CON: 12-15
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ST. LUKE'S HOSPITAL
AN IOWA HEALTH SYSTEM AFFILIATE

1026 A AVENUE NE
P.O. BOX 3026
CEDAR RAPIDS, IOWA 52406-3026
319-369-7211

November 15, 2002

Daniel Cook
Environmental Specialist Senior
Department of Natural Resources
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319

Dear Mr. Cook:

Enclosed are documents related to the cap and barrier installed on St. Luke's building located on the 1100 block of 1st Ave NE in Cedar Rapids. Building covers the area that was contaminated by the former dry cleaning site located at 1118 1st Avenue.

The remaining item that the DNR has requested from St. Luke's is a deed restriction. I have contacted our attorney to help prepare this deed restriction. He has requested specific language necessary so we comply with the proper restrictions on our deed. Please call me at 319-369-7168 or e-mail me easleymo@crstlukes.com. with the text being requested as a restriction on our deed.

Sincerely,

Michael Easley
Director Integrated Service
St. Luke's Hospital

SECTION 02320
NON-EXCAVATION EARTHWORK

SECTION RECORD
Construction issue No. 1 (CI-1) dated 30 June, 1999 - Section first issued.
Construction Issue No. 2 (CI-2) dated 30 July, 1999 - Section revised and re-issued

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Except excavation, Project earthwork for structures, buried utilities inside and outside building footprint and grading.
2. Subgrade preparation

B. Related Sections:
1. Excavation - Section 02310

1.2 DEFINITIONS

A. Definitions noted in Section 02310 apply to this Section plus the following:

B. FILLING/BACKFILLING: Placing of specified soil materials in accordance with specified procedures and in conformity with lines, grades, contours, cross-sections and elevations shown on Drawings or required by these specifications.

C. UNSUITABLE MATERIALS: Surface soils (including select stripped material), topsoil, loam, gumbo, mud, muck, silt, clay with expansion potential in excess of 2 percent, peat, high (over 3 percent by weight) organic content soils, rubbish, debris, foundation and slab materials, paving materials, rock greater than 3 inches in diameter, vegetation and frozen or dry lumps.

D. UNSTABLE MATERIALS: Materials which are not classified as unsuitable materials, but due to their condition of being wet, dry, or frozen are unacceptable for use in fills.

E. IMPORTED FILL MATERIAL OR BORROW: Specified soils material from sources other than those made available by required excavation of Project. Unless specifically provided, no imported fill shall be obtained within limits of Project site.

F. SUBGRADE: Minimum of top 9 inches of undisturbed soil or compacted fill material upon which additional fill, stabilized subgrade, sub-base or base course, footing, foundation, or slab cushion is placed.

1.3 SUBMITTALS

A. Comply with requirements of Division 1 and this Section.
1. Responsibility for arranging, supervising and payment for required tests listed below are indicated in Division 1.
2. Independent testing laboratory to collect samples, perform tests and prepare reports for required material qualification testing; Contractor to review and stamp prior to submission.

B. Following Submittals are required for portions of Work specified in this Section.
1. Materials Qualification Test: Submittal prepared by independent testing lab to indicate that proposed material complies with contract document requirements.
   a. Provide following information and qualification tests for each specified soils material type, prior to incorporation into Work.
   b. This requirement applies to materials mined or produced from existing on-site materials, each new source of imported materials, to each 3,000 cubic yards of imported soils material from same source and when visual difference in a soils material is observed by Soils Engineer or Architect.
      1) Source Location prior to delivery to site.
      2) Name of material and gradation analysis, ASTM D422.
      3) Liquid limit, Plastic limit and plasticity index, ASTM D4318 (cohesive soils materials only).

4) Initial proctor density or relative density information according to test method identified in compaction requirements paragraph; proctor density and other parameter determinations required for compaction control during construction are not part of this requirement.

2. Product Data: Provide manufacturers data and technical specifications on following products. Advertising material is not acceptable.
   a. Moisture-Vapor Barrier

1.4 REGULATORY REQUIREMENTS.

A. Per Section 02310.

1.5 PROJECT/SITE CONDITIONS

A. Per Section 02310.

PART 2 - PRODUCTS

2.1 SOILS MATERIALS

A. Unless otherwise indicated, specified soils materials are assumed to be imported from off-site source(s).

B. Type 2 Material: Select on-site material classified as SP type materials by project soils report.

C. Type 3 Material: Sound durable particles of compactible sand conforming to ASTM C33 and following gradation limits:

Sieve Size	Total Percent Passing
1/4 inch	100
No. 10	75 - 100
No. 40	10 - 50
No. 200	2 - 5

D.

