELS

BORING LOG

BORING No.: B-10

SHEET 1 of 1

DATE: 8-17-2015

ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	qu (tsf)	DRY DENSITY (pcf)	MOISTURE (%)	DEPTH (feet)
100.0	0.0		CONCRETE; 6.1" - thick; Compressive Strength - 9,436 psi					0.0
99.5	0.5		SP-SM - POORLY GRADED SAND with Silt; 85-95% fine to coarse sand; 5-15% fines, nonplastic; light gray; moist. (Aggregate)					
99.3	0.7		CL - LEAN CLAY; olive gray with dark brown; wet; stiff; with zones of medium stiff. (Fill)	101	2*			
98.7	1.3		CL - LEAN CLAY; 5-15% fine to medium sand; dark brown with dark olive gray and olive gray; wet; very stiff. (Fill)		.75*	103.9	23.1	
98.0	2.0		CL - LEAN CLAY; dark brown with yellowish brown; wet; stiff. (Fill)					2.5
96.5	3.5		CL - LEAN CLAY; dark brown with olive gray; wet; stiff. (Fill)					
95.5	4.5		Boring Terminated at: 4.5ft					5.0
								7.5
								10.0
								12.5
								15.0
								17.5
								20.0

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

* Unconfined compressive strength was estimated using a calibrated hand penetrometer.

Figure C

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PROJECT: LPS Storage Warehouse

LOCATION: 6.5' from S wall & 9.2' from E wall
Lincoln, Nebraska

JOB NO.: 00111262.00
RIG / METHOD: Electric Core Machine
CREW: TT

BORING LOG

BORING No.: B-11

SHEET 1 of 1

DATE: 8-17-2015

WATER LEVELS

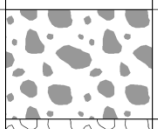
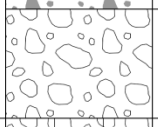
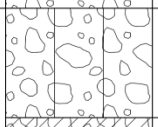
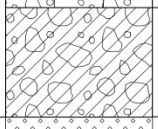
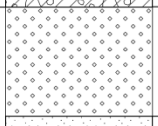
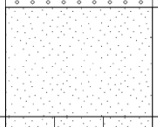
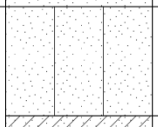
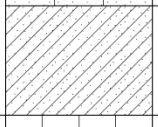
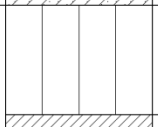
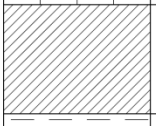
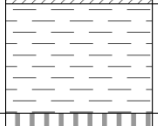
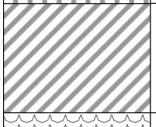
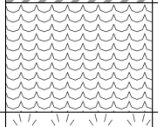
ELEV (Project)	DEPTH (feet)	LOG	LITHOLOGY DESCRIPTION	SAMPLE	DEPTH (feet)
100.0	0.0		CONCRETE; 5.7" - thick; Compressive Strength - 10,363 psi		0.0
99.5	0.5		SP-SM - POORLY GRADED SAND with Silt; 85-95% fine to coarse sand; 5-15% fines, nonplastic; light gray; moist. (Aggregate)		
99.3	0.8		Boring Terminated at: 0.8ft		2.5
					5.0
					7.5
					10.0
					12.5
					15.0
					17.5
					20.0

BORING LOG LPS STORAGE WAREHOUSE.GPJ HWS.GDT 9/9/15

Figure C

APPENDIX D. CRITERIA USED FOR SOIL CLASSIFICATION

USCS SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LESS THAN 5% FINES)		GW	WELL-GRADED GRAVEL
				GP	POORLY-GRADED GRAVEL
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (MORE THAN 12% FINES)		GM	SILTY GRAVEL (LOW PLASTIC FINES)
				GC	CLAYEY GRAVEL (MEDIUM TO HIGH PLASTIC FINES)
MORE THAN 50% OF MATERIALS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS (LESS THAN 5% FINES)		SW	WELL-GRADED SAND
				SP	POORLY-GRADED SAND
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (MORE THAN 12% FINES)		SM	SILTY SAND (LOW PLASTIC FINES)
				SC	CLAYEY SAND (MEDIUM TO HIGH PLASTIC FINES)
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	SILT (0-15% SAND) SILT WITH SAND (15-30% SAND) SANDY SILT (30-50% SAND)
				CL	LEAN CLAY (0-15% SAND) LEAN CLAY WITH SAND (15-30% SAND) SANDY LEAN CLAY (30-50% SAND)
				OL	ORGANIC SILTS AND LEAN CLAYS
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	ELASTIC SILT (0-15% SAND) ELASTIC SILT WITH SAND (15-30% SAND) SANDY ELASTIC SILT (30-50% SAND)
				CH	FAT CLAY (0-15% SAND) FAT CLAY WITH SAND (15-30% SAND) SANDY FAT CLAY (30-50% SAND)
				OH	ORGANIC ELASTIC SILTS AND FAT CLAYS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