E. Type 4 Material: Imported low plasticity cohesive soil with liquid limit less than 45 percent and plasticity index less than 20 percent or a granular soil similar to on-site type SP materials.

F. Type 7 Material: Clean, free draining, uniformly graded mixture of crushed stone or crushed or uncrushed gravel, 100 percent passing 1 inch sieve, maximum 5 percent passing no. 4 sieve.

G. Type 11 Material: Clean, 1 to 1-1/2 inch 100 percent crushed quarry rock.

2.2 SCHEDULE OF FILL MATERIAL USES:

A. Type 2: Structural fill and backfill, utility trench backfill above pipe zone inside and outside building footprint, (not permitted as replacement backfill under foundations)

B. Type 3: Protective and leveling layer over vapor barrier.

C. Type 4: Structural fill and backfill, utility trench backfill above pipe zone inside and outside building footprint, (not permitted as replacement backfill under foundations)

D. Type 7: Floor slab drainage layer under vapor barrier.

E. Type 11: Landscape mulch where indicated on Drawings.

2.3 MANUFACTURER PRODUCTS

A. Moisture-vapor Barrier:
   1. Two-ply cross laminated high density black polyethylene film with following typical properties:
      a. Minimum tensile strength per ASTM D 882: 7000 psi.
      b. Minimum puncture force in pounds per FTMS 101 C: 15
      c. Maximum perm rating per ASTM E 96, procedure A: 0.05

2. Acceptable manufacturer:
   a. "Rufco 400" by Raven industries (800 635 3456).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions under which backfilling, filling, and grading are to be performed. Do not proceed until unsatisfactory conditions have been corrected.

B. Verify and assume full responsibility for adequacy of bearing and foundation conditions for construction equipment and operations including crane placement.

C. Subgrade Verification:
1. Obtain soils engineer's observations of natural or corrected subgrade prior to placement of fill materials and comply with required corrective procedures to obtain satisfactory subgrade.

3.2 PREPARATION

A. Comply with notification, protection and temporary site controls as specified in Section 02220 before proceeding.

3.3 SITE WATER CONTROL

A. Per Section 02310.

3.4 VERTICAL SOILS RETENTION SYSTEMS

A. Comply with requirements of Section 02260.

3.5 BACKFILL AND FILL CONSTRUCTION PREREQUISITES

A. Backfill excavations and construct fills as promptly as Work permits, but not until completion of following activities.
1. Testing and approval of Soils Engineer of select on-site or imported fill materials.
2. Acceptance of construction below finish grade.
3. Inspection, testing, approval, and recording of locations of underground utilities.
4. Removal of concrete formwork.
5. Removal of exterior shoring and bracing, and backfilling of voids with satisfactory materials.
6. Completion of waterproofing or dampproofing, if required.
7. Removal of trash and debris.
8. Completion of permanent lateral bracing of foundations walls or adequate temporary interior bracing .
9. Observation, testing, proofrolling if specified and acceptance by Soils Engineer of subgrades to receive fill, subbase or base course.

3.6 COMPACTION REQUIREMENTS

A. Compact and test subgrade and fill materials to meet following minimum percentages standard proctor density, ASTM D1557.

	Percent	Minimum Tests/ Unit Area or Length/Lift	
Fill under building foundation	96	1 /	50 S.Y.
Structural fill and backfill	92	1/	100 S.Y.
Non-structural exterior building backfill	92	1 /	500 S.Y.
Scarified and re-compacted natural subgrade, fill and backfill under floors and paved areas	92	1 /	500 S.Y.
Utility trench backfill	92	1 /	50 L.F.
Landscaped fill areas-below top 3 ft	90	1 /	1000 S.Y.
Landscaped fill areas-top 3 ft	85	1 /	1000 S.Y.

B. Unless otherwise indicated, compact fill subgrades to same density as overburden fill.

3.7 FILLING AND BACKFILLING

A. Support walls laterally to prevent displacement and protect waterproofing, dampproofing, drainage items and underground piping utilities and structures.