GENERAL NOTES

CRITERIA FOR DESCRIBING CLAY SOILS

MOISTURE CONDITION

Description	Criteria
Dry	Absence of moisture, dusty, dry to touch.
Moist	Damp, slightly wet, moisture content below plastic limit.
Wet	Moisture content above the plastic limit.
Saturated	Very wet. Usually soil is below the water table.

CONSISTENCY

Description	Penetration Resistance, N_{60} (blows/ft)[1]
Very Soft	Less than 3
Soft	3 to 4
Medium Stiff	5 to 8
Stiff	9 to 16
Very Stiff	16 to 32
Hard	Greater than 32

CRITERIA FOR DESCRIBING GRANULAR SOILS

MOISTURE CONDITION

Description	Criteria
Dry	Absence of moisture, dry to the touch.
Moist	Damp but no visible free water.
Wet	Visible free water.
Saturated	Usually soil is below water table.

DENSITY

Description	Penetration Resistance, N_{60} (blows/ft)[1]
Very Loose	Less than 5
Loose	5 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	Greater than 50

CRITERIA FOR DESCRIBING ROCK

STRENGTH/HARDNESS

Description	Criteria
Very Soft	Permits denting by moderate pressure of the fingers.
Soft	Resists denting by the fingers, but can be abraded and pierced to a shallow depth by a pencil point.
Moderately Soft	Resists a pencil point, but can be scratched and cut with a knife blade.
Moderately Hard	Resistant to abrasion or cutting by a knife blade, but can be easily dented or broken by light blows of a hammer.
Hard	Can be deformed or broken by repeated moderate hammer blows.
Very Hard	Can be broken only by heavy, and in some rocks, repeated hammer blows.

[1]Blow counts shown on the boring logs are those recorded directly in the field and have not been corrected for hammer efficiency. The boring log blow counts must be corrected to an equivalent hammer efficiency of 60% in order to use the criteria in this table.

ROCK QUALITY DESIGNATION (RQD)

This is a general method by which the quality of the rock at a site is obtained based on the relative amount of fracturing and alteration.

The Rock Quality Designation (RQD) is based on a modified core recovery procedure that, in turn, is based indirectly on the number of fractures (except those due directly to drilling operations) and the amount of softening or alteration in the rock mass as observed in the rock cores from a drill hole. Instead of counting the fractures, an indirect measure is obtained by summing the total length of core recovered by counting only those pieces of hard and sound core which are 4 inches or greater in length. The ratio of this modified core recovery length to the total core run length is known as the RQD.

An example is given below from a core run of 60 inches. For this particular case, the total core recovery is 50 inches yielding a core recovery of 83 percent. On the modified basis, only 38 inches are counted the RQD is 63 percent.

CORE RECOVERY, in	**MODIFIED CORE RECOVERY, in**
10	10
2	-
2	-
3	-
4	4
5	5
3	-
4	4
6	6
4	4
2	-
5	5
50	38

% Core Recovery = 50/60 = 83%; RQD = 38/60 = 63%

A general description of the rock quality can be made for the RQD value as follows:

RQD	**DESCRIPTION OF ROCK QUALITY**
0 – 25	Very Poor
25 – 50	Poor
50 – 75	Fair
75 – 90	Good
90 – 100	Excellent

APPENDIX E. CONSOLIDATION TEST REPORT

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CONSOLIDATION TEST

ASTM D2435

Project:	LPS Food Storage	Project No.:	00111262.00
Boring No.:	B-3 Depth: 9.2'-9.7'	Lab No.:	36978
Type of Specimen:	5" Tube	Date:	8/28/2015
Remarks:	Saturated Test	Classification:	CL (All)

Initial Saturation:	91.2	%	Overburden Pressure:	0.57	ton/ft^2
Final Saturation:	95.9	%	Preconsolidation Pressure:	1.4	ton/ft^2
Initial Dry Density:	88.4	lb/ft^3	Compression Index:	0.28	
Initial Water Content:	30.6	%	Recompression Index:	0.02	
Liquid Limit:			Specific Gravity:	2.70	
Plastic Limit:			Initial Void Ratio:	0.91	
Plasticity Index:			Final Void Ratio:	0.59