B. Do not place fill on unsuitable material as defined in this Specification, insufficiently compacted or unsuitable or unstable materials as defined.

C. Do not operate heavy equipment closer to wall than distance equal to height of backfill above bottom of footing.

D. Construct fills on subgrade surfaces steeper than 1 vertical to 4 horizontal, by plowing, stepping, benching or breaking up, to bond fill with existing slope.

E. Commence filling at lowest portion of building or fill area.

F. Advance first lift of fill material in front of hauling and spreading equipment with that equipment traveling on lift to avoid disturbance of sensitive subgrade soils.

G. Fill uniformly in horizontal layers, over approved subgrade.
1. For compaction areas using heavy equipment, provide successive lifts of 8 inch maximum loose thickness in areas which are not shown as landscape areas and 12 inch lifts in landscape areas.
2. For compaction areas using light weight equipment (e.g. - "whacker"), use maximum loose thickness of 4 inches.

H. Except as otherwise noted, moisten or dry material(s) by selected methods to maintain moisture content per ASTM D3017 within plus 1-4 percent of optimum when placing and compacting to specified density.
1. Dry on-site materials as necessary to obtain required moisture content.
2. If necessary, provide water required to obtain optimum moisture content of materials to obtain specified density.
3. Moisture content adjustment, either up or down is considered incidental to Work and will not be subject to Contract amount or time change.

I. If there is a break in continuity of filling operations in specific area, scarify top 6 inches and compact constructed subgrade to same minimum percentage of maximum density as layer of new work immediately above subgrade before continuing fill operations.

J. Provide testing of each successive lift in conformance with compaction requirement Paragraph.

K. Scarify, remove, recompact, or otherwise rectify soft or yielding areas resulting from Contractor's operations, rain, or other forces and test before new fill or construction is placed.

L. Maintain previously compacted material and recompact and fill to keep fill or subgrade to specified density and elevations.

3.8 FINE GRADING TOLERANCES: PAVING, SIDEWALK AND LANDSCAPE FINAL SUBGRADES

A. Grade areas smooth and prepare for other Work by cleaning area of trash and debris.

B. Grade paved area and sidewalk final subgrades to within plus 0.05 foot or minus 0.1 foot of required subgrade elevations inferred by indicated finish elevations and cross sections; indicated subgrade tolerances are not transferable to required finish elevations in paved and sidewalk areas.

C. Grade landscaped area final subgrades to within plus or minus 0.1 foot of required subgrade elevations inferred by indicated finish elevations and cross sections.

3.9 STRUCTURE ADJUSTMENT

A. Raise or lower existing manholes, catch basins, and other existing structures to be compatible with new elevations.

3.10 DRAINAGE AND GRADE MAINTENANCE

A. Protect newly graded areas from erosion and reestablish Work to plan grades and sections.

B. Shape and compact subgrade just prior to construction of base course in paving areas.

3.11 VAPOR-MOISTURE BARRIER

A. Install specified material in widest available width where indicated on drawing detail.

B. Place parallel with proposed direction of pour. Lap joints minimum of 12 inches and seal with pressure sensitive tape of type recommended by moisture barrier manufacturer.

C. Secure barrier material to perimeter walls or beams and to interior columns with pressure sensitive tape of type recommended by moisture barrier manufacturer.

D. Place required Type 3 material on top of moisture barrier by advancing material ahead of placement and spreading equipment to avoid damage to barrier material.

3.12 FIELD QUALITY CONTROL

A. Responsibilities for arranging; supervising and payment for following required field tests are specified in Division 1.

B. Cooperate with testing personnel as required during construction period as required to facilitate timely testing.

C. Test reports must clearly identify following information for each test:
1. Horizontal and vertical location of test
2. Material type being tested
3. Proctor test protocol(ASTM No. and procedure)
4. Maximum proctor density
5. Specified density
6. Optimum moisture content
7. Field or lab test methods
8. Actual moisture content
9. Test results
10. Pass/fail indication

D. Field Density Tests:
1. Use only 1 of following methods for entire project:
   a. Sand cone, ASTM D1556.
   b. Nuclear methods, ASTM D2922.
2. Comply with compaction requirements Paragraph for number of required passing tests.
3. Do not submit reports of failing tests without follow-up report of reworked area and passing retest.
4. Excavate, replace at near optimum moisture, recompact and retest areas failing to meet compaction requirements at no additional cost.

END OF SECTION